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ASCEND
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Visualizing ILS Data with Kibana

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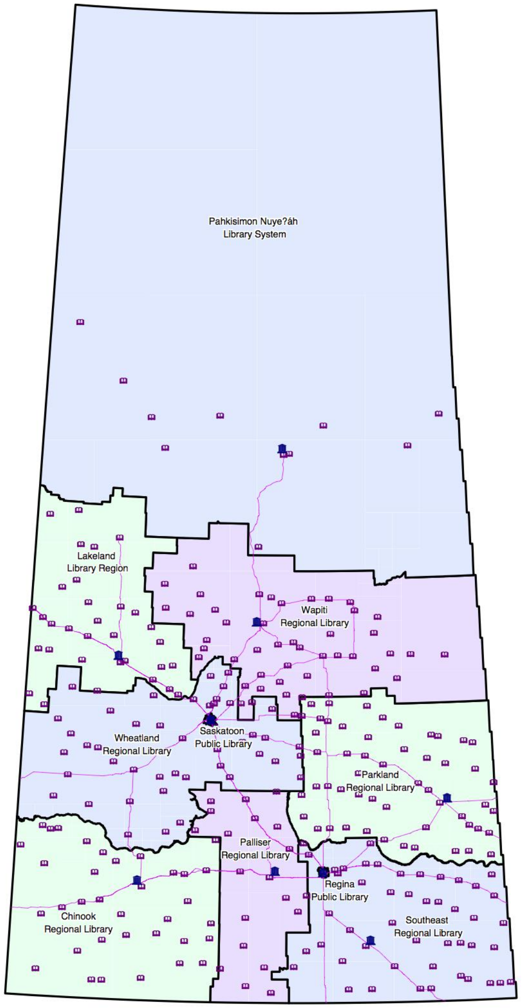
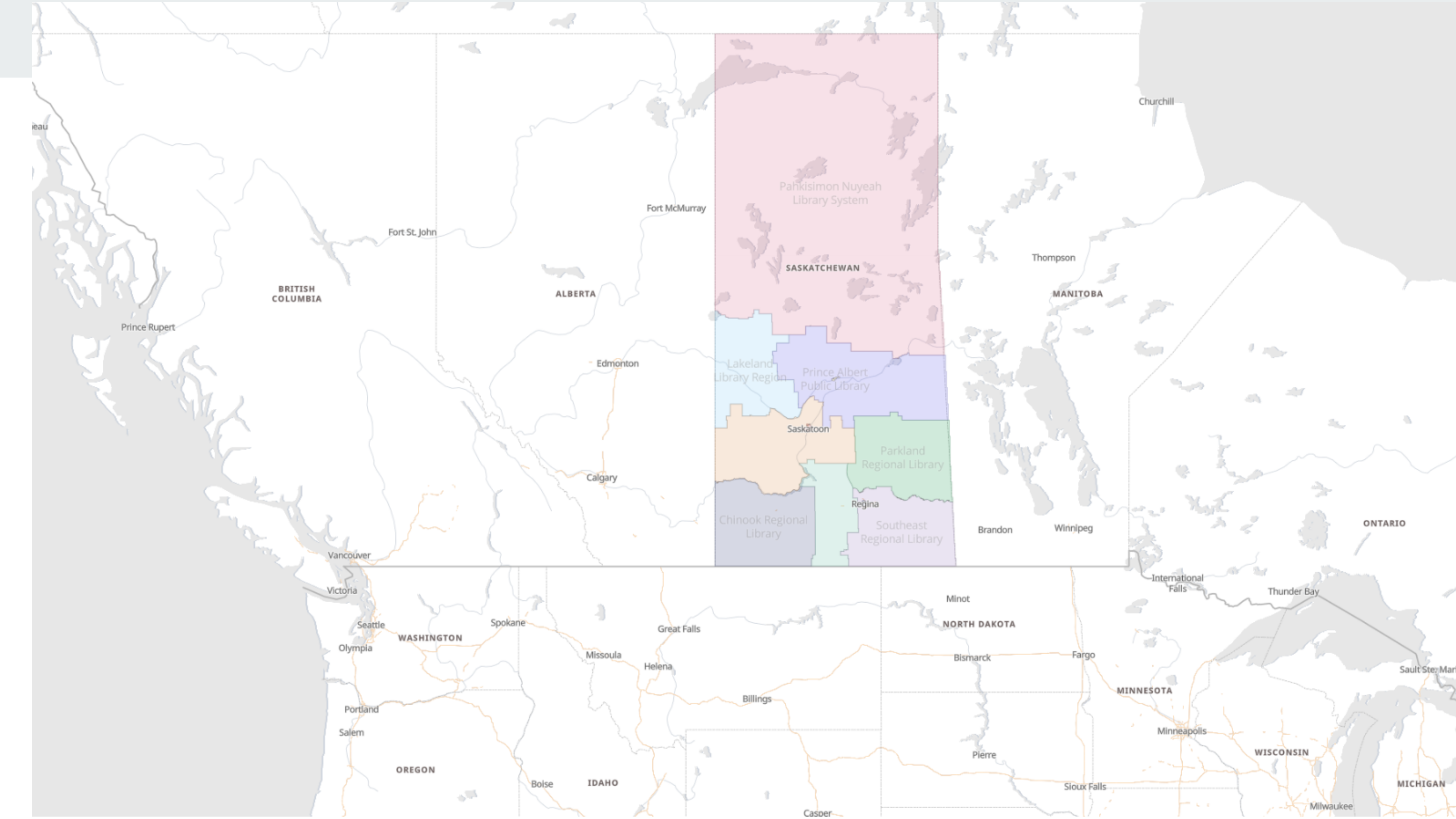
Topics

- What is Kibana?
- Why SILS selected Kibana
- Linking Polaris and Elastic
- Creating Visualizations and Dashboards
- Top 5 ILS data dashboards
- Top 3 IT related dashboards
- Elastic for Cybersecurity
- Conclusion: Benefits, Challenges, Cost
- Questions

About SILS

- One Province, One Library Card
- 7 regional library system
- 3 urban public libraries
- 1 northern library system
- 1 provincial library
- 306 branches
- 6.5 million physical circ (2024)
- 2 million e-book/e-audio circ (2024)


Pahkisimon Nuye?áh Library System
Lakeland Library Region
Wapiti Regional Library
Wheatland Regional Library
Saskatoon Public Library
Parkland Regional Library
Palliser Regional Library
Regina Public Library
Chinook Regional Library
Southeast Regional Library


ieau
Churchill
Fort St. John
Fort McMurray
Pahkisimon Nuyeah Library System
SASKATCHEWAN
Thompson
BRITISH COLUMBIA
ALBERTA
MANITOBA
Prince Rupert
Lakeland Library Region
Prince Albert Public Library
Edmonton
Saskatoon
Parkland Regional Library
Calgary
Regina
Chinook Regional Library
Southeast Regional Library
Brandon
Winnipeg
ONTARIO
Vancouver
Victoria
International Falls
Thunder Bay
Minot
NORTH DAKOTA
Seattle
WASHINGTON
Spokane
Great Falls
Olympia
Missoula
Helena
Bismarck
Fargo
Sault Ste. Mar
MINNESOTA
Billings
Portland
Salem
Minneapolis
WISCONSIN
Pierre
OREGON
Boise
IDAHO
Sioux Falls
MICHIGAN
Milwaukee
Casper

What is Kibana?

- A tool for searching and visualizing data stored in Elasticsearch
- It’s a web app, like Leap
- Using Kibana you can:
    - create individual visualizations
    - group multiple visualizations together on one page (a dashboard)
    - easily share or embed visualizations and dashboards

Kibana, in context!

Kibana is part of an *open source distributed* toolset developed by a company called **Elastic**.

Kibana works alongside two other open source tools - Logstash and Elasticsearch.

Combined, these are commonly known as ELK Stack or Elastic Stack.

1 - **Logstash**: a data broker

- it gathers data from **sources** and sends data to **destinations**
- collect, parse, ship/load data from sources

2 - **Elasticsearch**: database for storing and searching; it’s a search engine.

3 - **Kibana**: the visual ‘front-end’

Why we chose to pursue visual reporting

Traditional ILS reporting is useful! But, it is…

- static
- number-heavy
- a little bit boring

What we were looking for:

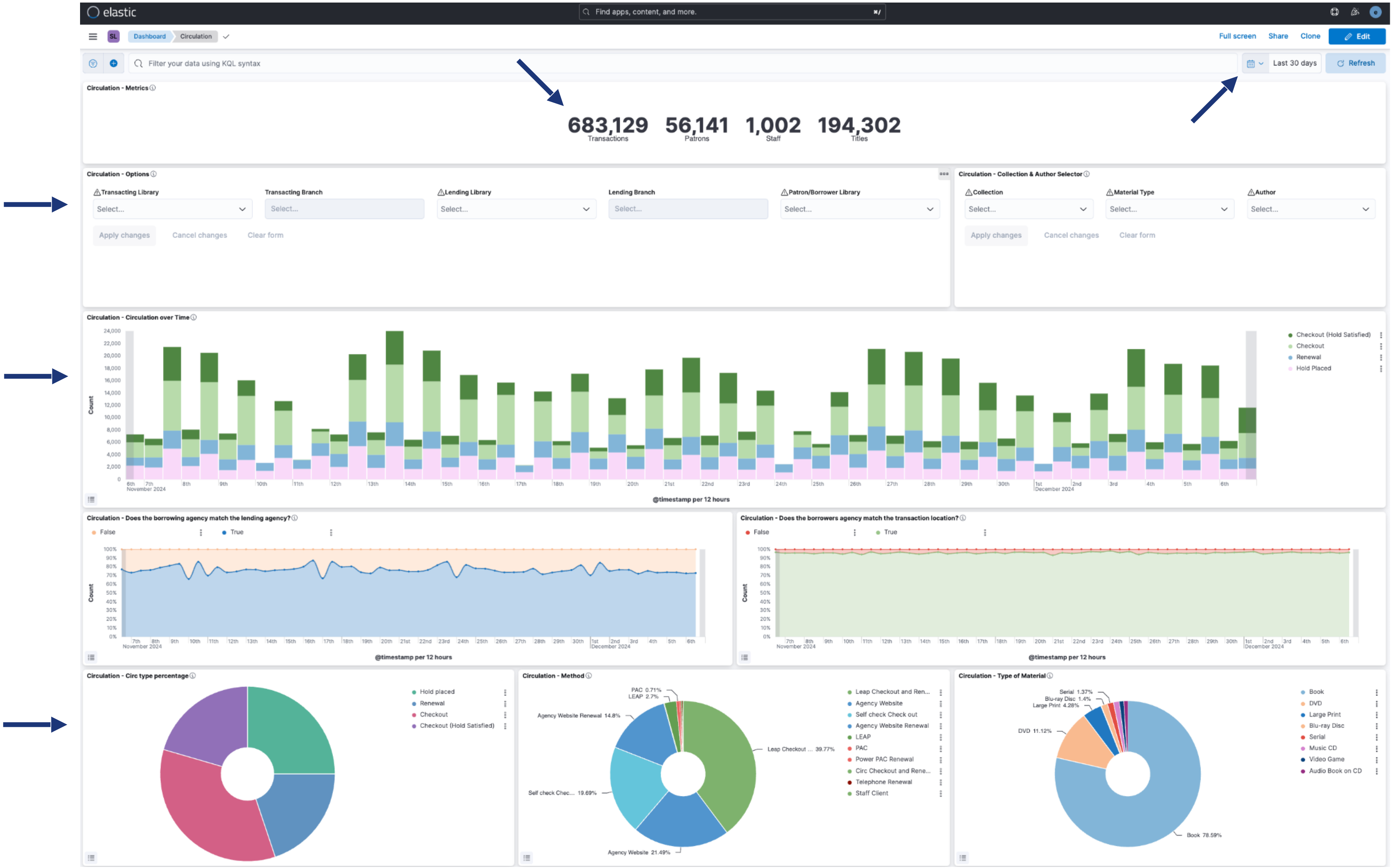
- dynamic
- interesting
- visual
- real-time
- engaging

Why we selected Kibana

- originally, because we could install it for free
- low barrier to entry (other than skills)
- kibana is a very nice tool - this alone was reason enough
- full text search
- Elastic is used by all sorts of industry, for all sorts of interesting tasks (Airbnb, Yelp, NYT, Uber, Walmart, etc.). So we’re in good company!

A few alternatives

- Tableau
- Google Data Studio
- Amazon Quicksight
- Power BI
- and more!



elastic

Find apps, content, and more.

Dashboard / Circulation

Full screen | Share | Clone | Edit

Filter your data using KQL syntax

Last 30 days | Refresh

Circulation - Metrics

683,129 Transactions | 56,141 Patrons | 1,002 Staff | 194,302 Titles

Circulation - Options

Transacting Library: Select...

Transacting Branch: Select...

Lending Library: Select...

Lending Branch: Select...

Patron/Borrower Library: Select...

Apply changes | Cancel changes | Clear form

Circulation - Collection & Author Selector

Collection: Select...

Material Type: Select...

Author: Select...

Apply changes | Cancel changes | Clear form

Circulation - Circulation over Time

24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Count
6th 7th November 2024 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th 19th 20th 21st 22nd 23rd 24th 25th 26th 27th 28th 29th 30th 1st December 2024 2nd 3rd 4th 5th 6th
@timestamp per 12 hours
Checkout (Hold Satisfied)
Checkout
Renewal
Hold Placed

Circulation - Does the borrowing agency match the lending agency?

False
True
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Count
7th November 2024 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th 19th 20th 21st 22nd 23rd 24th 25th 26th 27th 28th 29th 30th 1st December 2024 2nd 3rd 4th 5th 6th
@timestamp per 12 hours

Circulation - Does the borrowers agency match the transaction location?

False
True
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Count
7th November 2024 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th 19th 20th 21st 22nd 23rd 24th 25th 26th 27th 28th 29th 30th 1st December 2024 2nd 3rd 4th 5th 6th
@timestamp per 12 hours

Circulation - Circ type percentage

Circulation - Method

Circulation - Type of Material

Linking Polaris and Elastic

Getting data from Polaris into Kibana

Choosing which data to send

Getting data from Polaris into Kibana

Logstash asks the Polaris database for data we specify and then “stashes” it in Elasticsearch:

1 - Extract: kicks off a SQL query to retrieve data from Polaris

2 - Transform: formats it for export

3 - Load: sends it to Elasticseach

Extract Frequency: depends on the type of data and how we consume it

- circulation data: 1 minute interval
- notification data: 60 minute interval

What data do we visualize?

The same ILS data used to generate most of the reports we are already using.

This includes transactions that are written to the PolarisTransactions database (checkouts, renewals, holds placed, etc.)

And all of the data we can gather relating to a ‘transaction’ at the moment it occurred, including:

- when + where the transaction occurred
- details about who made the transaction (patron anonymized)
- details about the material that was transacted

What data do we NOT visualize?

Patron data (exception: postal code)

- patron ID is hashed when ingested into Elasticsearch

Creating Dashboards

Step 1 - Discover

Step 2 - Visualize

Step 3 - Dashboard (combine visualizations into dashboards)

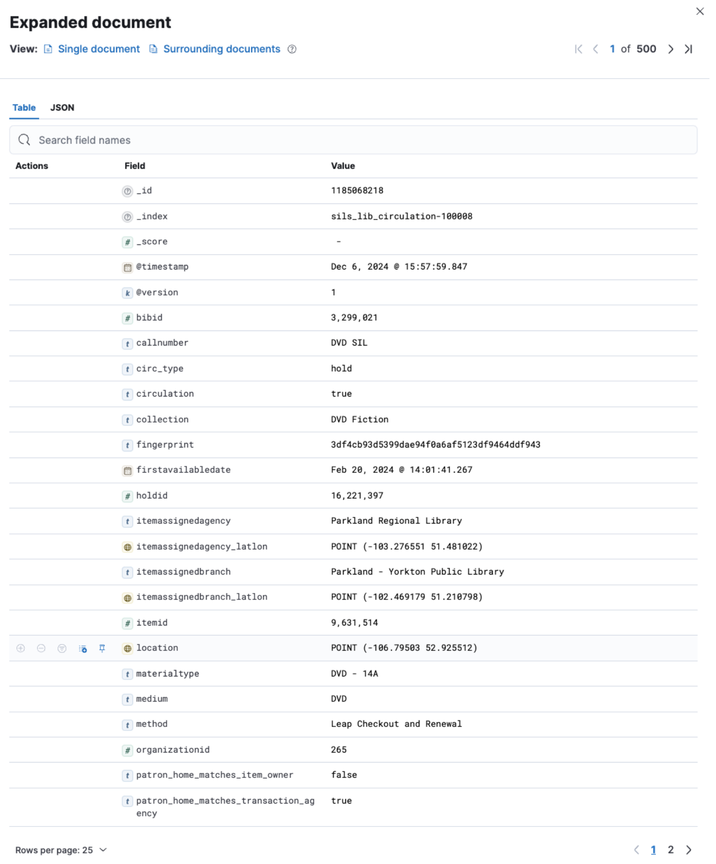
Creating Dashboards: Step 1, Discover

This is an expanded view of a ‘document’.

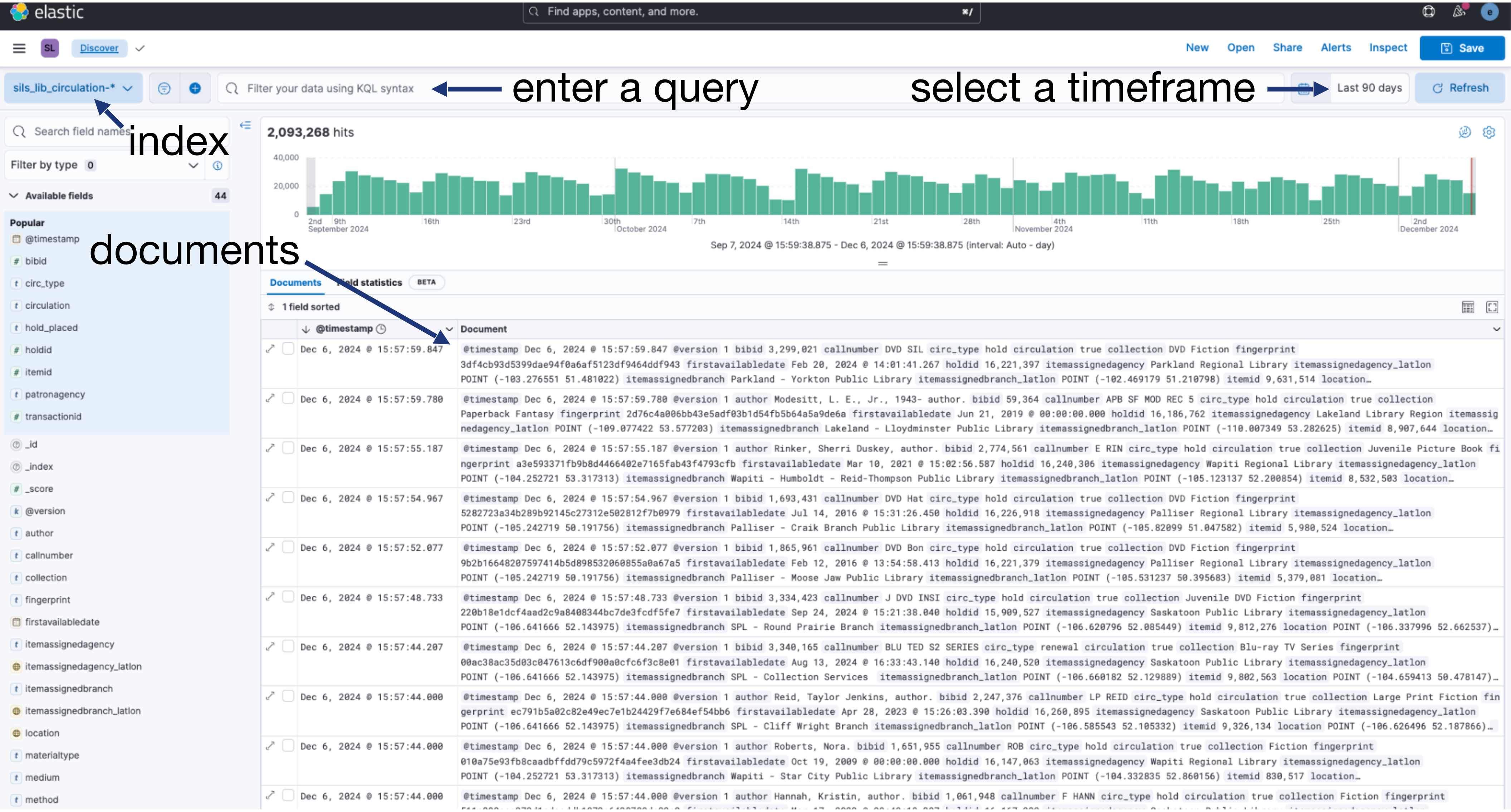
For SILS, each document in Elasticsearch is a record of a single Polaris transaction.

A document is a collection of fields and values.

All documents can be searched in their entirety, or by field.



Actions	Field	Value
	_id	1185068218
	_index	sils_lib_circulation-100008
	_score	-
	@timestamp	Dec 6, 2024 @ 15:57:59.847
	@version	1
	bibid	3,299,021
	callnumber	DVD SIL
	circ_type	hold
	circulation	true
	collection	DVD Fiction
	fingerprint	3df4cb93d5399dae94f0a6af5123df9464ddf943
	firstavailabledate	Feb 20, 2024 @ 14:01:41.267
	holdid	16,221,397
	itemassignedagency	Parkland Regional Library
	itemassignedagency_latlon	POINT (-103.276551 51.481022)
	itemassignedbranch	Parkland - Yorkton Public Library
	itemassignedbranch_latlon	POINT (-102.469179 51.210798)
	itemid	9,631,514
	location	POINT (-106.79503 52.925512)
	materialtype	DVD - 14A
	medium	DVD
	method	Leap Checkout and Renewal
	organizationid	265
	patron_home_matches_item_owner	false
	patron_home_matches_transaction_agency	true



enter a query

select a timeframe

index

documents

2,093,268 hits

Sep 7, 2024 @ 15:59:38.875 - Dec 6, 2024 @ 15:59:38.875 (interval: Auto - day)

@timestamp
bibid
circ_type
circulation
hold_placed
holdid
itemid
patronagency
transactionid

_id
_index
_score
@version
author
callnumber
collection
fingerprint
firstavailabledate
itemassignedagency
itemassignedagency_latlon
itemassignedbranch
itemassignedbranch_latlon
location
materialtype
medium
method

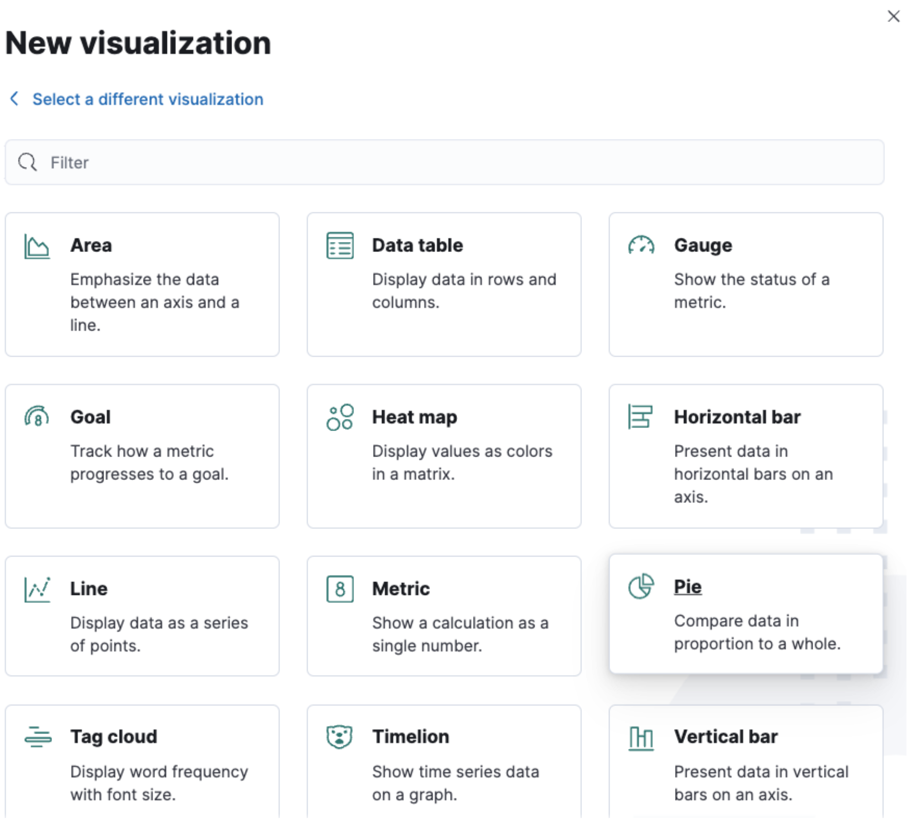
@timestamp	Document
Dec 6, 2024 @ 15:57:59.847	@timestamp Dec 6, 2024 @ 15:57:59.847 @version 1 bibid 3,299,021 callnumber DVD SIL circ_type hold circulation true collection DVD Fiction fingerprint 3df4cb93d5399dae94f0a6af5123df9464ddf943 firstavailabledate Feb 20, 2024 @ 14:01:41.267 holdid 16,221,397 itemassignedagency Parkland Regional Library itemassignedagency_latlon POINT (-103.276551 51.481022) itemassignedbranch Parkland - Yorkton Public Library itemassignedbranch_latlon POINT (-102.469179 51.210798) itemid 9,631,514 location…
Dec 6, 2024 @ 15:57:59.780	@timestamp Dec 6, 2024 @ 15:57:59.780 @version 1 author Modesitt, L. E., Jr., 1943- author. bibid 59,364 callnumber APB SF MOD REC 5 circ_type hold circulation true collection Paperback Fantasy fingerprint 2d76c4a006bb43e5adf03b1d54fb5b64a5a9de6a firstavailabledate Jun 21, 2019 @ 00:00:00.000 holdid 16,186,762 itemassignedagency Lakeland Library Region itemassignedagency_latlon POINT (-109.077422 53.577203) itemassignedbranch Lakeland - Lloydminster Public Library itemassignedbranch_latlon POINT (-110.007349 53.282625) itemid 8,907,644 location…
Dec 6, 2024 @ 15:57:55.187	@timestamp Dec 6, 2024 @ 15:57:55.187 @version 1 author Rinker, Sherri Duskey, author. bibid 2,774,561 callnumber E RIN circ_type hold circulation true collection Juvenile Picture Book fingerprint a3e593371fb9b8d4466402e7165fab43f4793cfb firstavailabledate Mar 10, 2021 @ 15:02:56.587 holdid 16,240,306 itemassignedagency Wapiti Regional Library itemassignedagency_latlon POINT (-104.252721 53.317313) itemassignedbranch Wapiti - Humboldt - Reid-Thompson Public Library itemassignedbranch_latlon POINT (-105.123137 52.200854) itemid 8,532,503 location…
Dec 6, 2024 @ 15:57:54.967	@timestamp Dec 6, 2024 @ 15:57:54.967 @version 1 bibid 1,693,431 callnumber DVD Hat circ_type hold circulation true collection DVD Fiction fingerprint 5282723a34b289b92145c27312e502812f7b0979 firstavailabledate Jul 14, 2016 @ 15:31:26.450 holdid 16,226,918 itemassignedagency Palliser Regional Library itemassignedagency_latlon POINT (-105.242719 50.191756) itemassignedbranch Palliser - Craik Branch Public Library itemassignedbranch_latlon POINT (-105.82099 51.047582) itemid 5,980,524 location…
Dec 6, 2024 @ 15:57:52.077	@timestamp Dec 6, 2024 @ 15:57:52.077 @version 1 bibid 1,865,961 callnumber DVD Bon circ_type hold circulation true collection DVD Fiction fingerprint 9b2b16648207597414b5d898532060855a0a67a5 firstavailabledate Feb 12, 2016 @ 13:54:58.413 holdid 16,221,379 itemassignedagency Palliser Regional Library itemassignedagency_latlon POINT (-105.242719 50.191756) itemassignedbranch Palliser - Moose Jaw Public Library itemassignedbranch_latlon POINT (-105.531237 50.395683) itemid 5,379,081 location…
Dec 6, 2024 @ 15:57:48.733	@timestamp Dec 6, 2024 @ 15:57:48.733 @version 1 bibid 3,334,423 callnumber J DVD INSI circ_type hold circulation true collection Juvenile DVD Fiction fingerprint 220b18e1dcf4aad2c9a8408344bc7de3fcdf5fe7 firstavailabledate Sep 24, 2024 @ 15:21:38.040 holdid 15,909,527 itemassignedagency Saskatoon Public Library itemassignedagency_latlon POINT (-106.641666 52.143975) itemassignedbranch SPL - Round Prairie Branch itemassignedbranch_latlon POINT (-106.620796 52.085449) itemid 9,812,276 location POINT (-106.337996 52.662537)…
Dec 6, 2024 @ 15:57:44.207	@timestamp Dec 6, 2024 @ 15:57:44.207 @version 1 bibid 3,340,165 callnumber BLU TED S2 SERIES circ_type renewal circulation true collection Blu-ray TV Series fingerprint 00ac38ac35d03c047613c6df900a0cfc6f3c8e01 firstavailabledate Aug 13, 2024 @ 16:33:43.140 holdid 16,240,520 itemassignedagency Saskatoon Public Library itemassignedagency_latlon POINT (-106.641666 52.143975) itemassignedbranch SPL - Collection Services itemassignedbranch_latlon POINT (-106.660182 52.129889) itemid 9,802,563 location POINT (-104.659413 50.478147)…
Dec 6, 2024 @ 15:57:44.000	@timestamp Dec 6, 2024 @ 15:57:44.000 @version 1 author Reid, Taylor Jenkins, author. bibid 2,247,376 callnumber LP REID circ_type hold circulation true collection Large Print Fiction fingerprint ec791b5a02c82e49ec7e1b24429f7e684ef54bb6 firstavailabledate Apr 28, 2023 @ 15:26:03.390 holdid 16,260,895 itemassignedagency Saskatoon Public Library itemassignedagency_latlon POINT (-106.641666 52.143975) itemassignedbranch SPL - Cliff Wright Branch itemassignedbranch_latlon POINT (-106.585543 52.105332) itemid 9,326,134 location POINT (-106.626496 52.187866)…
Dec 6, 2024 @ 15:57:44.000	@timestamp Dec 6, 2024 @ 15:57:44.000 @version 1 author Roberts, Nora. bibid 1,651,955 callnumber ROB circ_type hold circulation true collection Fiction fingerprint 010a75e93fb8caadbffdd79c5972f4a4fee3db24 firstavailabledate Oct 19, 2009 @ 00:00:00.000 holdid 16,147,063 itemassignedagency Wapiti Regional Library itemassignedagency_latlon POINT (-104.252721 53.317313) itemassignedbranch Wapiti - Star City Public Library itemassignedbranch_latlon POINT (-104.332835 52.860156) itemid 830,517 location…
Dec 6, 2024 @ 15:57:44.000	@timestamp Dec 6, 2024 @ 15:57:44.000 @version 1 author Hannah, Kristin, author. bibid 1,061,948 callnumber F HANN circ_type hold circulation true collection Fiction fingerprint

Creating Dashboards: Step 2, Visualize

Choose the visualization that will best illustrate your data.

Kibana has lots of great options that convey data clearly.

Create visualizations with care!



New visualization

Select a different visualization

Filter

Area
Emphasize the data between an axis and a line.

Data table
Display data in rows and columns.

Gauge
Show the status of a metric.

Goal
Track how a metric progresses to a goal.

Heat map
Display values as colors in a matrix.

Horizontal bar
Present data in horizontal bars on an axis.

Line
Display data as a series of points.

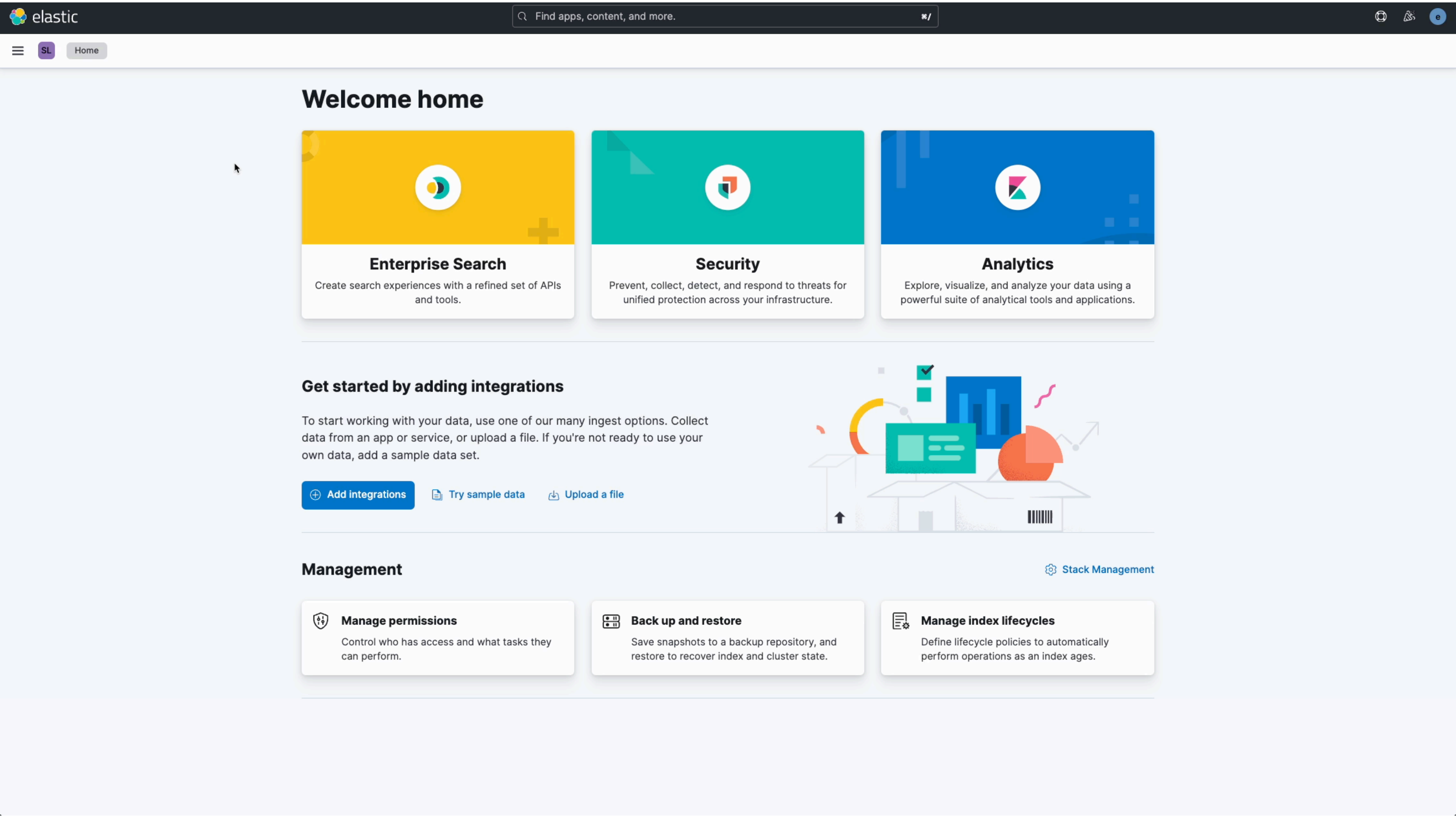
Metric
Show a calculation as a single number.

Pie
Compare data in proportion to a whole.

Tag cloud
Display word frequency with font size.

Timelion
Show time series data on a graph.

Vertical bar
Present data in vertical bars on an axis.



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Find apps, content, and more. ⌘/

SL Home

Welcome home

Enterprise Search

Create search experiences with a refined set of APIs and tools.

Security

Prevent, collect, detect, and respond to threats for unified protection across your infrastructure.

Analytics

Explore, visualize, and analyze your data using a powerful suite of analytical tools and applications.

Get started by adding integrations

To start working with your data, use one of our many ingest options. Collect data from an app or service, or upload a file. If you're not ready to use your own data, add a sample data set.

Add integrations | Try sample data | Upload a file

Management

Stack Management

Manage permissions

Control who has access and what tasks they can perform.

Back up and restore

Save snapshots to a backup repository, and restore to recover index and cluster state.

Manage index lifecycles

Define lifecycle policies to automatically perform operations as an index ages.

Creating Dashboards: Step 3, Dashboarding!

Combine multiple visualizations in a meaningful way that tells a story!

A few things to keep in mind:

- Set reasonable default timeframes for faster load times.
- Set consortia level default views.
- Start off with high-level information and get more specific at the end.

Top 5 ILS data dashboards

Circulation

Branch Activity

Holds

Overdrive

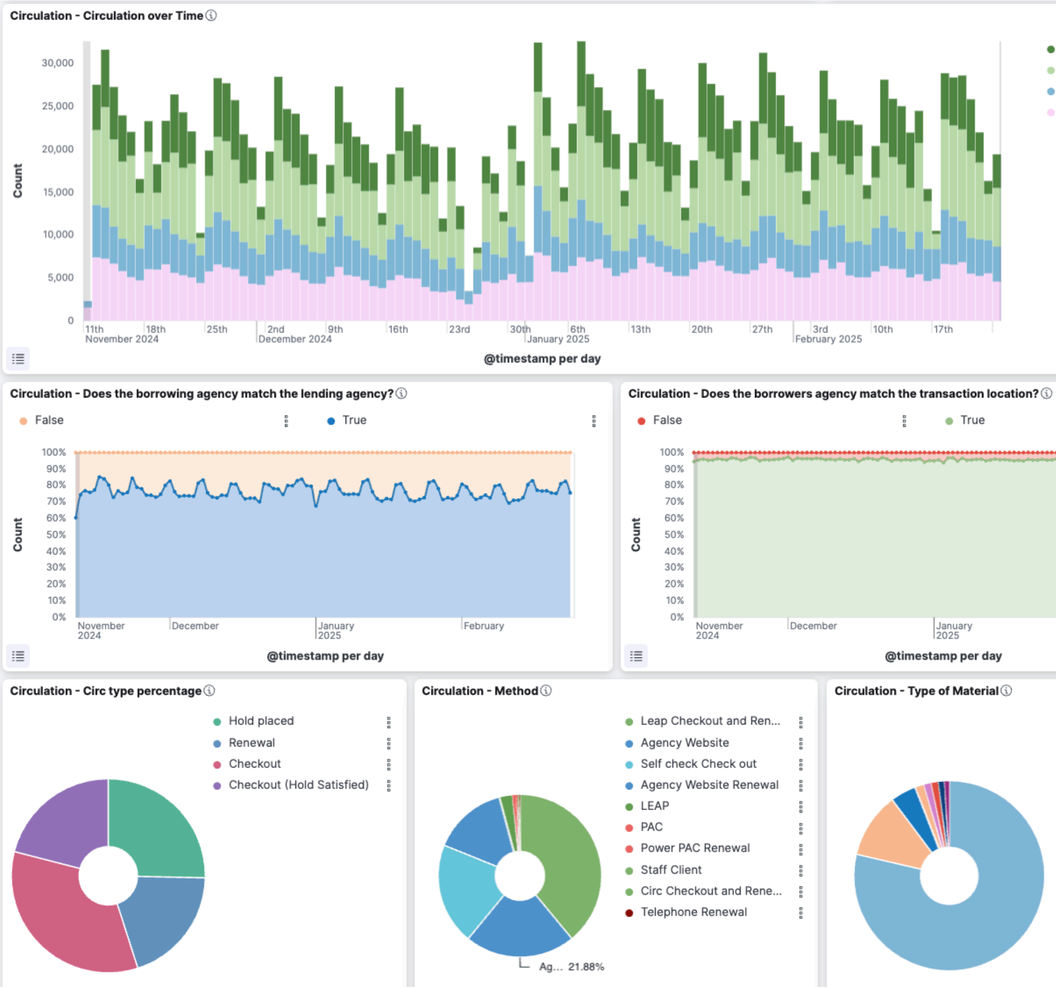
Maps

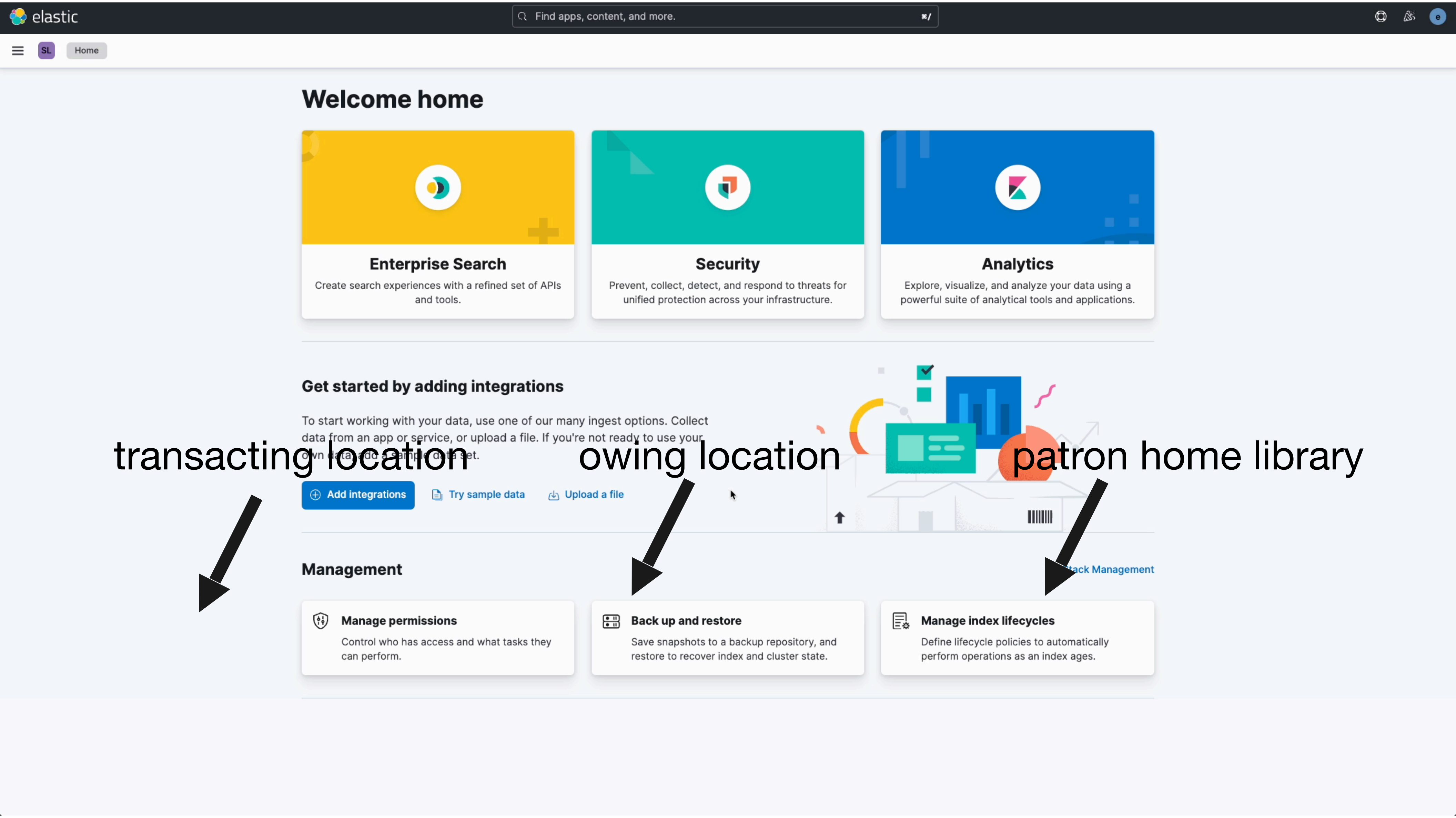
Dashboard 1: Circulation

main go-to dashboard

loaded with basic/general info

designed for use with any library / timeframe





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Control who has access and what tasks they can perform.

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Save snapshots to a backup repository, and restore to recover index and cluster state.

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Define lifecycle policies to automatically perform operations as an index ages.

transacting location

owing location

patron home library

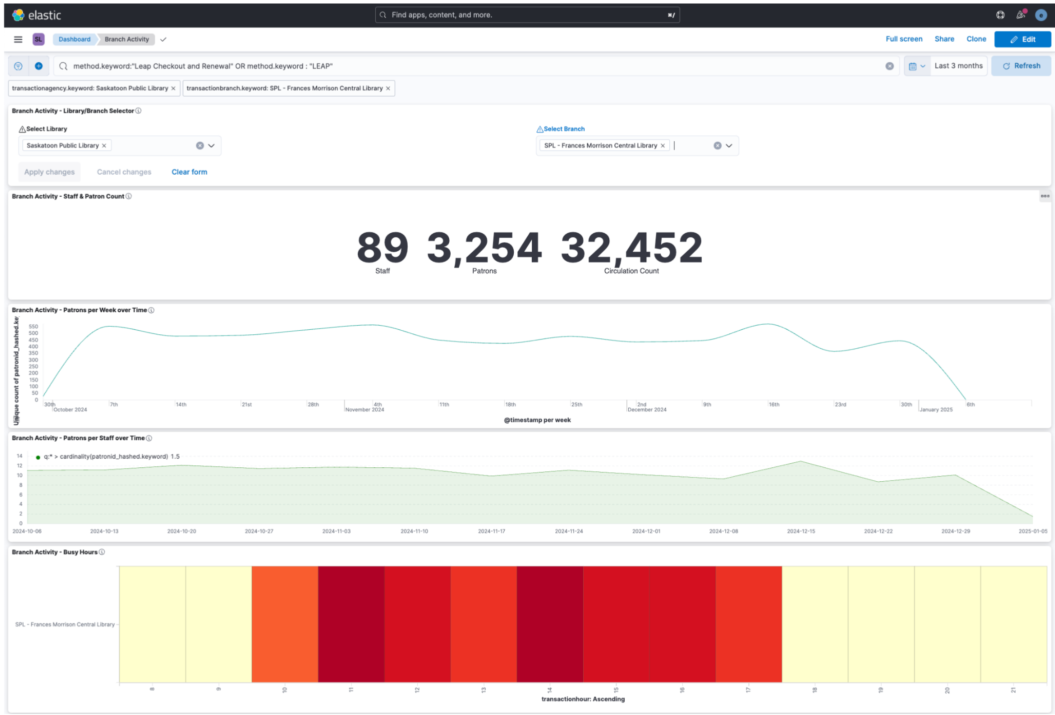
Dashboard 2: Branch Activity

number of staff, patrons, total circulation

busiest hour and day

patron code by hour of day

view as consortium, library, or branch



method.keyword:"Leap Checkout and Renewal" OR method.keyword : "LEAP"

transactionagency.keyword: Saskatoon Public Library

transactionbranch.keyword: SPL - Frances Morrison Central Library

Branch Activity - Library/Branch Selector

Select Library: Saskatoon Public Library

Select Branch: SPL - Frances Morrison Central Library

Branch Activity - Staff & Patron Count

89 Staff

3,254 Patrons

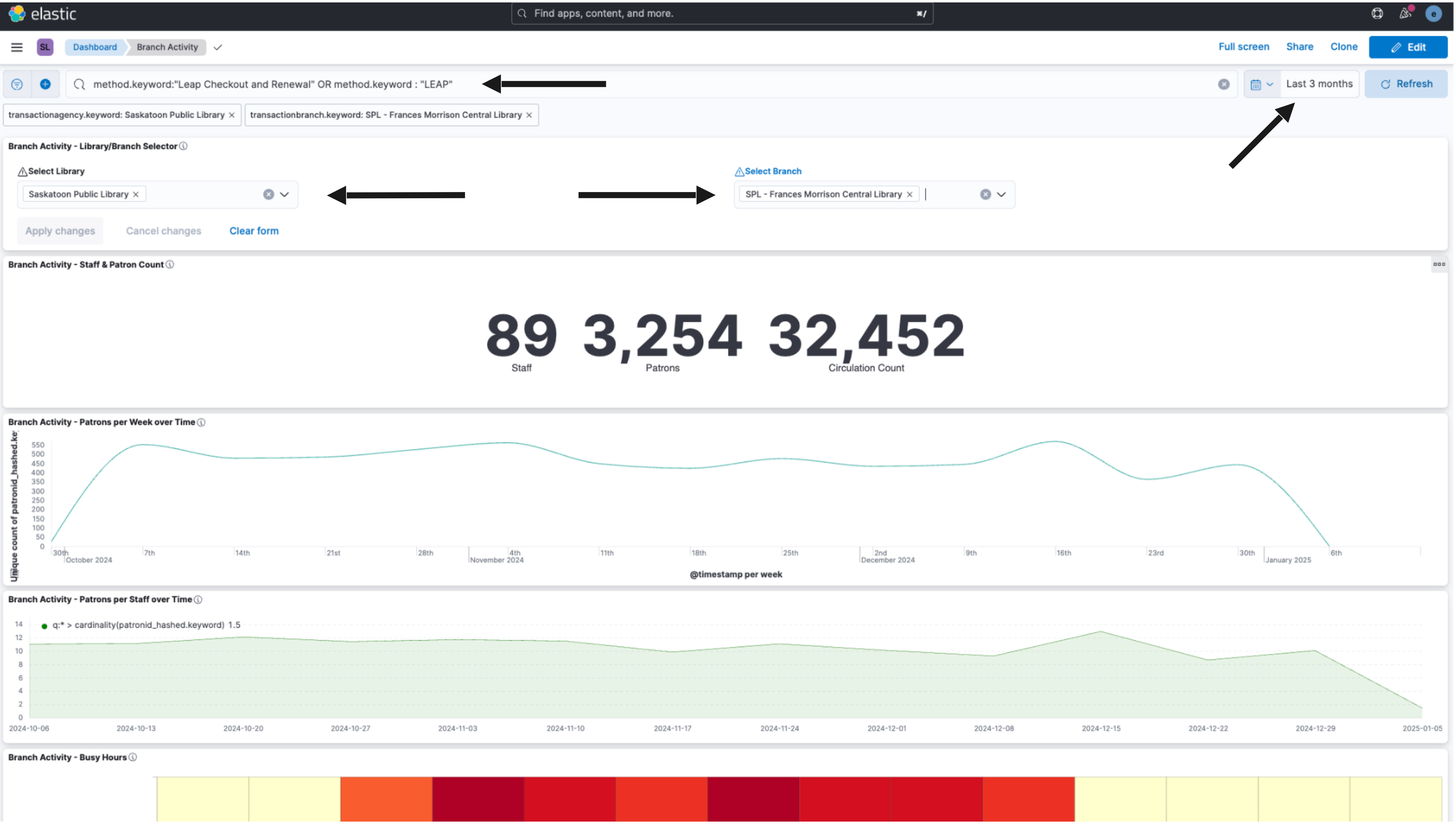
32,452 Circulation Count

Branch Activity - Patrons per Week over Time

Branch Activity - Patrons per Staff over Time

Branch Activity - Busy Hours

SPL - Frances Morrison Central Library
8
9
10
11
12
13
14
15
16
17
18
19
20
21
transactionhour: Ascending



method.keyword:"Leap Checkout and Renewal" OR method.keyword : "LEAP"

transactionagency.keyword: Saskatoon Public Library ×

transactionbranch.keyword: SPL - Frances Morrison Central Library ×

Branch Activity - Library/Branch Selector

Select Library: Saskatoon Public Library ×

Select Branch: SPL - Frances Morrison Central Library ×

Branch Activity - Staff & Patron Count

89 Staff

3,254 Patrons

32,452 Circulation Count

Branch Activity - Patrons per Week over Time

Branch Activity - Patrons per Staff over Time

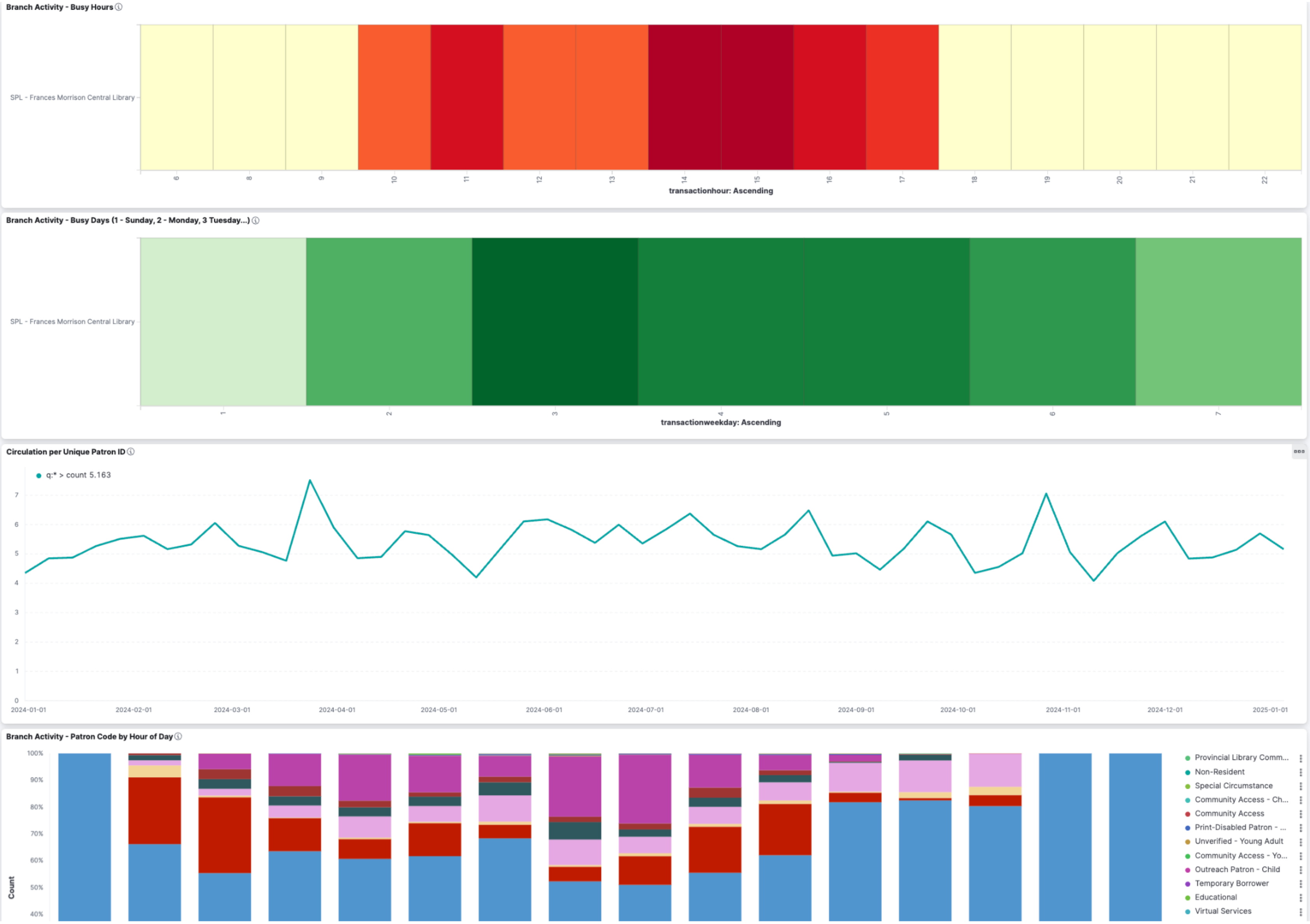
Branch Activity - Busy Hours

busy hours

busy days

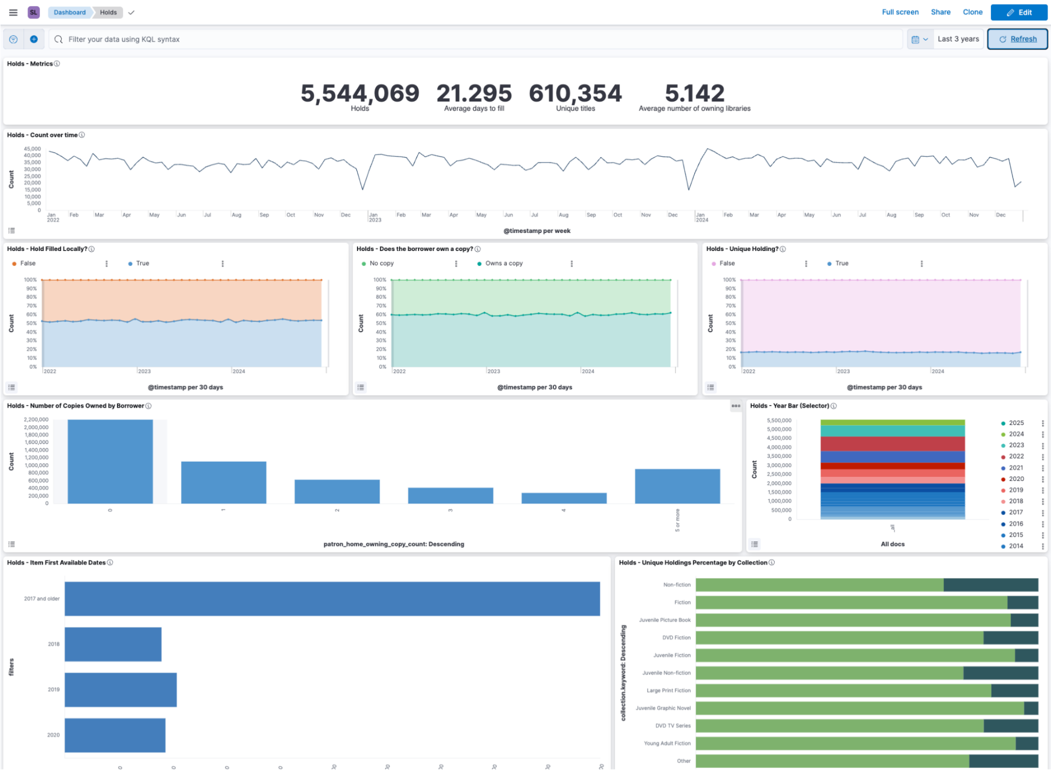
circ per patron

patron code by hour



Dashboard 3: Holds

Used frequently to gauge consortia sharing.



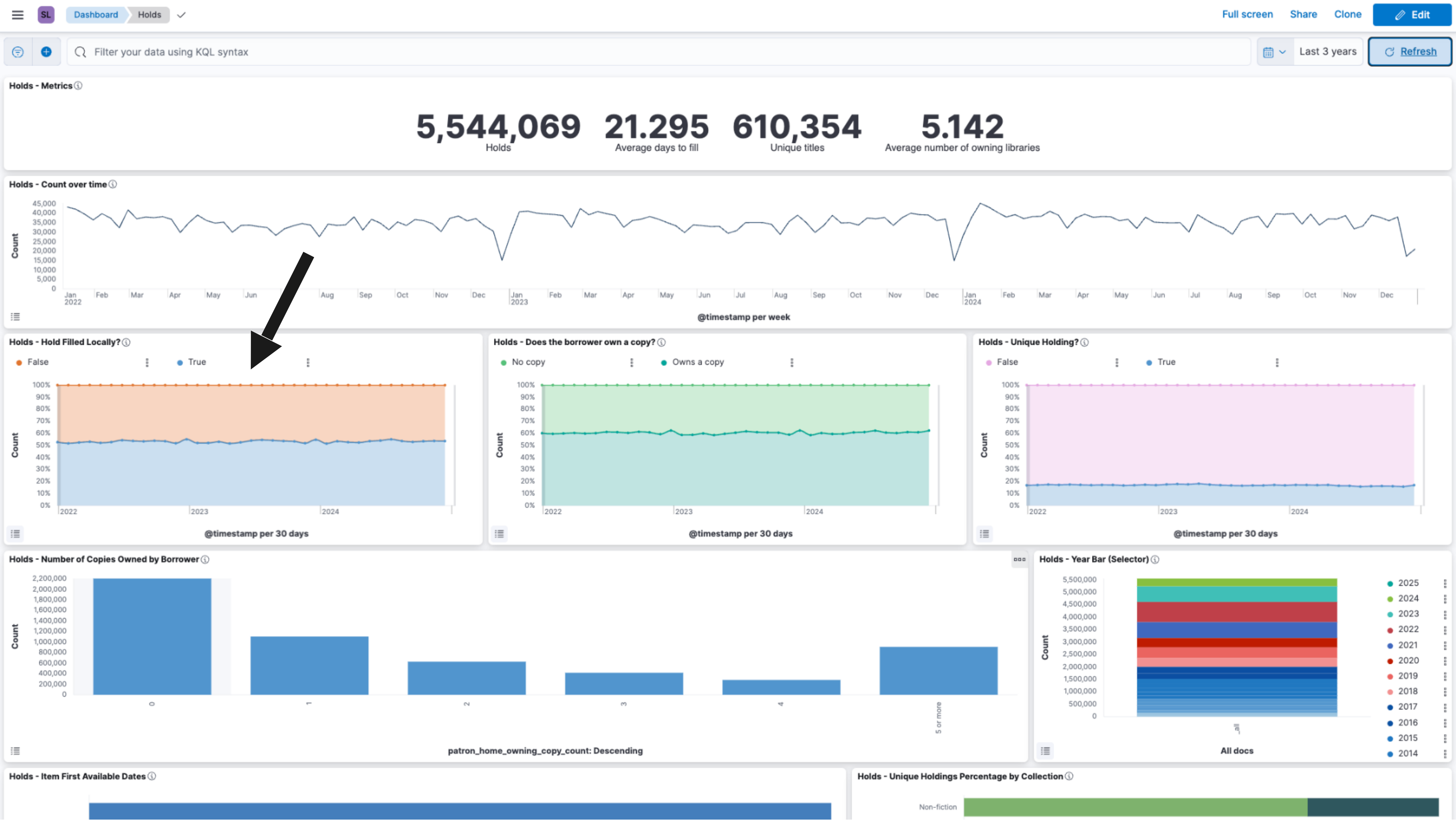
Holds - Metrics

5,544,069 Holds

21.295 Average days to fill

610,354 Unique titles

5.142 Average number of owning libraries



Holds - Metrics

5,544,069 Holds

21.295 Average days to fill

610,354 Unique titles

5.142 Average number of owning libraries

Holds - Count over time

Holds - Hold Filled Locally?

Holds - Does the borrower own a copy?

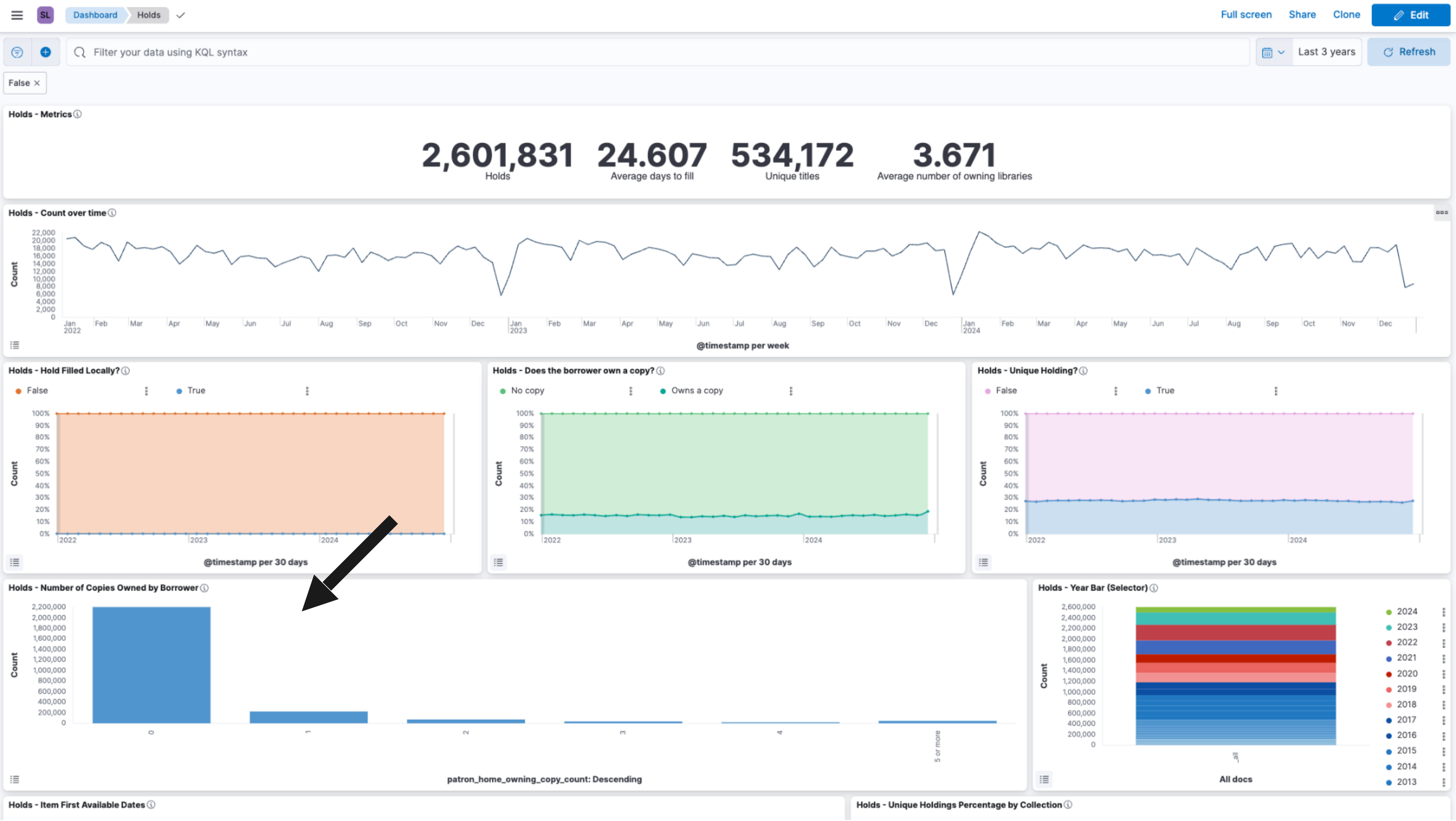
Holds - Unique Holding?

Holds - Number of Copies Owned by Borrower

Holds - Year Bar (Selector)

Holds - Item First Available Dates

Holds - Unique Holdings Percentage by Collection



Holds - Metrics

2,601,831 Holds

24.607 Average days to fill

534,172 Unique titles

3.671 Average number of owning libraries

Holds - Count over time

Holds - Hold Filled Locally?

Holds - Does the borrower own a copy?

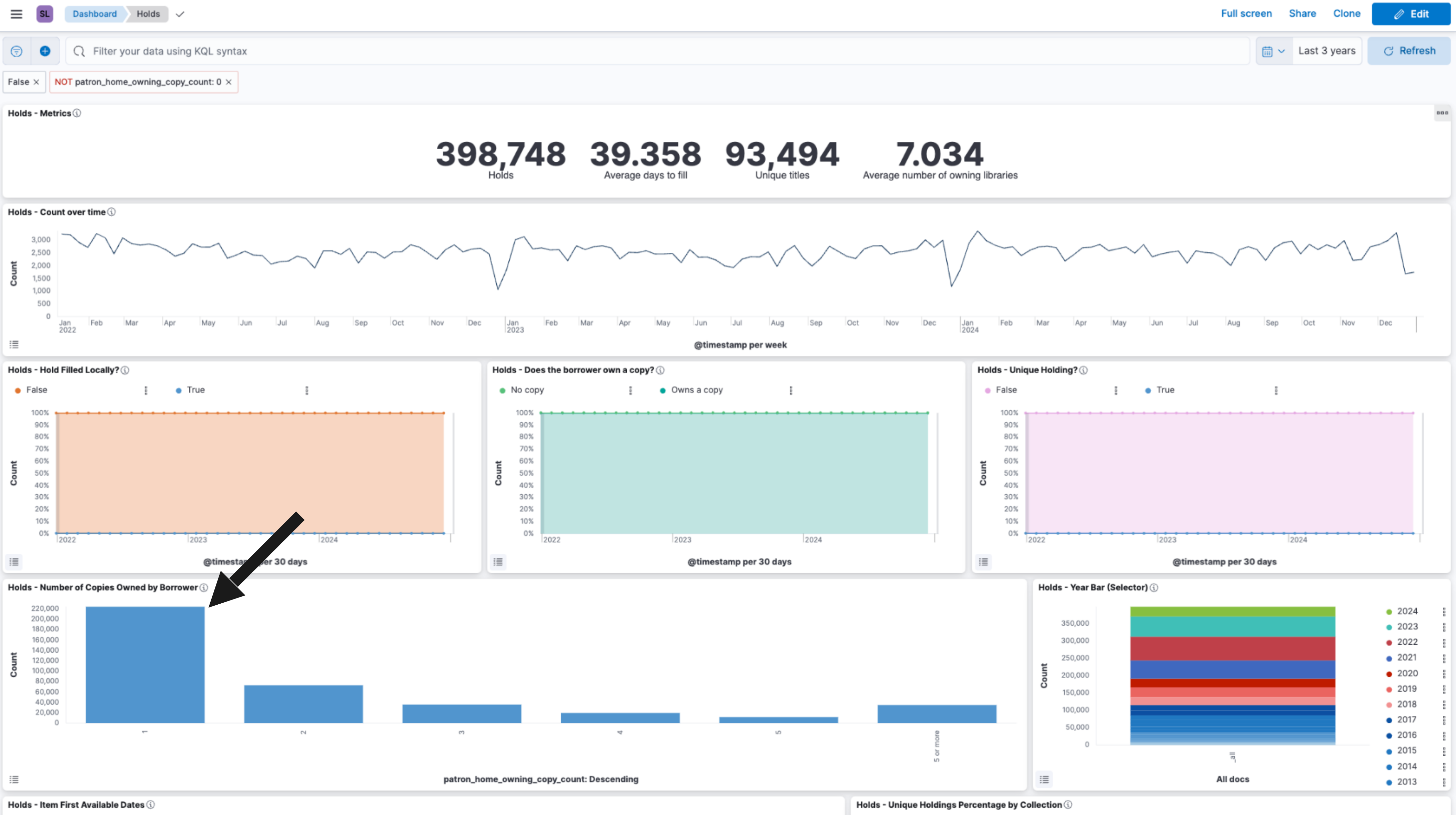
Holds - Unique Holding?

Holds - Number of Copies Owned by Borrower

Holds - Year Bar (Selector)

Holds - Item First Available Dates

Holds - Unique Holdings Percentage by Collection



SL
Dashboard
Holds
Full screen
Share
Clone
Edit
Filter your data using KQL syntax
Last 3 years
Refresh
False ×
NOT patron_home_owning_copy_count: 0 ×

Holds - Metrics

398,748 Holds

39.358 Average days to fill

93,494 Unique titles

7.034 Average number of owning libraries

Holds - Count over time

Holds - Hold Filled Locally?

Holds - Does the borrower own a copy?

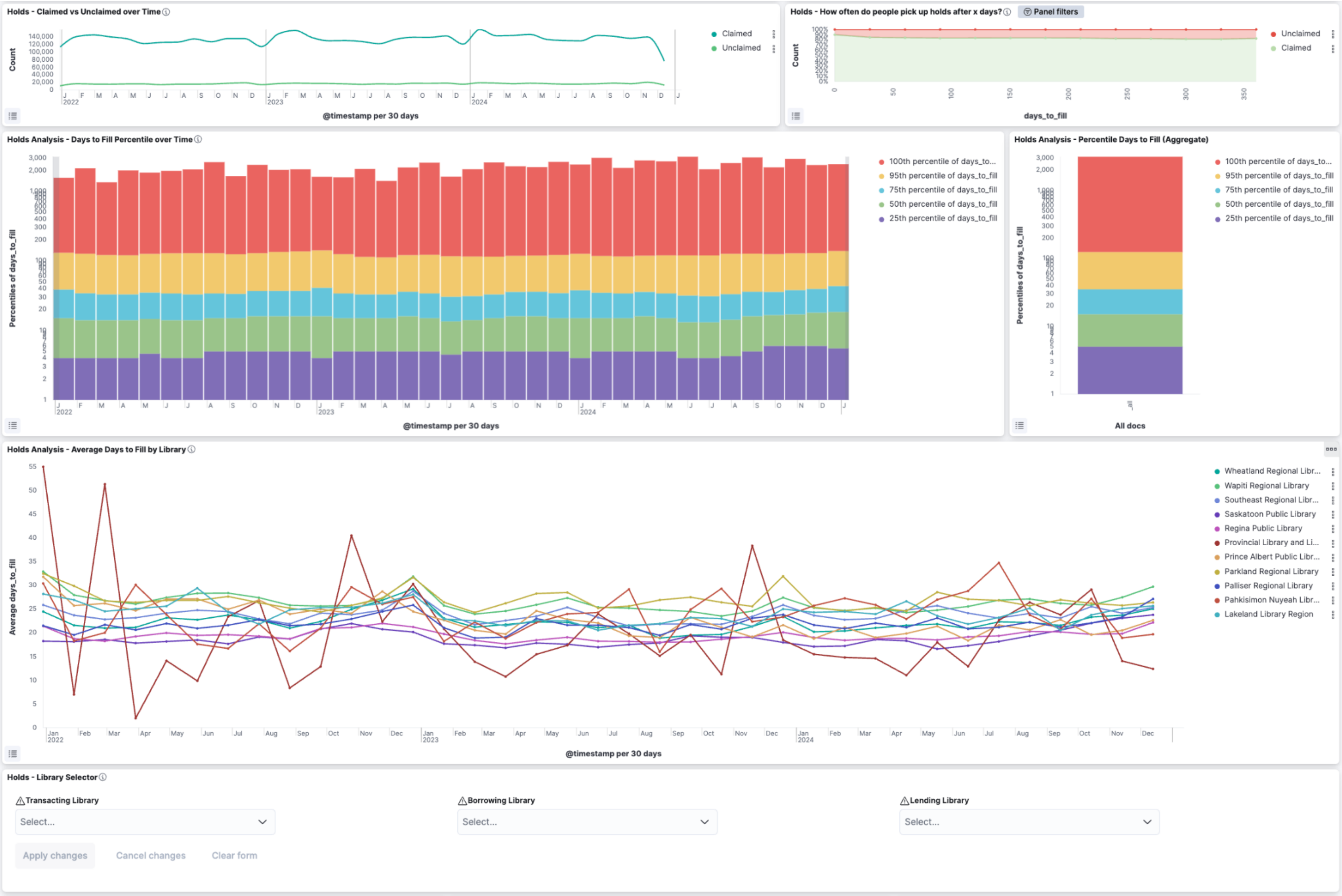
Holds - Unique Holding?

Holds - Number of Copies Owned by Borrower

Holds - Year Bar (Selector)

Holds - Item First Available Dates

Holds - Unique Holdings Percentage by Collection


Holds - Claimed vs Unclaimed over Time
Count
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
J F M A M J J A S O N D
2022
2023
2024
@timestamp per 30 days
● Claimed
● Unclaimed
Holds - How often do people pick up holds after x days?
Panel filters
Count
100%
0%
0 50 100 150 200 250 300 350
days_to_fill
● Unclaimed
● Claimed
Holds Analysis - Days to Fill Percentile over Time
Percentiles of days_to_fill
3,000
2,000
1,000
500
400
300
200
100
50
40
30
20
10
5
4
3
2
1
@timestamp per 30 days
● 100th percentile of days_to...
● 95th percentile of days_to_fill
● 75th percentile of days_to_fill
● 50th percentile of days_to_fill
● 25th percentile of days_to_fill
Holds Analysis - Percentile Days to Fill (Aggregate)
All docs
Holds Analysis - Average Days to Fill by Library
Average days_to_fill
55
50
45
40
35
30
25
20
15
10
5
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
@timestamp per 30 days
● Wheatland Regional Libr...
● Wapiti Regional Library
● Southeast Regional Libr...
● Saskatoon Public Library
● Regina Public Library
● Provincial Library and Li...
● Prince Albert Public Libr...
● Parkland Regional Library
● Palliser Regional Library
● Pahkisimon Nuyeah Libr...
● Lakeland Library Region

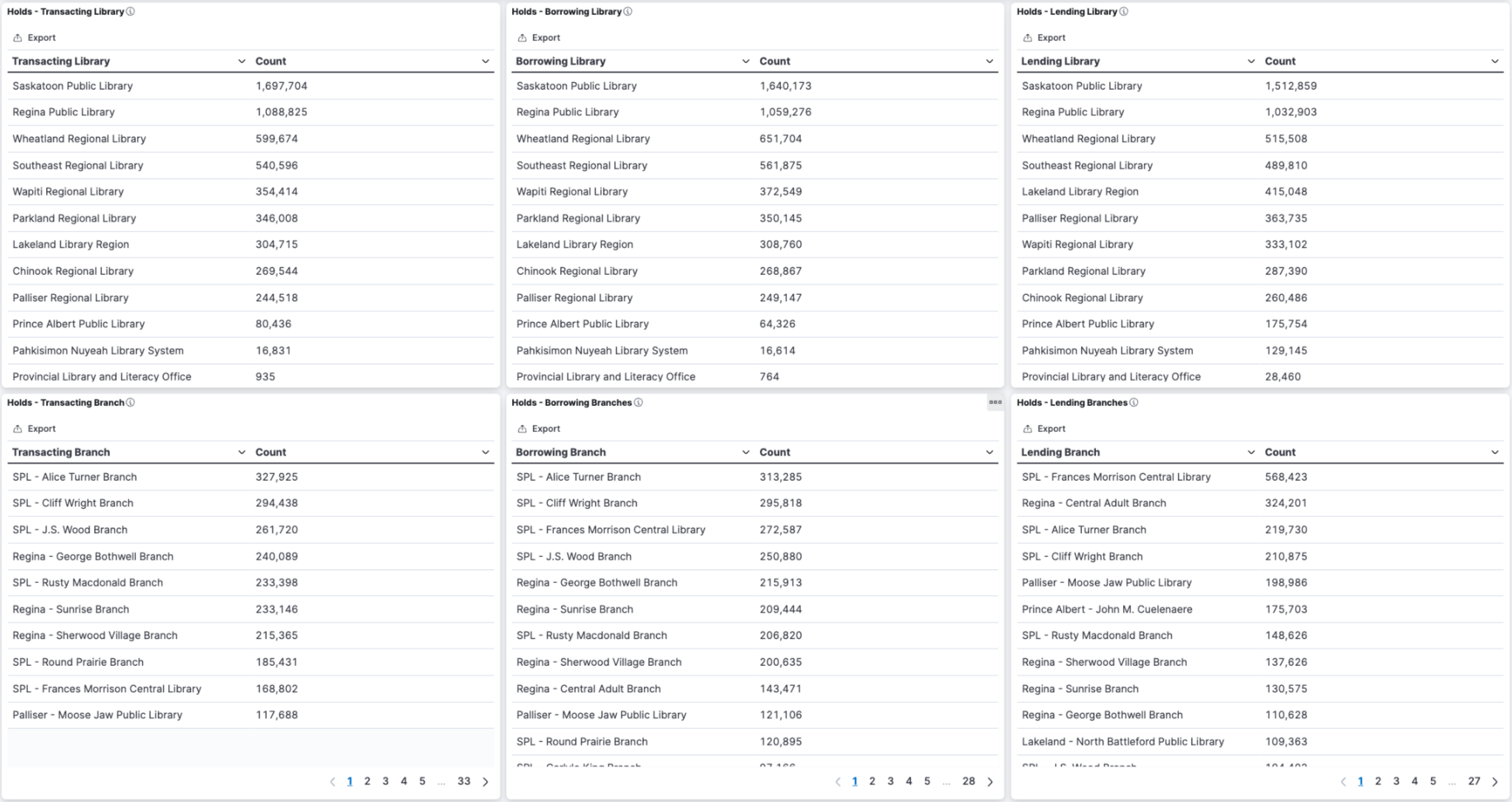
Holds - Library Selector

⚠Transacting Library
Select...

⚠Borrowing Library
Select...

⚠Lending Library
Select...

Apply changes   Cancel changes   Clear form



Holds - Transacting Library ⓘ

Transacting Library	Count
Saskatoon Public Library	1,697,704
Regina Public Library	1,088,825
Wheatland Regional Library	599,674
Southeast Regional Library	540,596
Wapiti Regional Library	354,414
Parkland Regional Library	346,008
Lakeland Library Region	304,715
Chinook Regional Library	269,544
Palliser Regional Library	244,518
Prince Albert Public Library	80,436
Pahkisimon Nuyeah Library System	16,831
Provincial Library and Literacy Office	935

Holds - Borrowing Library ⓘ

Borrowing Library	Count
Saskatoon Public Library	1,640,173
Regina Public Library	1,059,276
Wheatland Regional Library	651,704
Southeast Regional Library	561,875
Wapiti Regional Library	372,549
Parkland Regional Library	350,145
Lakeland Library Region	308,760
Chinook Regional Library	268,867
Palliser Regional Library	249,147
Prince Albert Public Library	64,326
Pahkisimon Nuyeah Library System	16,614
Provincial Library and Literacy Office	764

Holds - Lending Library ⓘ

Lending Library	Count
Saskatoon Public Library	1,512,859
Regina Public Library	1,032,903
Wheatland Regional Library	515,508
Southeast Regional Library	489,810
Lakeland Library Region	415,048
Palliser Regional Library	363,735
Wapiti Regional Library	333,102
Parkland Regional Library	287,390
Chinook Regional Library	260,486
Prince Albert Public Library	175,754
Pahkisimon Nuyeah Library System	129,145
Provincial Library and Literacy Office	28,460

Holds - Transacting Branch ⓘ

Transacting Branch	Count
SPL - Alice Turner Branch	327,925
SPL - Cliff Wright Branch	294,438
SPL - J.S. Wood Branch	261,720
Regina - George Bothwell Branch	240,089
SPL - Rusty Macdonald Branch	233,398
Regina - Sunrise Branch	233,146
Regina - Sherwood Village Branch	215,365
SPL - Round Prairie Branch	185,431
SPL - Frances Morrison Central Library	168,802
Palliser - Moose Jaw Public Library	117,688

Holds - Borrowing Branches ⓘ

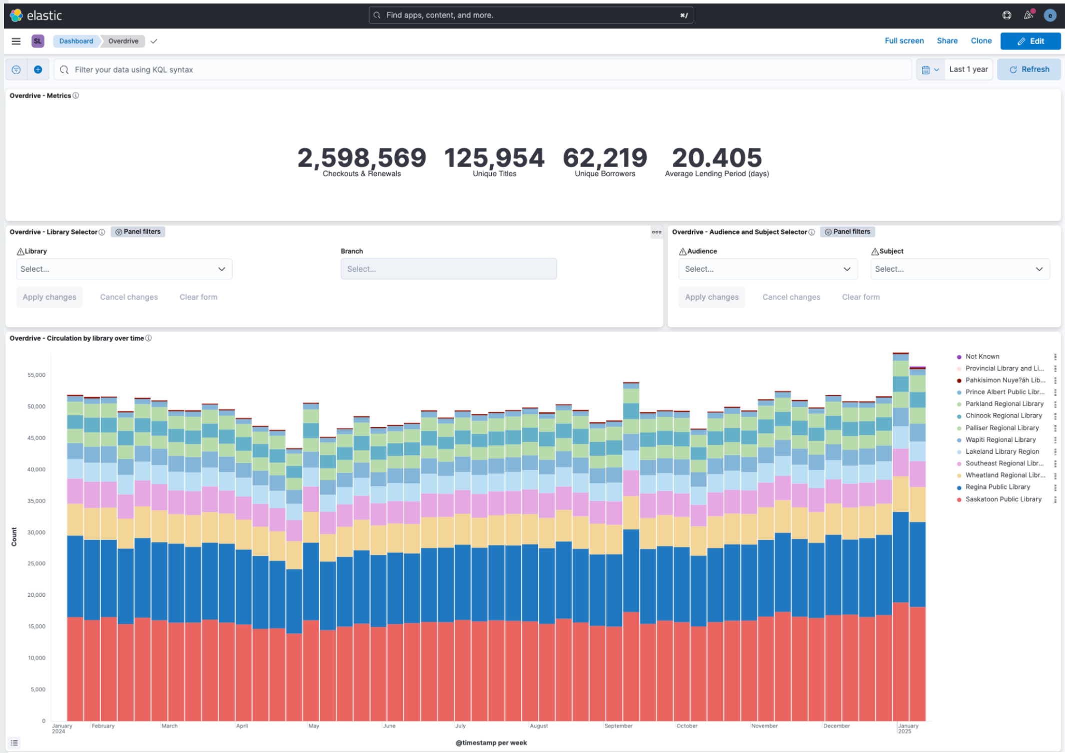
Borrowing Branch	Count
SPL - Alice Turner Branch	313,285
SPL - Cliff Wright Branch	295,818
SPL - Frances Morrison Central Library	272,587
SPL - J.S. Wood Branch	250,880
Regina - George Bothwell Branch	215,913
Regina - Sunrise Branch	209,444
SPL - Rusty Macdonald Branch	206,820
Regina - Sherwood Village Branch	200,635
Regina - Central Adult Branch	143,471
Palliser - Moose Jaw Public Library	121,106
SPL - Round Prairie Branch	120,895
SPL - Carlyle King Branch	97,166

Holds - Lending Branches ⓘ

Lending Branch	Count
SPL - Frances Morrison Central Library	568,423
Regina - Central Adult Branch	324,201
SPL - Alice Turner Branch	219,730
SPL - Cliff Wright Branch	210,875
Palliser - Moose Jaw Public Library	198,986
Prince Albert - John M. Cuelenaere	175,703
SPL - Rusty Macdonald Branch	148,626
Regina - Sherwood Village Branch	137,626
Regina - Sunrise Branch	130,575
Regina - George Bothwell Branch	110,628
Lakeland - North Battleford Public Library	109,363
SPL - J.S. Wood Branch	104,402

Dashboard 4: Overdrive

Displays everything provided by the Overdrive API



Overdrive - Metrics

2,598,569 Checkouts & Renewals

125,954 Unique Titles

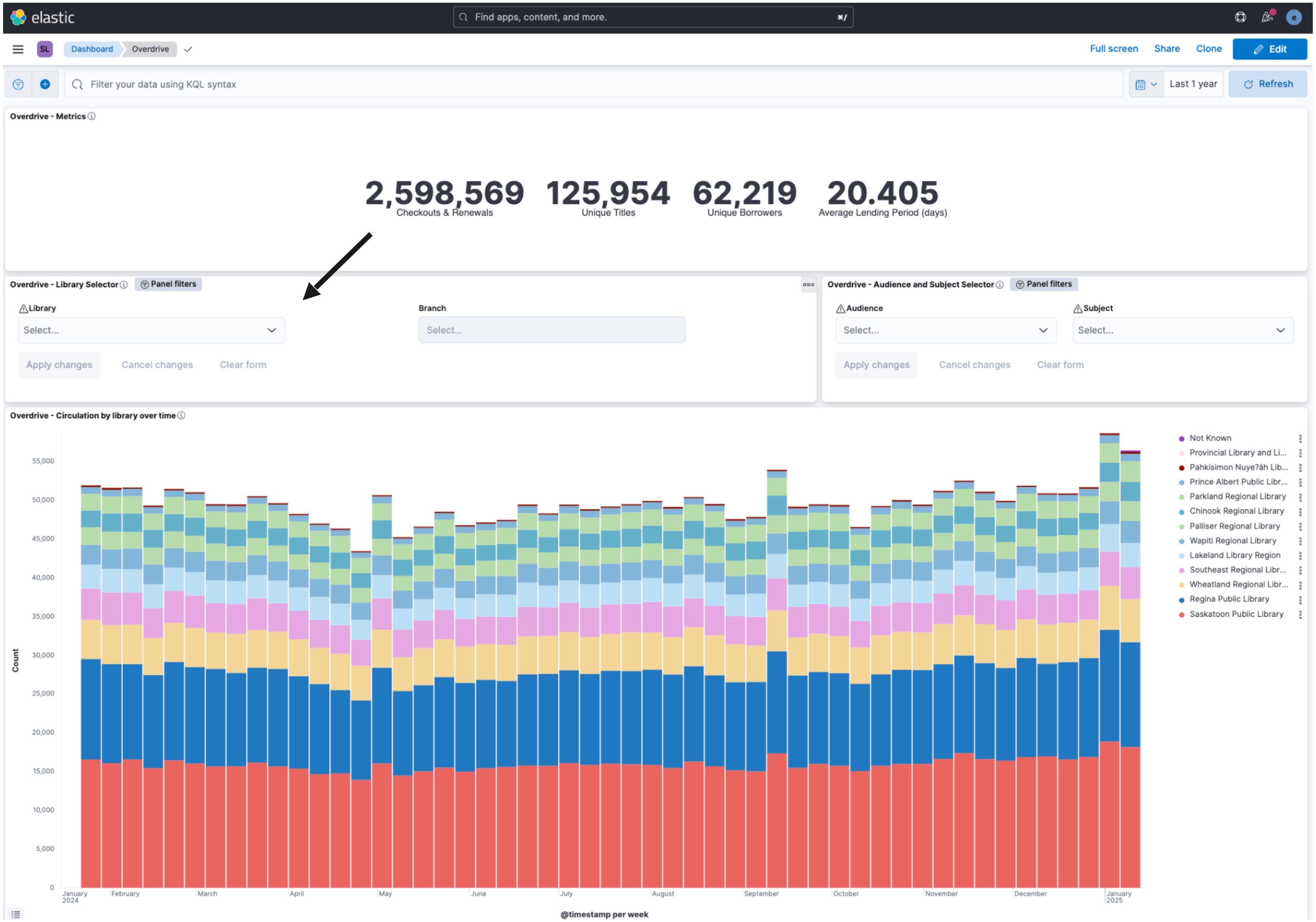
62,219 Unique Borrowers

20.405 Average Lending Period (days)

Overdrive - Library Selector

Overdrive - Audience and Subject Selector

Overdrive - Circulation by library over time



Overdrive - Metrics

2,598,569 Checkouts & Renewals

125,954 Unique Titles

62,219 Unique Borrowers

20.405 Average Lending Period (days)

Overdrive - Library Selector

Library: Select...

Branch: Select...

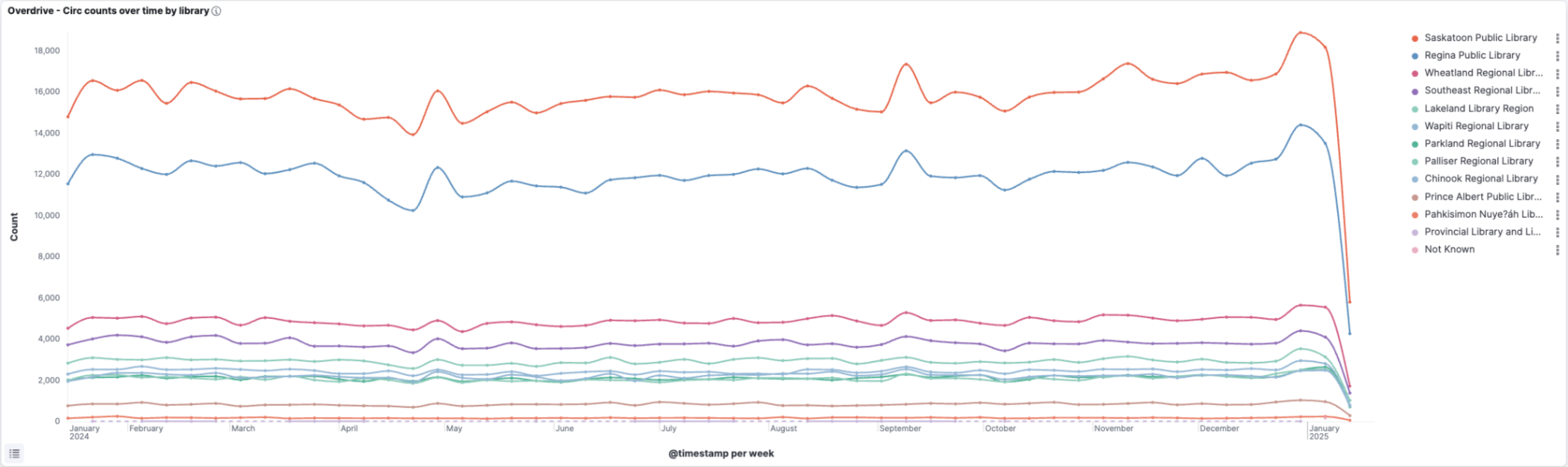
Overdrive - Audience and Subject Selector

Audience: Select...

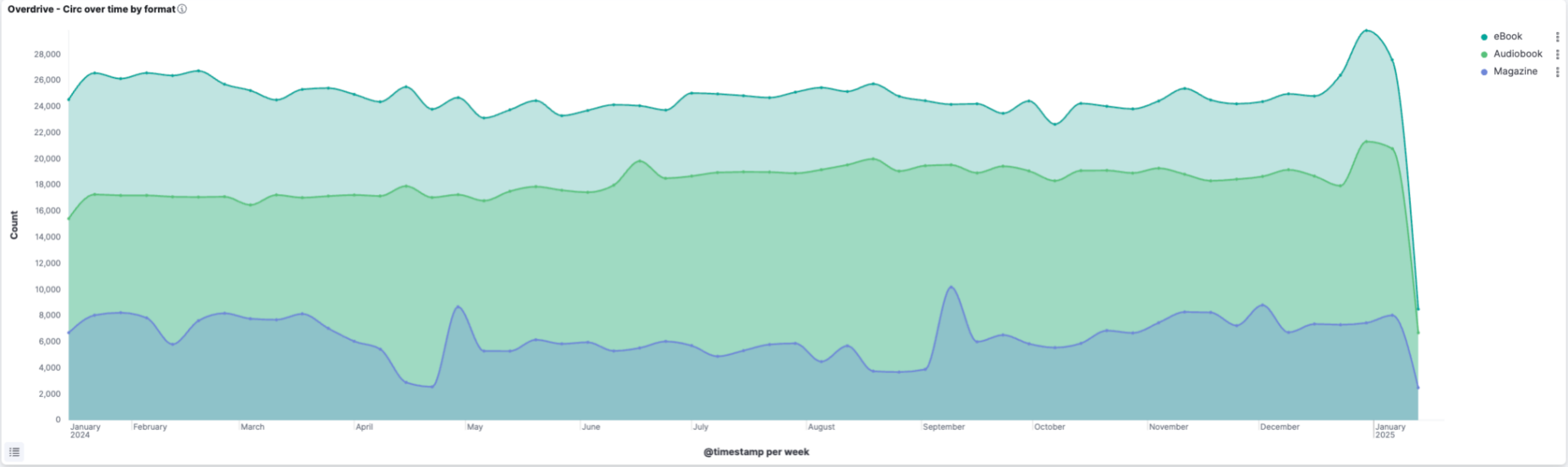
Subject: Select...

Overdrive - Circulation by library over time

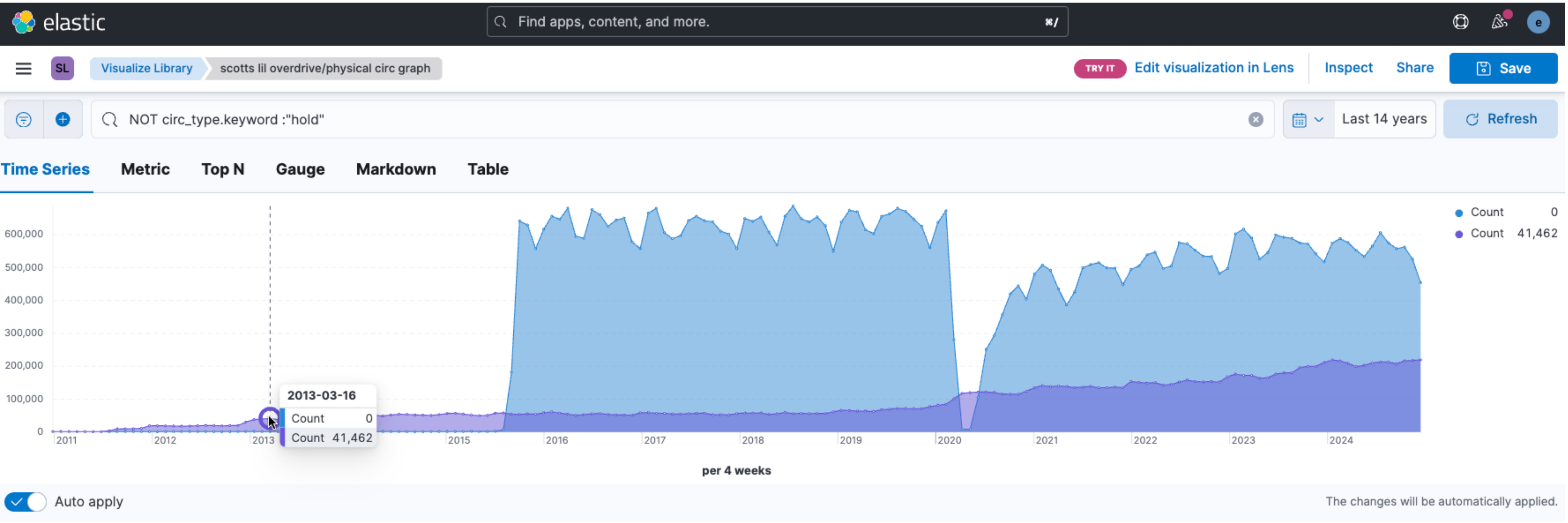
Count
55,000
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
January 2024
February
March
April
May
June
July
August
September
October
November
December
January 2025
@timestamp per week
● Not Known
● Provincial Library and Li...
● Pahkisimon Nuye?áh Lib...
● Prince Albert Public Libr...
● Parkland Regional Library
● Chinook Regional Library
● Palliser Regional Library
● Wapiti Regional Library
● Lakeland Library Region
● Southeast Regional Libr...
● Wheatland Regional Libr...
● Regina Public Library
● Saskatoon Public Library



Overdrive - Circ counts over time by library



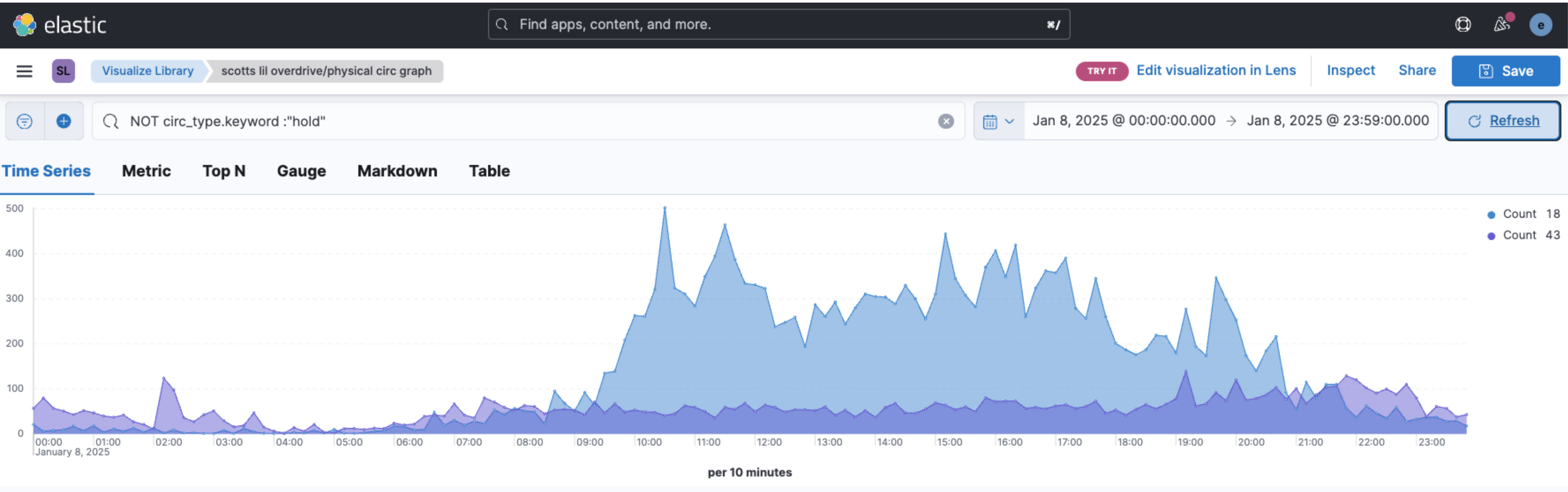
Overdrive - Circ over time by format



Visualize Library > scotts lil overdrive/physical circ graph

NOT circ_type.keyword :"hold"

Last 14 years



scotts lil overdrive/physical circ graph

NOT circ_type.keyword :"hold"

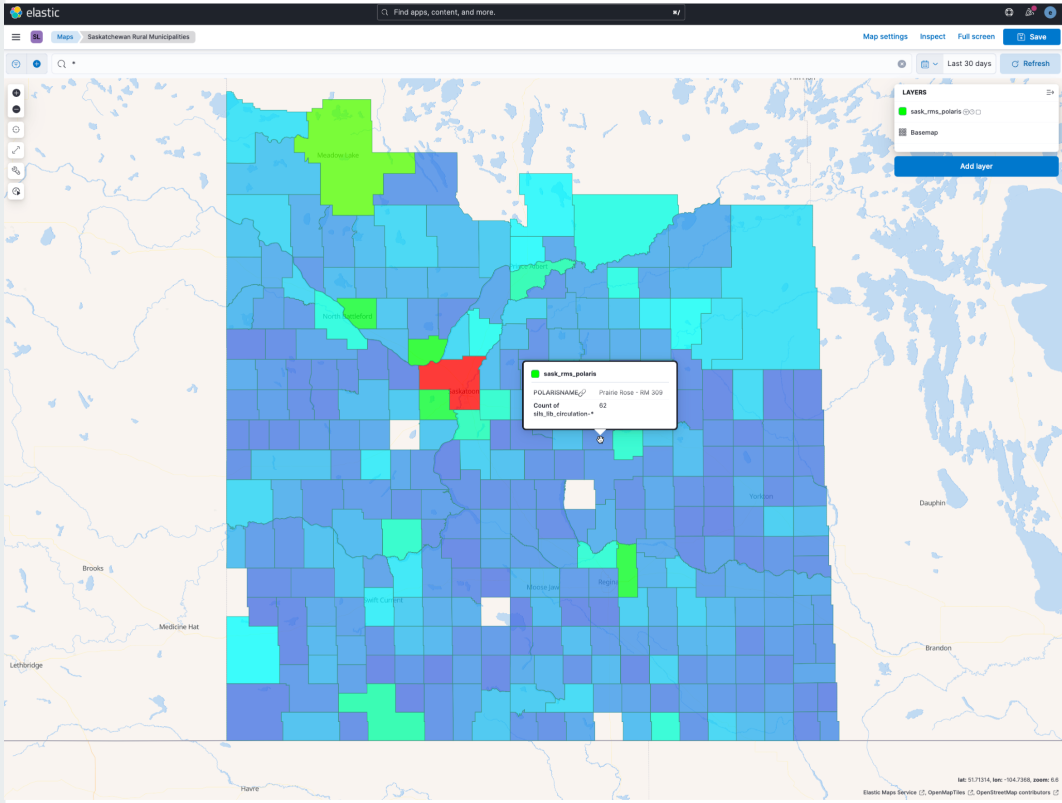
Jan 8, 2025 @ 00:00:00.000 → Jan 8, 2025 @ 23:59:00.000

Dashboard 5: Maps

General Circulation

Rural Municipality

Census Canada

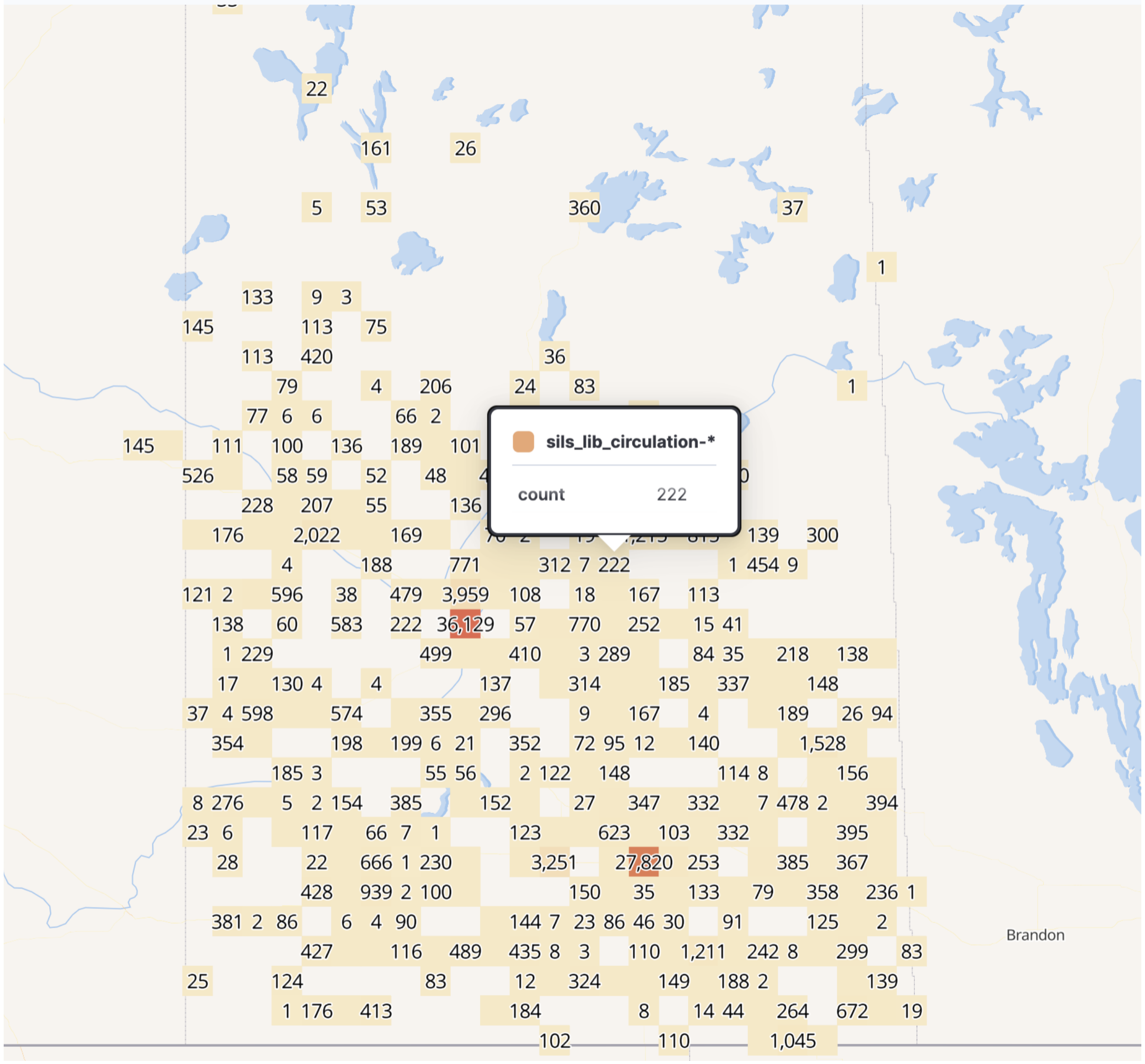


sask_rms_polaris

POLARISNAME	Prairie Rose - RM 309
Count of sils_lib_circulation-*	62

lat: 51.71314, lon: -104.7368, zoom: 6.6

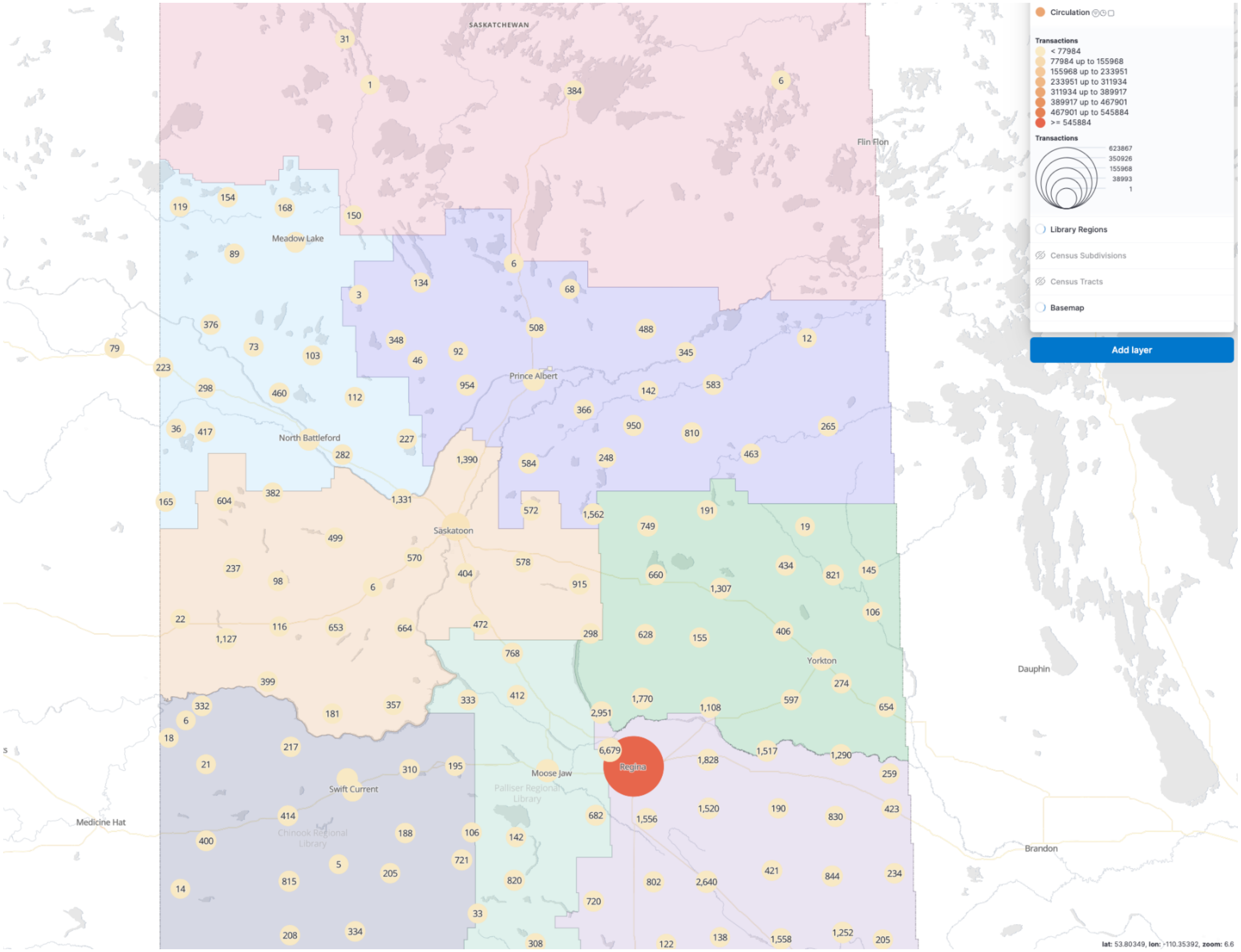
Elastic Maps Service, OpenMapTiles, OpenStreetMap contributors general circulation



sils_lib_circulation-*

count 222

RPL materials



● Circulation

Transactions

- < 77984
- 77984 up to 155968
- 155968 up to 233951
- 233951 up to 311934
- 311934 up to 389917
- 389917 up to 467901
- 467901 up to 545884
- >= 545884

Transactions

623867
350926
155968
38993
1

○ Library Regions

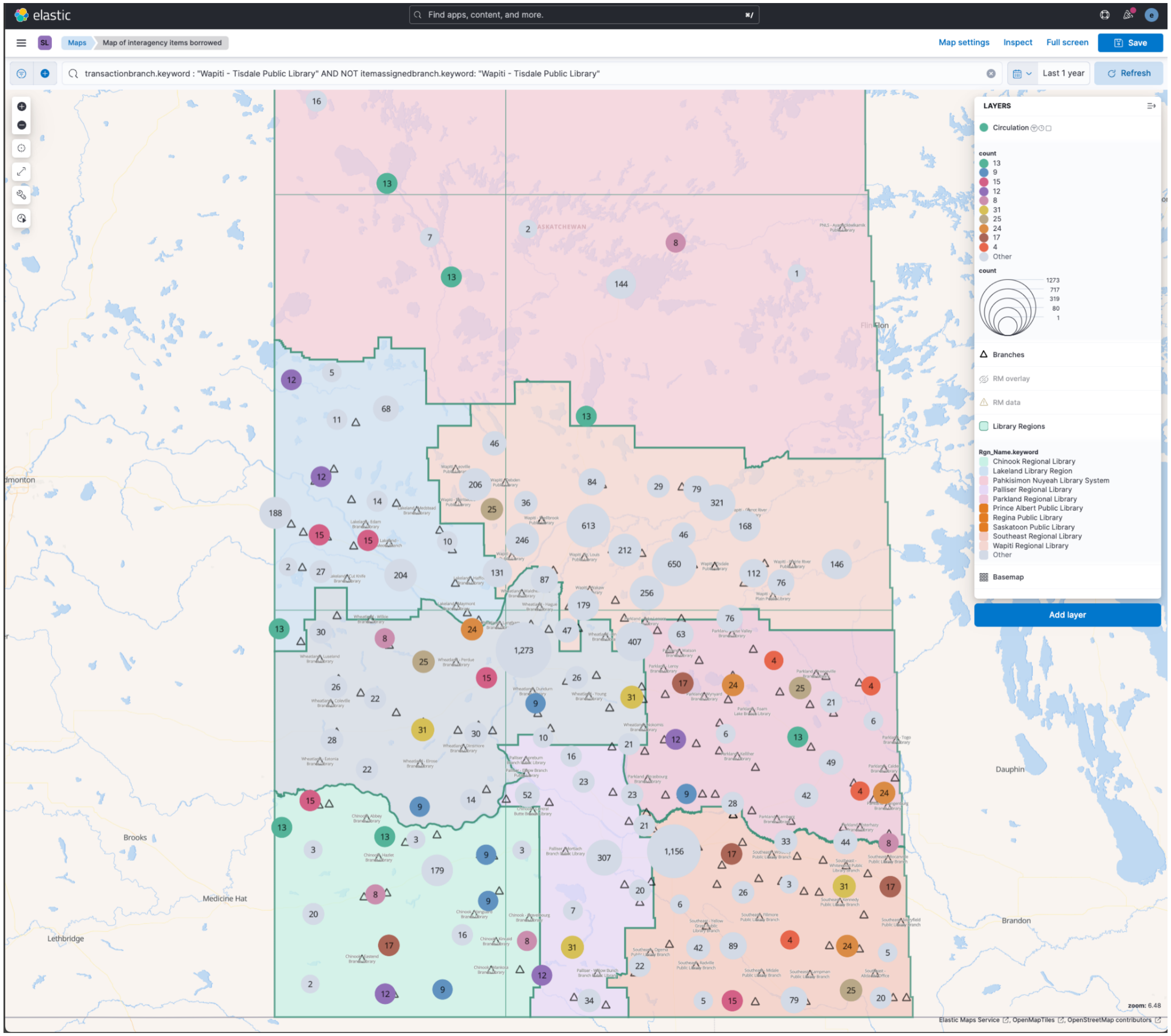
Census Subdivisions

Census Tracts

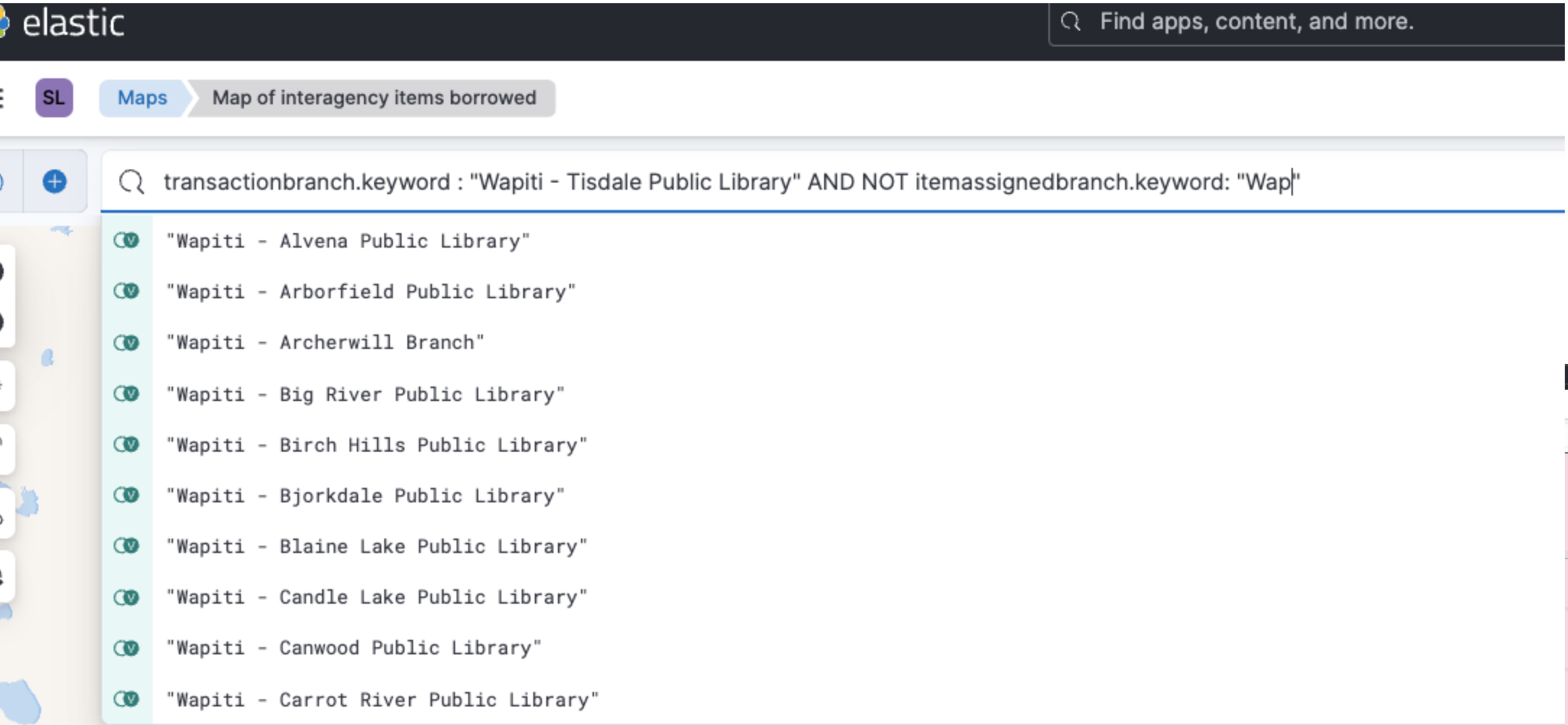
○ Basemap

lat: 53.80349, lon: -110.35392, zoom: 6.6

source libraries

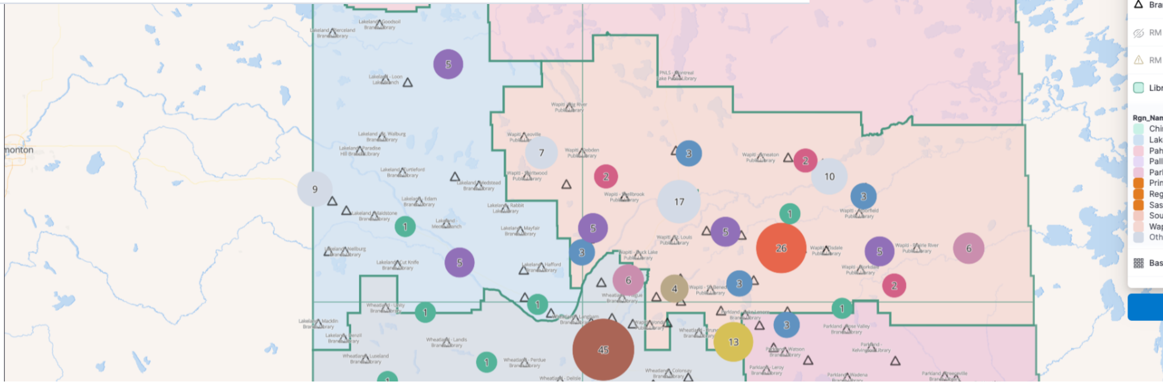


transactionbranch.keyword : "Wapiti - Tisdale Public Library" AND NOT itemassignedbranch.keyword: "Wapiti - Tisdale Public Library"

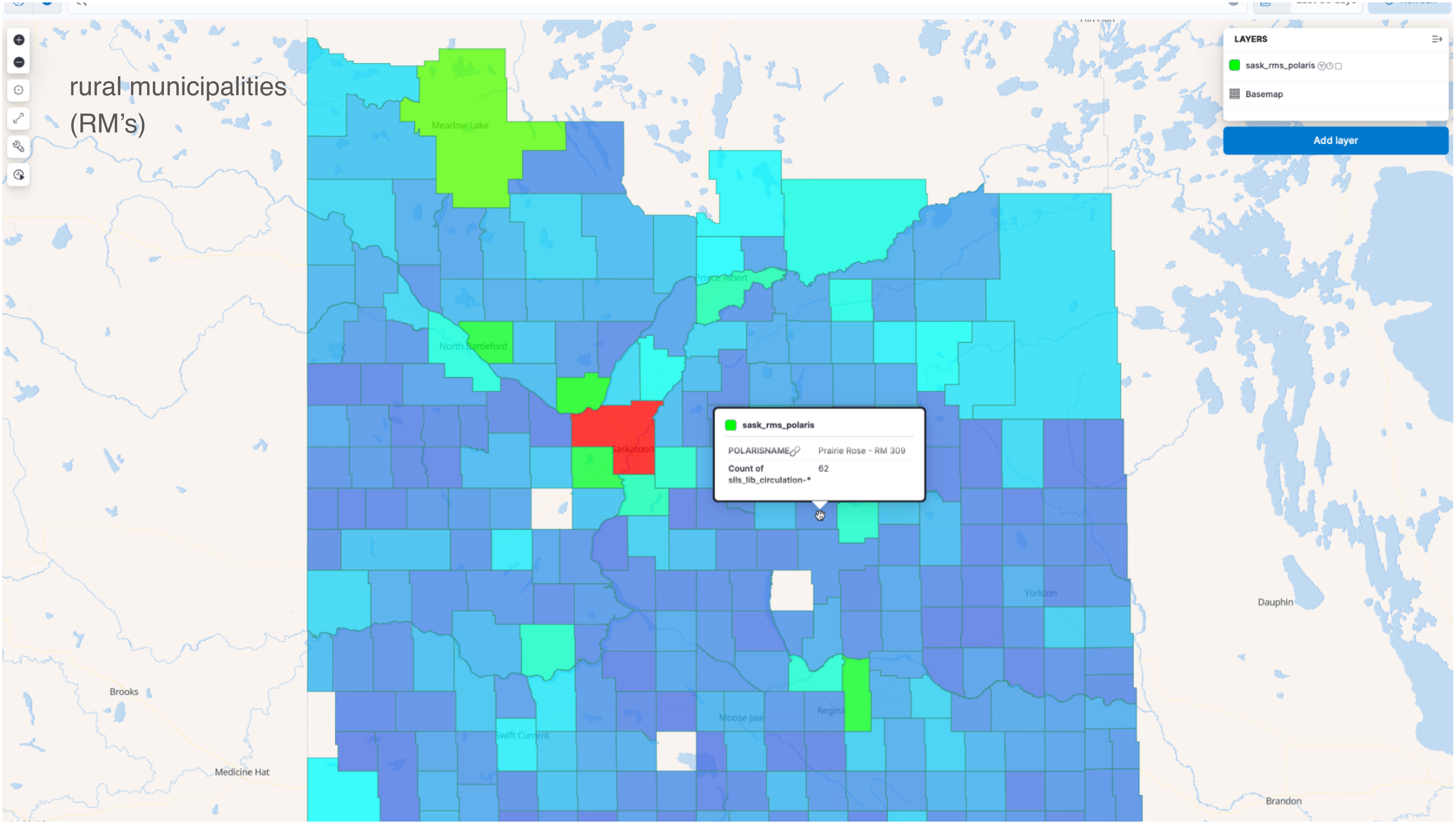

elastic
Find apps, content, and more.
SL
Maps
Map of interagency items borrowed

```
transactionbranch.keyword : "Wapiti - Tisdale Public Library" AND NOT itemassignedbranch.keyword: "Wap"
```

```
"Wapiti - Alvena Public Library"
"Wapiti - Arborfield Public Library"
"Wapiti - Archerwill Branch"
"Wapiti - Big River Public Library"
"Wapiti - Birch Hills Public Library"
"Wapiti - Bjorkdale Public Library"
"Wapiti - Blaine Lake Public Library"
"Wapiti - Candle Lake Public Library"
"Wapiti - Canwood Public Library"
"Wapiti - Carrot River Public Library"
```



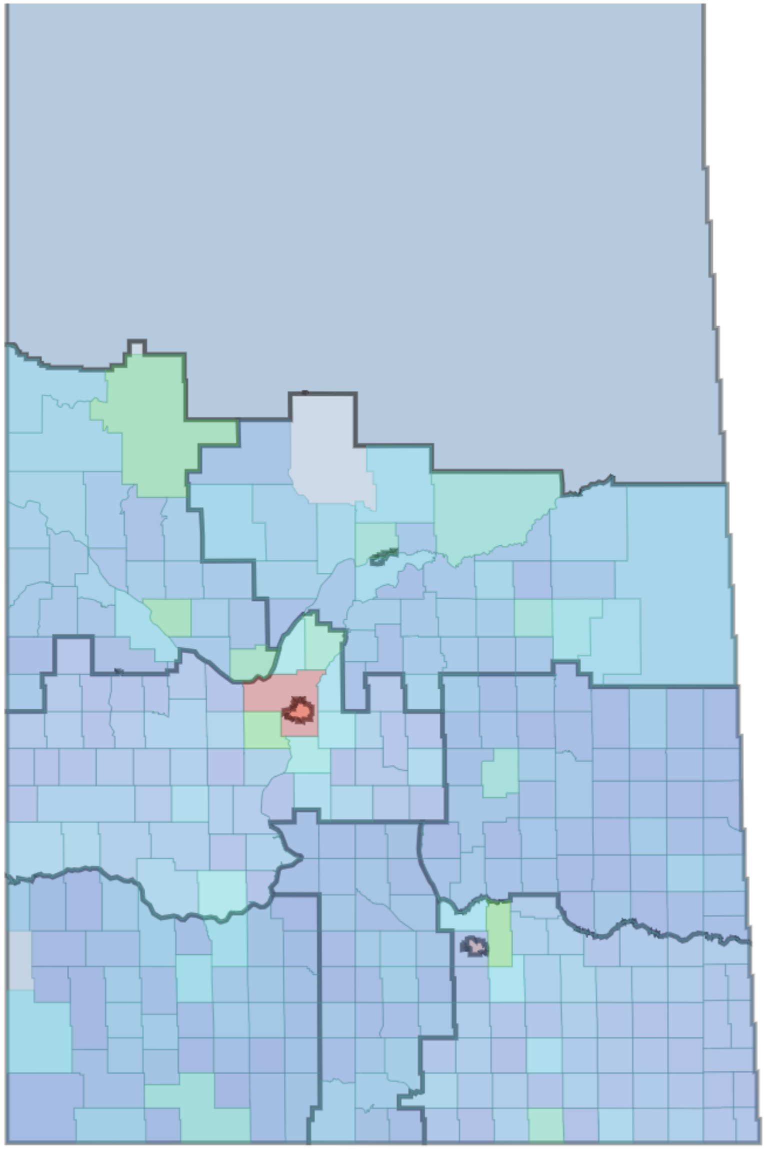
rural municipalities (RM's)



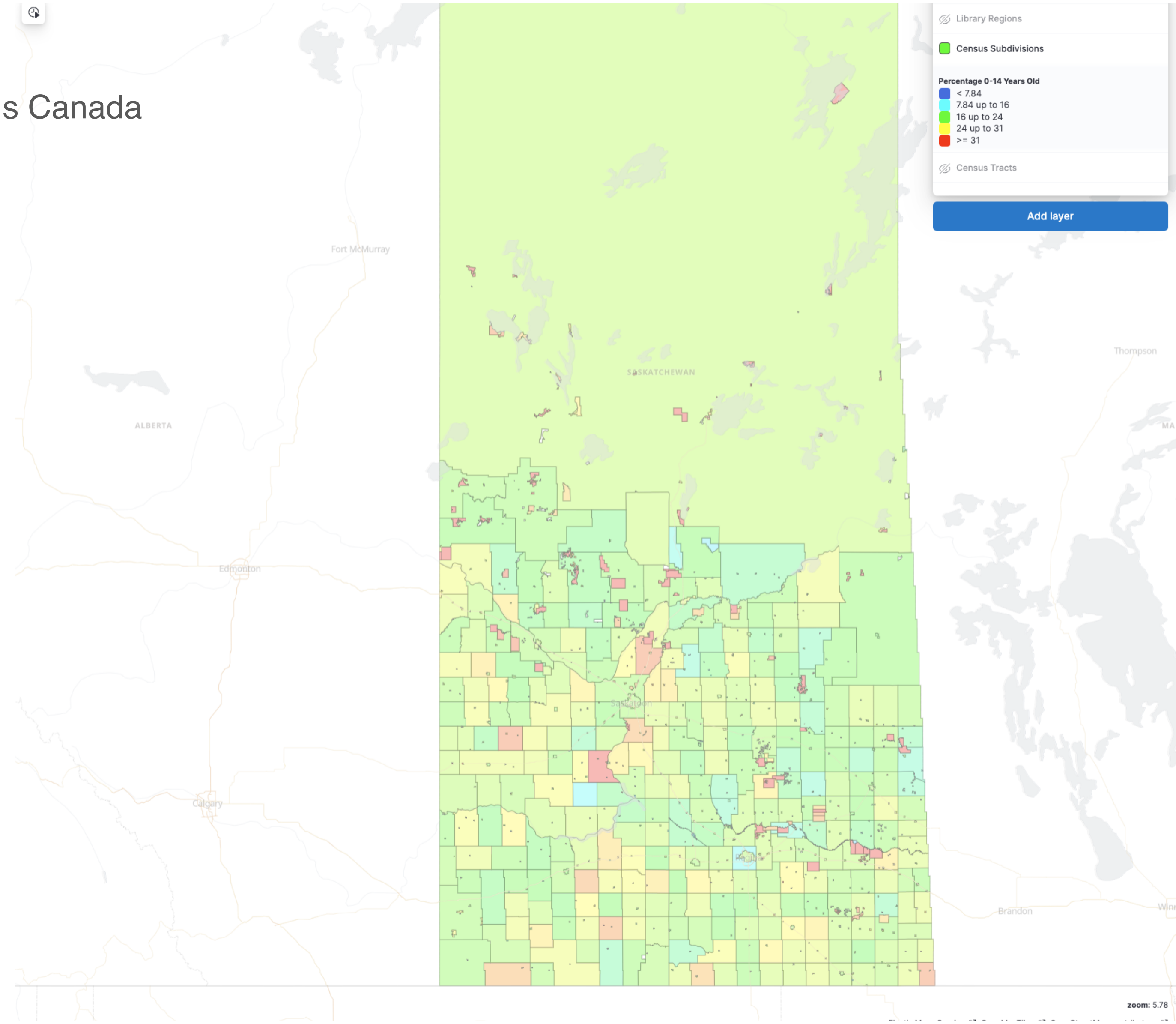
🟩 sask_rms_polaris

POLARISNAME	Prairie Rose - RM 309
Count of sils_lib_circulation-*	62

library regions +
rural municipalities
(RM's)



Census Canada



Library Regions

🟩 Census Subdivisions

Percentage 0-14 Years Old

- 🟦 < 7.84
- 🟦 7.84 up to 16
- 🟩 16 up to 24
- 🟨 24 up to 31
- 🟥 >= 31

Census Tracts

Top 3 IT related dashboards

LEAP use and performance

API use and performance

SSRS execution log

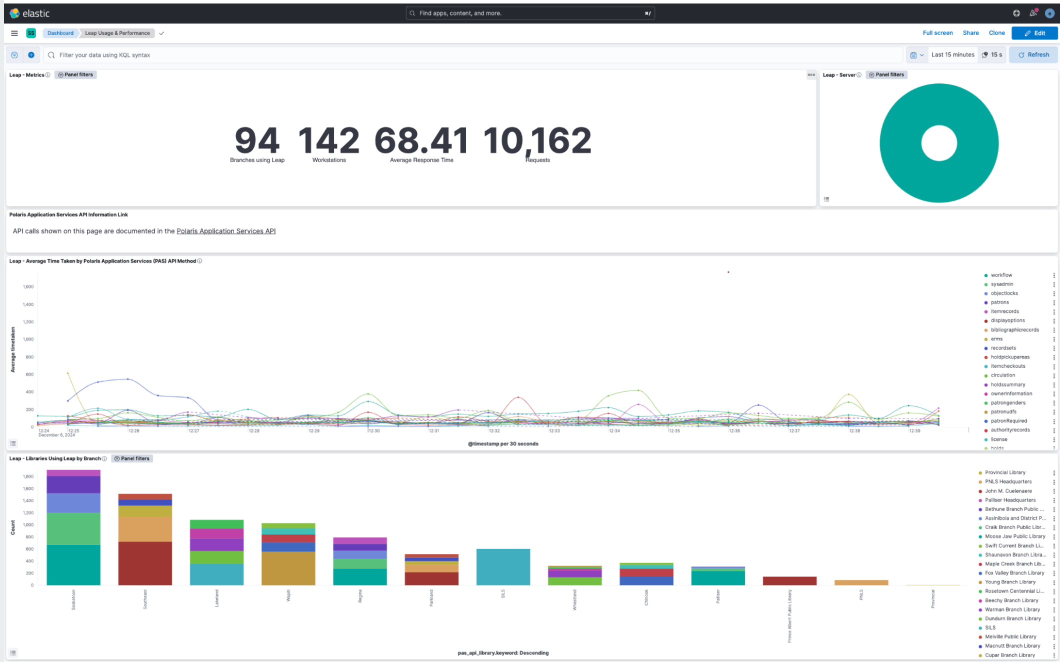
Dashboard 1: LEAP use and performance

number of clients in use

average response time

clients by library / branch

clients per server



Leap - Metrics

94 Branches using Leap

142 Workstations

68.41 Average Response Time

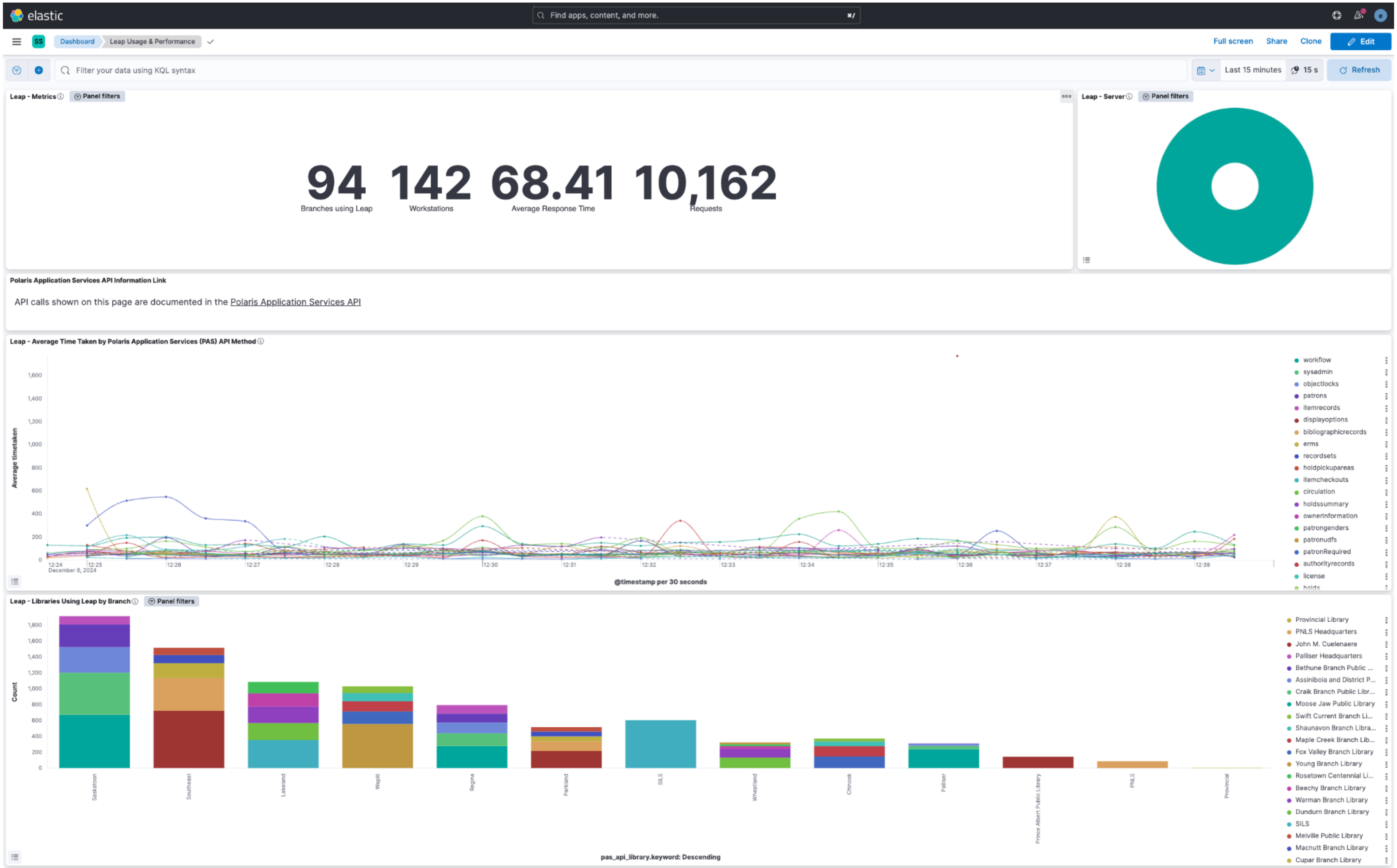
10,162 Requests

Polaris Application Services API Information Link

API calls shown on this page are documented in the Polaris Application Services API

Leap - Average Time Taken by Polaris Application Services (PAS) API Method

Leap - Libraries Using Leap by Branch



Leap - Metrics

94 Branches using Leap

142 Workstations

68.41 Average Response Time

10,162 Requests

Leap - Server

Polaris Application Services API Information Link

API calls shown on this page are documented in the Polaris Application Services API

Leap - Average Time Taken by Polaris Application Services (PAS) API Method

Leap - Libraries Using Leap by Branch

Dashboard 2: API use and performance

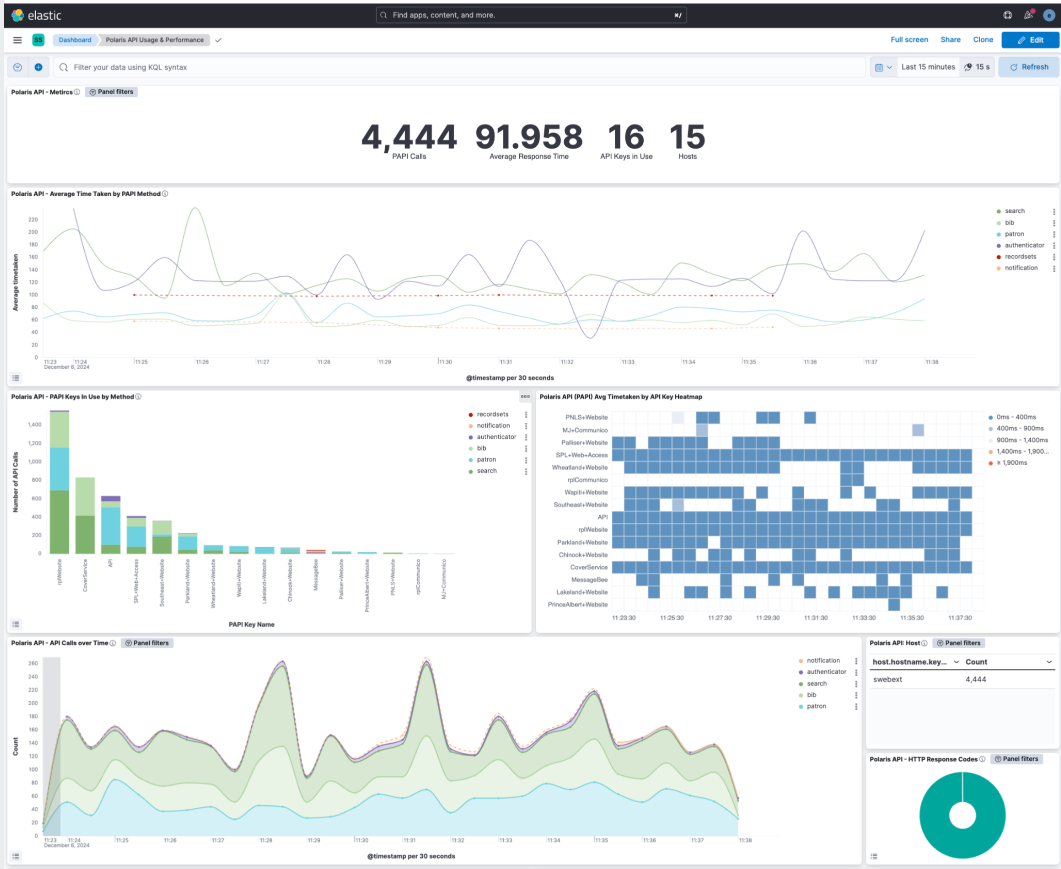
number of API calls / keys

average response time

use by library and branch

use by method

clients per server


elastic
Find apps, content, and more.
Dashboard
Polaris API Usage & Performance
Full screen
Share
Clone
Edit
Filter your data using KQL syntax
Last 15 minutes
15 s
Refresh
Panel filters

Polaris API - Metircs

4,444 PAPI Calls

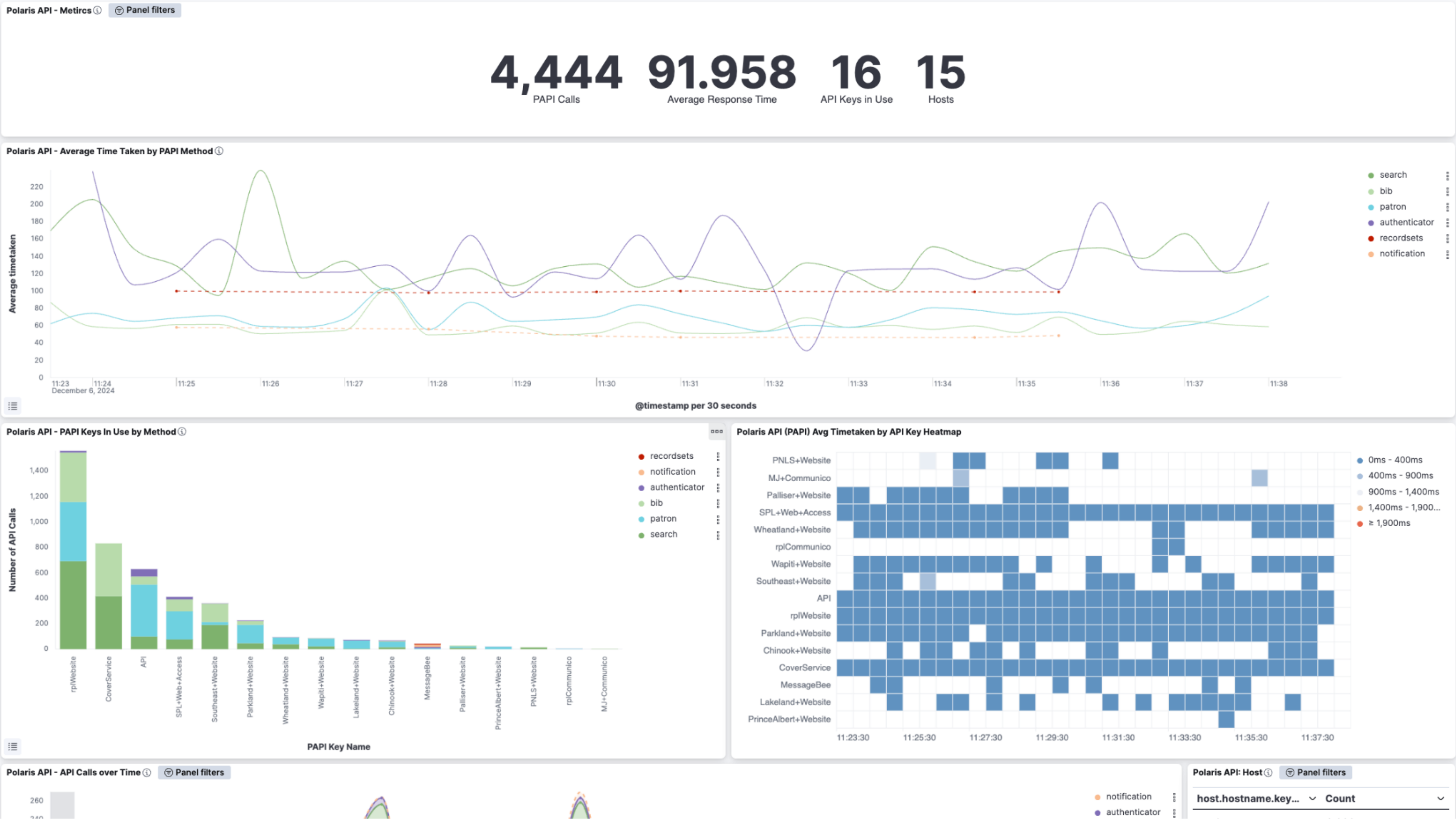
91.958 Average Response Time

16 API Keys in Use

15 Hosts

Polaris API: Host

host.hostname.key...	Count
swebext	4,444



Polaris API - Metircs ⓘ Panel filters

4,444 PAPI Calls

91.958 Average Response Time

16 API Keys in Use

15 Hosts

Polaris API - Average Time Taken by PAPI Method ⓘ

Polaris API - PAPI Keys In Use by Method ⓘ

Polaris API (PAPI) Avg Timetaken by API Key Heatmap

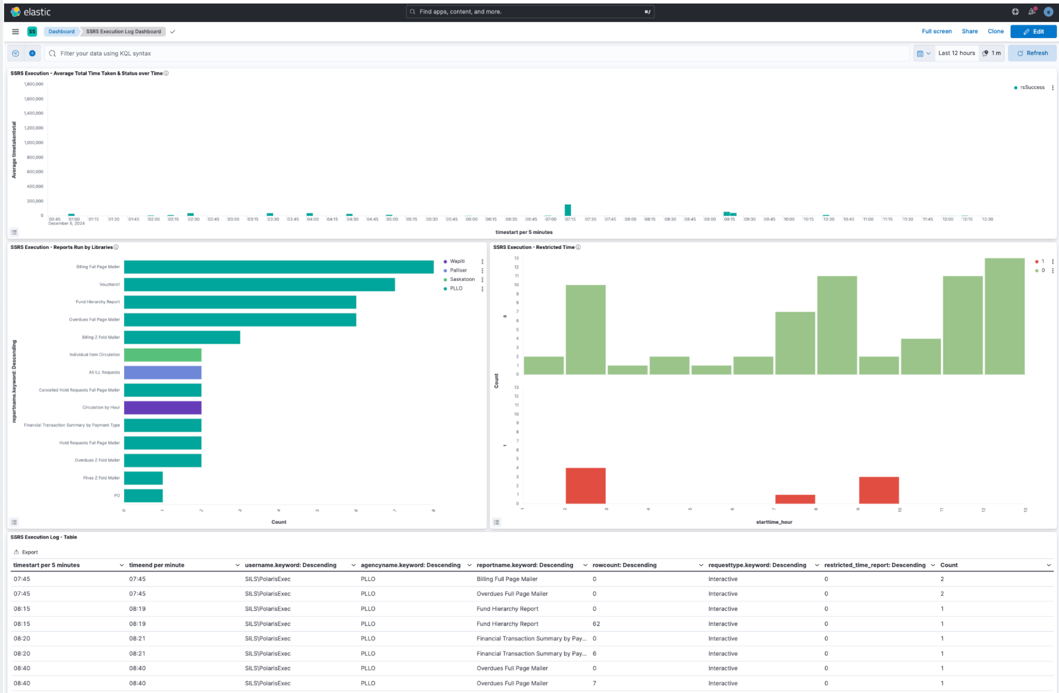
Polaris API - API Calls over Time ⓘ Panel filters

Polaris API: Host ⓘ Panel filters

host.hostname.key... Count

Dashboard: SSRS execution log

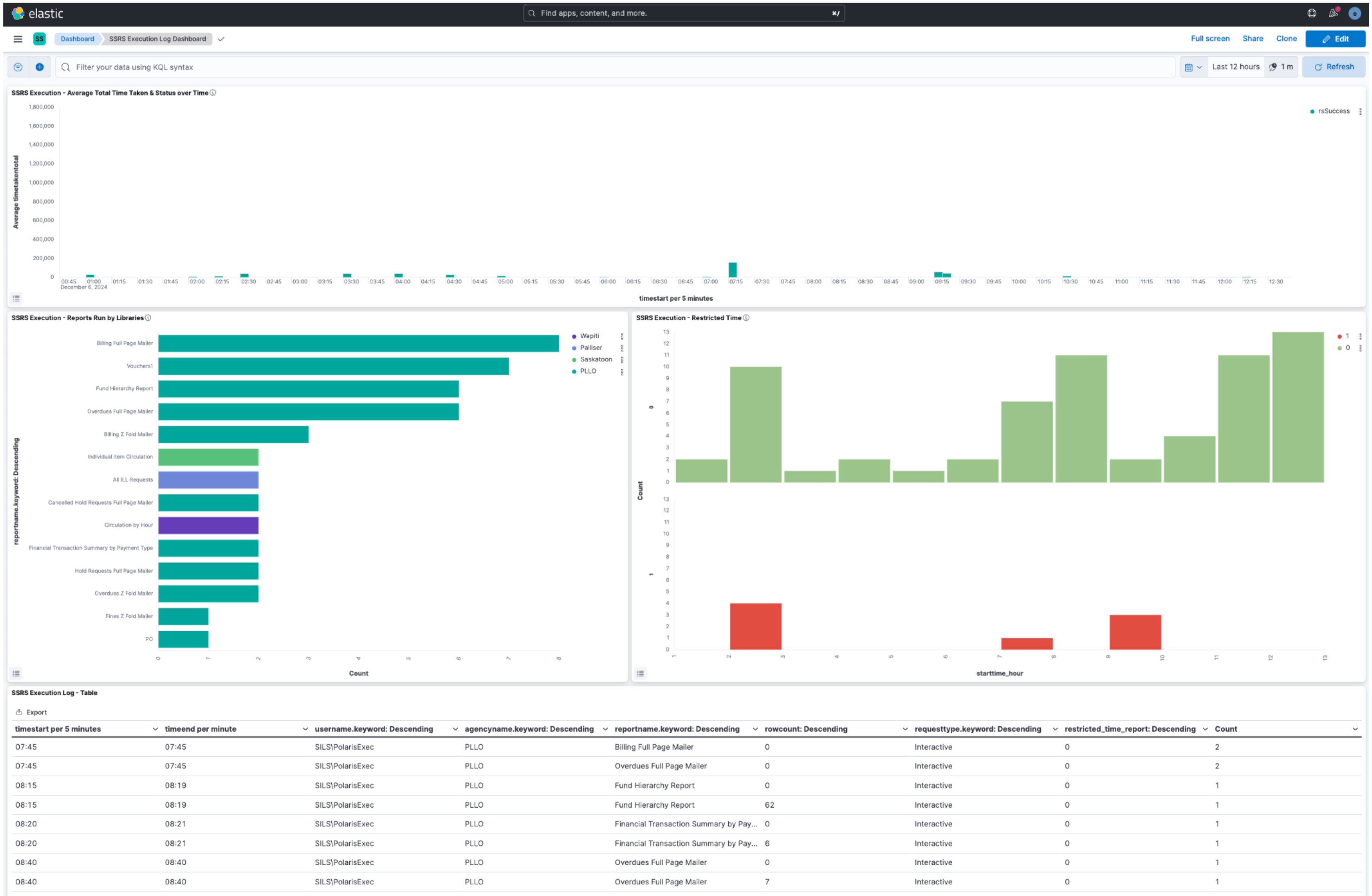
- time taken
- execution timestamp
- # of reports by library
- # of restricted time reports
- list of all reports run



SSRS Execution Log - Table

Export

timestart per 5 minutes	timeend per minute	username.keyword: Descending	agencyname.keyword: Descending	reportname.keyword: Descending	rowcount: Descending	requesttype.keyword: Descending	restricted_time_report: Descending	Count
07:45	07:45	SILS\PolarisExec	PLLO	Billing Full Page Mailer	0	Interactive	0	2
07:45	07:45	SILS\PolarisExec	PLLO	Overdues Full Page Mailer	0	Interactive	0	2
08:15	08:19	SILS\PolarisExec	PLLO	Fund Hierarchy Report	0	Interactive	0	1
08:15	08:19	SILS\PolarisExec	PLLO	Fund Hierarchy Report	62	Interactive	0	1
08:20	08:21	SILS\PolarisExec	PLLO	Financial Transaction Summary by Pay...	0	Interactive	0	1
08:20	08:21	SILS\PolarisExec	PLLO	Financial Transaction Summary by Pay...	6	Interactive	0	1
08:40	08:40	SILS\PolarisExec	PLLO	Overdues Full Page Mailer	0	Interactive	0	1
08:40	08:40	SILS\PolarisExec	PLLO	Overdues Full Page Mailer	7	Interactive	0	1


elastic
Find apps, content, and more.
Dashboard
SSRS Execution Log Dashboard
Full screen
Share
Clone
Edit
Filter your data using KQL syntax
Last 12 hours
1 m
Refresh

SSRS Execution - Average Total Time Taken & Status over Time

SSRS Execution - Reports Run by Libraries

Wapiti
Palliser
Saskatoon
PLLO
reportname.keyword: Descending
Billing Full Page Mailer
Vouchers1
Fund Hierarchy Report
Overdues Full Page Mailer
Billing Z Fold Mailer
Individual Item Circulation
All ILL Requests
Cancelled Hold Requests Full Page Mailer
Circulation by Hour
Financial Transaction Summary by Payment Type
Hold Requests Full Page Mailer
Overdues Z Fold Mailer
Fines Z Fold Mailer
PO
0
1
2
3
4
5
6
7
8
Count

SSRS Execution - Restricted Time

SSRS Execution Log - Table

Export

timestart per 5 minutes	timeend per minute	username.keyword: Descending	agencyname.keyword: Descending	reportname.keyword: Descending	rowcount: Descending	requesttype.keyword: Descending	restricted_time_report: Descending	Count
07:45	07:45	SILS\PolarisExec	PLLO	Billing Full Page Mailer	0	Interactive	0	2
07:45	07:45	SILS\PolarisExec	PLLO	Overdues Full Page Mailer	0	Interactive	0	2
08:15	08:19	SILS\PolarisExec	PLLO	Fund Hierarchy Report	0	Interactive	0	1
08:15	08:19	SILS\PolarisExec	PLLO	Fund Hierarchy Report	62	Interactive	0	1
08:20	08:21	SILS\PolarisExec	PLLO	Financial Transaction Summary by Pay...	0	Interactive	0	1
08:20	08:21	SILS\PolarisExec	PLLO	Financial Transaction Summary by Pay...	6	Interactive	0	1
08:40	08:40	SILS\PolarisExec	PLLO	Overdues Full Page Mailer	0	Interactive	0	1
08:40	08:40	SILS\PolarisExec	PLLO	Overdues Full Page Mailer	7	Interactive	0	1

Elastic for Cybersecurity

An honourable mention…

SIEM: Security Information + Event Management

…now called XDR: https://www.elastic.co/security/xdr

- Endpoint Protection/Security: *behaviour based ‘watching’*
- Anomaly Detection: *“is this an unusual hour for this staff person to login?”*
- Alerts: *used for security related info and performance monitoring*
- Automatic Isolation: *limits access if intrusion successful*

Conclusion

Challenges

Cost

Benefits

Challenges

- lack of available member library staff time to engage and create
- not properly resourced at the SILS Office
  - even so, we rely on it more and more
- descriptive language for each visualization

Cost

Elastic Cloud:

- choose from multiple datacenters (Amazon, Azure, Google), or host locally
- datacenter cost is hourly based on resources
- our implementation is roughly $1300 / month

Elastic Cares

- non-profit designed to help non-profits like all of us
- yearly application for the grant; SILS has been a recipient for the past 3 years
- grant value is now $10k USD annually
- administered as a bill credit each month

Benefits

- staff engagement
- encourages curiosity
- grasping complex data is easier
- access to information takes less effort and is faster
- sole method of mapping at SILS

Questions?

Email us!

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scott@sasklibraries.ca

jason@sasklibraries.ca

eleanor@sasklibraries.ca

andrew@sasklibraries.ca