Add-on Best Practice Check Tool

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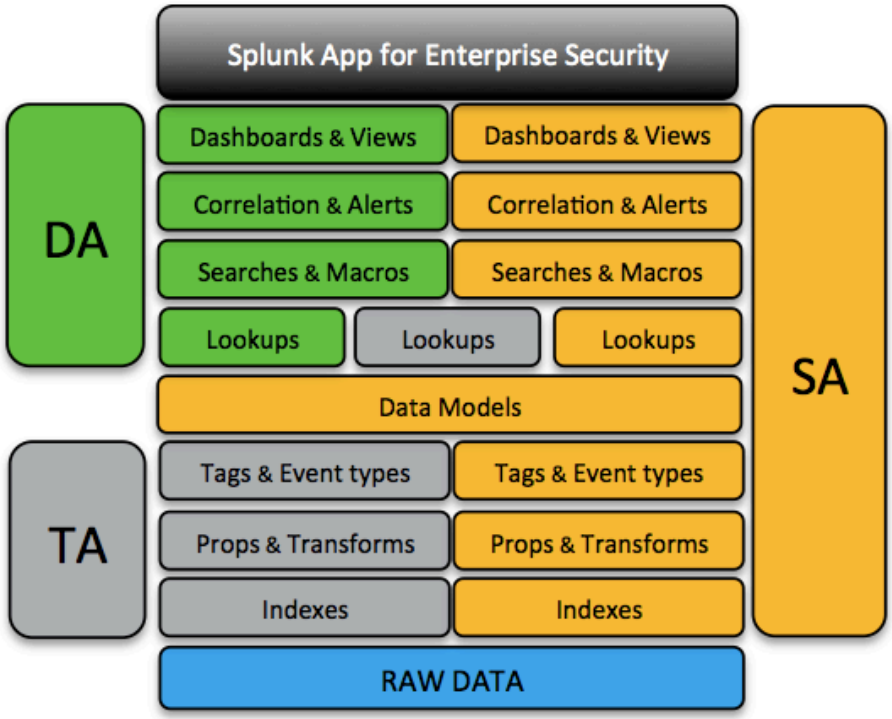
Agenda

- What's a Technology Add-on?
- Naming Conventions
- Getting Data In
- Field Extraction Techniques
- Logging for Troubleshooting
- Data for Sample Events

What's a Technology Add-on?

http://docs.splunk.com/Documentation/ES/latest/Install/ESArchitecture

- It's a driver for non-Splunk technology
  - **Maybe** gets data in, **maybe** sends commands out
- It's a knowledge layer
  - **Definitely** makes sense of the data
- Yes, they're all just app packages
  - Standards that aren't code-enforced are really just guidelines
- Some apps are bigger than others
  - (Some apps' mothers are bigger than other apps' mothers)



Package Names

- The package name is the **folder name** and **app.conf id**.
  - It's hard to change, so get it right before you publish.
  - `Splunk_TA_$vendor-$product` is the format for Splunk-supported.
  - `TA-$vendor-$product` is the format to use if you aren't in Splunk R&D.
- If you use those, you'll be automatically inherited into ES.
- Use the shortest sensible name
- Use lower case
- Try to avoid version numbers
  - Follow this: http://docs.splunk.com/Documentation/Splunkbase/latest/Splunkbase/Namingguidelines

GOOD	LESS GOOD, BUT STILL OKAY	NOT SO GOOD
Splunk_TA_mcafee	TA-Symantec-DeepSight	TA-Damballa-Failsafe-520-v101
Splunk_TA_cisco-asa	Splunk_TA_flowfix	TA_opendns

Source Type Names

- The sourcetype names in props.conf are how knowledge works
  - It's hard to change later, so get it right before you publish
    - Account for backward compatibility with a sourcetype rename
      - If you don't, your Add-on will have to co-exist with the old one as long as data is stored
  - Use `vendor:product:feature:format`
    - Why not underscores? Why not ampersands? Consistency is the goal
  - Use the shortest sensible name
  - Use the lowest sensible number of sourcetypes
  - Break the rules if you have to in order to get data in efficiently

GOOD	LESS GOOD, BUT STILL OKAY	NOT SO GOOD
cisco:esa:textmail	cisco_wsa	syslog
f5:bigip:asm:syslog	Perfmon:sqlserver:locks	microsoft:lync:general

Event Type Names

- The event type names in eventtypes.conf are how CIM tagging works
  - It's hard to change later, so get it right before you publish
    - Special characters (including colons) make startup config testing unhappy
  - Use `vendor_product_eventtype`
    - Consistency is the goal
    - This format is clearly distinguished from sourcetypes
  - Use the shortest sensible name
  - Use the lowest sensible number of event types

GOOD	LESS GOOD, BUT STILL OKAY	NOT SO GOOD
nagios_service_flapping_alert	estreamer_v4	update
snow_change_request	hyperv_host	vnx:block:SystemCpu

Lookup Names

- Lookups are a useful utility and a source of confusion and errors
- Clear naming convention makes them easier to troubleshoot
  - The filename should begin with a short identifier of the add-on, be descriptive, and be plural. `snort_severities.csv`
  - The transforms entry should be the singular form of the filename with `_lookup` added. `[snort_severity_lookup]`
  - The props entry should be descriptive and reference the add-on. `LOOKUP-severity_for_snort`
- Try for shorter names when possible, for btool's sake

Inputs

- Can you control the data that is generated?
  - Review Splunk's Logging Best Practices
  - Time and date entries should always use ISO 8601
- Optimize timestamp recognition as much as possible
- Always disable default inputs
  - Principle of Least Surprise: Enterprise admins want to turn it on themselves
  - Add-ons should get deployed all over, but they shouldn't run everywhere
  - Document how to turn them on where input is desired

disabled = 1

Dependencies

- Need another Add-on for your input? Don't ship an inputs.conf file
  - Common dependencies: DB Connect, PowerShell, Windows, Unix
  - Use `inputs.conf.template` to protect from startup errors
  - Why not a private `.spec` file? Because yours will get out of sync
- Prefer Modular Inputs to Scripted Inputs
  - Why write your own control logic?
- XML Payload? Use a CDATA wrapper
  - Otherwise special characters will break the input
- Asking Splunk REST endpoints for data? Use count=0
  - Otherwise, it will just return a few data points instead of all of them

Indexes Rules

- Do not ship an `indexes.conf`
  - The customer needs to be in control of storage location, data retention, role based access security, and deployment techniques
- Indexes should not be defined without clear understanding of the target Splunk deployment's
  - Security goals & settings (which roles have access to which indexes, &c)
  - Retention goals & settings (restrictions due to disk size, legal, compliance, &c)
  - Storage location, sizes, and performance (local disks, NAS, SAN, allocated free space, IOPS, &c)
  - Index configuration management (deployment server, clustering, puppet, chef, &c)
- Use a macro in your app so that customers can edit

Field Extractions

- The more complex a field extraction is, the worse it will perform
- Calling the regular expression engine repeatedly for simple tasks is better than calling it once for a giant task
  - Readability of `src_port=(\d+)` is better than

```
^\w{3}\s+\d{2}\s+\d{2}:\d{2}:\d{2}\s+\S+\s+(?:\w{3}\s
+\d{2}\s+\d{2}:\d{2}:\d{2}\s+)?([^\t]+)\t([^\t]+)
\t([^\t]+)\t([^\t]+)\t\"?\d+:\s+([^\t"]+)\"?\t([^\t]
+)\t\"?([^\t"]+)\"?\t([^\t]+)\t([^\t]+)\t([^\t]+)
\t([^\t]+)\t([^\t]+)\t([^\t]+)\t([^\t]+)\t\"?([^\t"]
+)\"?\t([^\t]+)\t([^\t]+)
```

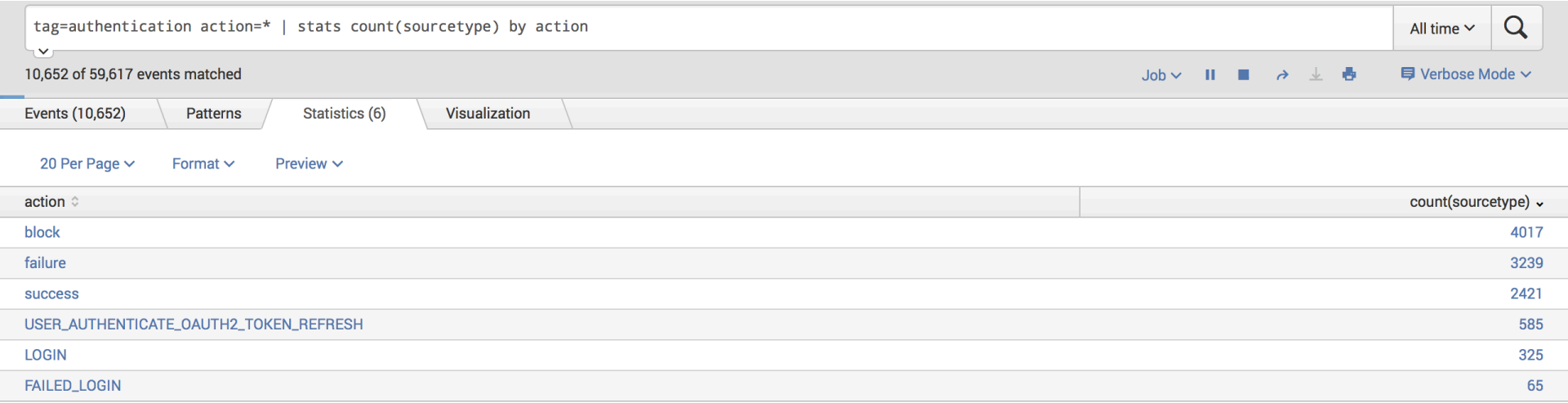
Field Extraction Rules

- Fields used in prebuilt searches (eventtype, savedsearch, view or macro) MUST use static key value extractions instead of variable keys.
- Use the fastest field extraction mechanism that works for the data.
- Do not use variable keys.
  - DM Acceleration and searches are slowed by an order of magnitude
  - You can't CIM map unknown field names anyway

```
REGEX=([^\s=]+)=+(\S+)
FORMAT=$1::$2
```

Over-riding Fields

- Vendors like the same field names that we do. It is to cry.
- Use Field Aliases to move conflicting fields to `vendor_$fieldname`
  - `FIELDALIAS-vendor_action_for_mcafee_epo=action AS vendor_action`
- Use Lookups to resolve conflicts
  - `LOOKUP-action_for_mcafee_epo=epo_action_lookup vendor_action OUTPUT action`



Logging

- Users are taught to expect standard logging behavior from Splunk Add-ons
  - http://docs.splunk.com/Documentation/AddOns/latest/Overview/Troubleshootadd-ons
  - Write log files to locations that Splunk will index, using Splunk best practices for timestamp and format
  - Set at least one sourcetype so that you're not adding to "the learned problem"
  - Write your logs with levels, even if you don't let the user select levels yet.
    - The standard levels are `INFO`, `WARN`, `ERROR`, and `DEBUG`
- Log your intent and the outcome in the log
  - You want to authenticate to a service? DEBUG log that you are attempting it.
  - If it fails, ERROR log that it failed.
  - If it succeeds, INFO log that you're authenticated.

Sample Data and Customer Data

- Don't send us non-anonymized customer data or include in the Add-on
  - This isn't support, it's product development – different rules
- Customer data is normal data from working systems. That's okay for operations, but insufficient for security.
  - Fine for INFERENCE, inherently insufficient for RECOGNITION
    - INFERENCE: "Frank never has a second cup at home!"
    - RECOGNITION: "Frank bought a plane ticket to Colombia for better coffee."

Questions?

THANK YOU

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