

EMEA DevXchange 2017

Tech Talk: Customize Dashboards in CA App Experience Analytics with Elastic Search and Kibana

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10th of May 2017



Customize Dashboards in CA App Experience Analytics

WHAT IS DATA STUDIO?

DISCOVER DATA

FILTERING

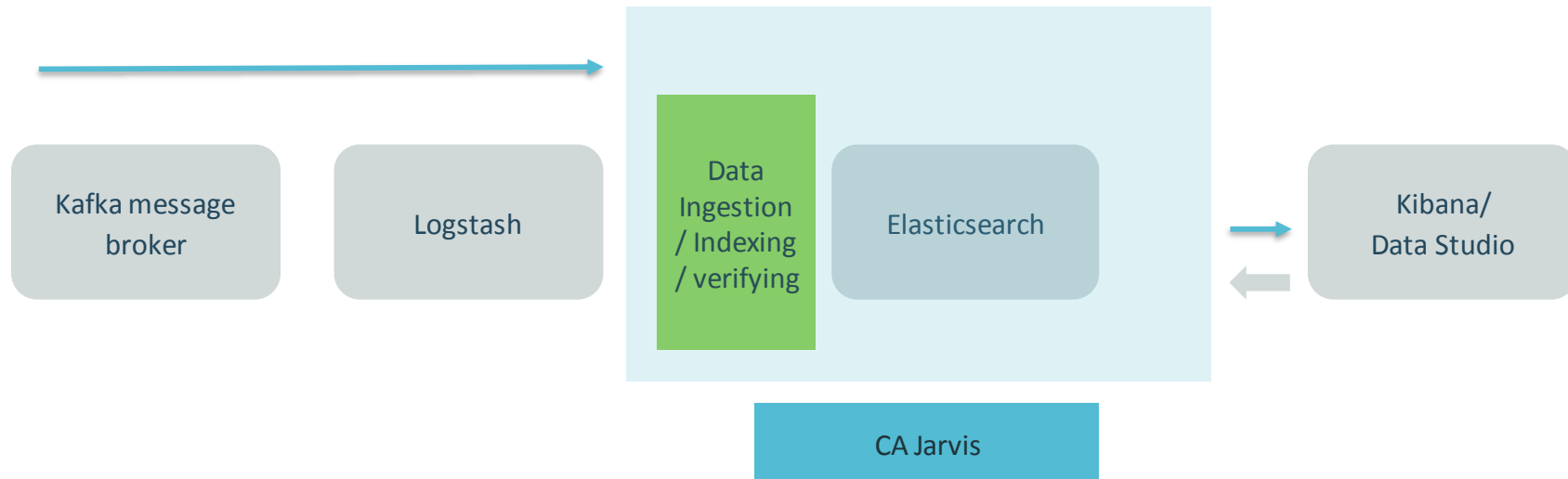
CREATE VISUALIZATIONS

CREATE DASHBOARDS

QUESTIONS / DISCUSSION

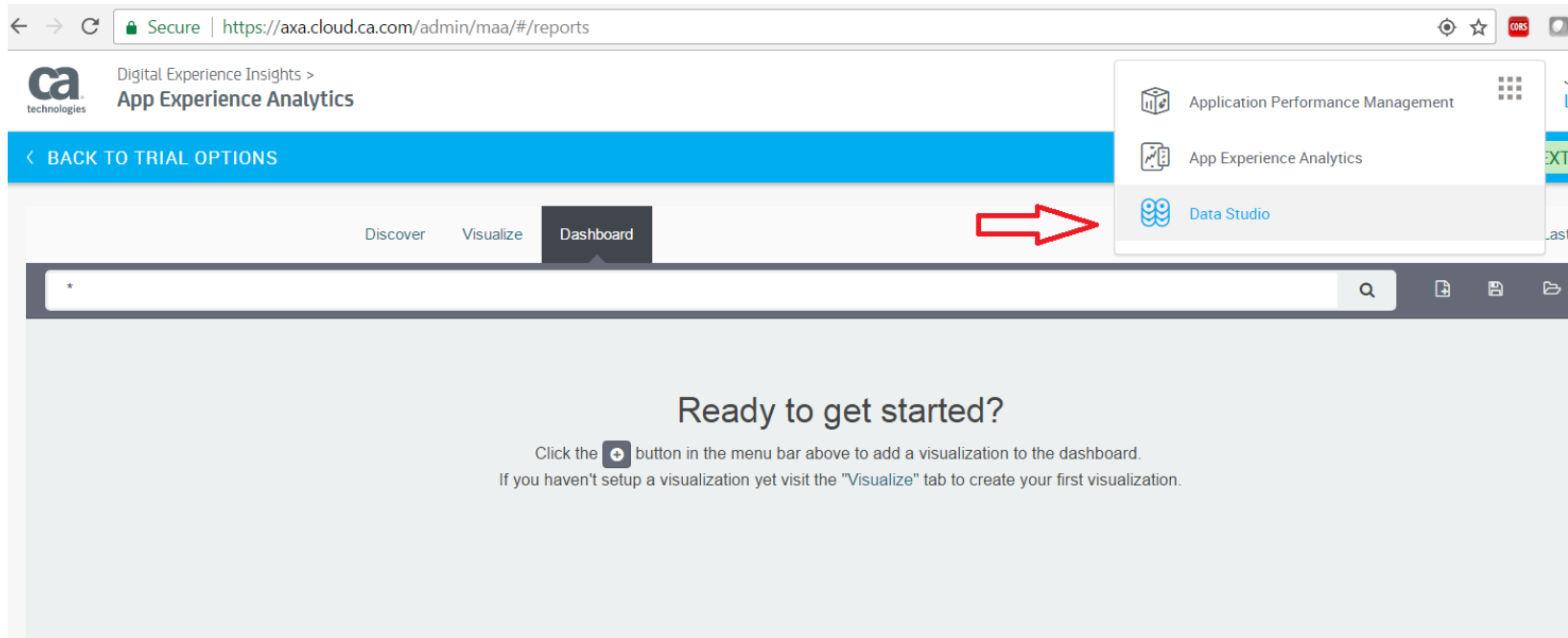
Data flow in CA AXA

Elastic Stack / CA Jarvis



Data Studio

Access to Data Studio



Data Studio

Navigation Example: Discover

1. Select 'Discover'

2. Clear the 'Search' field and click on looking glass

Search...

Selected Fields

Available Fields

No results found 😊

Unfortunately I could not find any results matching your search. I tried really hard. I looked all over the place and frankly, I just couldn't find anything good. Help me, help you. Here are some ideas:

Expand your time range

I see you are looking at an index with a date field. It is possible your query does not match anything in the current time range, or that there is no data at all in the currently selected time range. Click the button below to open the time picker. For future reference you can open the time picker by clicking the **time picker** in the top right corner of your screen.

Refine your query

Last 15 minutes

0 hits

The reason why no data appears is the time period filter – it is set to 15 minutes by default

Data Studio

Navigation Example: Time Period

3. Click here to expand filter

Last 15 minutes

0 hits

Discover Visualize Dashboard

Auto-refresh Last 90 days

Today	Yesterday	Last 15 minutes	Last 30 days
This week	Day before yesterday	Last 30 minutes	Last 60 days
This month	This day last week	Last 1 hour	Last 90 days
This year	Previous week	Last 4 hours	Last 6 months
The day so far	Previous month	Last 12 hours	Last 1 year
Week to date	Previous year	Last 24 hours	Last 2 years
Month to date		Last 7 days	Last 5 years
Year to date			

4. Select 'Last 90 Days'

Data Studio will automatically refresh search results

June 25th 2016, 02:23:53.075 - September 23rd 2016, 02:23:53.075 — [by day](#)

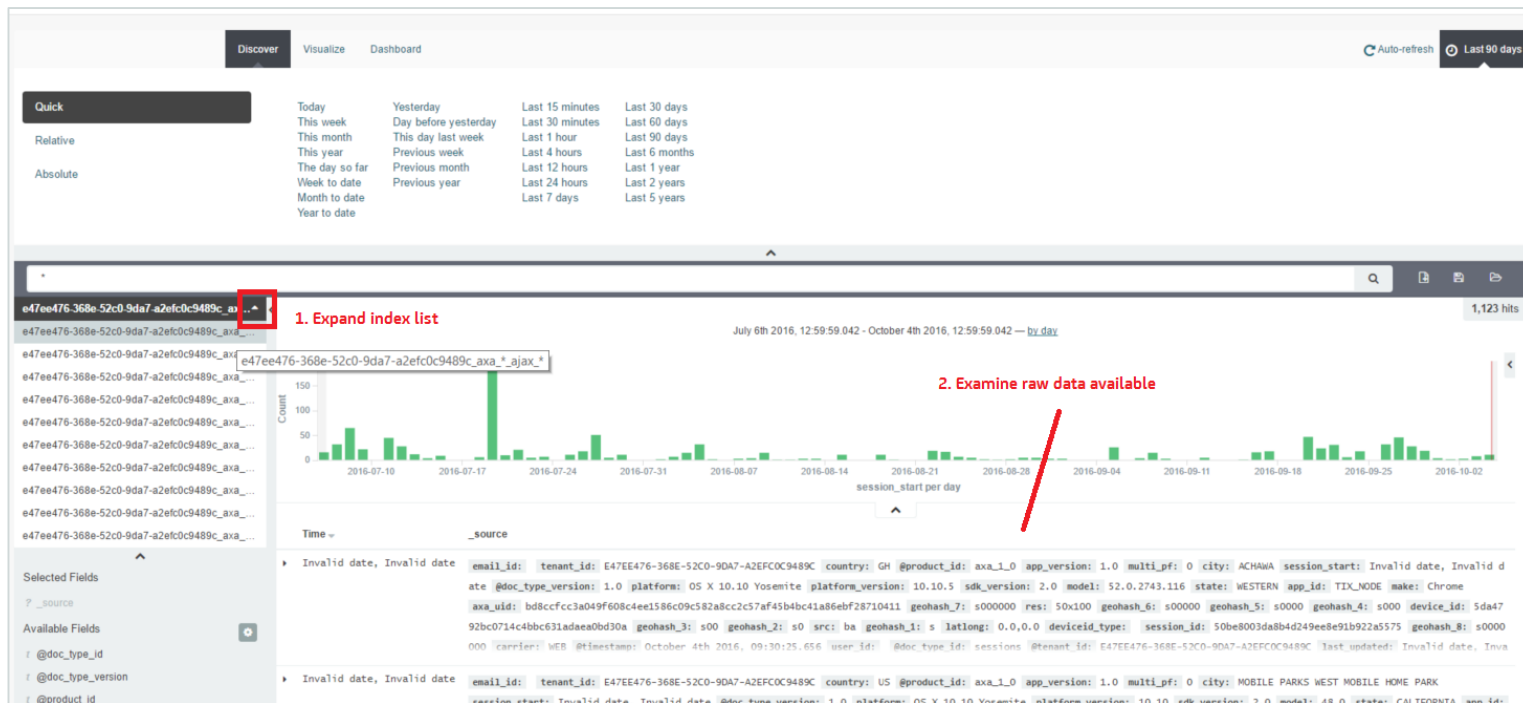
2,269 hits

Count

timeStamp per day

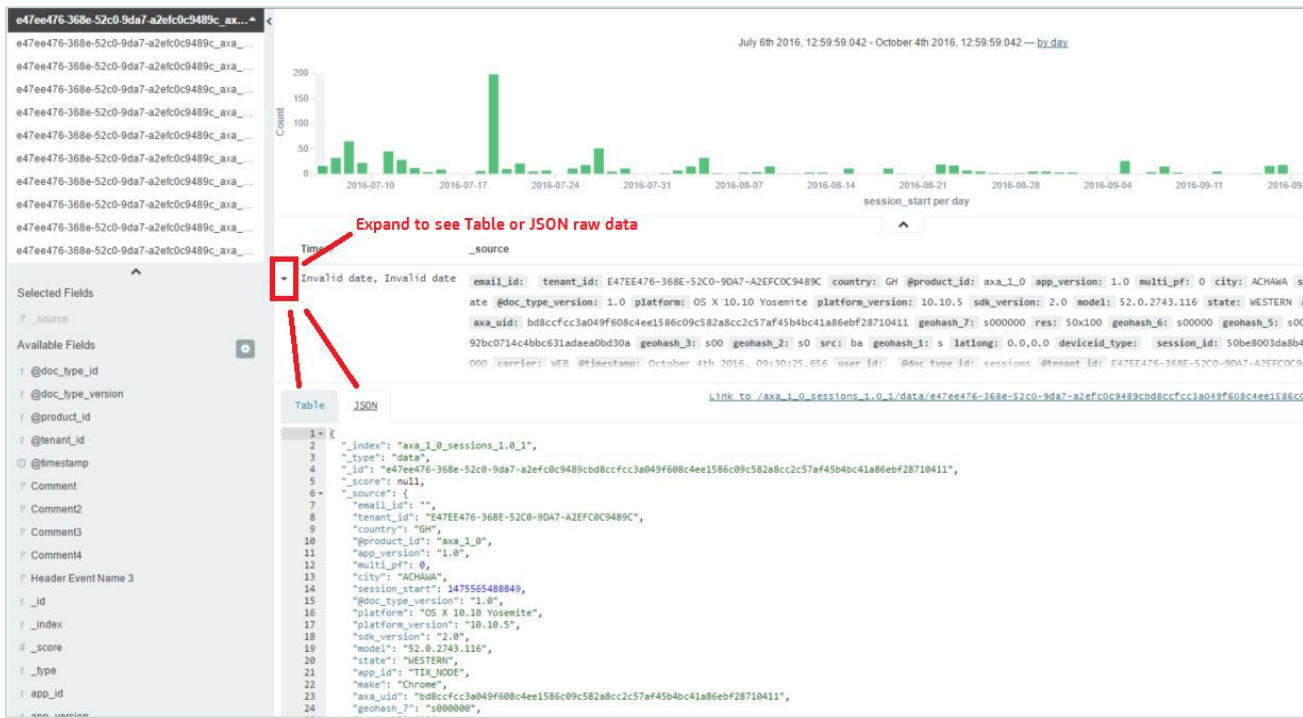
Data Studio

Discover: Raw Data Available with Each Index



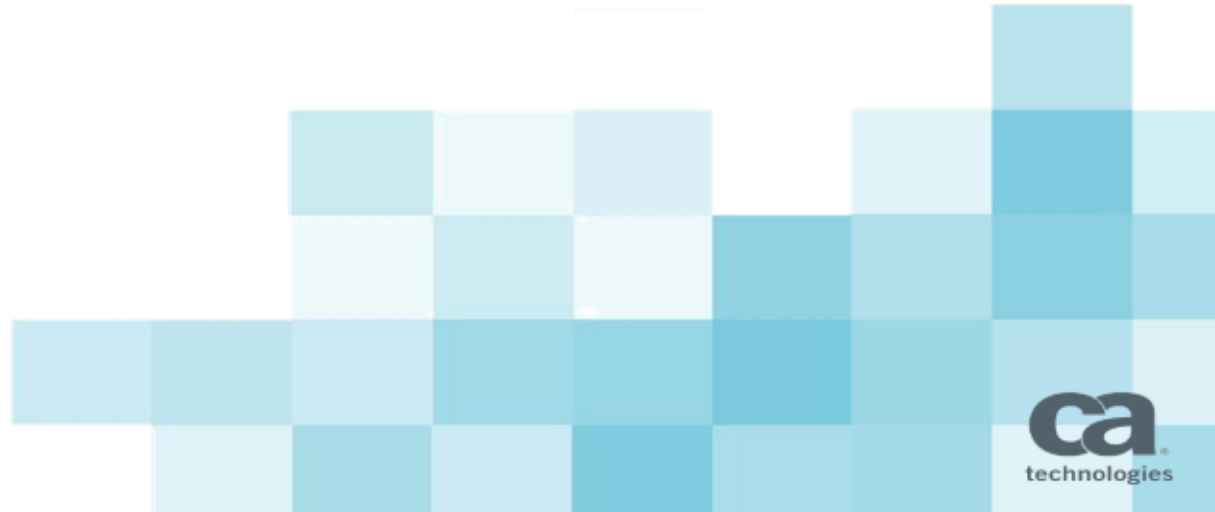
Data Studio

Discover: Raw Data Available with Each Index



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Building Visualizations: Pie chart and table



Visualizations








Creating Your First Data Studio Pie Chart

1. Click on 'Visualize'

Discover Visualize Dashboard

Create a new visualization

Step 1

 Area chart	Great for stacked timelines in which the total of all series is more important than comparing any two or more series. Less useful for assessing the relative change of unrelated data points as changes in a series lower down the stack will have a difficult to gauge effect on the series above it.
 Data table	The data table provides a detailed breakdown, in tabular format, of the results of a composed aggregation. Tip, a data table is available from many other charts by clicking grey bar at the bottom of the chart.
 Line chart	Often the best chart for high density time series. Great for comparing one series to another. Be careful with sparse sets as the connection between points can be misleading.
 Markdown widget	Useful for displaying explanations or instructions for dashboards.
 Metric	One big number for all of your one big number needs. Perfect for showing a count of hits, or the exact average a numeric field.
 Pie chart	Pie charts are ideal for displaying the parts of some whole. For example, sales percentages by department. Pro Tip: Pie charts are best used sparingly, and with no more than 7 slices per pie.
 Tile map	Your source for geographic maps. Requires an elasticsearch geo_point field. More specifically, a field that is mapped as type:geo_point with latitude and longitude coordinates.

2. Select Pie Chart

Visualizations

Creating Your First Data Studio Pie Chart

Discover

Visualize

Dashboard

Select a search source

Step 2

1. Click on 'new search'

From a new search

Select an index pattern

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_ajax_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_crashes_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_error_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_image_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_js_func_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_media_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_page_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_resource_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_script_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_session_events_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_session_network_performance_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_session_performance_*

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_sessions_*

2. Select axa_page_* -index from drop-down

Visualizations

To See Results, Expand the Time Period Filter

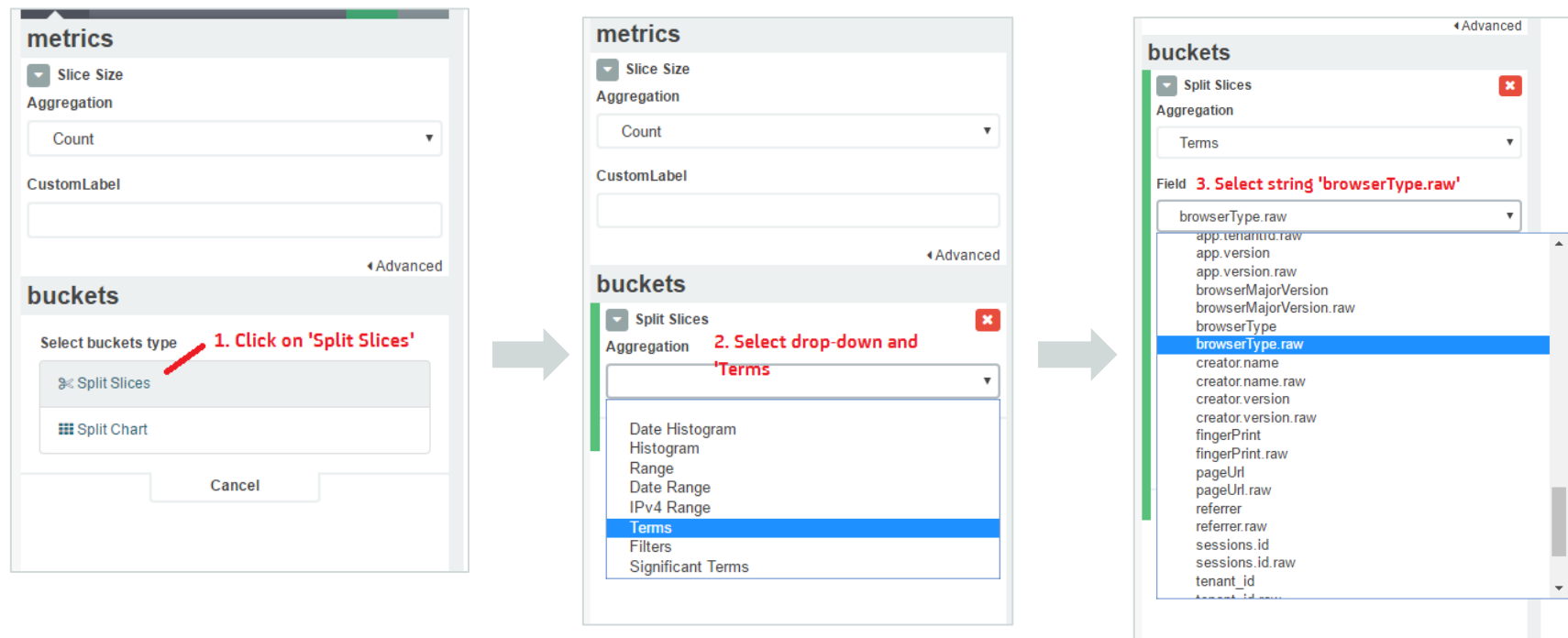
The screenshot shows the Google Data Studio interface. At the top, the 'Visualize' tab is selected, and a large grey arrow points to the right. Below the tabs, there are filters for 'Auto-refresh' and 'Last 90 days'. On the left, a 'Quick' filter menu is open, showing 'Relative' and 'Absolute' options. The main visualization area displays a large green semi-circle. A tooltip is visible over the semi-circle, showing a table with the following data:

field	value	Count
level 1	Count	2,269 (100%)

The left sidebar contains the 'metrics' section with 'Count' selected as the aggregation, and the 'buckets' section. The top right corner shows the user 'axadmin' with a 'LOGOUT' button.



Visualizations

To Slice Metric, Add a Bucket to Separate Metric Data by String Data




Visualizations

Apply Changes to See Sliced Data

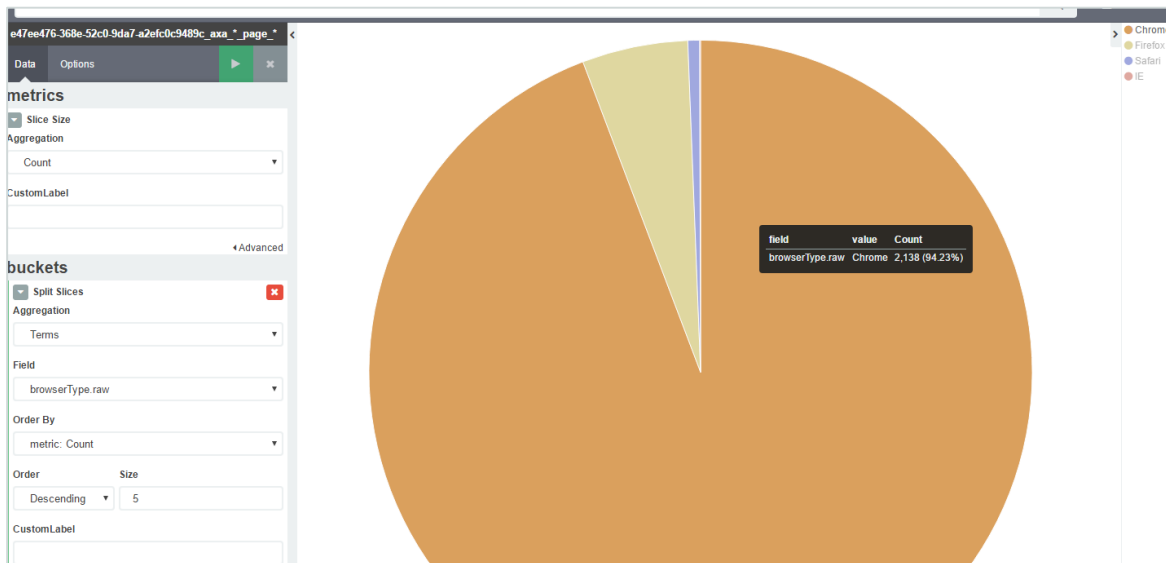
Data Options  

metrics

 Slice Size **4. Click on 'Apply Changes'**

Aggregation

Count



Visualizations

Task 1: Add custom field names and apply changes

The screenshot shows a configuration panel for a visualization. On the left is a dark sidebar with a blue header bar. The main panel has a top bar with 'Data' and 'Options' tabs, a green play button, and a close button. Below this are two sections: 'metrics' and 'buckets'. The 'metrics' section has a 'Slice Size' dropdown, an 'Aggregation' dropdown set to 'Count', and a 'CustomLabel' text input field. The 'buckets' section has a 'Split Slices' dropdown, an 'Aggregation' dropdown set to 'Terms', a 'Field' dropdown set to 'browserType.raw', an 'Order By' dropdown set to 'metric: Count', and an 'Order' section with 'Descending' and '5'. Both sections have a 'CustomLabel' text input field. Two red arrows point to these 'CustomLabel' fields. At the bottom right of the 'buckets' section is an 'Add sub-buckets' button. Both sections have an 'Advanced' toggle.

metrics

☒ Slice Size

Aggregation

Count

CustomLabel

Advanced

buckets

☒ Split Slices

Aggregation

Terms

Field

browserType.raw

Order By

metric: Count

Order

Descending

Size

5

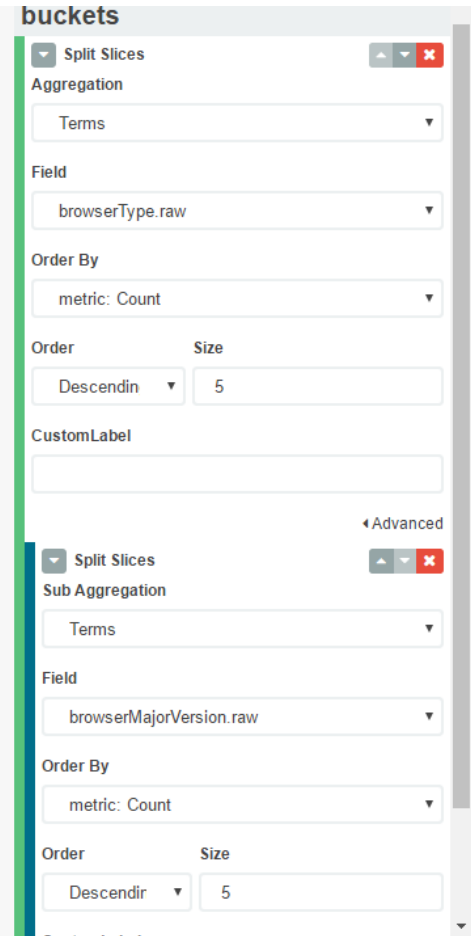
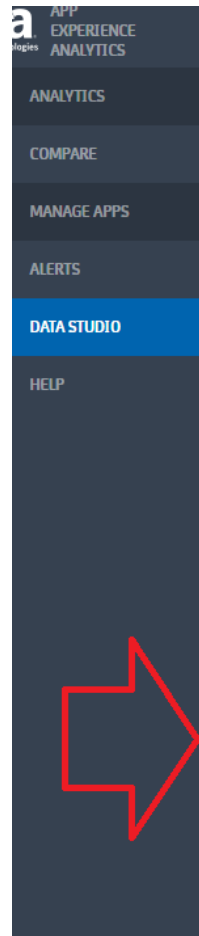
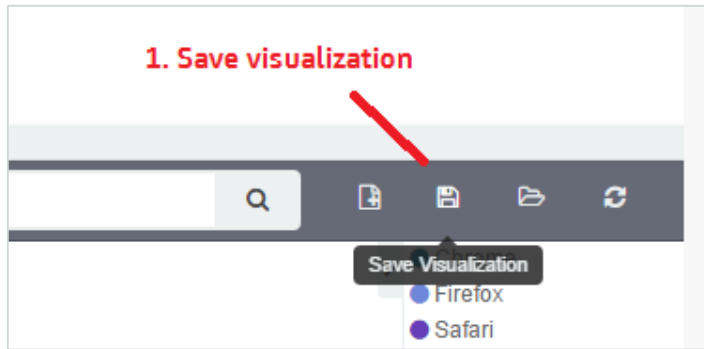
CustomLabel

Advanced

Add sub-buckets

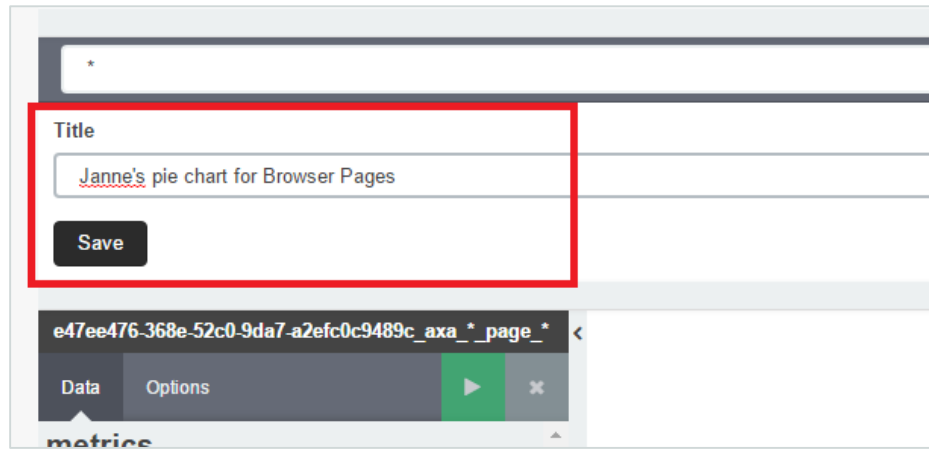
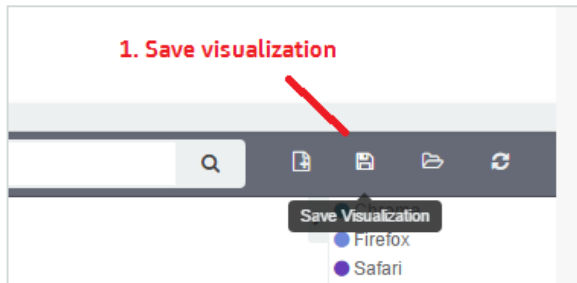
Visualizations

Task 2: Add another bucket to further slice by browser major version



Visualizations

Save Visualization



The visualization is now available for selection



Visualizations

Create a New Visualization Using the Table

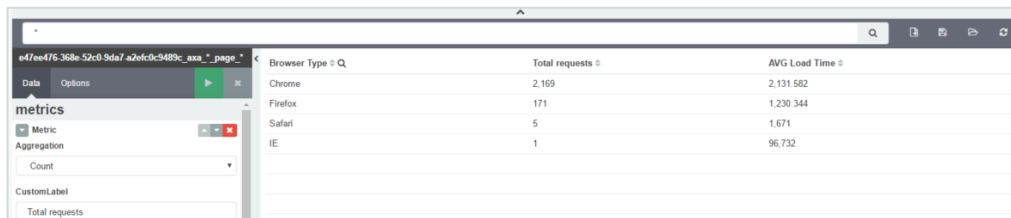
Step 1: Create a Data Table visualization using index pattern `*_page_*`

Step 2: Add metric AVG Load Time

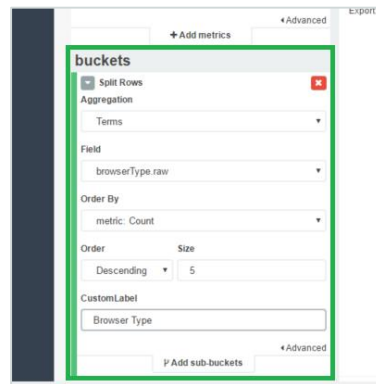
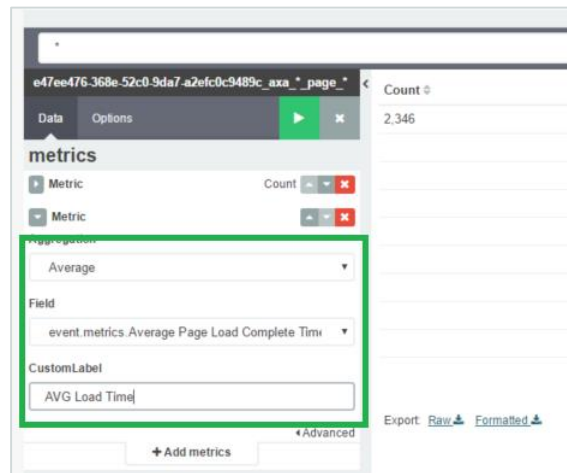
Step 3: Split the rows by using bucket Terms – BrowserType.raw

Step 4: Add custom labels and run report

Step 5: Save



Browser Type	Total requests	AVG Load Time
Chrome	2,169	2,131.582
Firefox	171	1,230.344
Safari	5	1,671
IE	1	96.732



Visualizations

Table

Step 6: Add more metrics and save

Title

Janne's Table

Save

e47ee476-368e-52c0-9da7-a2efc0c9489c_axa_*_page_*

Janne's Table

Browser Type	Total requests	AVG Load Time	AVG Render Time	AVG Round Trip	AVG Time to first Byte
Chrome	3,795	870.362	614.274	142.196	170.625
Firefox	256	1,240.455	584.718	299.491	319.627
Safari	13	1,611.923		733,517,055,331.1	380.308
IE	1	96,732		4	29

Export: [Raw](#) [Formatted](#)

metrics

Metric Count

Metric

Average event.metrics.Average Page Load Complete Time

Average event.metrics.Browser Render Time

Metric

Aggregation

Average

Field

event.metrics.Average Round Trip Time

CustomLabel

AVG Round Trip

Advanced

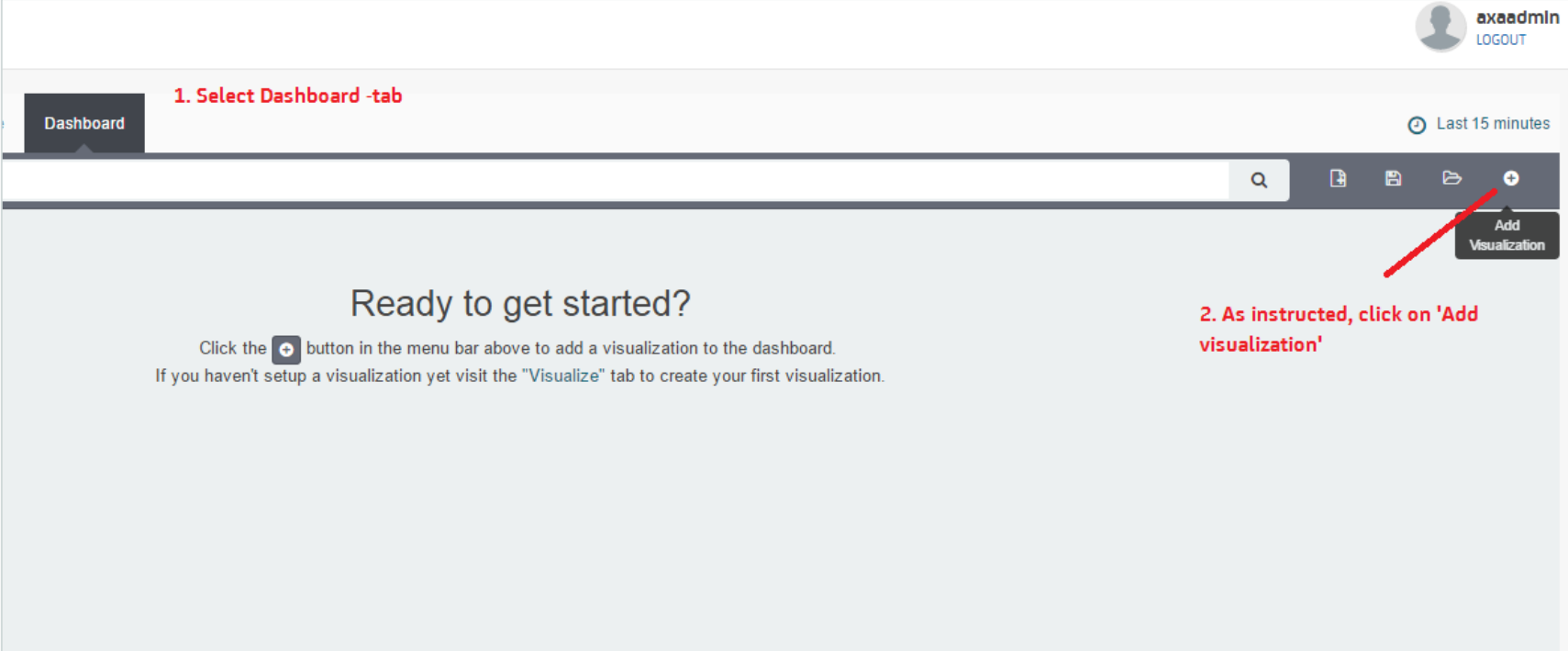
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Building Dashboards



Dashboard

Using Saved Visualizations



The screenshot shows a web dashboard interface. At the top right, there is a user profile icon for 'axaadmin' with a 'LOGOUT' link. Below this, a dark navigation bar contains a 'Dashboard' tab, a search bar, and several icons including a plus sign. A red arrow points from the text '2. As instructed, click on 'Add visualization'' to the plus icon in the navigation bar. The main content area has a heading 'Ready to get started?' and a paragraph: 'Click the  button in the menu bar above to add a visualization to the dashboard. If you haven't setup a visualization yet visit the "Visualize" tab to create your first visualization.'

1. Select Dashboard -tab

2. As instructed, click on 'Add visualization'

Dashboard

Find Saved Visualizations

The screenshot displays the Tableau Dashboard interface. At the top, there are tabs for 'Discover', 'Visualize', and 'Dashboard', with 'Dashboard' being the active tab. To the right of these tabs are buttons for 'Auto-refresh' and 'Last 6 months'. Below the tabs, there is a 'Quick' section with a dropdown menu showing 'Relative' and 'Absolute' options. To the right of this menu is a grid of time-based filters, including 'Today', 'This week', 'This month', 'This year', 'The day so far', 'Week to date', 'Month to date', 'Year to date', 'Yesterday', 'Day before yesterday', 'This day last week', 'Previous week', 'Previous month', 'Previous year', 'Last 15 minutes', 'Last 30 minutes', 'Last 1 hour', 'Last 4 hours', 'Last 12 hours', 'Last 24 hours', 'Last 7 days', 'Last 30 days', 'Last 60 days', 'Last 90 days', 'Last 6 months', 'Last 1 year', 'Last 2 years', and 'Last 5 years'. Below the filters is a search bar with a magnifying glass icon. To the right of the search bar are icons for 'Add', 'Share', 'Export', and 'Refresh'. Below the search bar, there are two tabs: 'Visualizations' and 'Searches'. The 'Visualizations' tab is active, and it shows a list of saved visualizations for the user 'Janne'. The list includes 'Janne's Heatmap', 'Janne's Sessions by Platform', 'Janne's Table', and 'Janne's pie chart for Browser Pages'. A red arrow points to the search bar, and another red arrow points to the 'Add' icon in the top right corner.

Discover Visualize **Dashboard** Auto-refresh Last 6 months

Quick

Relative

Absolute

Today
This week
This month
This year
The day so far
Week to date
Month to date
Year to date

Yesterday
Day before yesterday
This day last week
Previous week
Previous month
Previous year

Last 15 minutes
Last 30 minutes
Last 1 hour
Last 4 hours
Last 12 hours
Last 24 hours
Last 7 days

Last 30 days
Last 60 days
Last 90 days
Last 6 months
Last 1 year
Last 2 years
Last 5 years

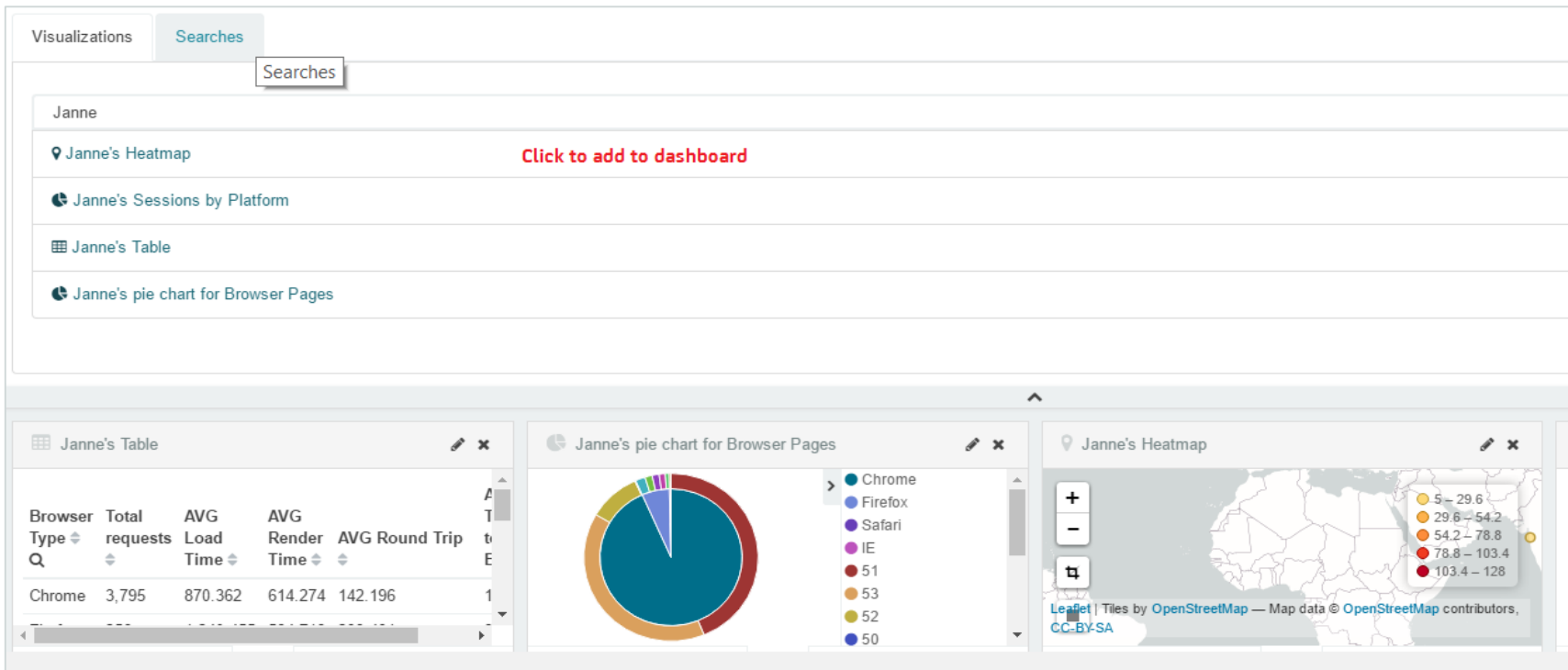
Visualizations Searches

Janne 4 visualizations

- Janne's Heatmap
- Janne's Sessions by Platform
- Janne's Table
- Janne's pie chart for Browser Pages

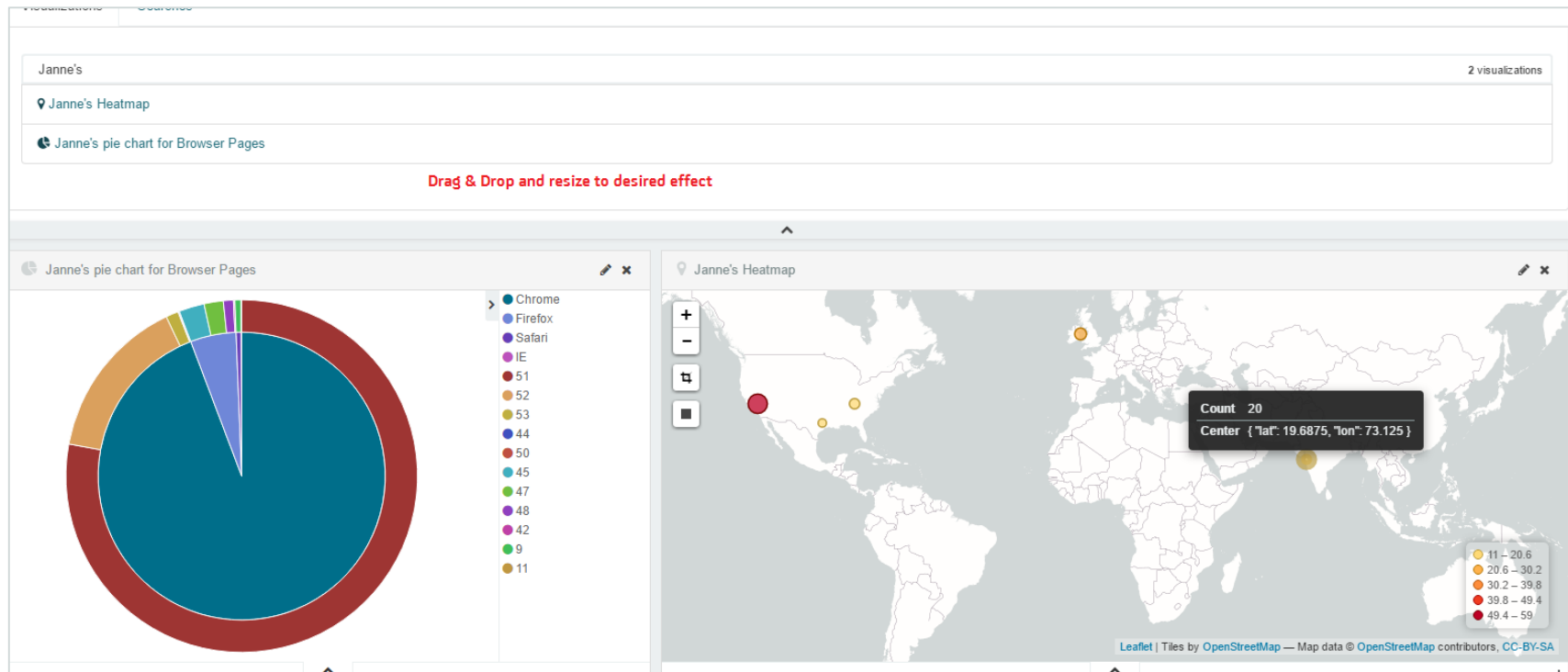
Dashboard

Click on Visualizations to Add Them to Dashboard



Dashboard

Modify Layout



Dashboard

Save

Save As

Janne's Dashboard

☐ Store time with dashboard ⓘ

Save

2. Give name and click on 'Save'

1. Click on 'Save'

Janne's pie chart for Browser Pages

Janne's Heatmap

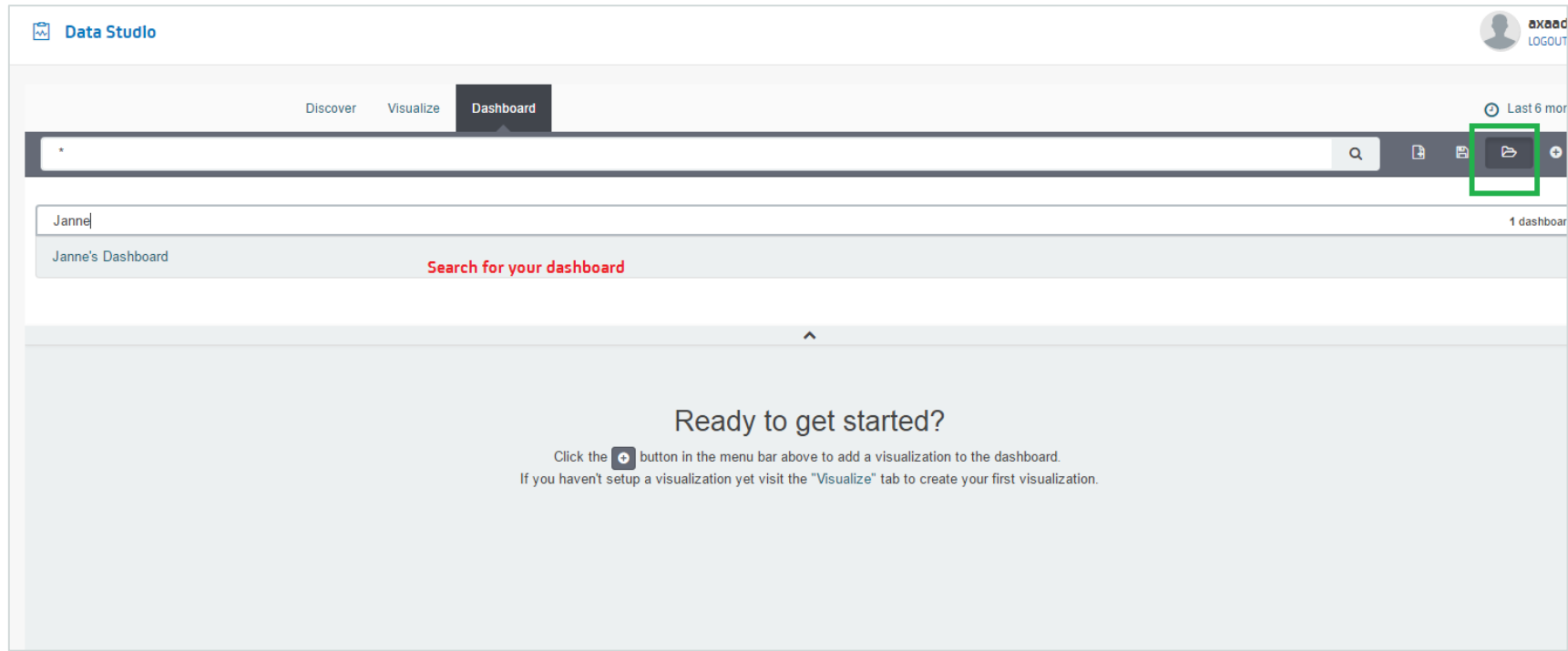
Legend for Heatmap:

- 11 – 23
- 23 – 35
- 35 – 47
- 47 – 59
- 59 – 71

Leaflet | Tiles by OpenStreetMap — Map data © OpenStreetMap contributors, CC-BY-SA

Existing Dashboards

Open Dashboard



Existing Dashboards

Filtering Data: Time Period

Data Studio Logout

2. Try out the below period filters Discover Visualize **Dashboard** Auto-refresh Last 6 months

Quick

Relative

Absolute

Today
This week
This month
This year
The day so far
Week to date
Month to date
Year to date

Yesterday
Day before yesterday
This day last week
Previous week
Previous month
Previous year

Last 15 minutes
Last 30 minutes
Last 1 hour
Last 4 hours
Last 12 hours
Last 24 hours
Last 7 days

Last 30 days
Last 60 days
Last 90 days
Last 6 months
Last 1 year
Last 2 years
Last 5 years

1. Click on the current filter to select a new period

Janne's Dashboard

Janne's Table

Browser Type	Total requests	AVG Load Time	AVG Render Time	AVG Round Trip	AVG Time to first Byte
Chrome	3,795	870.362	614.274	142.196	170.625
Firefox	271	1,240.455	566.134	299.491	319.627
Safari	13	1,611.923		733,517,055,331.1	380.308
IE	1	96,732		4	29

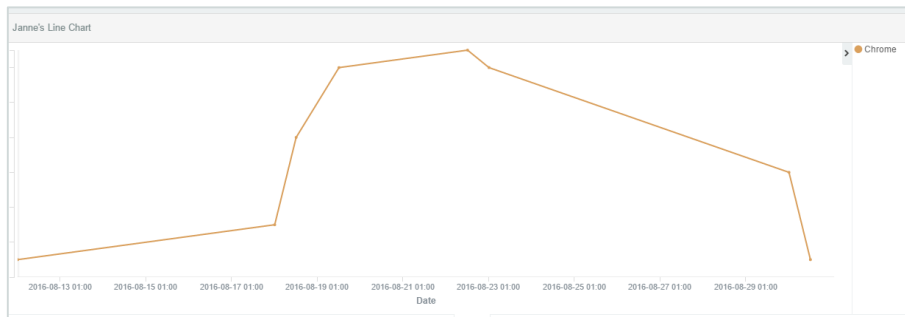
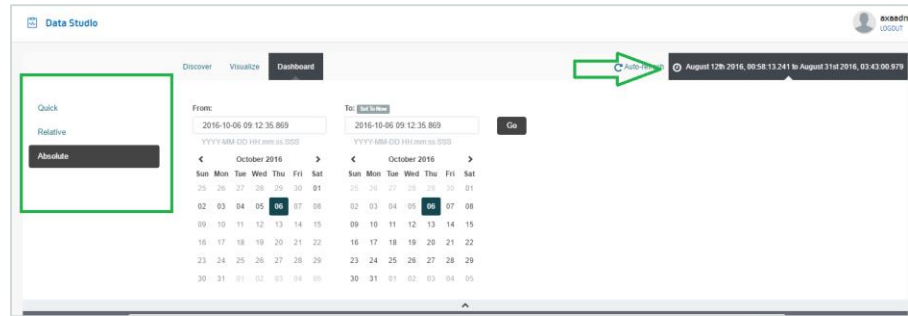
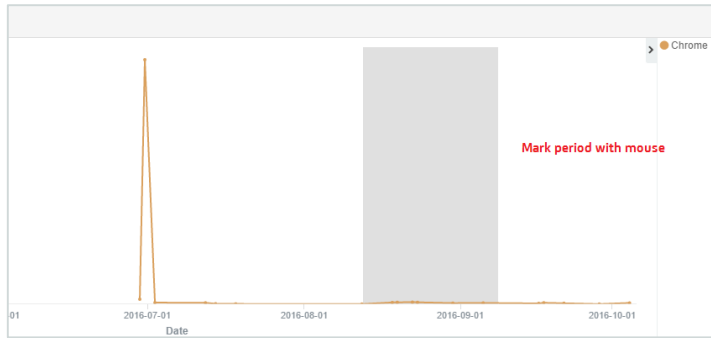
Janne's pie chart for Browser Pages

Legend:

- Chrome
- Firefox
- Safari
- IE
- 51
- 53
- 52
- 50
- 44
- 47
- 49
- 45
- 48

Existing Dashboard

Filtering Data: Line Chart



Selected time period is applied to the whole dashboard

Existing Dashboard

Filtering Data: Drill-Down

Page Detail

Table Request Response Statistics

2. Double-Click on URL to see more data

1. click on 'Round Trip' to see worst URL

Page URL	Number Of Requests	Page Load Time (ms)	Browser Render Time (ms)	Time to First Byte (ms)	Round Trip Time (ms)
http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	37	4,689,297	274,622	4,384	4,308,432
http://tas-scx-n262.ca.com:8080/brlmiestapp/GETLocalDomain.jsp	1	1,151	399	746	739

Data for the URL is shown on Dashboard

04) Browser Sessions Overview

pageList raw: 'http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml'

Session Info

Session ID	Page URL	Browser ID	Browser Type	Count	Page Load Time (ms)
10896688f274eb4fa5eca303abaa3	http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	c12c:88727e456a93285e09842995ca	Chrome	1	8,638
317d82b22d432cade3b8db8c3332d9	http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	b6d7059b6f6a4802a6d404a9602d7d	Firefox	4	6,989
e0e5de09c274a1eb957a4d91360993	http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	269afe26a3c8466197b6d7ec87c6c1a	Chrome	3	6,790.66
0ff458c873b42bb63a3cb49060582	http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	818af90c804d76936e54b13c1e706ae	Firefox	2	6,613.5
150584b10454c5682c1b9519dbec3d9	http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	269afe26a3c8466197b6d7ec87c6c1a	Chrome	4	6,362.25
a854348c84a4806a9652118ddfacaf	http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	c99583f48b64965a3714b060b9e740	Chrome	1	5,440

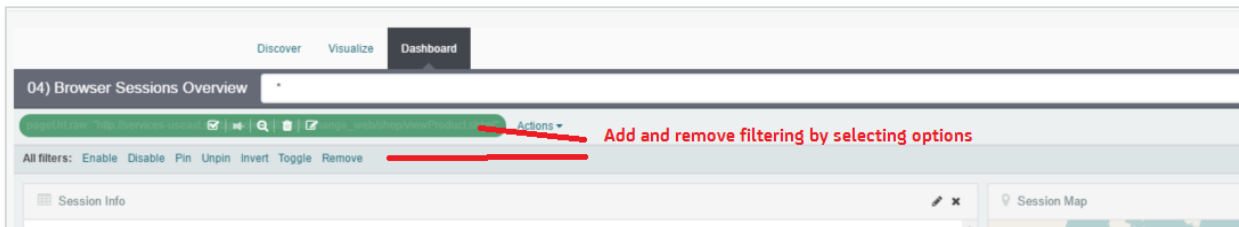
Session Map

Page Detail

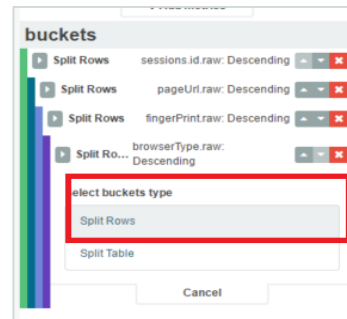
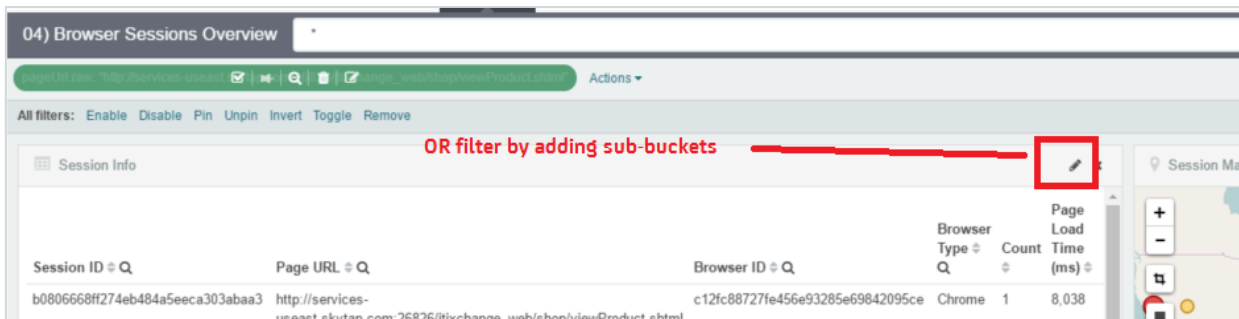
Page URL	Number Of Requests	Page Load Time (ms)	Browser Render Time (ms)	Time to First Byte (ms)	Round Trip Time (ms)
http://services-useast.skylap.com:26826/jlxchange_web/shop/viewProduct.shtml	37	4,689,297	274,622	4,384	4,308,432

Existing Dashboard

Filtering Data: Filter Bar and Sub-Buckets

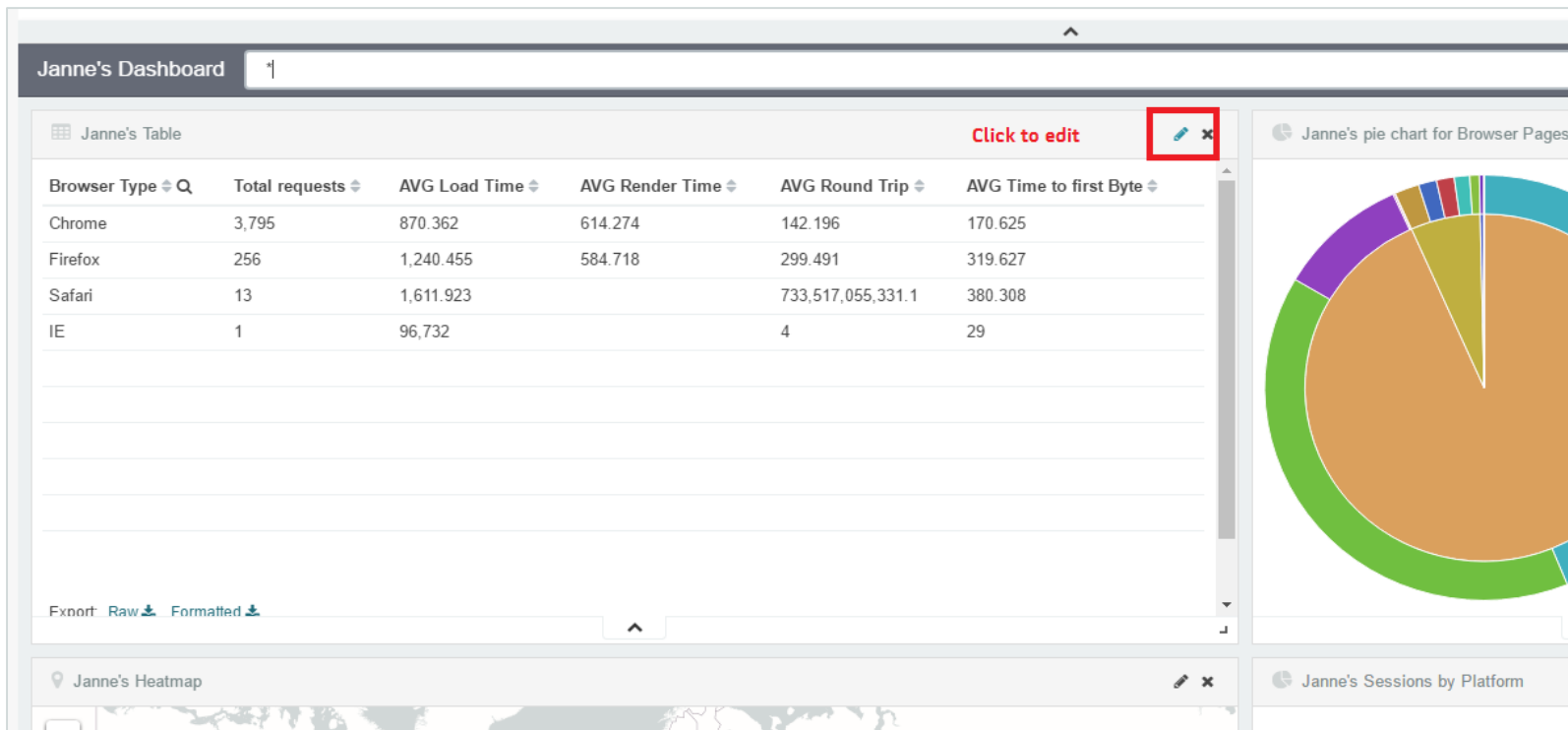


Tip: Filter bar is only visible when a filter, such as click on a URL, has been applied



Existing Dashboard

To Add Sub-Bucket Filters, Open Your Dashboard for Edit



Existing Dashboard

Add String Filter to Sub-Bucket: browserType:Firefox

The screenshot shows a dashboard interface with a sidebar on the left and a main content area on the right. The sidebar has a 'Data' tab and a 'metrics' section. The 'metrics' section lists several metrics: 'Average event.metrics.Average Page Load Complete Time', 'Average event.metrics.Browser Render Time', 'Average event.metrics.Average Round Trip Time', and 'Average event.metrics.Average Time to First Byte'. Below the metrics is a '+ Add metrics' button. The 'buckets' section is also visible, showing 'Split Rows' and 'Sub Aggregation' options. A 'Filter 1' field is present, containing the text 'browserType:Firefox'. A green arrow points to this filter field. Below the filter field is an 'Add Filter' button. The main content area displays a table with columns: 'Browser Type', 'filters', 'Total requests', 'AVG Load Time', 'AVG Render Time', and 'AVG Round Trip'. The table contains data for Chrome, Firefox, Safari, and IE. The 'filters' column for Firefox shows 'browserType:Firefox'. Below the table is an 'Export' section with 'Raw' and 'Formatted' options.

Browser Type	filters	Total requests	AVG Load Time	AVG Render Time	AVG Round Trip
Chrome	browserType:Firefox	0			
Firefox	browserType:Firefox	256	1,240.455	584.718	299.491
Safari	browserType:Firefox	0			
IE	browserType:Firefox	0			

Existing Dashboard

Add a New Filter to Sub-Bucket: event.metrics.Average\ Round\ Trip\ Time:>100

(Note backslash to escape spaces)

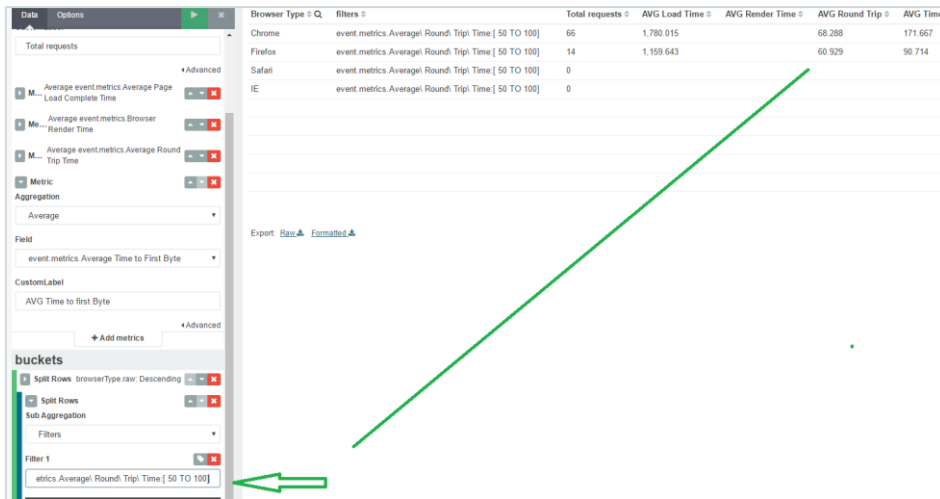
Match queries: browserType:Firefox

Range queries: [1 TO 10]

Operator queries: > 100

Regular expressions: browserType:F*

JSON queries



The screenshot shows a dashboard with a configuration panel on the left and a data table on the right. The configuration panel includes sections for 'Data', 'Options', 'Advanced', 'Metric', 'Aggregation', 'Field', 'Custom Label', 'Add metrics', 'buckets', 'Split Rows', 'Sub Aggregation', and 'Filters'. The 'Filter 1' field in the 'Filters' section contains the query 'event.metrics.Average Round Trip Time [50 TO 100]'. A green arrow points from this field to the 'event.metrics.Average Round Trip Time' column in the table.

Browser Type	Filters	Total requests	AVG Load Time	AVG Render Time	AVG Round Trip	AVG Time
Chrome	event.metrics.Average Round Trip Time [50 TO 100]	66	1,780.015		68.288	171.667
Firefox	event.metrics.Average Round Trip Time [50 TO 100]	14	1,159.643		60.929	90.714
Safari	event.metrics.Average Round Trip Time [50 TO 100]	0				
IE	event.metrics.Average Round Trip Time [50 TO 100]	0				

Existing Dashboard

Export Data

Metric

Aggregation

Average

Field

event.metrics.Average Time to First Byte

CustomLabel

AVG Time to first Byte

Advanced

Metric

Average app.profileInfo.createdAt

Add metrics

buckets

Split Rows

browserType.raw: Descending

Safari	event.metrics.Average Round Trip Time:>100	0
IE	event.metrics.Average Round Trip Time:>100	0

Export: [Raw](#) [Formatted](#)

Browser Type								
	A	B	C	D	E	F	G	H
1	Browser Type	Total requests	AVG Load Time	AVG Render Time	AVG Round Trip	AVG Time to first Byte	Average app.profileInfo.createdAt	
2	Chrome	2,199	2,131.58	614.274	273.959	322.32	1,469,038,287,478.12	
3	Firefox	210	1,230.34	584.718	456.719	465.203	1,471,186,240,409.16	
4	Safari	5	1,671		1,006.40	984	1,466,172,810,146	
5	IE	1	96,732		4	29	1,469,074,302,188	
6								
7								
8								
9								

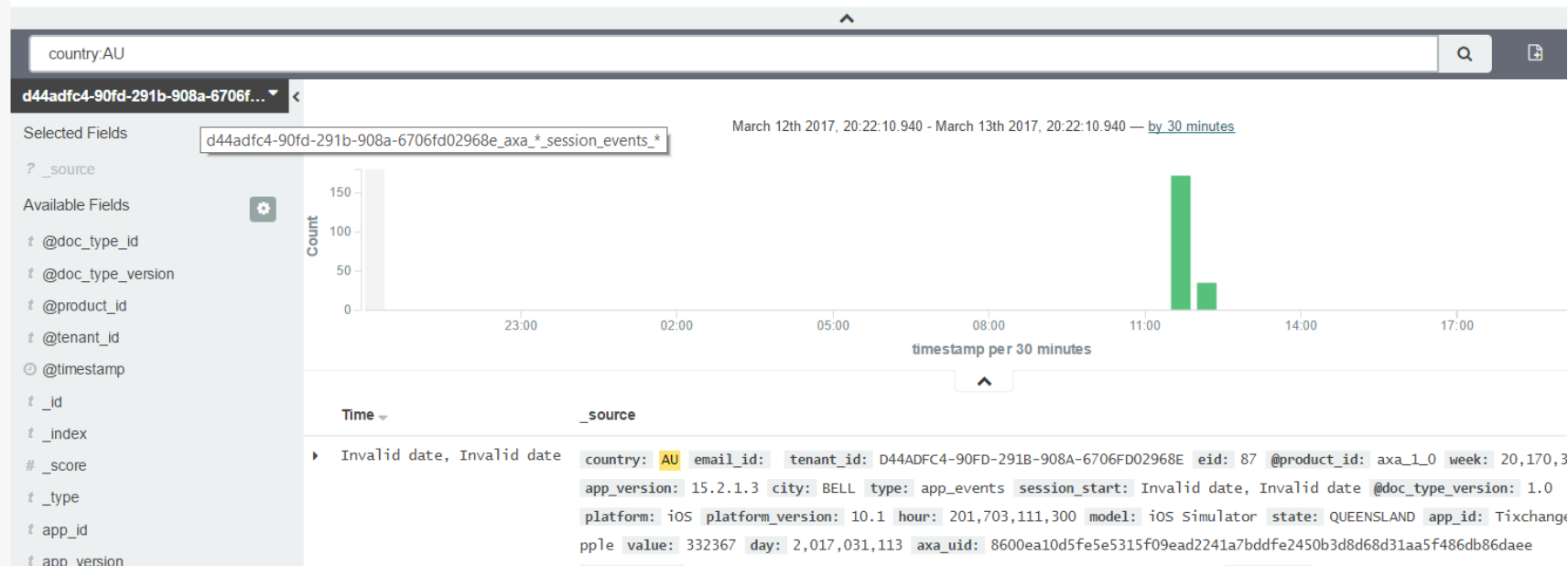
34

Searches and filters

<https://www.elastic.co/guide/en/kibana/current/field-filter.html>

Search bar

Make sure to select the right index – try country:"AU" vs country:(AU US)



Set filters

Create new filter in data table



New filters

Create new filter in attribute list

The screenshot shows a data visualization interface. On the left, there is a list of attributes: `app_version`, `axa_uid`, `carrier`, `cdouble_Seans test`, `city`, and `country`. Below this list is a 'Quick Count' section showing 'AU' with a value of 207 / 207 records. A red arrow points from the 'add' button next to the attribute list to the 'Visualize' button in the 'Quick Count' section. To the right of the 'Visualize' button, there is a 'Table' view showing a list of attributes and their values. The attributes are: `@doc_type_id` (session_events), `@doc_type_version` (1.0), `@product_id` (axa_1_0), `@tenant_id` (D44ADFC4-90FD-291B-908A-6706FD02968E), and `@timestamp` (March 13th 2017, 12:31:10.639). Above the 'Table' view, there is a list of data rows. The first row shows 'Invalid date, Invalid date' for the first two columns, followed by 'email_id: 5e5315f09ead2241a7bddfe2450b3d8d68d31aa5f486db86daee', 'tenant_id: D44ADFC4-90FD-291B-908A-6706FD029', 'city: BELL', 'type: txn_events', 'session_start: Invalid date', '1,703,111,300', 'model: iOS Simulator', 'state: QUEENSLAND', 'axa_uid: 290a5d7fc11d4617025b610b17a05b82f431588967939e', and 'timestamp: Invalid date, Invalid date'. A red arrow points from the 'add' button next to the attribute list to the 'Visualize' button in the 'Quick Count' section.

1. Select index
2. Select attribute
3. Select to add negative or positive filter

Quick Count (207 / 207 records)

AU 100.0% 207

Visualize

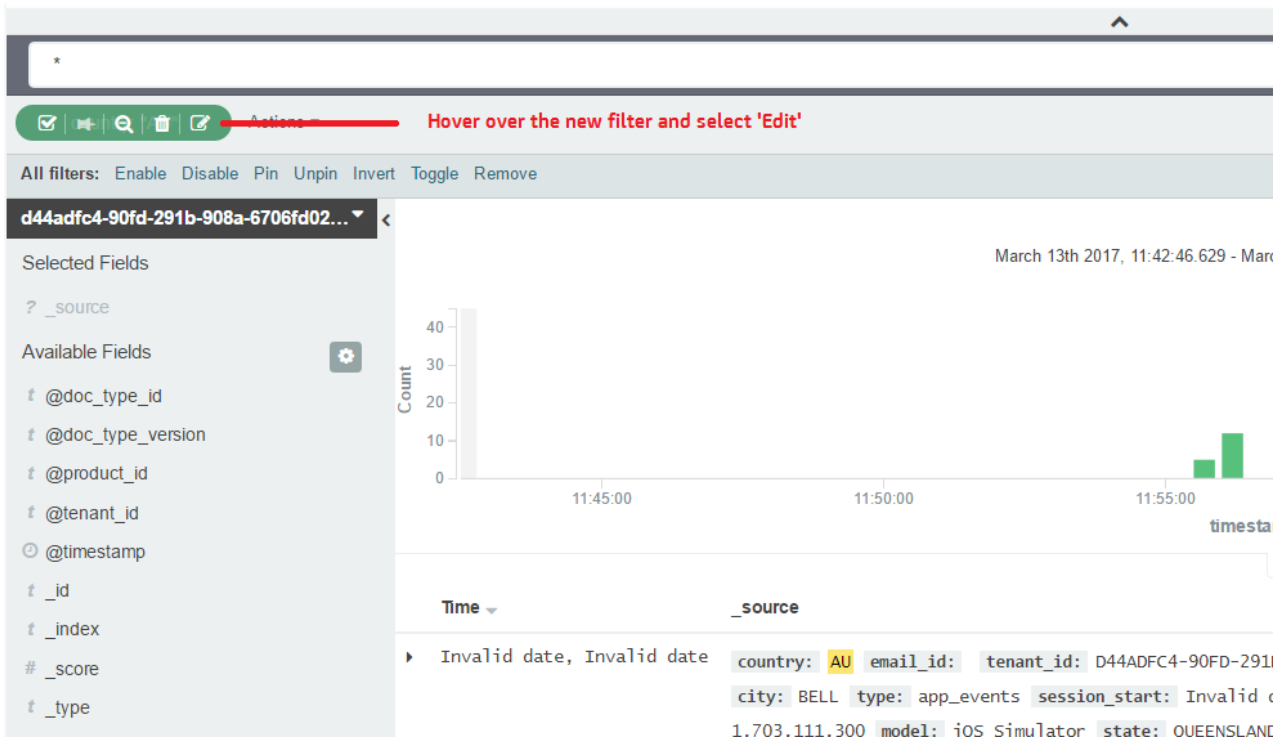
Table JSON

Link to /axa_1_0_session_events.1.0.1/data/

@doc_type_id	session_events
@doc_type_version	1.0
@product_id	axa_1_0
@tenant_id	D44ADFC4-90FD-291B-908A-6706FD02968E
@timestamp	March 13th 2017, 12:31:10.639

Edit filters

Using Query DSL to search for data – edit filter



Edit filters

Search for data – Query DSL: boolean

country: "AU"

Filter Alias (optional)

Tixchange by country: US or AU

```
11 { "country": "AU"
12 }
13 }
14 ],
15 "must": [
16 {
17 {
18 { "term": {
19 { "app_id": "Tixchange"
20 }
21 }
22 }
23 }
```

Cancel Done

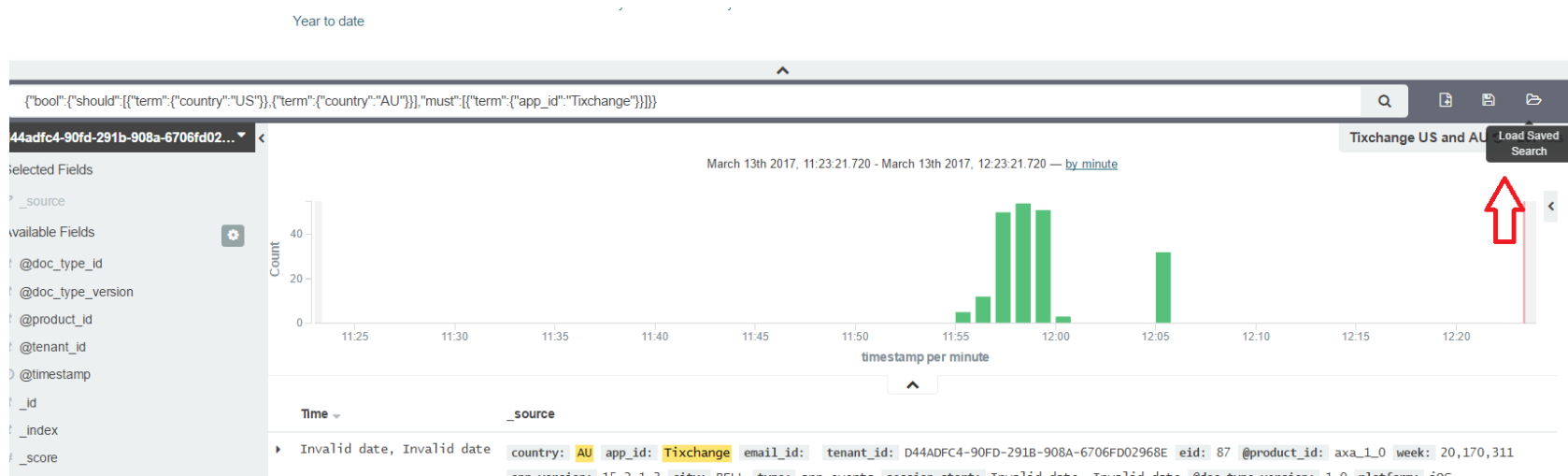
Actions ▾

All filters Enable Disable Pin Unpin Invert Toggle Remove

```
{ "bool": { "should":
[
{ "term": { "country": "US" }
},
{ "term": { "country": "AU" }
}
],
"must": [
{ "term": { "app_id": "Tixchange" }
}
]
}}
```


Edit filters

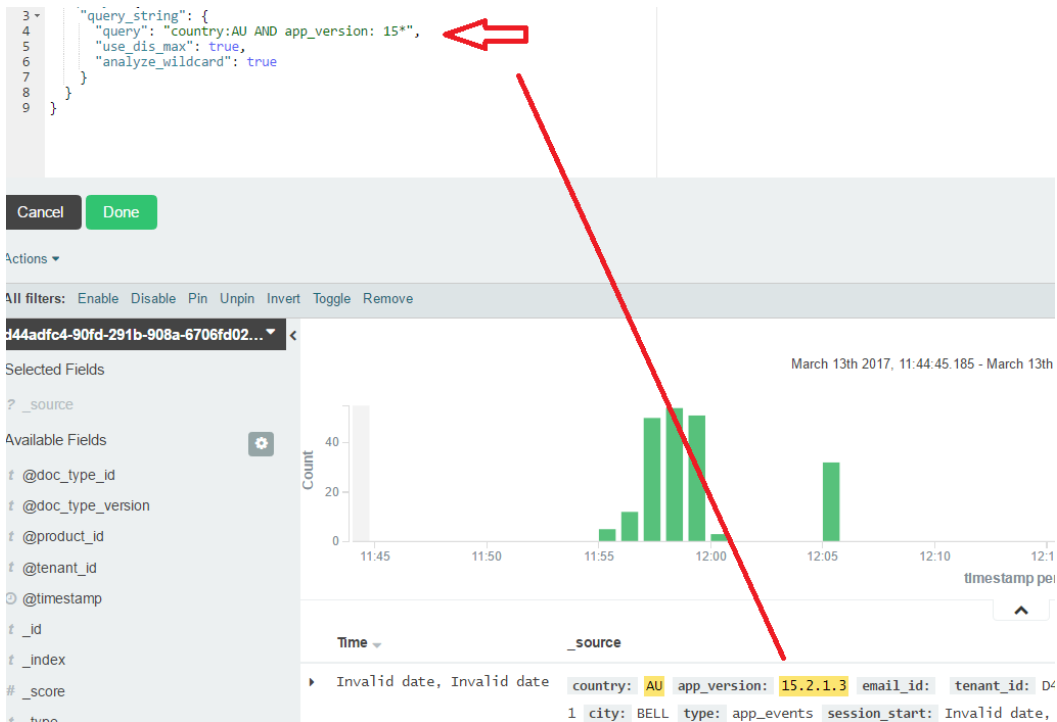
Searches can be saved and reused



Edit filters

Wildcard DSL with operators AND and OR

```
{ "query":  
  { "query_string":  
    { "query": "country:AU AND app_version: 15*",  
      "use_dis_max": true,  
      "analyze_wildcard": true }  
  }  
}
```



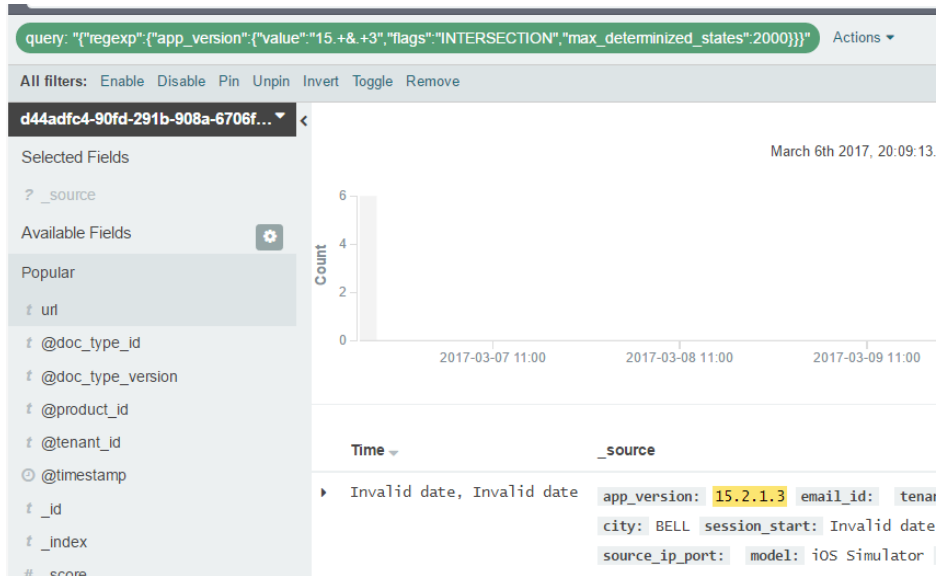
<https://www.elastic.co/guide/en/elasticsearch/reference/5.2/query-dsl-query-string-query.html#query-string-syntax>

Edit filters

“Regular expressions are dangerous because it’s easy to accidentally create an innocuous looking one that requires an exponential number of internal determinized automaton states (and corresponding RAM and CPU) for Lucene to execute” – cap searches with *max-determined-states*

```
{ "query":  
  { "regexp":  
    { "app_version":  
      { "value": "15.+&.+3",  
        "flags": "INTERSECTION",  
        "max_determinized_states": 2000  
      }  
    }  
  }  
}
```

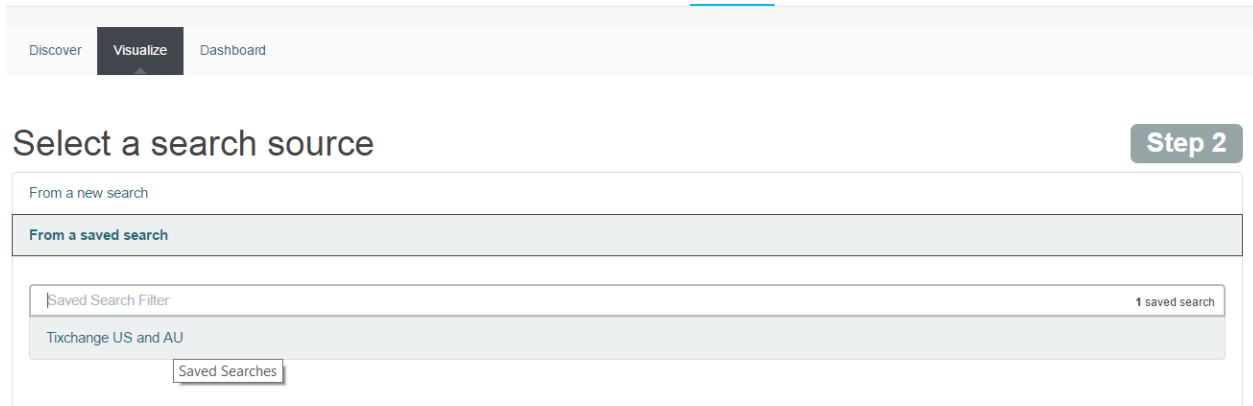
Both patterns joined by ampersand must match



<https://www.elastic.co/guide/en/elasticsearch/reference/5.2/query-dsl-regexp-query.html#regexp-syntax>

Saved searches

Save your good Query DSL searches – they can be used for new visualizations



The screenshot shows the Kibana interface with the 'Visualize' tab selected in the top navigation bar. Below the navigation bar, the heading 'Select a search source' is displayed. To the right of this heading is a 'Step 2' badge. Under the heading, there are two main options: 'From a new search' and 'From a saved search'. The 'From a saved search' option is selected and highlighted. Below this, there is a search bar containing the text 'Saved Search Filter' and a button labeled '1 saved search'. Below the search bar, there is a list of saved searches, with the first one being 'Ttxchange US and AU'. At the bottom of the list, there is a button labeled 'Saved Searches'.

<https://www.elastic.co/guide/en/elasticsearch/reference/5.2/query-dsl-regexp-query.html#regexp-syntax>

External searches – on-premise REST

Curl, Java, C#, Python, javaScript, PHP, Perl, Ruby

```
curl -XGET 'http://localhost:9200/social-*/_search' -d '{
  { "query":
    { "regexp":
      { "app_version":
        { "value": "15.+&.+3",
          "flags": "INTERSECTION",
          "max_determinized_states": 2000
        }
      }
    }
  }
}
```

What Questions Do You Have?

THANK YOU!