Forward-Looking Statements

This presentation may contain forward-looking statements regarding future events, plans or the expected financial performance of our company, including our expectations regarding our products, technology, strategy, customers, markets, acquisitions and investments. These statements reflect management's current expectations, estimates and assumptions based on the information currently available to us. These forward-looking statements are not guarantees of future performance and involve significant risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from results, performance or achievements expressed or implied by the forward-looking statements contained in this presentation.

For additional information about factors that could cause actual results to differ materially from those described in the forward-looking statements made in this presentation, please refer to our periodic reports and other filings with the SEC, including the risk factors identified in our most recent quarterly reports on Form 10-Q and annual reports on Form 10-K, copies of which may be obtained by visiting the Splunk Investor Relations website at www.investors.splunk.com or the SEC's website at www.sec.gov. The forward-looking statements made in this presentation are made as of the time and date of this presentation. If reviewed after the initial presentation, even if made available by us, on our website or otherwise, it may not contain current or accurate information. We disclaim any obligation to update or revise any forward-looking statement based on new information, future events or otherwise, except as required by applicable law.

In addition, any information about our roadmap outlines our general product direction and is subject to change at any time without notice. It is for informational purposes only and shall not be incorporated into any contract or other commitment. We undertake no obligation either to develop the features or functionalities described, in beta or in preview (used interchangeably), or to include any such feature or functionality in a future release.

splunk> .conf23

Administrators Anonymous

Interactive Splunk Therapy Session With Splunk Trust Experts

PLA1347C

Tom Kopchak

Director of Technical Operations, Splunk
Implementation Lead | Hurricane Labs

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https://splk.it/pla1347c

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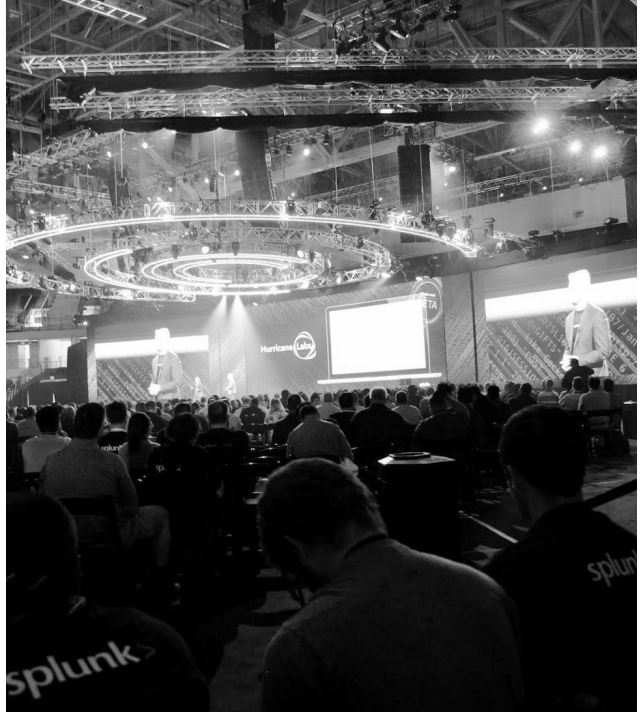
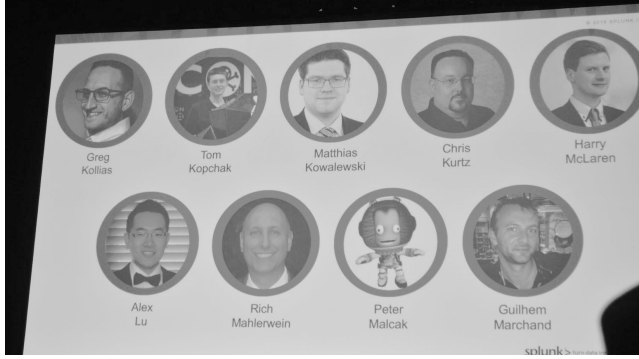
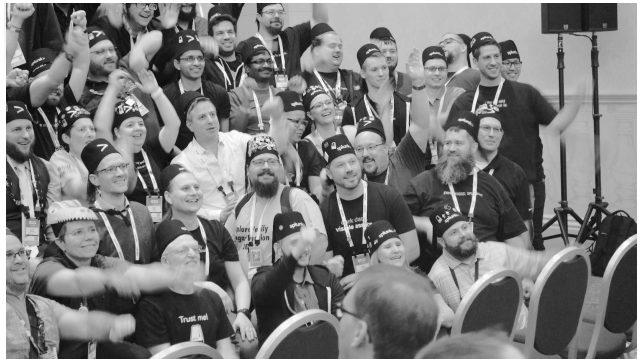
My goal: You learn something new





Why Are We Here?



To Learn to be Better Splunk Admins!

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Tools for Today

🔗 **Check This Out:**

github.com/HurricaneLabs/conf23_PLA1347C

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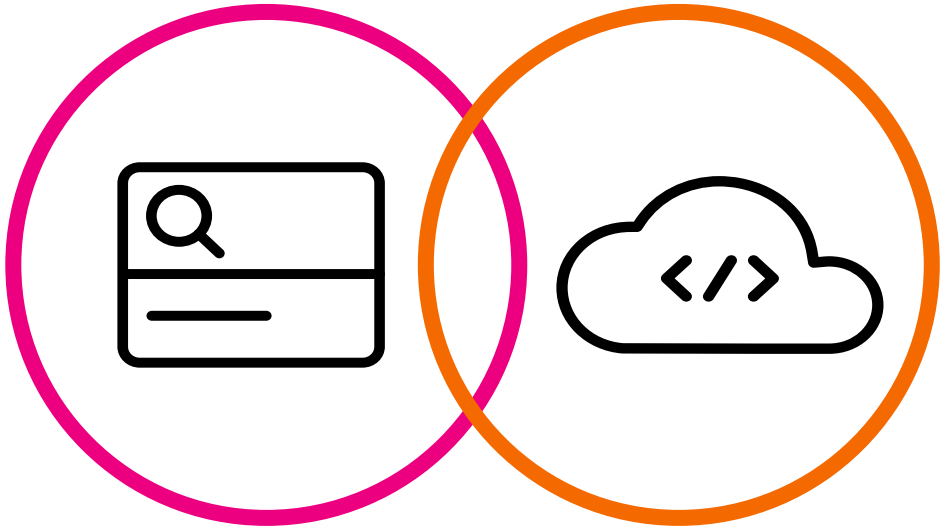
Hands-On Training

Whenever possible, use your own environment for examples!

Your Splunk

Results tailored to your environment

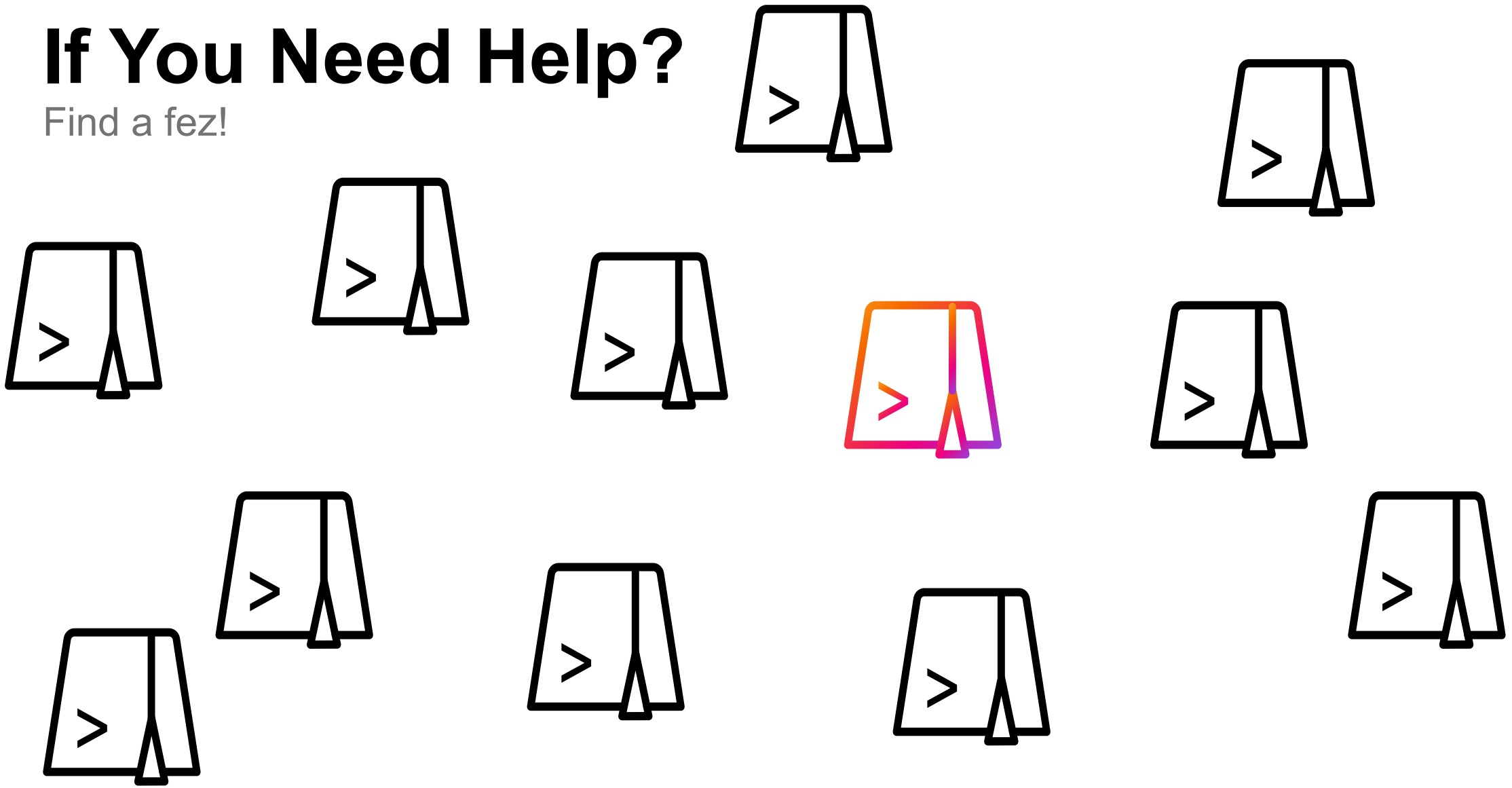


Demo Splunk

May work better for some examples

If You Need Help?

Find a fez!



Today's Goals

What we're going to cover

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+ Keep **YOU** happy!

  Why they let me stand here and say things

Let’s get started!

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Let's Talk About Auditors

Data Retention and Splunk

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Data Retention and Splunk

Default settings can cause data loss!

By default: Splunk indexes store 500gb of data

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- With default settings (in Splunk® Enterprise), once you have 500gb of data in an index, that data is **deleted**!
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Best Practice:

Set maxTotalDataSizeMB to the largest legal value (4294967295 on-prem, 0 in Splunk Cloud) to force time-based data retention

Your Turn!

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Data Retention Lab Instructions

Try it yourself!

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ba_test	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	0
botsv3	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_HOME	$SPLUNK_HOME	0 years, 90 days	750	auto	300	0 years, 1 days	500000	Delete	1609014
botsv4	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_HOME	$SPLUNK_HOME	0 years, 90 days	750	auto	300	0 years, 1 days	500000	Delete	533389
bro	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	0 years, 20 days	500000	Delete	0
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cim_modactions	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	420
endpoint_summary	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	1
firedalerts	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	0 years, 20 days	500000	Delete	0
gia_summary	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years,	750	auto	300	3 years,	500000	Delete	10

splunk> .conf23

Data Retention Lab Instructions

Try it yourself!

50 Per Page ▾ | Format | Preview ▾ | < Prev | 1 | 2 | Next >

Index	Indexer	Disabled	homeVolume	coldVolume	Max Bucket Time	Max Bucket Size (MB)	Max Hot Buckets	Max Warm Buckets	Archive Time	Max Total Data Size (MB)	Cold To Frozen	count
audit_summary	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	0
ba_test	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	0
botsv3	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_HOME	$SPLUNK_HOME	0 years, 90 days	750	auto	300	0 years, 1 days	500000	Delete	1609014
botsv4	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_HOME	$SPLUNK_HOME	0 years, 90 days	750	auto	300	0 years, 1 days	500000	Delete	533389
bro	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	0 years, 20 days	500000	Delete	0
cim_modactions	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	420
endpoint_summary	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	1
firedalerts	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	0 years, 20 days	500000	Delete	0
gia_summary	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years,	750	auto	300	3 years,	500000	Delete	10

splunk> .conf23

Data Retention Lab Instructions

Try it yourself!

50 Per Page ▾ | Format | Preview ▾ | < Prev | 1 | 2 | Next >

Index	Indexer	Disabled	homeVolume	coldVolume	Max Bucket Time	Max Bucket Size (MB)	Max Hot Buckets	Max Warm Buckets	Archive Time	Max Total Data Size (MB)	Cold To Frozen	count
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bro	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	0 years, 20 days	500000	Delete	0
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endpoint_summary	si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	False	$SPLUNK_DB	$SPLUNK_DB	0 years, 90 days	750	auto	300	3 years, 0 days	500000	Delete	1
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splunk> .conf23

Data Retention Recap

What we just learned

splunk> .conf23

Data Retention Recap

What we just learned

+ Remember the **500gb default index size**

Data Retention Recap

What we just learned

- Remember the **500gb default index size**
- Use the **lab search** to confirm your indexes are not losing data early

Data Retention Recap

What we just learned

- Remember the **500gb default index size**
- Use the **lab search** to confirm your indexes are not losing data early
- Having **frozen storage** can help protect you from data loss due to a misconfiguration

✨ BONUS MATERIAL ✨

But wait, there’s more!

splunk> .conf23

✨ BONUS MATERIAL ✨

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+ maxVolumeDataSizeMB
  - This does not typically account for DMA

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  - Can be adjusted if you want data in an index to roll to cold storage sooner

✨ BONUS MATERIAL ✨

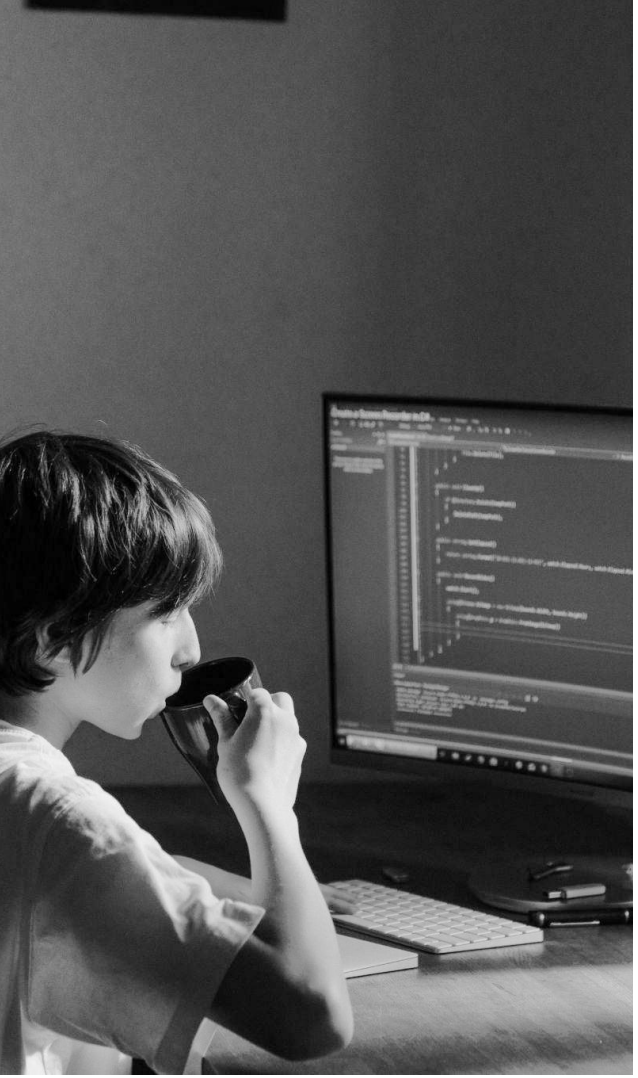
But wait, there's more!

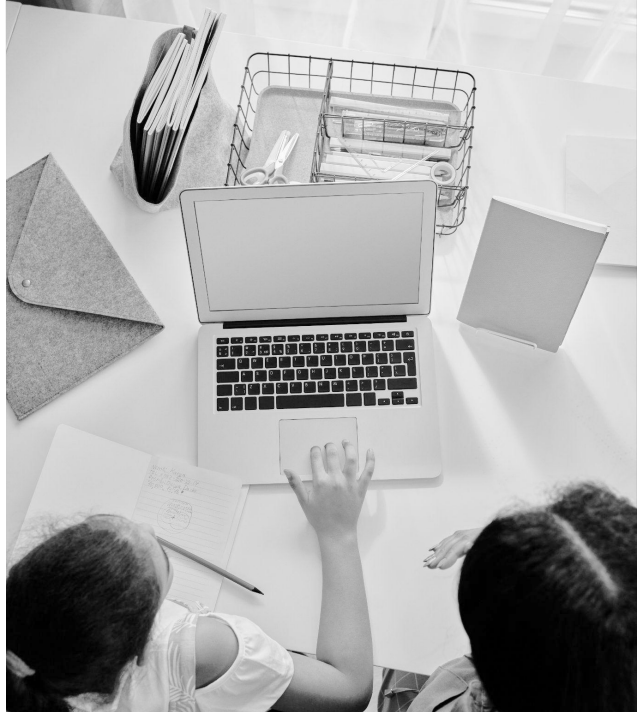
+ maxVolumeDataSizeMB
  - This does not typically account for DMA
+ maxWarmDBCount
  - Can be adjusted if you want data in an index to roll to cold storage sooner
+ maxDataSize
  - This is a per bucket setting, not index/disk setting
  - auto_high_volume - OK for on-prem, not for indexes you intend to migrate to SmartStore

What About Splunk Users?

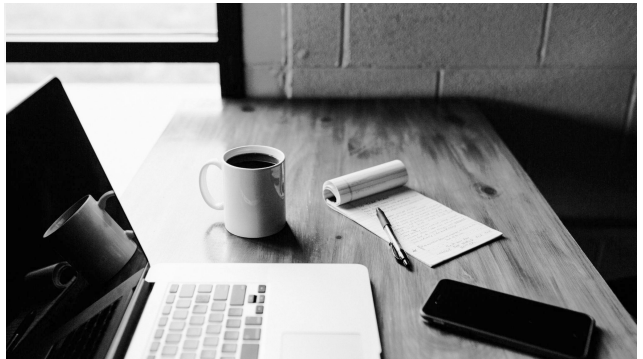
They exist and you should like them

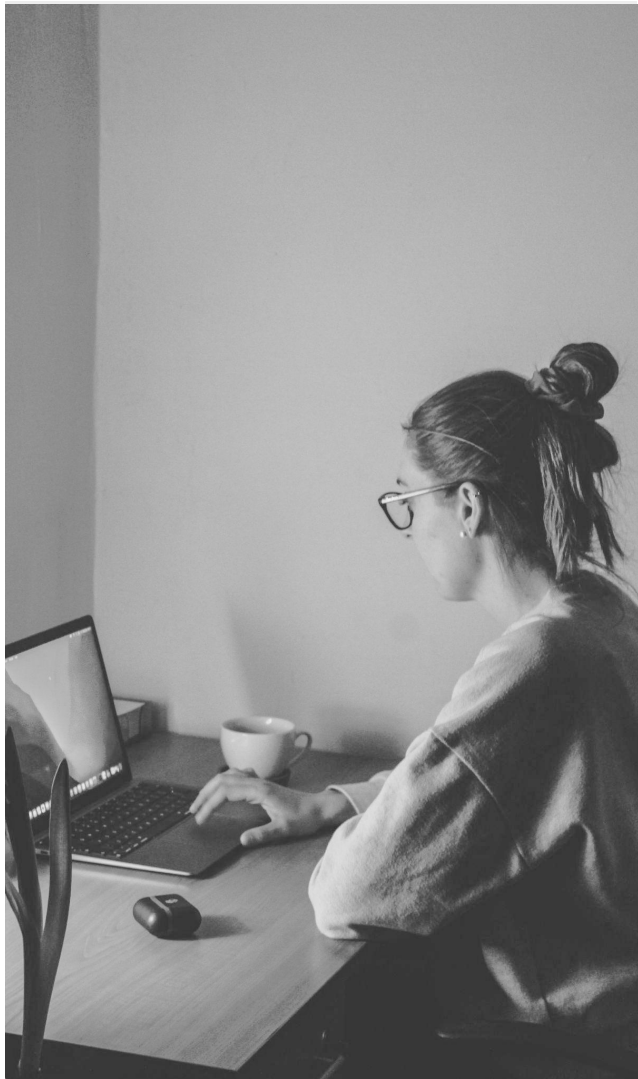
splunk> .conf23





A Tale of Two Splunk Users

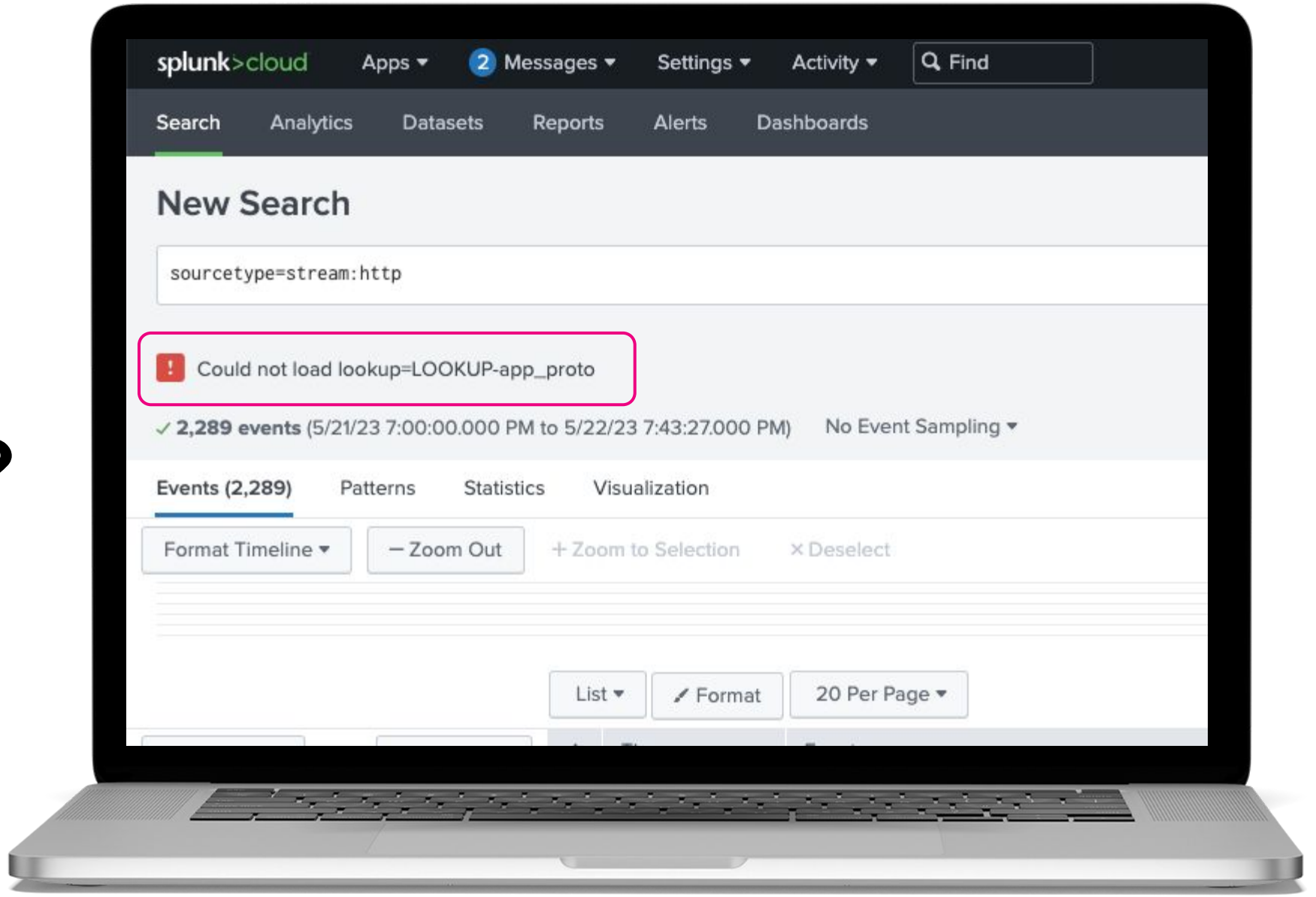




It’s Best When Everyone Gets the Same Search Results

splunk> .conf23

Have You Seen *This* Error Before?



Sharing Content in Splunk

splunk> .conf23

Sharing Content in Splunk

Knowledge (objects) work best when they're not private to you

Knowledge object permissions matter!

Sharing Content in Splunk

Knowledge (objects) work best when they're not private to you

Knowledge object permissions matter!

- What happens when permissions are wrong?
  - Missing knowledge objects
  - Errors in searches, such as a lookup not found

Sharing Content in Splunk

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  - Missing knowledge objects
  - Errors in searches, such as a lookup not found
- App context matters!
  - Shared to user: you only (private)
  - Shared to app: only searches within that app
  - Global/system: every user/search in the environment

Sharing Content in Splunk

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Sharing Content in Splunk

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  - Knowledge objects shared to an app (only) won't work in the search/reporting app
  - Users expect to see the same fields regardless of how they run a search

Best Practice:
Develop a process for sharing content with others (once it's tested)

Sharing Content in Splunk

Knowledge (objects) work best when they’re not private to you

Sharing Content in Splunk

Knowledge (objects) work best when they're not private to you

Field extractions use resources at search time

Sharing Content in Splunk

Knowledge (objects) work best when they're not private to you

Field extractions use resources at search time

+ Inefficient/too many extractions + millions of events = poor performance
  - You don't want everyone to share everything globally
  - Example: client with 7 different extractions for the same data

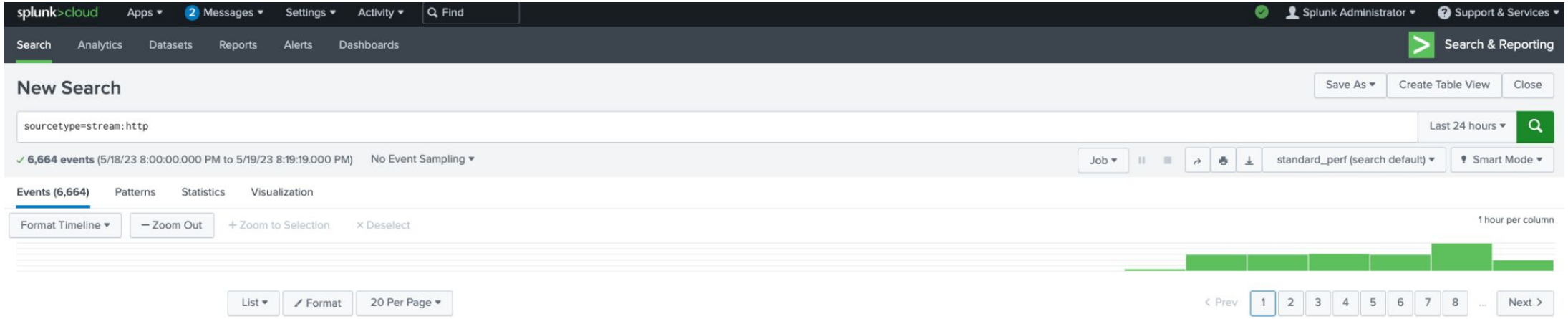
Your Turn!

splunk> .conf23

Permissions Lab Instructions

Your turn!

- Create a second user in your instance
  - You can go with “tom” or anything else
  - User role is fine
- Log into Splunk in a different browser/incognito window with your new user
  - Confirm you can run a search, such as sourcetype=stream:http

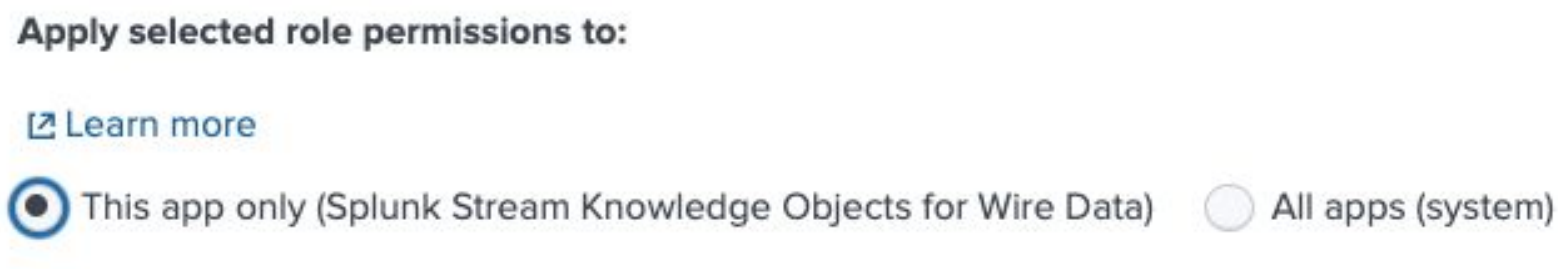


splunk> .conf23

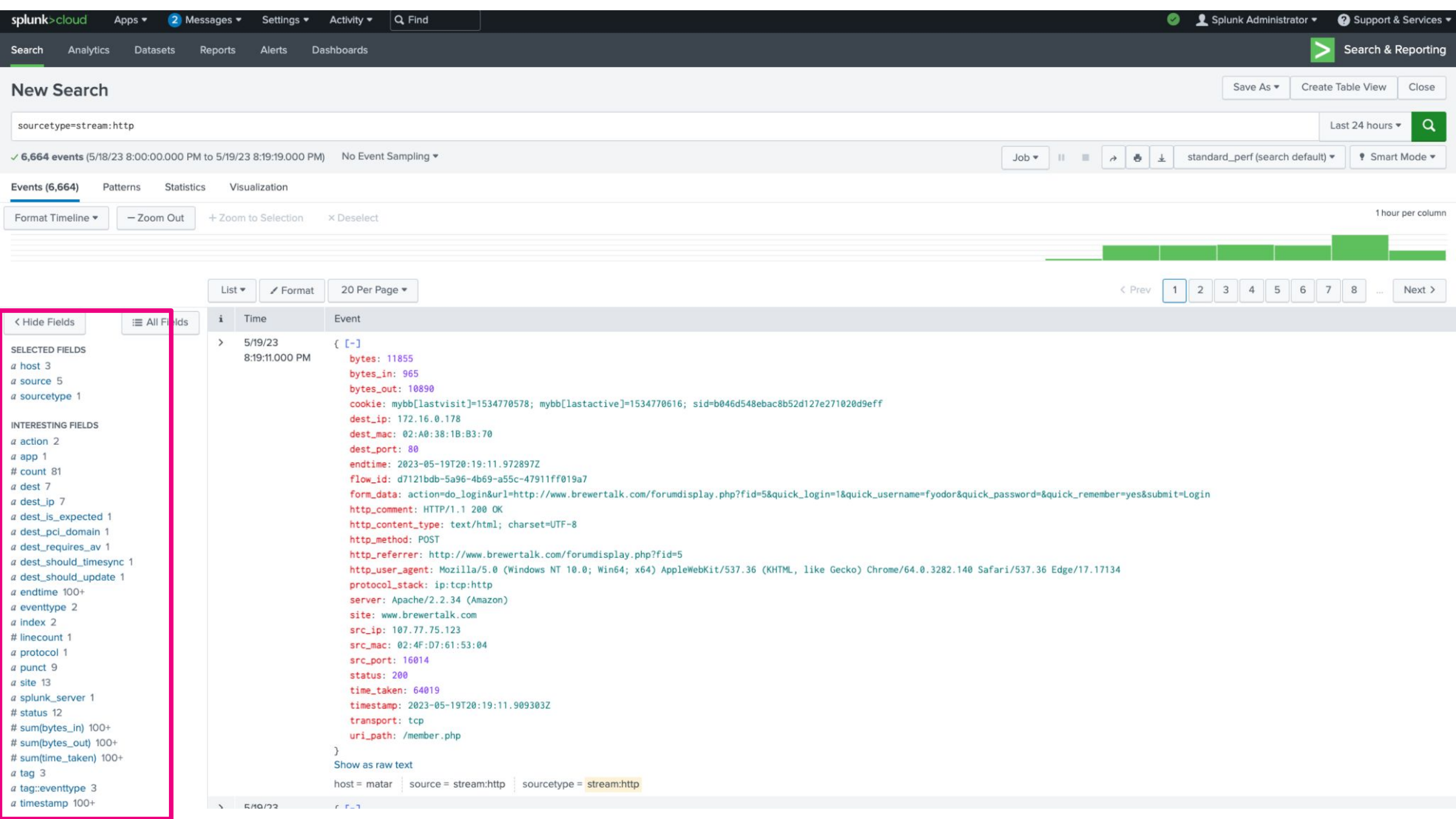
Permissions Lab Instructions

Your turn!

- From your admin window, find an app/TA associated with the data you are searching, and change the permissions to app only
  - Manage apps -> locate app > sharing -> app



- Re-run the same search in the Searching & Reporting app
  - Note the change in field extractions


splunk>cloud
Apps
2 Messages
Settings
Activity
Find
Splunk Administrator
Support & Services
Search
Analytics
Datasets
Reports
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
sourcetype=stream:http
Last 24 hours
6,664 events (5/18/23 8:00:00.000 PM to 5/19/23 8:19:19.000 PM)
No Event Sampling
Job
standard_perf (search default)
Smart Mode
Events (6,664)
Patterns
Statistics
Visualization
Format Timeline
Zoom Out
Zoom to Selection
Deselect
1 hour per column
List
Format
20 Per Page
Prev
1 2 3 4 5 6 7 8 ... Next
Hide Fields
All Fields
SELECTED FIELDS
a host 3
a source 5
a sourcetype 1
INTERESTING FIELDS
a action 2
a app 1
count 81
a dest 7
a dest_ip 7
a dest_is_expected 1
a dest_pci_domain 1
a dest_requires_av 1
a dest_should_timesync 1
a dest_should_update 1
a endtime 100+
a eventtype 2
a index 2
linecount 1
a protocol 1
a punct 9
a site 13
a splunk_server 1
status 12
sum(bytes_in) 100+
sum(bytes_out) 100+
sum(time_taken) 100+
a tag 3
a tag::eventtype 3
a timestamp 100+
Time
Event
5/19/23
8:19:11.000 PM
{ [-]
bytes: 11855
bytes_in: 965
bytes_out: 10890
cookie: mybb[lastvisit]=1534770578; mybb[lastactive]=1534770616; sid=b046d548ebac8b52d127e271020d9eff
dest_ip: 172.16.0.178
dest_mac: 02:A0:38:1B:B3:70
dest_port: 80
endtime: 2023-05-19T20:19:11.972897Z
flow_id: d7121bdb-5a96-4b69-a55c-47911ff019a7
form_data: action=do_login&url=http://www.brewertalk.com/forumdisplay.php?fid=5&quick_login=1&quick_username=fyodor&quick_password=&quick_remember=yes&submit=Login
http_comment: HTTP/1.1 200 OK
http_content_type: text/html; charset=UTF-8
http_method: POST
http_referrer: http://www.brewertalk.com/forumdisplay.php?fid=5
http_user_agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/64.0.3282.140 Safari/537.36 Edge/17.17134
protocol_stack: ip:tcp:http
server: Apache/2.2.34 (Amazon)
site: www.brewertalk.com
src_ip: 107.77.75.123
src_mac: 02:4F:D7:61:53:04
src_port: 16014
status: 200
time_taken: 64019
timestamp: 2023-05-19T20:19:11.909303Z
transport: tcp
uri_path: /member.php
}
Show as raw text
host = matar
source = stream:http
sourcetype = stream:http

splunk>cloud Apps Messages Settings Activity Find Splunk Administrator Support & Services

Search Analytics Datasets Reports Alerts Dashboards Search & Reporting

New Search

Save As Create Table View Close

sourcetype=stream:http Last 24 hours

✓ 6,783 events (5/18/23 8:00:00.000 PM to 5/19/23 8:24:32.000 PM) No Event Sampling

Job standard_perf (search default) Smart Mode

Events (6,783) Patterns Statistics Visualization

Format Timeline Zoom Out Zoom to Selection Deselect 1 hour per column

List Format 20 Per Page

Prev 1 2 3 4 5 6 7 8 ... Next

Hide Fields All Fields

SELECTED FIELDS
a host 3
a source 5
a sourcetype 1

INTERESTING FIELDS
count 81
a dest_ip 7
a endtime 100+
a index 2
linecount 1
a punct 9
a site 13
a splunk_server 1
status 12
sum(bytes_in) 100+
sum(bytes_out) 100+
sum(time_taken) 100+
a timestamp 100+
a uri_path 100+
vxlan_id 1

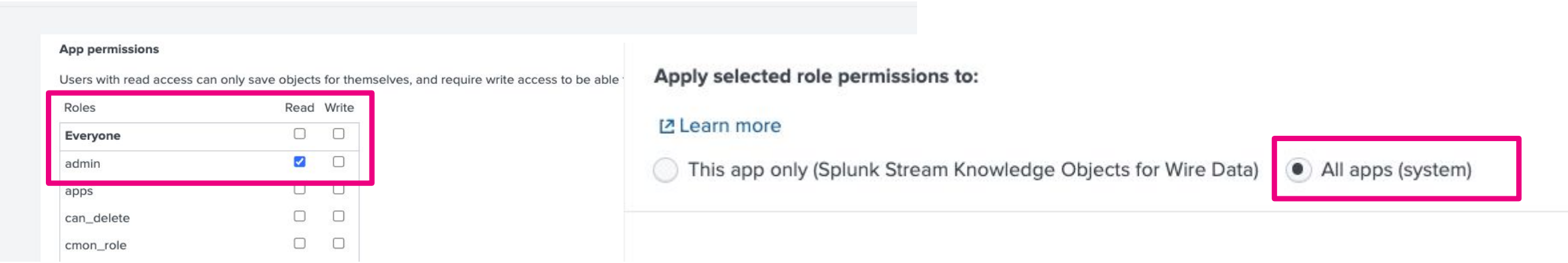
23 more fields
+ Extract New Fields

Time	Event
5/19/23 8:24:26.000 PM	{ [-] count: 4 dest_ip: 169.254.169.254 endtime: 2023-05-19T20:24:26.116481Z site: 169.254.169.254 status: 200 sum(bytes_in): 652 sum(bytes_out): 2140 sum(time_taken): 1359 timestamp: 2023-05-19T20:24:26.116481Z uri_path: /latest/meta-data/ vxlan_id: 0 } Show as raw text host = ip-172-31-82-109.ec2.internal source = stream:Splunk_HTTPURI sourcetype = stream:http
5/19/23 8:24:26.000 PM	{ [-] count: 5 dest_ip: 169.254.169.254 endtime: 2023-05-19T20:24:26.116481Z site: 169.254.169.254 status: 200 sum(bytes_in): 970 sum(bytes_out): 1280 sum(time_taken): 2061 timestamp: 2023-05-19T20:24:26.116481Z uri_path: /latest/meta-data/iam/security-credentials/ vxlan_id: 0 } Show as raw text host = ip-172-31-82-109.ec2.internal source = stream:Splunk_HTTPURI sourcetype = stream:http
5/19/23	{ [-]

Permissions Lab Instructions

Your turn!

- Try changing the permissions to Global, but only give administrators read access
  - Manage apps -> locate app > sharing -> app



- Re-run the same search in the Searching & Reporting app
  - Note the change in field extractions

- Re-run the same search as your other user

Permissions Lab Instructions

Your turn!

- Click the share link in your admin window, and share the search with your limited permissions user
  - What fields do you see?
- Re-run the same search as the user with limited permissions
  - Note the change in field extractions

Permissions Recap

What we just learned

splunk> .conf23

Permissions Recap

What we just learned

+ Remember that incorrect permissions can result in **different users having different fields available** (and potentially different search results)

Permissions Recap

What we just learned

- Remember that incorrect permissions can result in **different users having different fields available** (and potentially different search results)
- Export useful knowledge objects **globally**

Permissions Recap

What we just learned

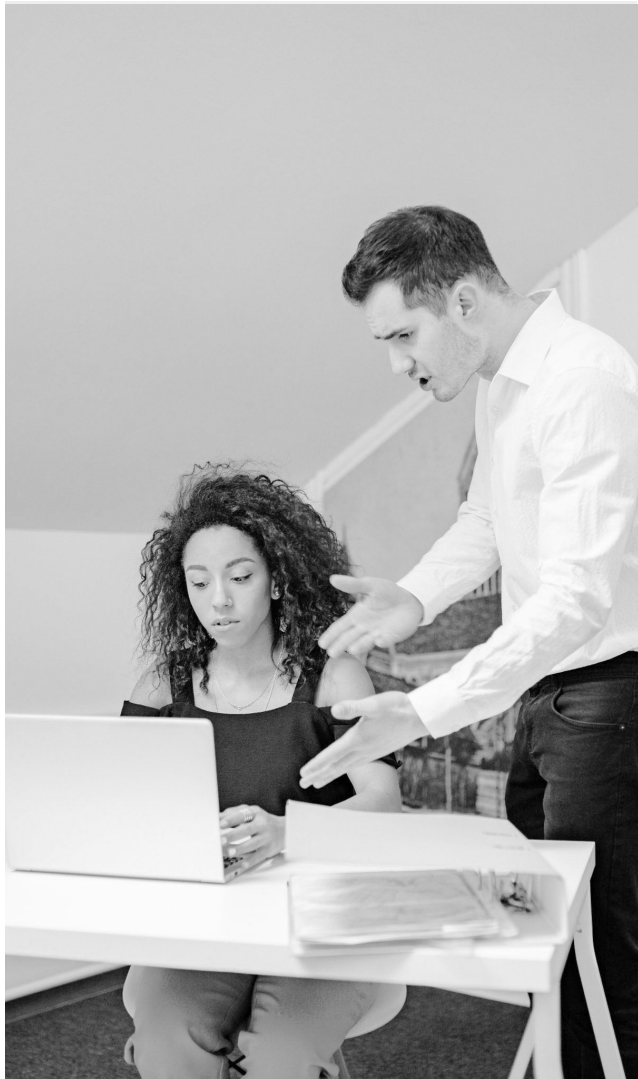
- Remember that incorrect permissions can result in **different users having different fields available** (and potentially different search results)
- Export useful knowledge objects **globally**
- **Regularly review knowledge objects** for best performance

Search Performance

Getting results when you need them

splunk> .conf23

The Boss From Hell



How We Look When Scheduled Searches Are *Working Properly*

splunk> .conf23

How We Look When They *Do Not…*

splunk> .conf23

Scheduler Flexibility

Scheduler Flexibility

Computers get stressed out sometimes too

Scheduler Flexibility

Computers get stressed out sometimes too

- What happens: humans are predictable when it comes to picking times
  - Everyone will choose to have their scheduled search run at 9am
  - Some of these searches won't work because of limited resources at the same time

Scheduler Flexibility

Computers get stressed out sometimes too

- What happens: humans are predictable when it comes to picking times
  - Everyone will choose to have their scheduled search run at 9am
  - Some of these searches won't work because of limited resources at the same time
- Solution - enable search skewing!
  - Best to do this globally for all searches with allow_skew = 5m
  - Can also be configured in the GUI on a per-search basis
  - Some searches can benefit from a large skew value, such as a daily search with a long runtime (Splunk will schedule the search in a slot where there's less resource contention)
  - Settings -> Searches, reports, alerts -> locate search -> Edit -> Advanced Edit

Scheduler Flexibility

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  - Everyone will choose to have their scheduled search run at 9am
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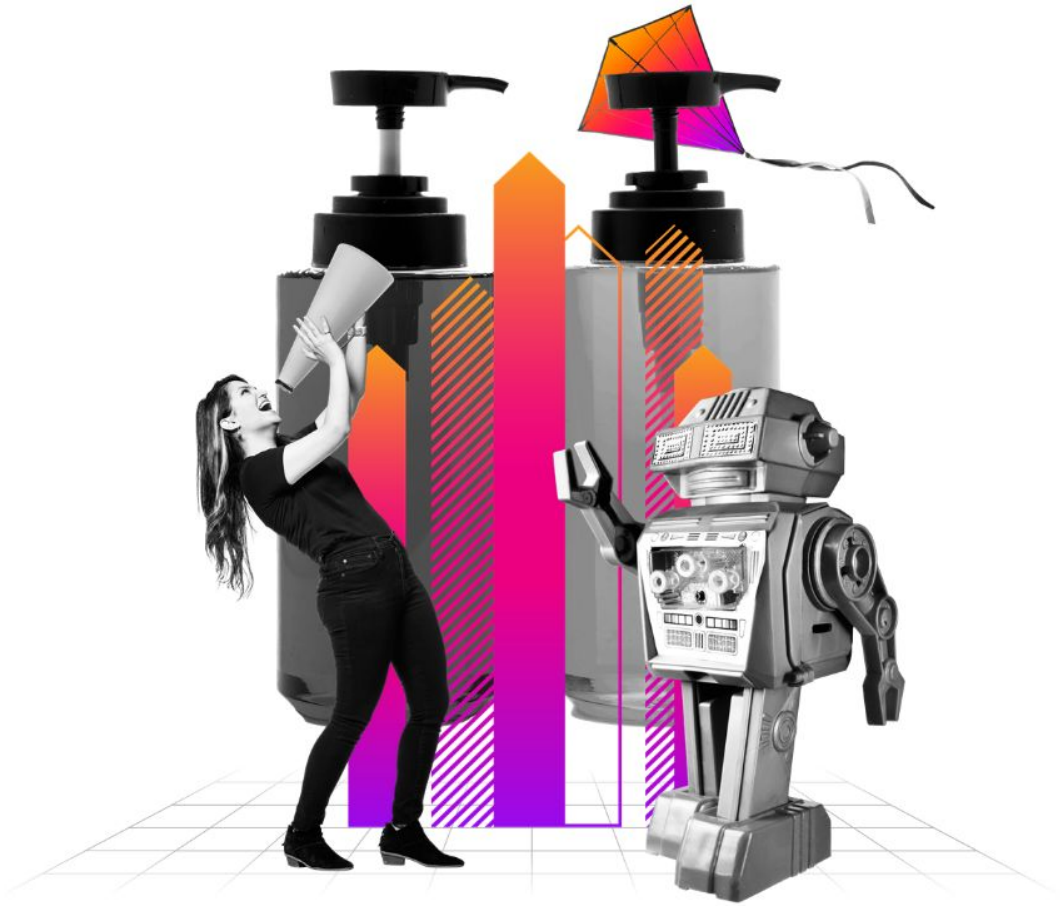
Best Practice:

Enable a default skew of 5 minutes for all searches. Use larger skew values for searches that are not time-sensitive with a long runtime.



Extended Search Reporting

splunk> .conf23

Extended Search Reporting

Deep-dive into search statistics

+ This is the go-to dashboard for deep-dives into search performance
  - Identifying search issues and optimizations
  - https://github.com/dpaper-splunk/public/blob/master/dashboards/extended_search_reporting.xml

Best Practice:

Keep this dashboard handy for troubleshooting issues with search performance

Your Turn!

splunk> .conf23

Search Performance Lab Instructions

Your turn!

+ Two exercises:
  - Skewing search
  - Extended Search Reporting

+ ✨ Bonus ✨
  - Savedsearch audit

New Search

Save As | Create Table View | Close

```
| rest /servicesNS/-/-/saved/searches splunk_server=local | table title, author, allow_skew, is_scheduled, search
```

Last 24 hours

✓ 2,136 results (5/18/23 8:00:00.000 PM to 5/19/23 8:40:43.000 PM) No Event Sampling

Job | standard_perf (search default) | Smart Mode

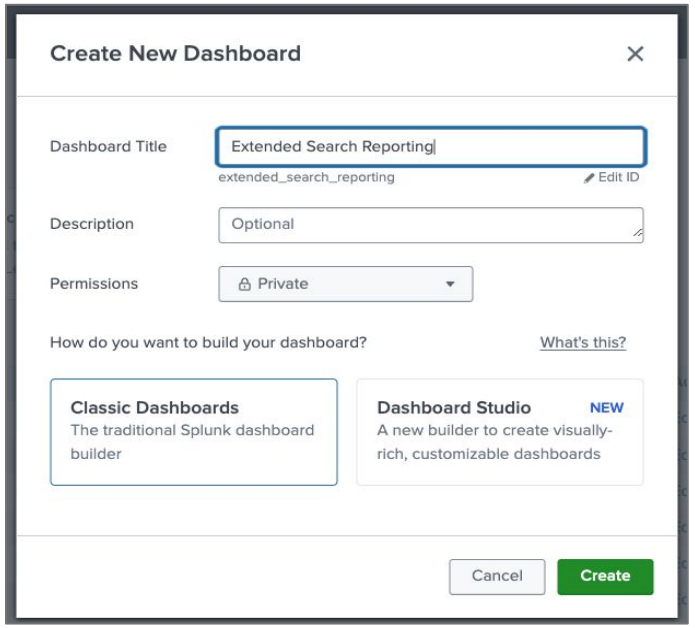
Events Patterns **Statistics (2,136)** Visualization

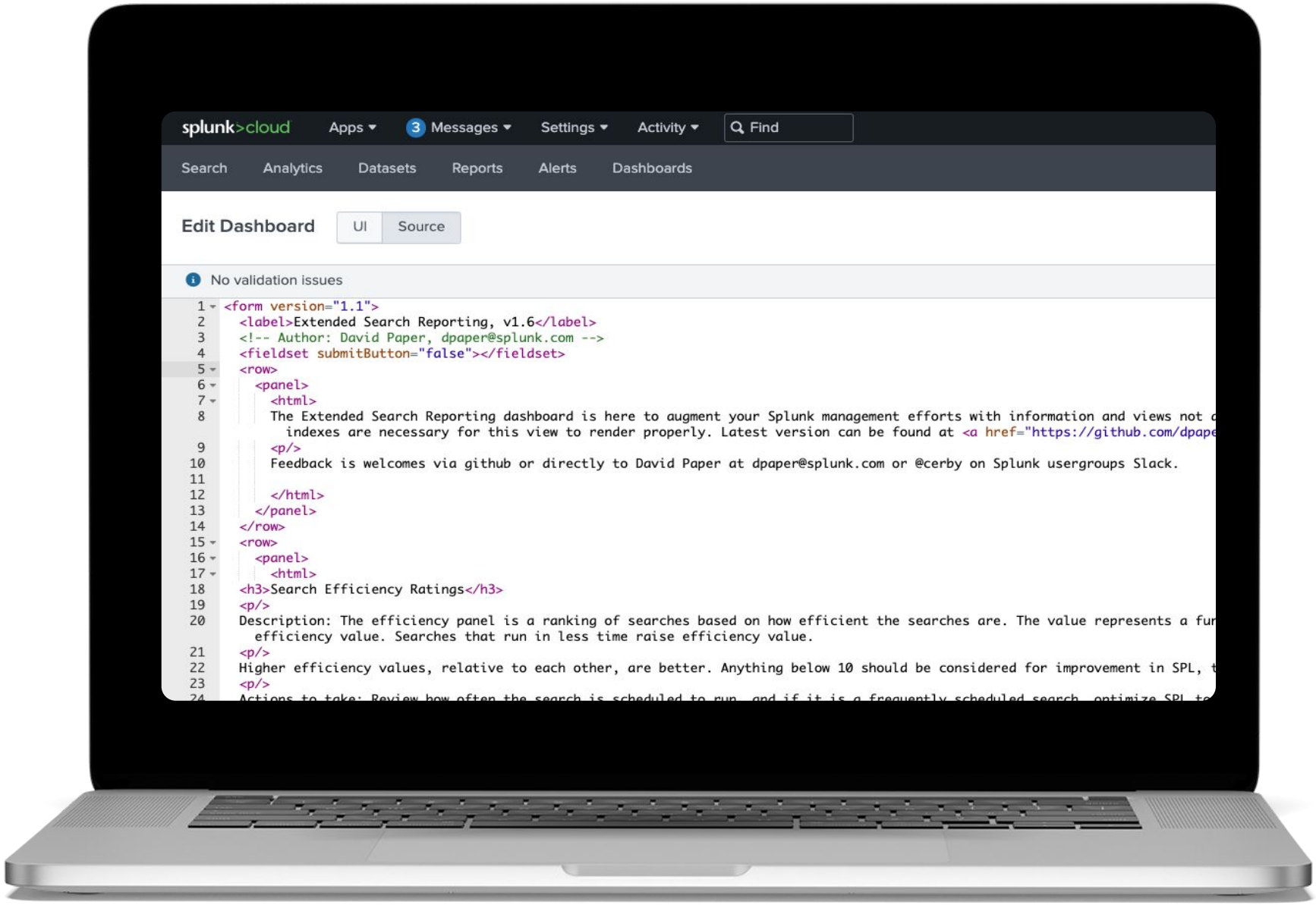
50 Per Page | Format | Preview

< Prev 1 2 3 4 5 6 7 8 ... Next >

title	author	allow_skew	is_scheduled	search
360 by Account	nobody	5m	1	`infosec-indexes` (tag=security OR tag=attack) | bucket span=1h@h _time | eval tag=mvfilter(match(tag, "failure") OR match(tag, "success") OR match(tag, "access") OR match(tag, "add") OR match(tag, "change") OR match(tag, "delete") OR match(tag, "error") OR match(tag, "misconfiguration") OR | stats count, dc(user) AS dc by tag, _time | eval hours=tostring(-floor((now() - _time)/3600))."h" | eval hours=if(hours=="0h","now",hours) | sort _time | fields hours, tag, count, dc
360 by Host	nobody	5m	1	`infosec-indexes` (tag=security OR tag=attack) | bucket span=1h@h _time | eval tag=mvfilter(match(tag, "failure") OR match(tag, "success") OR match(tag, "access") OR match(tag, "add") OR match(tag, "change") OR match(tag, "delete") OR match(tag, "error") OR match(tag, "misconfiguration") OR | stats count, dc(host) AS dc by tag, _time | eval hours=tostring(-floor((now() - _time)/3600))."h" | eval hours=if(hours=="0h","now",hours) | sort _time | fields hours, tag, count, dc
Access - Access App Tracker - Lookup Gen	admin	5m	1	| tstats summariesonly=true min("_time") as "firstTime",max("_time") as "lastTime" from datamodel="Authentication"."Authentication" where "Authentication.app"!="unknown" by "Authentication.app" | rename "Authentication. "lastTime" by "app" | outputlookup override_if_empty=false "access_app_tracker" | stats count
Access - Access Over Time	admin	5m	0	| `tstats` count from datamodel=Authentication.Authentication by _time span=10m | timechart minspan=10m count
Access - Access Over Time By Action	admin	5m	0	| `tstats` count from datamodel=Authentication.Authentication by _time,Authentication.action span=10m | timechart minspan=10m useother=`useother` count by Authentication.action | `drop_dm_object_name("Authentication")`
Access - Access Over Time By App	admin	5m	0	| `tstats` count from datamodel=Authentication.Authentication by _time,Authentication.app span=10m | timechart minspan=10m useother=`useother` count by Authentication.app

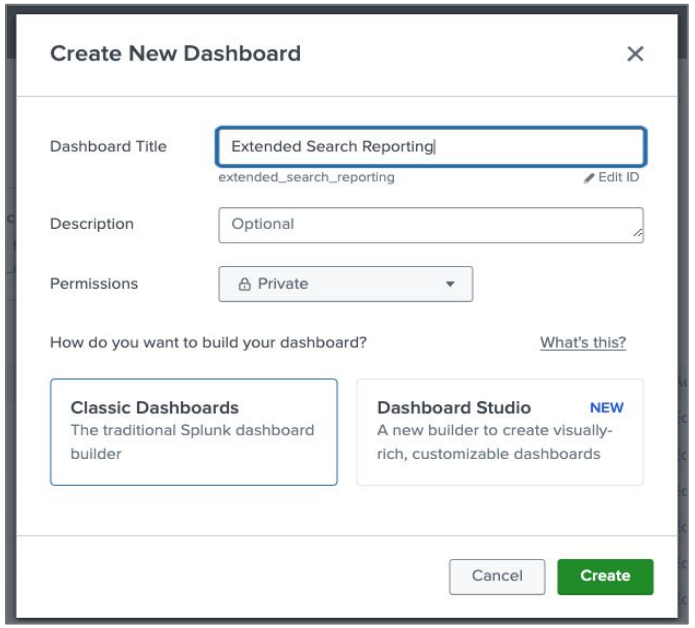
Extended Search Reporting

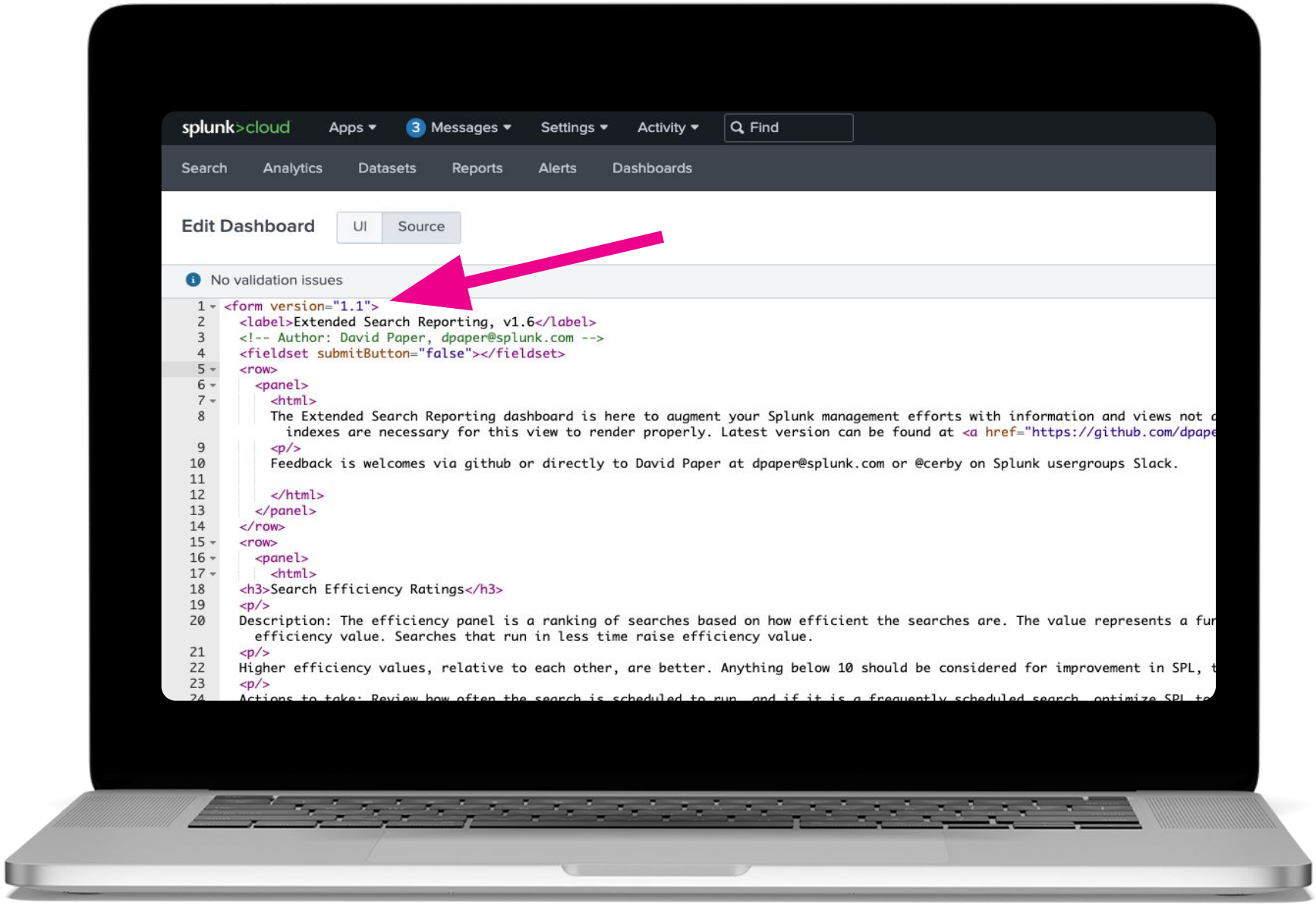




splunk> .conf23

Extended Search Reporting





splunk> .conf23

Search Scheduling Distribution

Description: The distribution of scheduled searches is a way to visualize the scheduled search load for each minute of the last hour from the Splunk scheduler perspective. This view only encompasses scheduled and enabled searches on the local server.

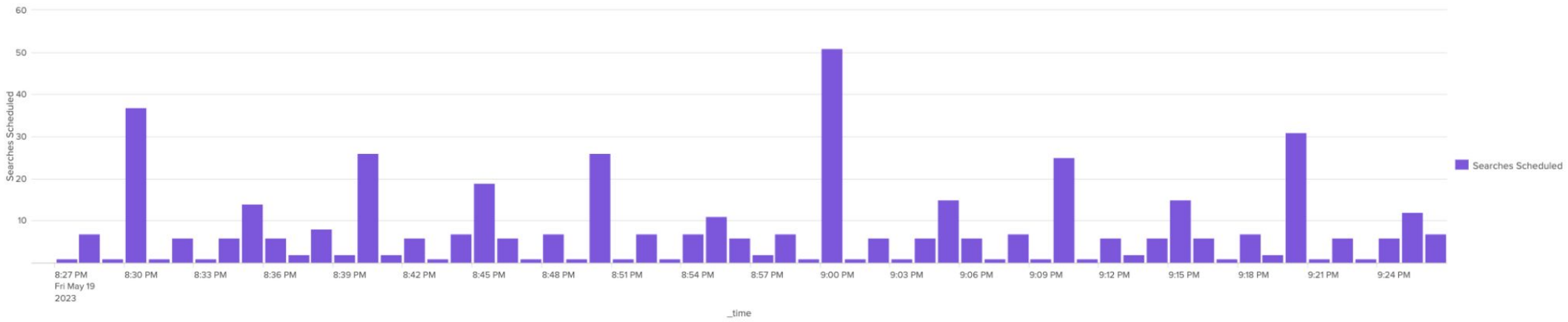
Actions to take: Review how often searches are scheduled to run and which minutes of the clock to run on - do all the searches running frequently need to run at the default 5, 10, 15, et al minute boundaries? Spread searches out to lesser utilized minutes each hour. Assistance can be found on http://docs.splunk.com/Documentation/Splunk/latest/Alert/CronExpressions.

Time frame: Trending over the past 60 minutes by default.

Search Scheduling Distribution

Search Scheduling Distribution: Custom time

Select timechart span: 1 minute / 5 minutes / 60 minutes



Panel Execution Duration

00:00:10.470

Search Scheduling Distribution by App

splunk> .conf23

✨ Bonus: Savedsearch Audit ✨

Find searches behaving badly

Events Patterns **Statistics (66)** Visualization

50 Per Page ▾ | Format | Preview ▾ | < Prev | 1 | 2 | Next >

splunk_server	savedsearch_name	user	average_run_time	max_run_time	min_run_time	cron_schedule	schedule_window	is_realtime	max_mem_used	avg_mem_used	App Name	search
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Network - Policy Or Configuration Change - Rule	admin	174.37992213465657	348.58555	1.0113	*/5 * * * *	auto	yes	928.65	507.93414155906254	SA-NetworkProtection	| from datamodel:"Change"
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Audit - Dataset Relation	admin	1.9666307692307694	2.04795	1.89867	*/30 * * * *	auto	no	115.70	112.25032051282054	SA-Utils	| rest /servicesNS/nobody
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Audit - Anomalous Audit Trail Activity Detected - Rule	admin	0.48190757575757576	0.64027	0.1362	*/54 * * * *	auto	no	565.93	498.94225806451624	SA-AuditAndDataProtection	| from datamodel:"Change"
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Threat - Correlation Searches - Lookup Gen	admin	0.2220379734848485	0.55832	0.1351	* * * * *	auto	no	213.68	128.04382882882885	SA-ThreatIntelligence	| rest splunk_server=loca "@@") | eval annotations= security_domain=if(securi | appendpipe [where _key
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Threat - Watchlisted Events - Rule	admin	0.2157729166666667	0.32927	0.1494	*/19 * * * *	auto	no	740.36	353.3613888888889	SA-ThreatIntelligence	tag=watchlist NOT sourcet
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Identity - Activity from Expired User Identity - Rule	admin	0.20403611111111114	0.26805	0.1648	*/37 * * * *	auto	no	231.40	184.14263157894734	SA-IdentityManagement	| from datamodel:"Identit
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Threats - Disable Suppressions - Administrative	admin	0.12718333333333334	0.19953	0.03472	0 3 * * *	auto	no	116.25	109.54666666666667	SA-ThreatIntelligence	| rest splunk_server=loca
si-i-00eef76cb81005395.mc-shw-851487a57fcc828.stg.splunkcloud.com	Network - Traffic Source Count Per 30m - Model Gen	admin	0.12381111111111112	0.1427	0.1094	35 * * * *	5	no	117.48	117.08166666666666	SA-NetworkProtection	| tstats `summariesonly`

Search Performance Recap

What we just learned

splunk> .conf23

Search Performance Recap

What we just learned

+ **Search skewing** can have a massive impact on success of searches

Search Performance Recap

What we just learned

- **Search skewing** can have a massive impact on success of searches
- Set a global skew of **5 minutes** for all searches (more for others if appropriate)

Search Performance Recap

What we just learned

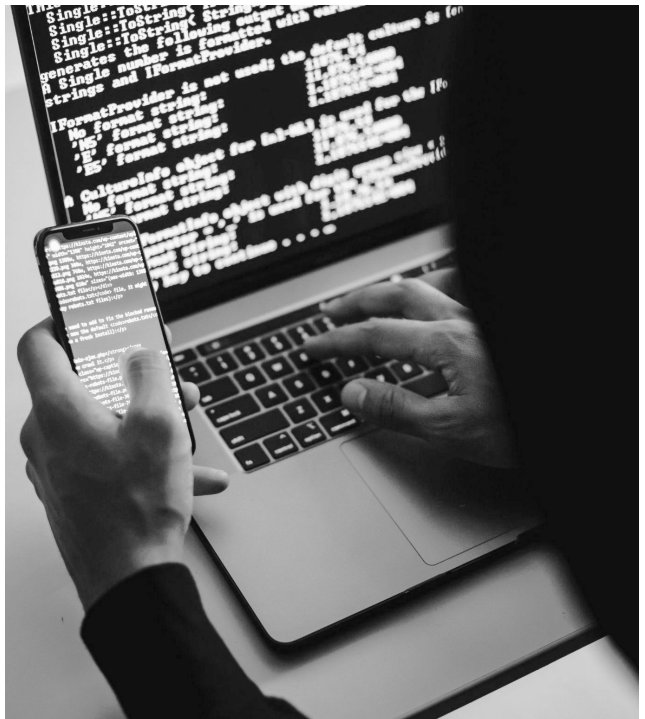
- **Search skewing** can have a massive impact on success of searches
- Set a global skew of **5 minutes** for all searches (more for others if appropriate)
- Leverage the **extended search** reporting dashboard for a deep dive into performance concerns and search metrics

Reliable SOC Alerting

Ensuring that your Enterprise Security correlation searches work properly

splunk> .conf23

Stories from the SOC



Auditing Data Model Acceleration (DMA)

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A critical step for proper correlation search behavior

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Best Practice:

Have a process for adding new data which includes updating relevant data models

Your Turn!

splunk> .conf23

Data Model Audit Dashboard

Your turn!

datamodel	acceleration_enabled	acceleration_earliest	macro	definition	complete(%)	size(MB)	correlation_searches_enabled	access_time
Certificates	true	-1y			100.0	0.0		01/01/1970 00:00:00
Email	true	-1y			100.0	0.0	1	05/19/2023 21:30:11
Incident_Management	true	0			100.0	0.0		01/01/1970 00:00:00
Malware	true	-1y			100.0	0.0	6	05/19/2023 21:20:57
Network_Resolution	true	-3mon			100.0	0.0		01/01/1970 00:00:00
Network_Sessions	true	-3mon			100.0	0.0		01/01/1970 00:00:00
UEBA	true	0			100.0	0.0	3	01/01/1970 00:00:00
Vulnerabilities	true	-1y			100.0	0.0		05/19/2023 21:20:47
Authentication	true	-1y			100.0	0.1	9	05/19/2023 21:30:07
Intrusion_Detection	true	-1y			100.0	0.2		05/19/2023 21:31:04

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Data Model Acceleration Audit Recap

What we just learned

splunk> .conf23

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+ Data needs to be **CIM compliant** to be used in correlation searches in Splunk Enterprise Security (ES)

Data Model Acceleration Audit Recap

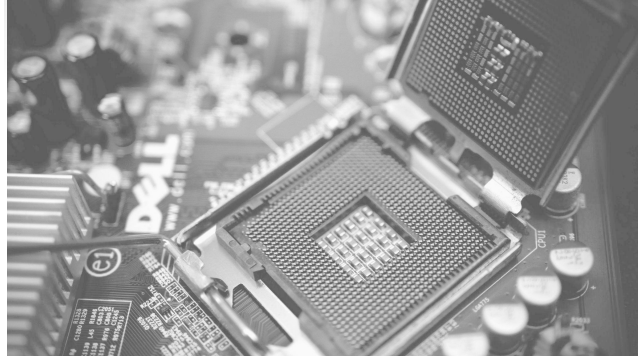
What we just learned

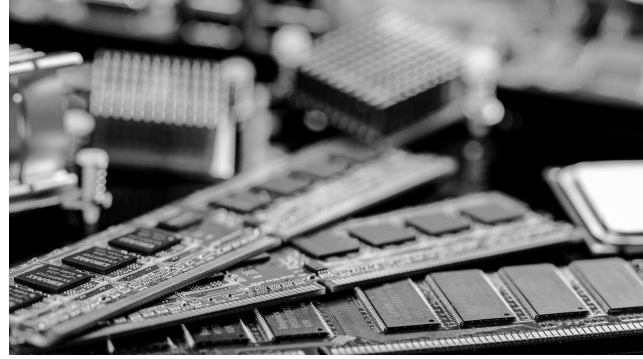
- Ensure data model acceleration searches are set to **only use indexes with data**
- Data needs to be **CIM compliant** to be used in correlation searches in Splunk Enterprise Security (ES)
- Make sure you add **new indexes** to the data models as part of your data onboarding process

Don’t Waste Resources

Finding and fixing unneeded acceleration

splunk> .conf23





Using Resources Responsibly

Auditing Acceleration Summaries

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Auditing Acceleration Summaries

A quick and easy way to reduce resource consumption

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Identify report accelerations that are not used

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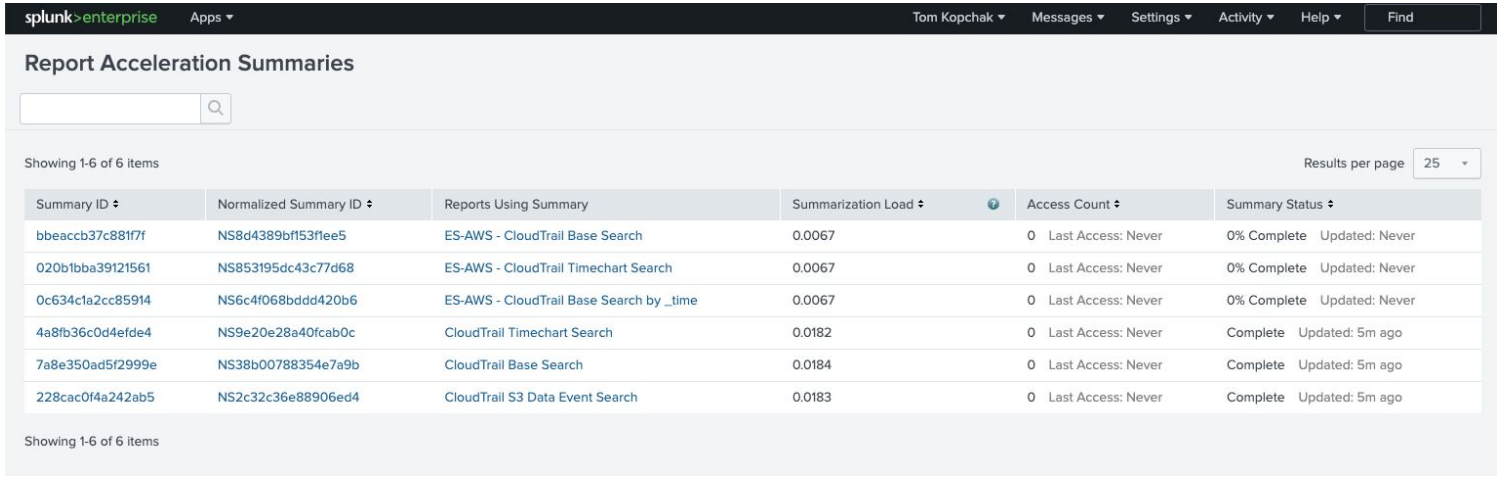

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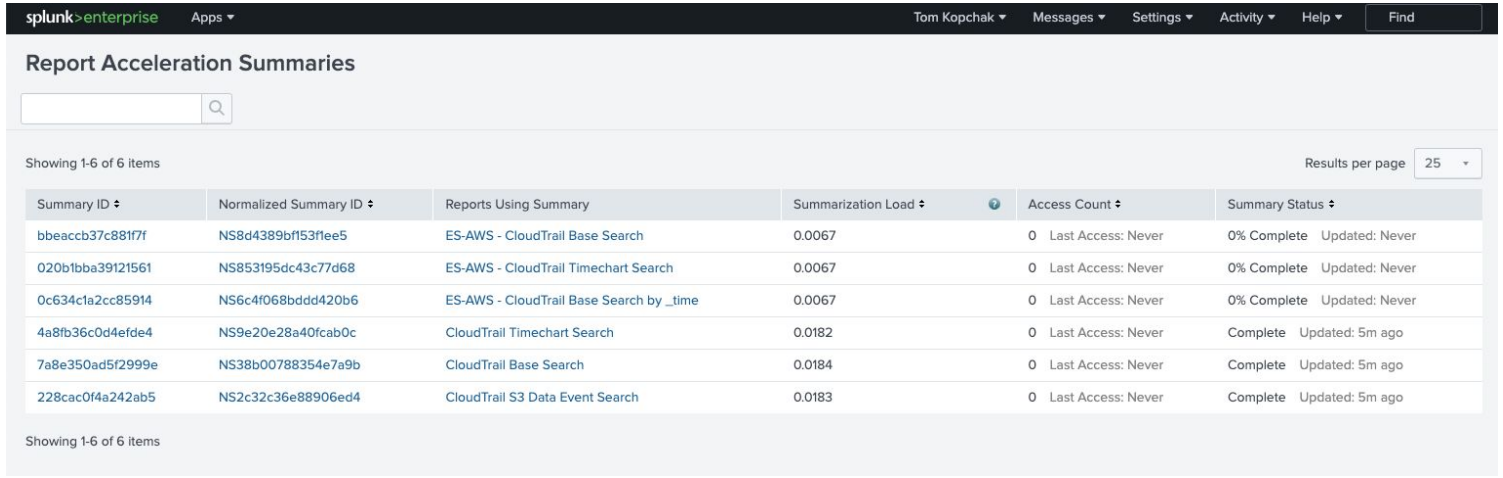

Best Practice:

Disable report acceleration summaries that are unused/not accessed

splunk> .conf23

Identifying Unused Apps

splunk> .conf23

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Check for user activity

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Remove apps associated with products you are no longer using in your environment (once the data has rolled off)

Your Turn!

splunk> .conf23

Auditing Acceleration Summaries

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- On your search head, navigate to manager/system/summarization
  - For example: https://splunksearch.yourdomain.com/en-US/manager/system/summarization

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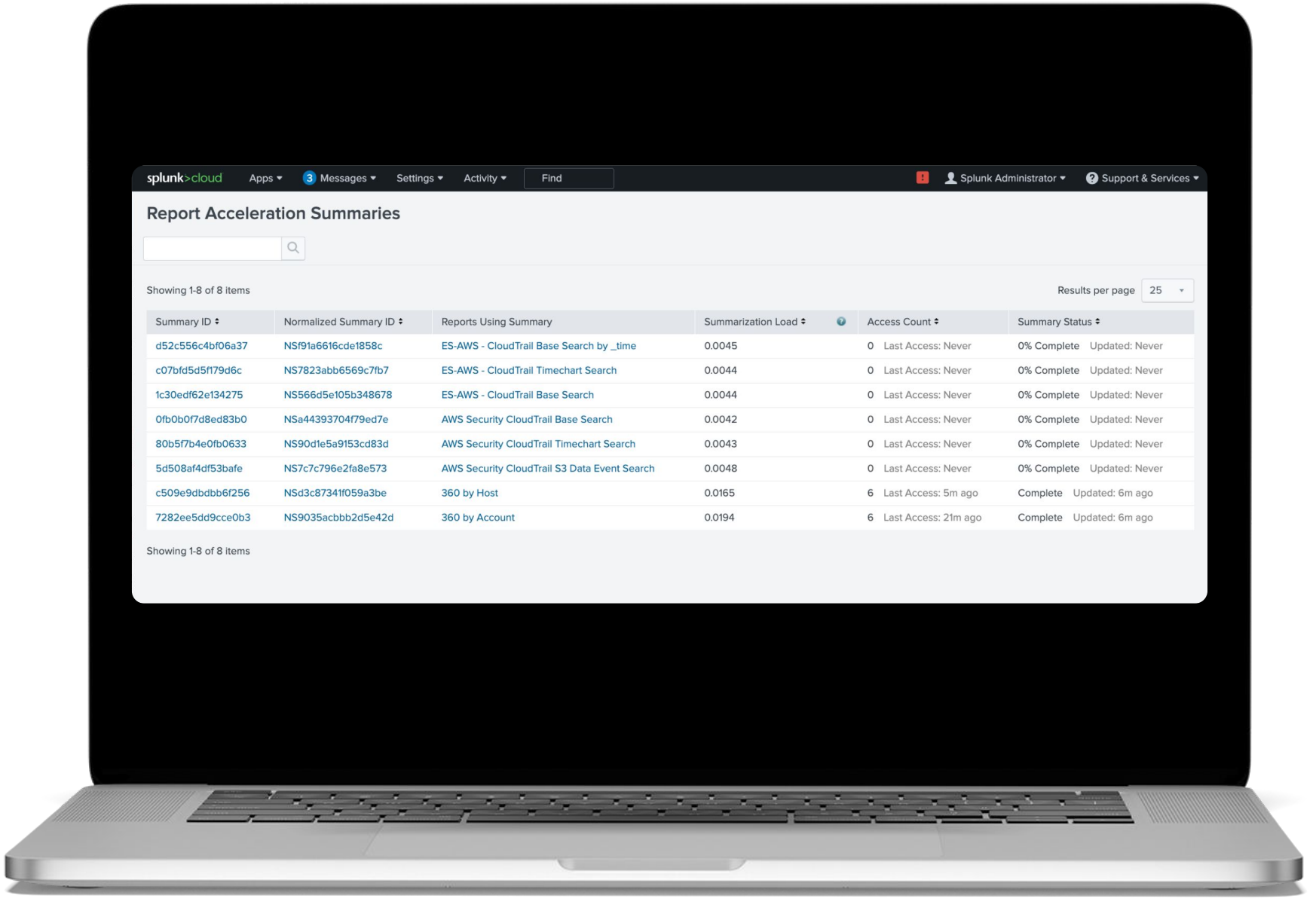


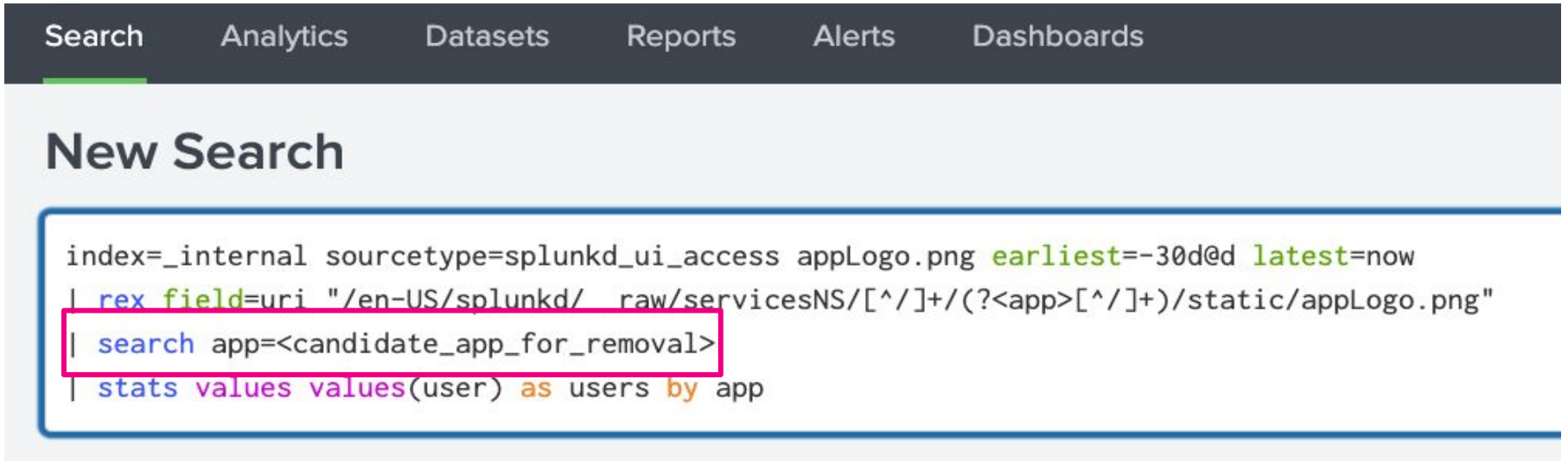
splunk> .conf23

Checking for Unused Apps

This one requires a bit more input

On your search head, identify some apps names you think may not be used

- Choose a product you've removed from your environment
- Run the unused_apps search with the app name specified



Auditing Acceleration Summaries Recap

What we just learned

splunk> .conf23

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Auditing Acceleration Summaries Recap

What we just learned

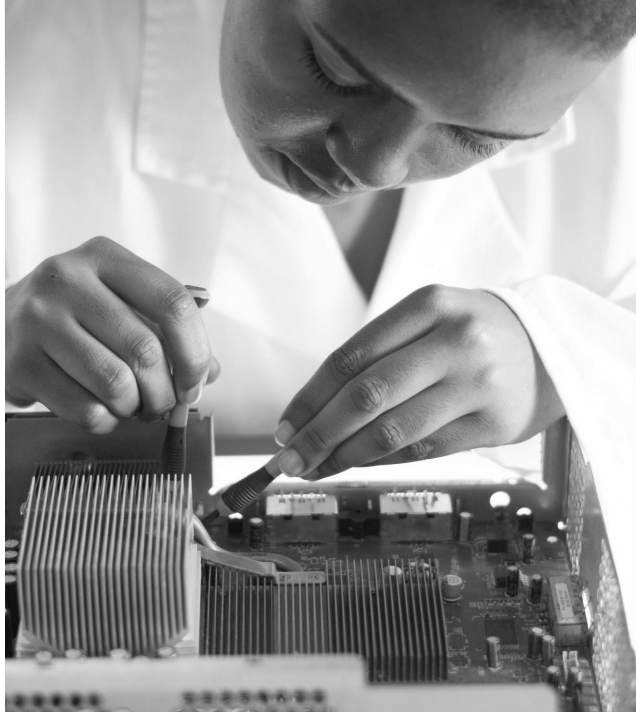
- Accelerating reports that no one is using **wastes resources**
- Disabling acceleration reports that aren't accessed can **save resources**
- Use the **summarization settings** page to identify potential searches
- Consider **removing unused apps** to reduce overhead

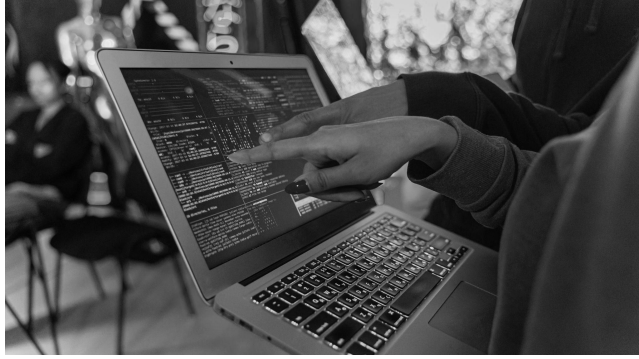
Recovering Credentials

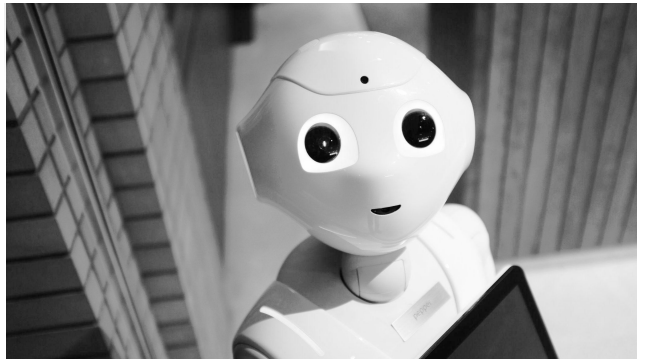
Accessing Splunk's Password Store

splunk> .conf23

API Secret Management Story







Managing & Recovering API Keys

splunk> .conf23

Managing/Recovering API Keys

Using Splunk to recover credentials

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- You may need to recover API keys for an input
  - Splunk needs to be able to decode these keys to use them
  - You can use the same mechanism to show the decoded passwords

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  - `| rest splunk_server=local "/servicesNS/-/SA-ldapsearch/storage/passwords" | table username,clear_password,title`
  - Replace SA-ldapsearch with the appropriate app

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Best Practice:

Run this search on the system (heavy forwarder, etc.) where the input is configured

Your Turn!

splunk> .conf23

Recovering API Keys/Credentials

This is a quick and easy one!

- Head to the search app on a system where you have an app with stored credentials
  - For example: a heavy forwarder running the O365 app
- Syntax - REST search
  - `| rest splunk_server=local "/servicesNS/-/<app name>/storage/passwords" | table username,clear_password,title`
  - Specify the appropriate app in your search
  - The results table will show credentials

Troubleshooting: this is only available to admins with appropriate permissions

Recovering API Keys/Credentials

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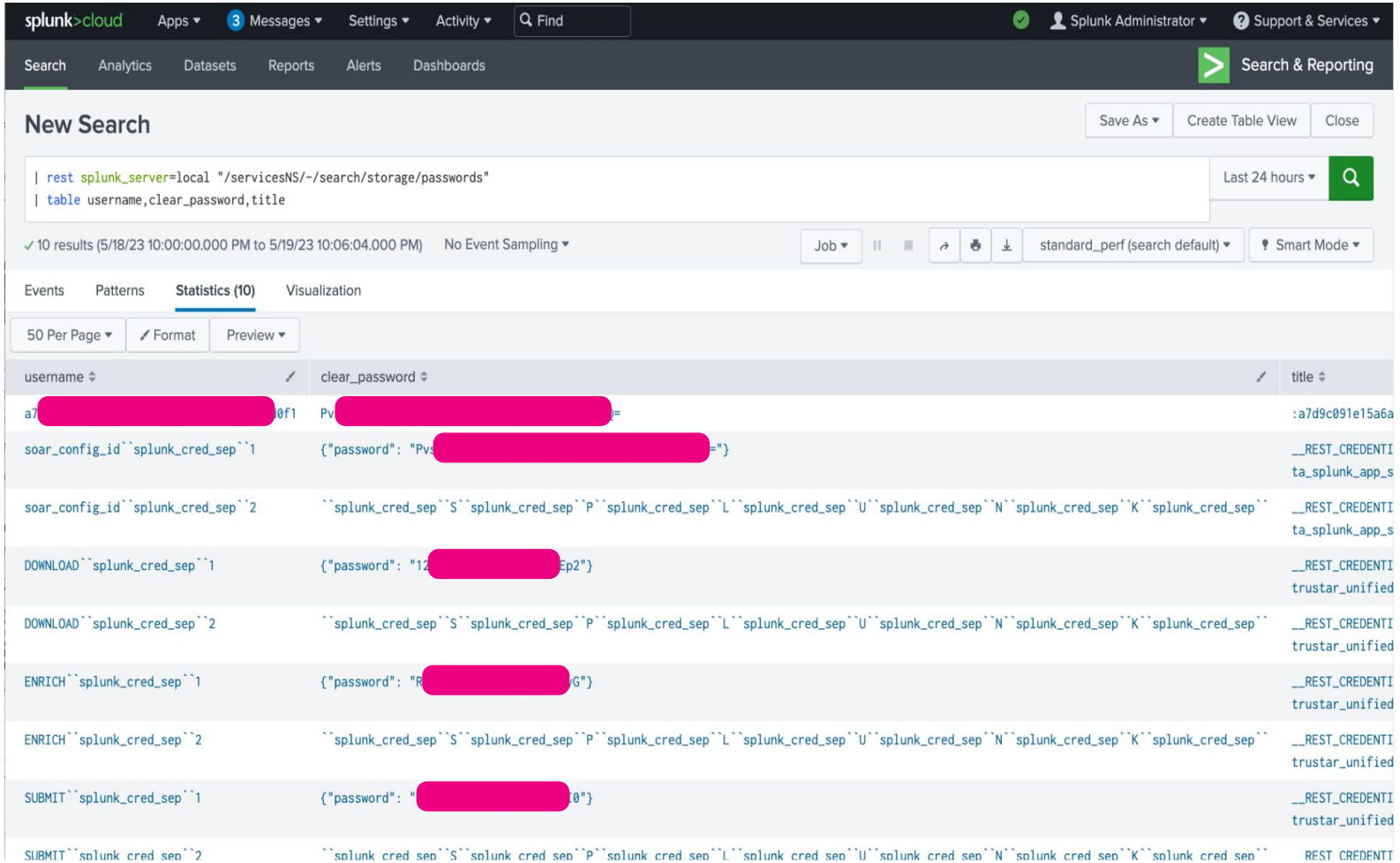

Recovering API Keys & Credentials Recap

What we just learned

splunk> .conf23

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What we just learned

+ Sometimes you may need to **recover credentials** as a Splunk admin

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What we just learned

- Sometimes you may need to **recover credentials** as a Splunk admin
- Using the **Splunk interface** to do so is one of the simplest ways to get this information

Recovering API Keys & Credentials Recap

What we just learned

- Sometimes you may need to **recover credentials** as a Splunk admin
- Using the **Splunk interface** to do so is one of the simplest ways to get this information
- It's helpful when doing **migrations** between systems (or to Splunk Cloud!)

That was fun. 🎉 Let’s recap!

Recap of Today's Goals

What we covered

splunk> .conf23

Recap of Today's Goals

What we covered

+ Keep your **auditors** happy

  Data retention audit

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Recap of Today's Goals

What we covered

- Keep your **auditors** happy
  - Data retention audit
- Keep your **users** happy
  - Knowledge object permissions

Recap of Today's Goals

What we covered

+ Keep your **auditors** happy
  - Data retention audit
+ Keep your **users** happy
  - Knowledge object permissions
+ Keep your **Splunk instance** happy
  - Scheduler health and skewing

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Recap of Today's Goals

What we covered

+ Keep your **auditors** happy

  Data retention audit

+ Keep your **users** happy

  Knowledge object permissions

+ Keep your **Splunk instance** happy

  Scheduler health and skewing

+ Keep your **SOC team** happy

  Datamodel and report acceleration audits

Recap of Today's Goals

What we covered

+ Keep your **auditors** happy
  - Data retention audit
+ Keep your **users** happy
  - Knowledge object permissions
+ Keep your **Splunk instance** happy
  - Scheduler health and skewing
+ Keep your **SOC team** happy
  - Datamodel and report acceleration audits
+ Keep **YOU** happy!
  - Recovering credentials

Let’s Keep This Going!

How we can continue learning

Submit your own helpful searches/tips for Splunk administration, and I’ll publish the best ones for everyone to share!

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Have More Questions?

Talk to me at the Hurricane Labs booth!

M122

Hurricane Labs

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.conf23 Learning Quest

Explore all .conf23 has to offer!

SCAN ME in the .conf23 mobile app game

splunk> .conf23

Thank You

splunk> .conf23

✨ Bonus Content ✨

Extra stuff

Splunk Search Optimization:

+ https://hurricanelabs.com/splunk-tutorials/splunk-search-optimization-a-paleo-diet-for-spl/

Splunk 9.0 Configuration Change Tracking:

+ https://hurricanelabs.com/splunk-tutorials/first-look-splunk-9-0-configuration-change-logging/

Splunk Indexer Clustering:

+ https://hurricanelabs.com/splunk-tutorials/splunk-indexer-clustering-your-hero-in-the-fight-against-data-loss/