SEC1474 - Splunk and MITRE ATT&CK: Everything Covered? How We Know.

SEC1474

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Splunk and MITRE ATT&CK: Everything Covered? How We Know.

Collin Stump

Splunk Consultant | Regeneron

Christopher Filor

Cyber Security Analyst | Regeneron

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Agenda

Data
- Measuring your Security Posture
- Stakeholders
- What to Compare Against - MITRE
- Finding the analytics
- Finding and labeling the Data Feeds
- Calculations
- Design Decisions
- Aspirations

Analytics
- Selecting Technique
- Research Detection Options
- Building Detection

Operations
- Risk Based Alerting
- ADS Framework
- Quality Control

Measuring Security Posture

What does our security posture look like?

- What data sources do we have available to us?
- What analytics are in place?

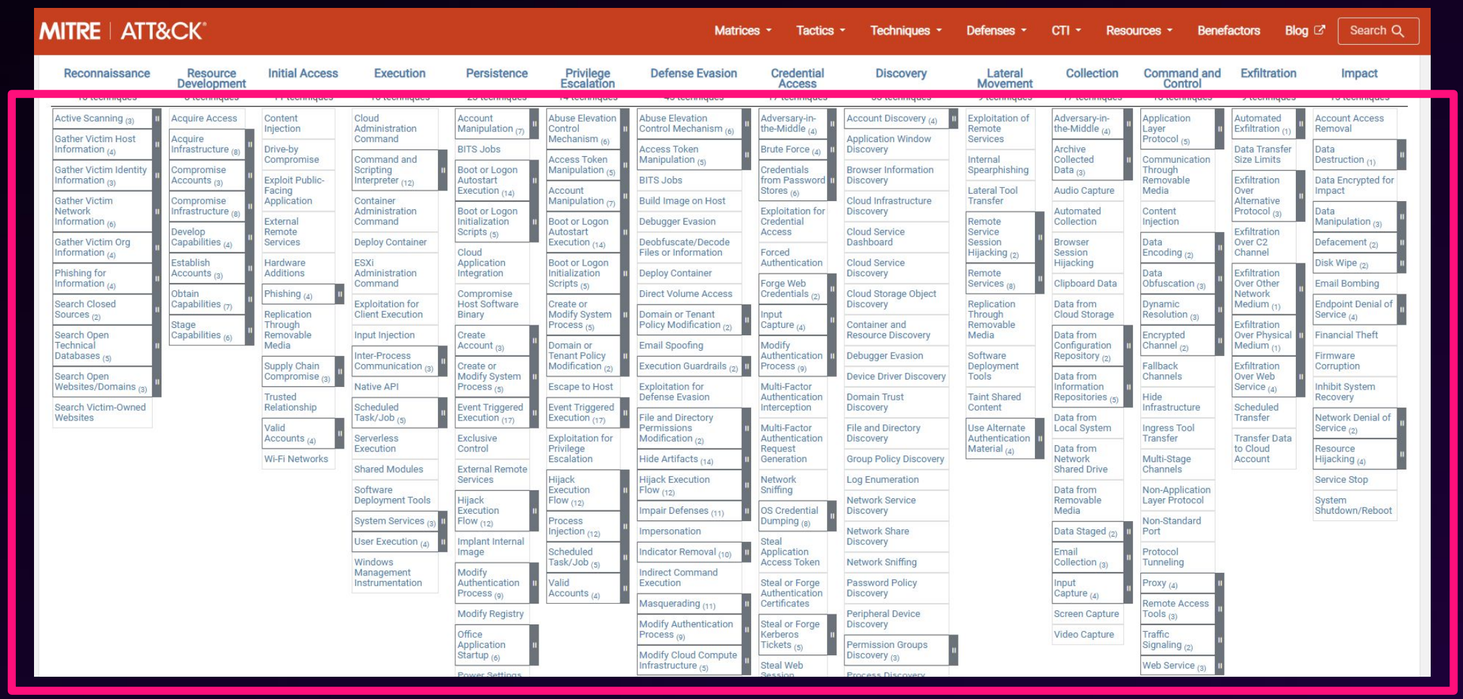
- What data sources and analytics do we need

Stakeholders

- Leadership (from CISO down)
  - aid decision-making, reporting.
- Detection Engineering Team
  - prioritize work.
- Incident Response Team
  - where we have and do not have coverage.

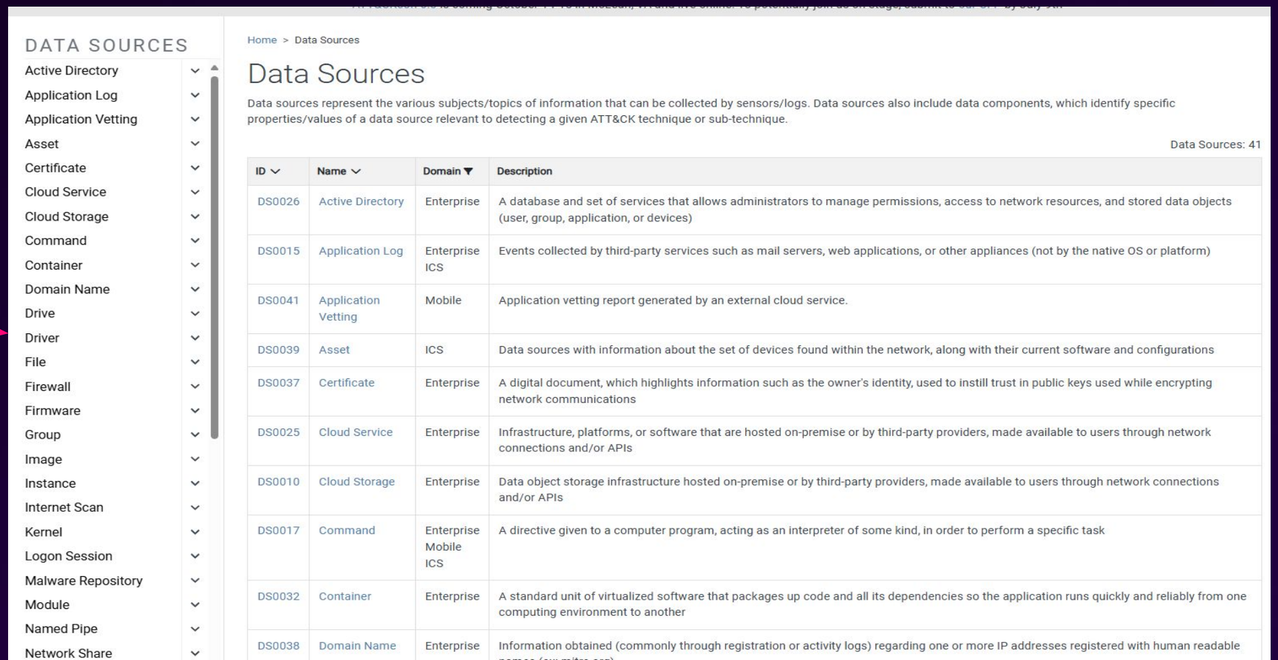
Where to start?

Adversarial Tactics, Techniques, and Common Knowledge (ATT&CK)



Did you know they include the data source information?

https://attack.mitre.org/



Where to start?

Did you know: ES has a really good mitre lookup?

- Resource: The MITRE Lookup found in the Security Essentials App
  - | inputlookup mitre_enterprise_list

Finding and labeling the Data

What data sources do we have available for our analytics?

- Focused on index – sourcetype combinations.
- What are all the critical feeds?
- What data are the searches “considering”
- What Data Source IDs from MITRE are we associating with?

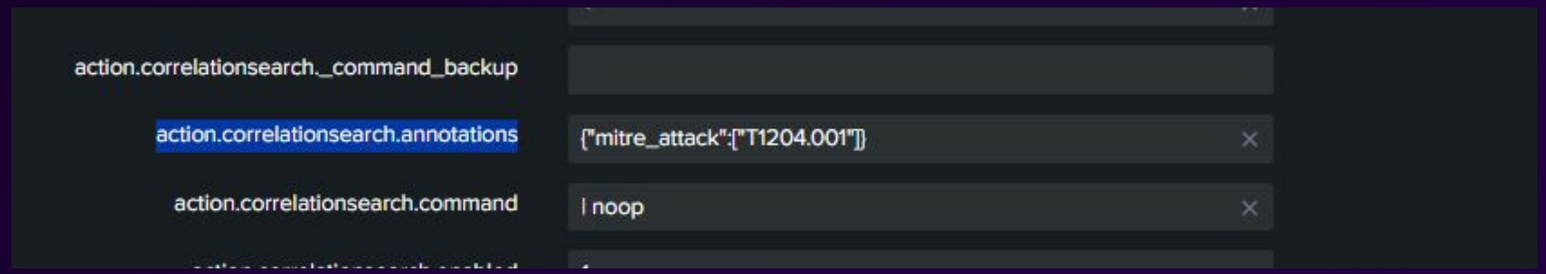
Finding the analytics

What searches are we running that provide security value?

- Rest endpoints for Splunk and Lookups for other sources
- MITRE Annotations in Splunk
  - Most provided by vendor
- Looking for searches that are enabled and Scheduled

```
| rest splunk_server=local /services/saved/searches `saved_search_field_list`
| search mitre_attack{}=*

|append [
        | rest splunk_server=local /servicesNS/-/-/saved/searches
search="eai:acl.app=anvilogic"
        | search title="avl:ti:*" OR title="avl:ts:*"
        | rex field=title "^avl:(ti|ts):(?<avl_rule_id>.+)\:"
        | lookup avl_rule_inventory_workspace avl_rule_id OUTPUTNEW
avl_mitre_ext_ids avl_title]
```



How Covered Am I?

Measuring and Comparing

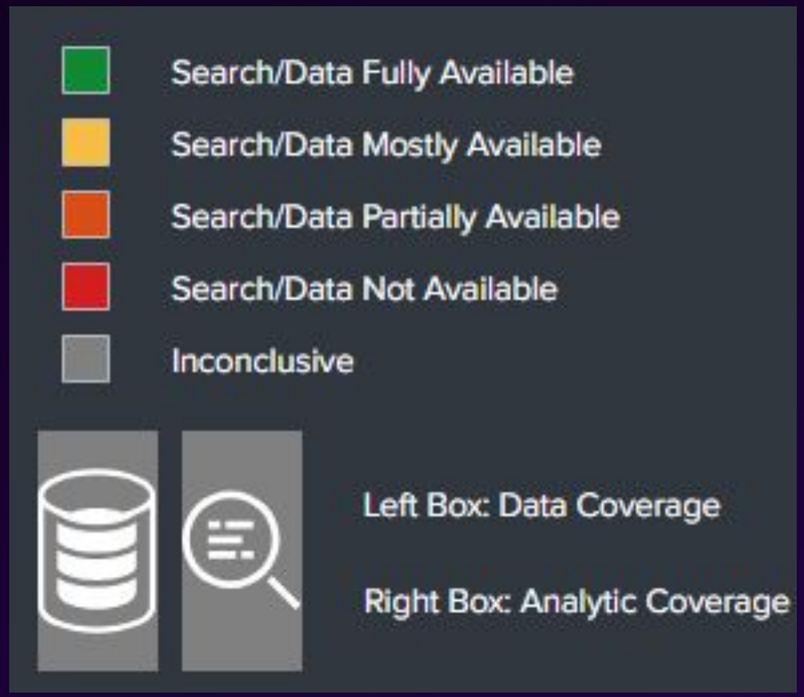
For each MITRE Technique and Sub Technique

- Are there searches in place?
  - As a percentage
- Have there been any recent alerts regarding that Technique?
  - index=_internal sourcetype=scheduler.
  - As a whole number
- Are we missing any MITRE data sources from our feeds.
  - As a percentage

Dashboard Icons

Percent of MITRE Technique covered by Data.

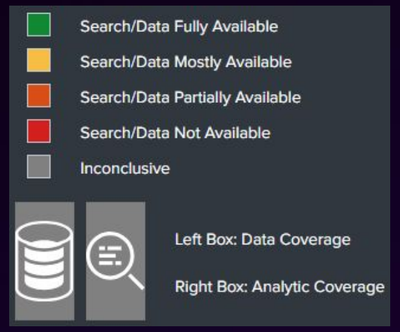
Percent of MITRE Techniques covered by analytics.



Design Decisions

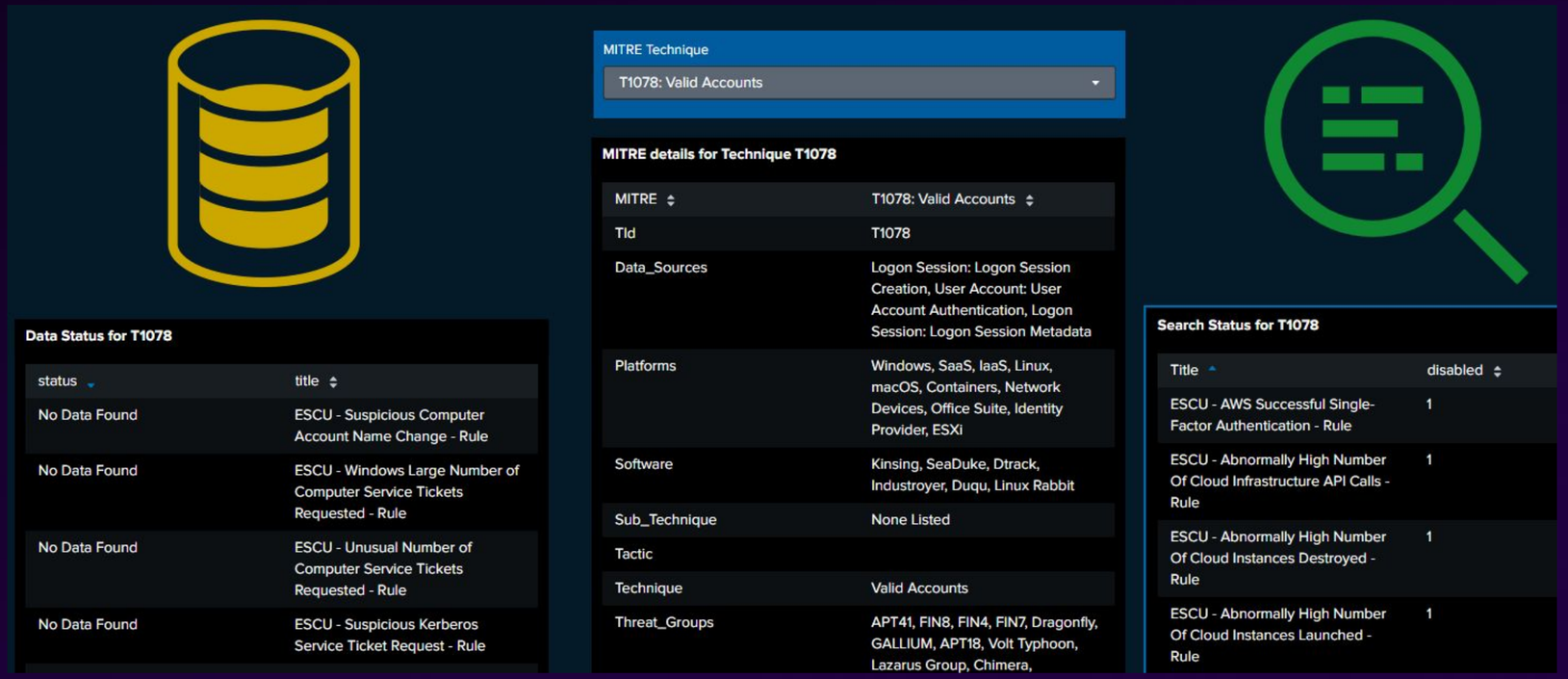
How do we layout the dashboard for the stakeholders

- Traditional “Vertical” MITRE Display
- Magnifying glass = search status
- Database = data status
- What data sources do we have available to us?
- Multiple Tabs



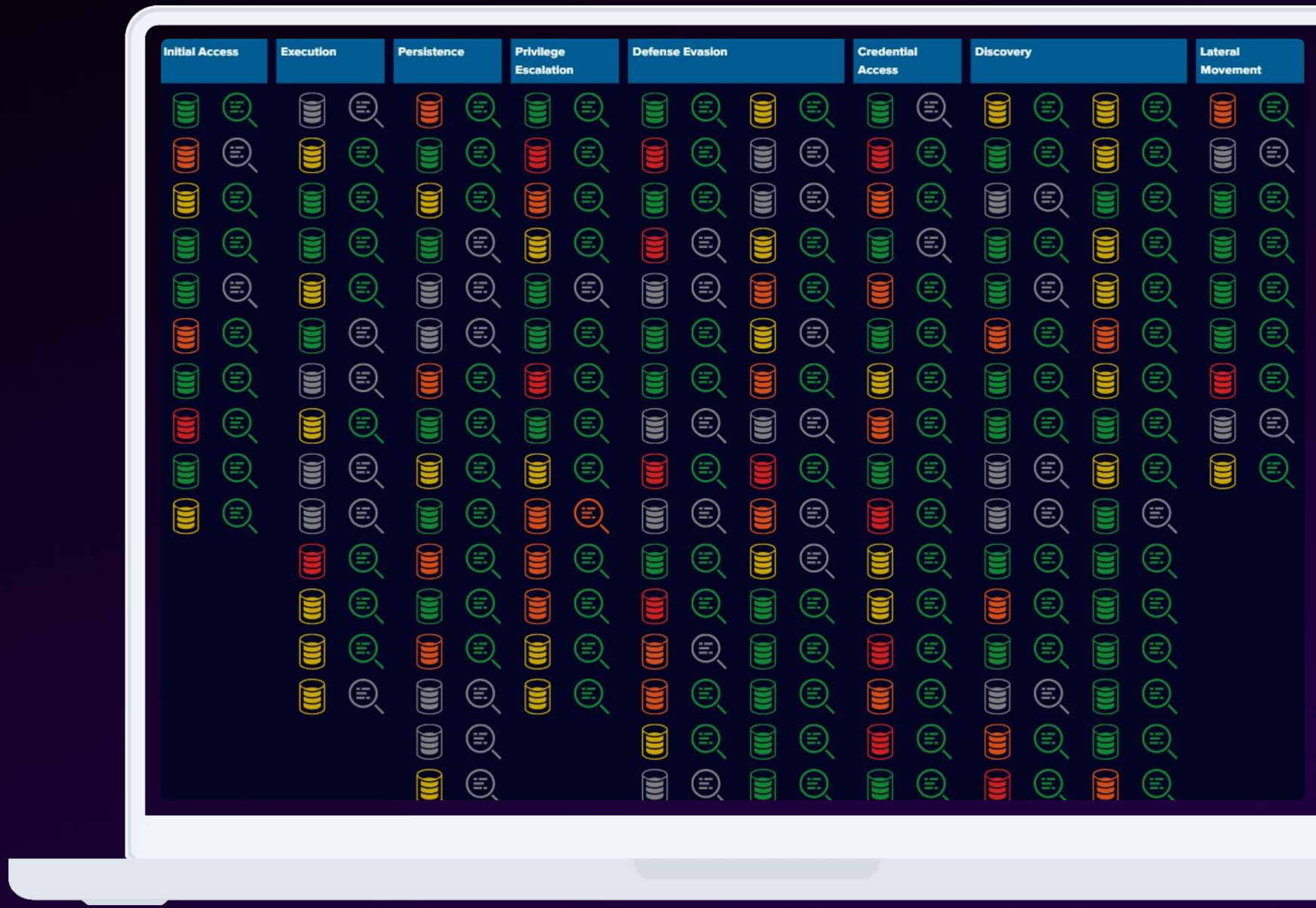
MITRE

ATT&CK



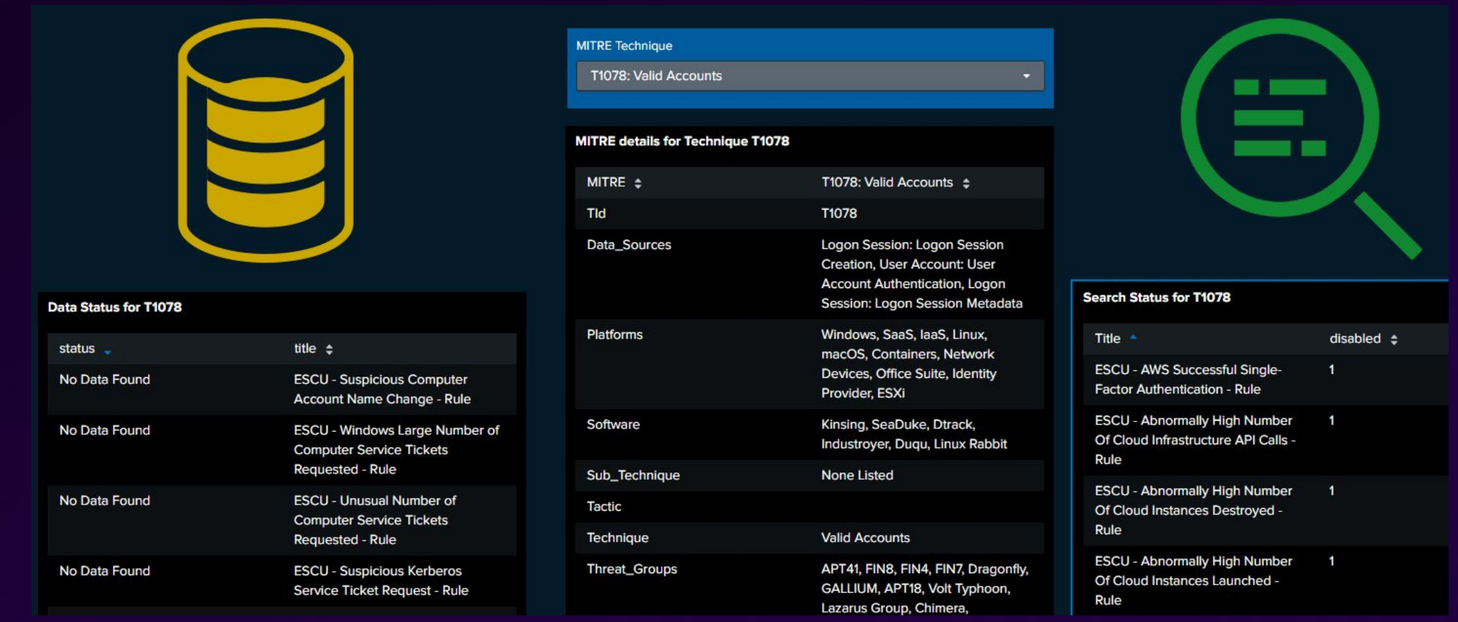
Analytics

- Analyzing Dashboard
- Selecting & Researching Techniques
- Building Detections
    - Standardize Detection Format
    - Searching tips



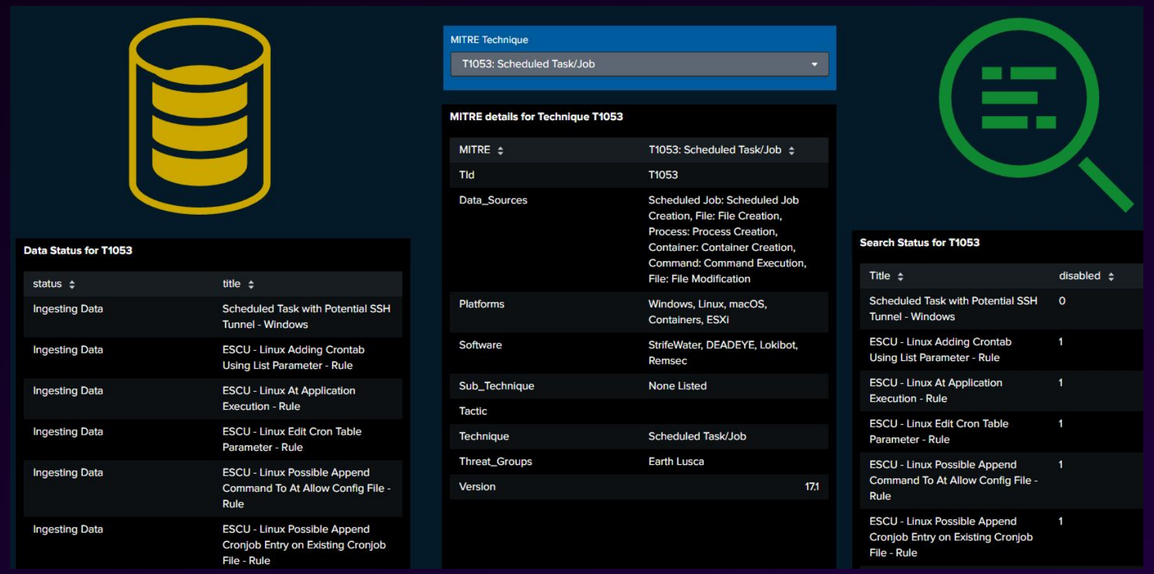
Analyzing Dashboard

- Sourcing detections
  - Where do we have data and no detections
- TTP in new attack chain
  - Check if we have data, have detections or need to build
- Requests to gather required data if none available for TTP



Selecting and Researching Techniques

- Select a technique where you have data available
- Drilldown in dashboard will show
  - Available data sources
  - Information on Technique
  - Searches in the environment
- Review Mitre's page for extra information
  - All Data Sources to detect this
  - Example SPL



Data Status for T1053

status	title
Ingesting Data	Scheduled Task with Potential SSH Tunnel - Windows
Ingesting Data	ESCU - Linux Adding Crontab Using List Parameter - Rule
Ingesting Data	ESCU - Linux At Application Execution - Rule
Ingesting Data	ESCU - Linux Edit Cron Table Parameter - Rule
Ingesting Data	ESCU - Linux Possible Append Command To At Allow Config File - Rule
Ingesting Data	ESCU - Linux Possible Append Cronjob Entry on Existing Cronjob File - Rule

MITRE Technique: T1053: Scheduled Task/Job

MITRE details for Technique T1053

MITRE	T1053: Scheduled Task/Job
TId	T1053
Data_Sources	Scheduled Job: Scheduled Job Creation, File: File Creation, Process: Process Creation, Container: Container Creation, Command: Command Execution, File: File Modification
Platforms	Windows, Linux, macOS, Containers, ESXi
Software	StrifeWater, DEADEYE, Lokibot, Remsec
Sub_Technique	None Listed
Tactic	
Technique	Scheduled Task/Job
Threat_Groups	Earth Lusca
Version	17.1

Search Status for T1053

Title	disabled
Scheduled Task with Potential SSH Tunnel - Windows	0
ESCU - Linux Adding Crontab Using List Parameter - Rule	1
ESCU - Linux At Application Execution - Rule	1
ESCU - Linux Edit Cron Table Parameter - Rule	1
ESCU - Linux Possible Append Command To At Allow Config File - Rule	1
ESCU - Linux Possible Append Cronjob Entry on Existing Cronjob File - Rule	1

DS0009	Process	Process Creation	Monitor for newly executed processes that may abuse task scheduling functionality to facilitate initial or recurring execution of malicious code. Note: Below is the relevant Events and SourcesWindows: • Sysmon Event ID 1: Process creation, particularly for schtasks.exe, at.exe, Taskeng.exe, crontab, etc. • Windows Event Log EventCode 4688: Process creation that might involve task scheduling. • Windows Task Scheduler Logs: Task creation, modification, or deletion. Linux/macOS: • Auditd logs: Monitoring for cron job creation or modifications. • Syslog: Logs related to cron jobs or scheduled tasks. • File integrity monitoring (FIM): For changes to /etc/cron, */var/spool/cron/*, or user-specific cron jobs. Containers:- Container logs: Detection of scheduled tasks or cron jobs within container environments. Analytic 1 - Look for task execution with unusual parameters. `(sourcetype="WinEventLog:Microsoft-Windows-Sysmon/Operational" OR sourcetype="WinEventLog:Security" OR sourcetype="linux_auditd" OR sourcetype="syslog") | where Image IN ("schtasks.exe", "at.exe", "Taskeng.exe", "cron", "crontab", "systemd-timers")`

Building Detections

- Standardize a format for detections
- Build a template to start with
- Comment your code!!!!
- Normalize data for Risk framework and future use
- Index time to catch delayed events

TEMPLATE EXAMPLE

```
``` DATA RETRIEVAL MACROS & INITIAL SEARCH TERMS ```
`get_endpoint_data` `get_endpoint_data_winevent`

``` DATA NORMALIZATION ```
`map_winevent`

``` DATA TRANSFORMATION (STATS, EVENTSTATS, TABLE, ETC...) ```
|fillnull value="n/a"
|stats count as raw_event_count max(_time) as event_occured_time
by field1 field2 field3 field4

``` ALLOWLISTING ```
|lookup <allow_list_lookup> field1 field2 field3 OUTPUT is_allowed
|fillnull value="false" is_allowed
|search is_allowed=false

``` DATA ENRICHMENT ```
| lookup threat_intel_ip_lookup src_ip OUTPUT field4 field5

``` REQUIRED FIELDS AND SNOW MACROS ```
| eval risk_message="Create the risk message here"
| fillnull short description value="N/A something broke here, submit
request to detection team for troubleshooting."
```

Operations

- Risk Based Alerting
- Alerting and Detection Strategy Framework
- Quality Control

Risk Based Alerting

- Run all detections through Risk
  - Few cases where best to go straight to notable (phishing to group by campaigns)
- 0 Risk scoring
  - Informational level events
  - Detections that directly create tickets (phishing example)
- Risk Factors
  - Create tags in Asset & Identity framework
  - Use tags to adjust risk score (VIP's, Admins, Leavers)

ADS Framework

- Standard for documenting detections
  - Goal
  - Categorization (Mitre ATT&CK/Kill Chain)
  - Strategy Abstract
  - Technical Context
  - Blind Spots and Assumptions
  - False Positives
  - Validation
  - Risk Scoring
  - Response

Quality Control

Detection Engineering

- Create Intake process (new detections, break/fix, allowlisting, logic tuning)
- Standardize format for detections (create a template)
- Comment your code!!!

Operations

- Monitor Signal to noise ratio
- Create repeatable process for reviewing duplicates and false positives
- Tune our expected and known activity in your environment

Thank you