App Sorcery

Building Splunk Apps With Best Practice

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splunk> .conf18

MATT EGLIN

Senior PS Consultant, EMEA 🇬 🇧

splunk> .conf18

A bit about me…

- Splunk Professional Services
- Based out of the Splunk London Office
- Using and working with Splunk for the past 2.5 years
- Specialize in High Volume Splunk Enterprise and Enterprise Security
- Enjoyer of craft beers –
  - untappd.com/user/matteglin

What the App?

Where to begin

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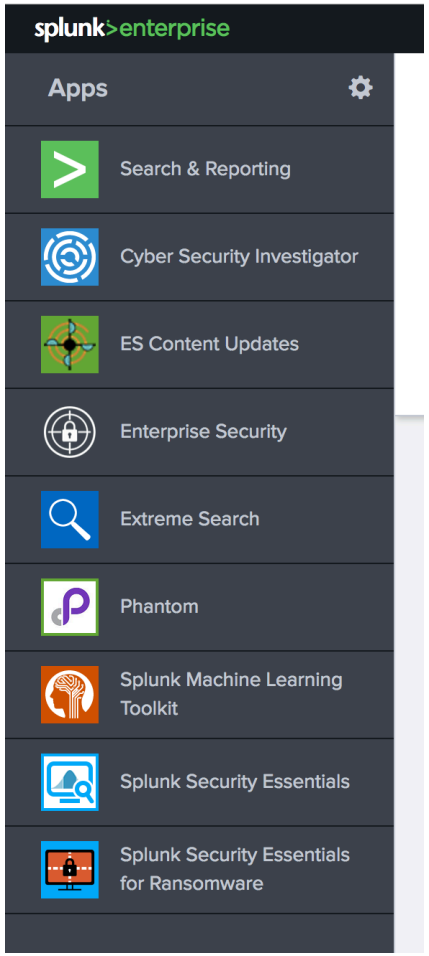
What do we mean by “App”



- Pre-packaged Content
  - Dashboards & Searches
  - Inputs
  - Knowledge Objects
- Bundles of Associated Configuration
  - Think Configuration Management
- Integrations with third party, and associated Products
- Transformative Experiences
  - Splunk Premium Application
- Extensions of Splunk Enterprise Functionality

What do we mean by “App”

Some choice examples

Splunk Enterprise Security

Dashboard Examples

Splunk Add-on for Cisco ASA

What do we mean by “App”

So, what’s the point?

- Simplify Splunk Configuration Management and Deployment
- Package up complex content for easy deployment
- Leverage Splunk deployment methods like Deployment Server, Cluster Master and Deployer
- Easily reuse custom created configuration elsewhere
- One-Click Implementation of Data Use Cases
- Distributing your cool content to other Splunk Users ;)

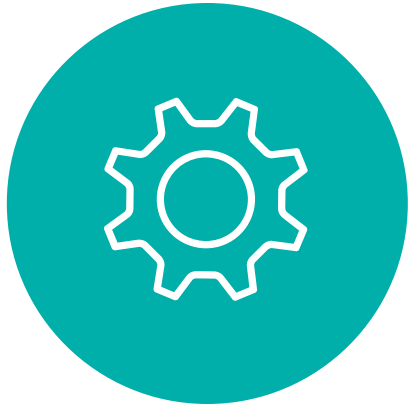
Deploying Apps

You have options!

Deployment Server

Cluster Master

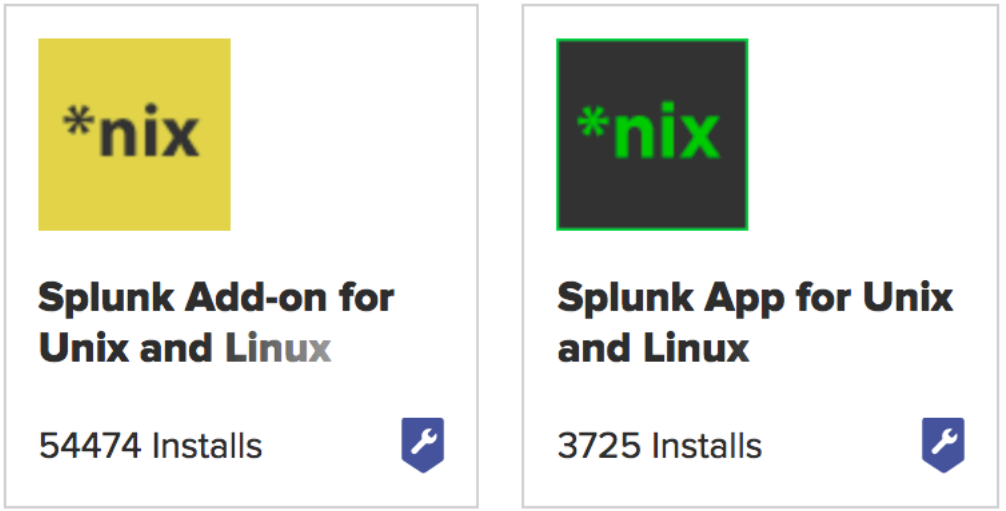
Deployer



Puppet / Chef / SCCM

Manually…

Apps and TA's



Aren't these the same thing?

Apps and TA's

Ok, but what's this "TA" thing I keep hearing about?

App

- Visible in Web UI
- Contains Dashboards and Visual Content
- Contains Search Time Knowledge Objects
- Designed for End User interaction
- Search Head Deployment

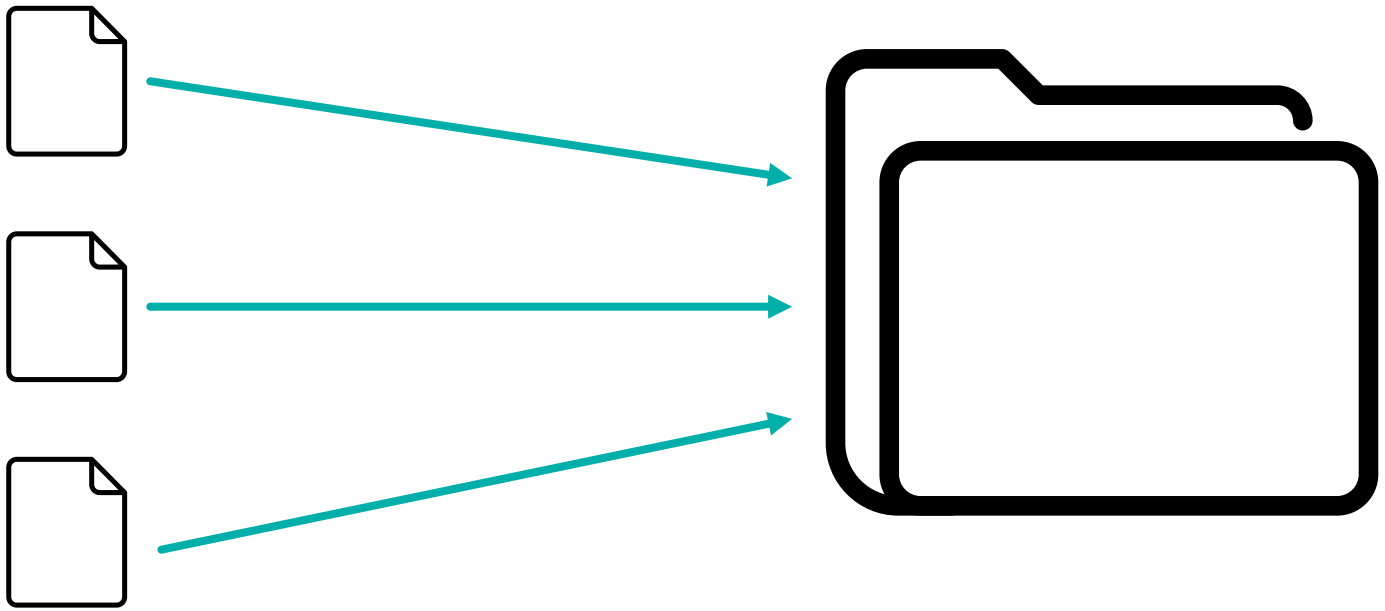
Technical Addon

- Not visible in Web UI
- Contains Search Time Knowledge objects
- Contains Index Time Knowledge Objects
- Indexer / Search Head & Forwarder Deployment

Building an App

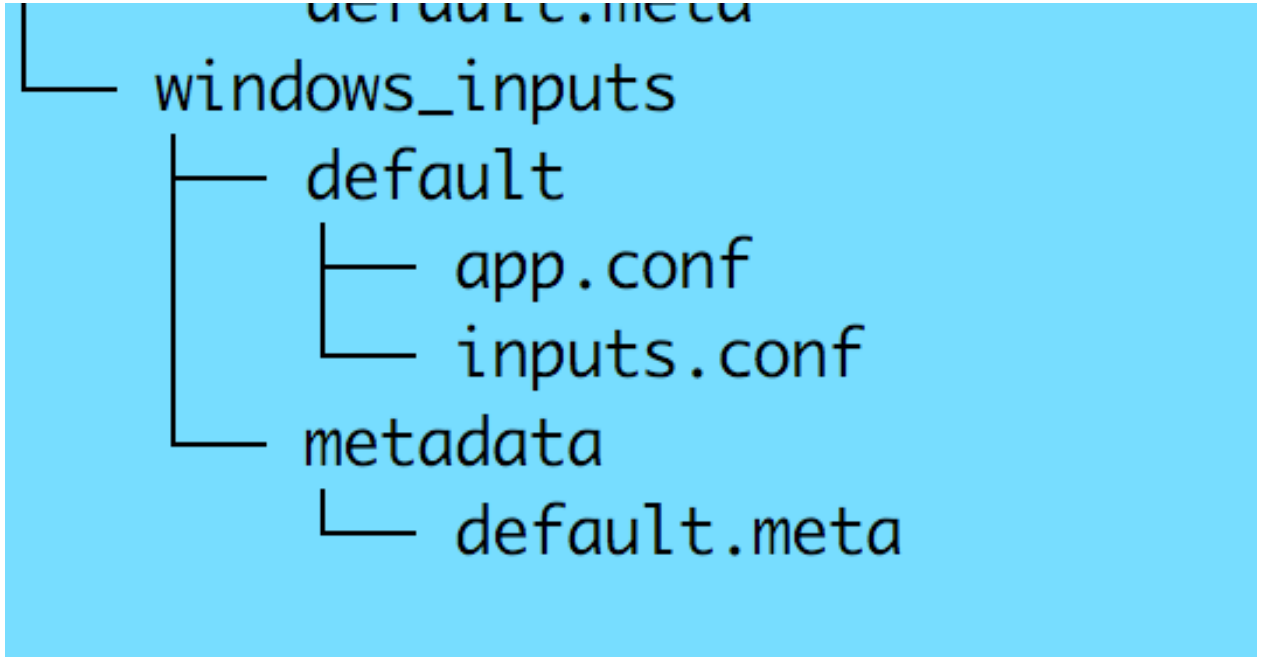
Putting it all together

The very very basics



A structured directory of related files

The very very basics



A structured directory of related files

More complex

- What you normally find :
  - Default Directory
  - Local Directory
  - Lookups
  - Metadata
  - Samples
- What you might also find :
  - Bin directory with scripts
  - Web Static content (js / images etc.)
  - template .conf files
  - License Agreements

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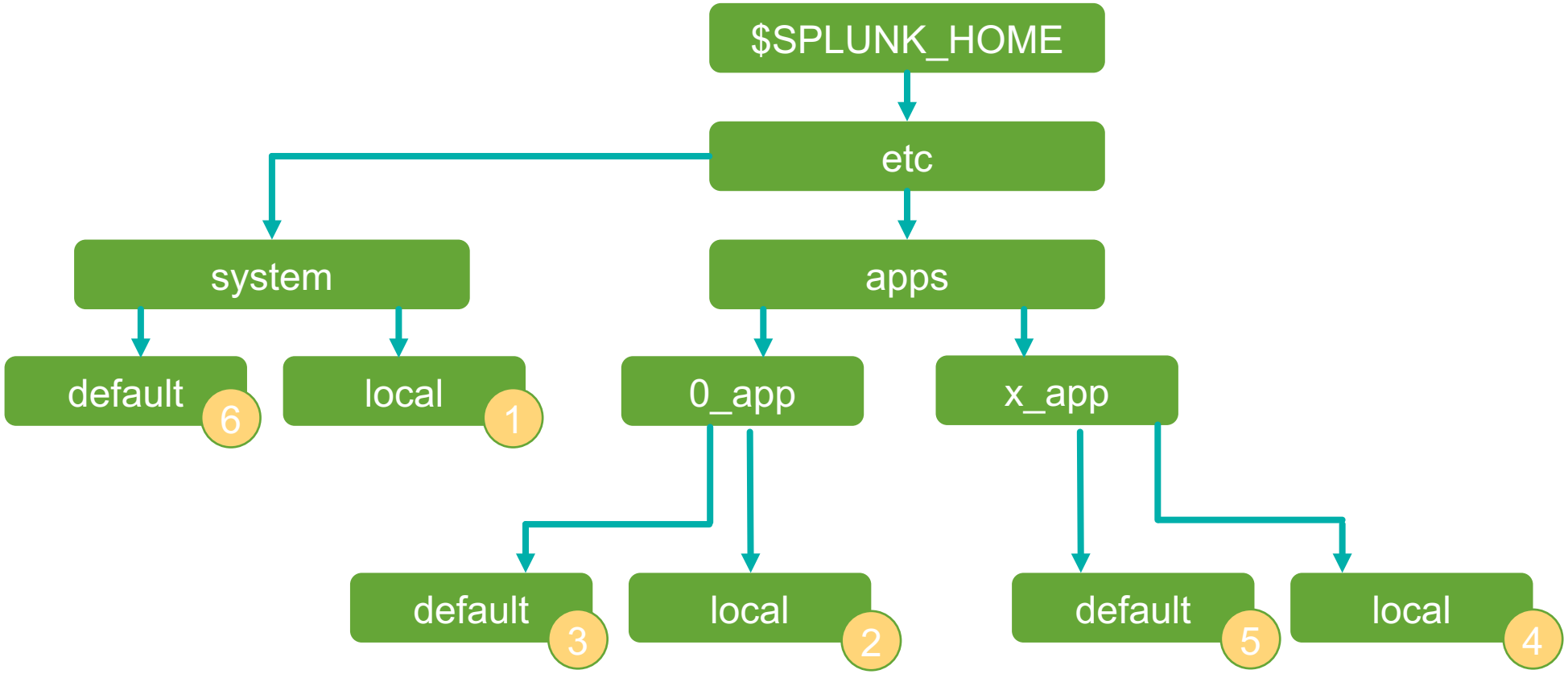
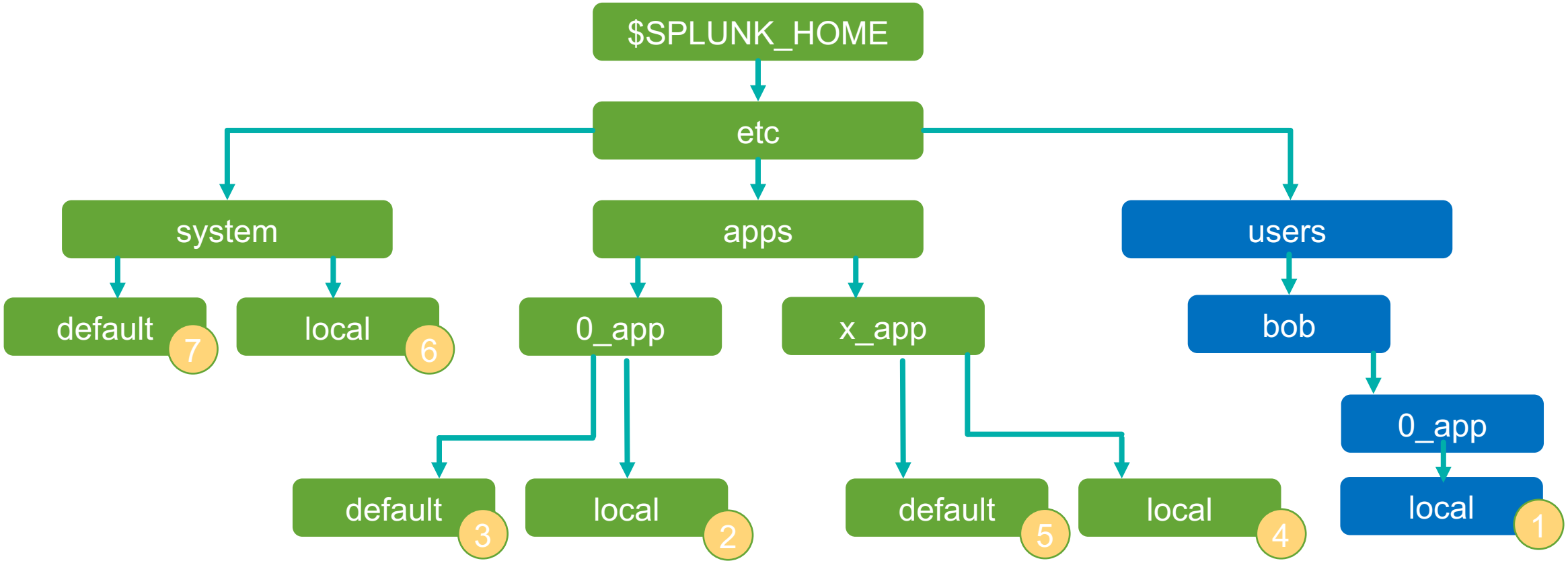
A Note on Configuration Precedence

- Index time *and* System level precedence



A Note on Configuration Precedence

- At Search Time



A Note on Configuration Precedence

Key Points

- `local` configuration will always override `default`
- Apps with a ”higher” ASCII order name will take precedence over “lower” ASCII order named Apps
- Config in system local can override any app setting that tries to be global
- Search time configuration precedence is user centric
- When in doubt – use `splunk btool` to debug active config

Metadata and why it matters

- Metadata controls access and visibility to App contents
- `default.meta` / `local.meta` files
- Role based access
- Can be global or granular

```
# Application-level permissions

[]
access = read : [ * ], write : [ admin ]
export = system
```

```
### TAGS

[tags]
export = system

### SAVED SEARCHES

[savedsearches/Errors%20in%20the%20last%2024%20hours]
access = read : [ * ], write : [ admin ]

[savedsearches/Errors%20in%20the%20last%20hour]
access = read : [ * ], write : [ admin ]

[savedsearches/Messages%20by%20minute%20last%203%20hours]
access = read : [ admin ], write : [ admin ]

[savedsearches/Splunk%20errors%20last%2024%20hours]
access = read : [ admin ], write : [ admin ]

### Alert Actions
```

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Watch out for Configuration Spread

- Be very aware of the export level of your configuration
- Configuration can spread to, and impact other Apps
- Can be especially problematic with Splunk Enterprise Security
- If you don't need to export to '`system`', then export to '`app`' instead

```
[]
access = read : [ * ], write : [ admin ]
export = system
```

```
[]
access = read : [ * ], write : [ admin ]
export = app
```

Golden Rules

DO

- Include `app.conf`
- Include `default.meta`
- Include Documentation
- Include Example Data
- Utilise a `setup.xml` screen
- Test your work

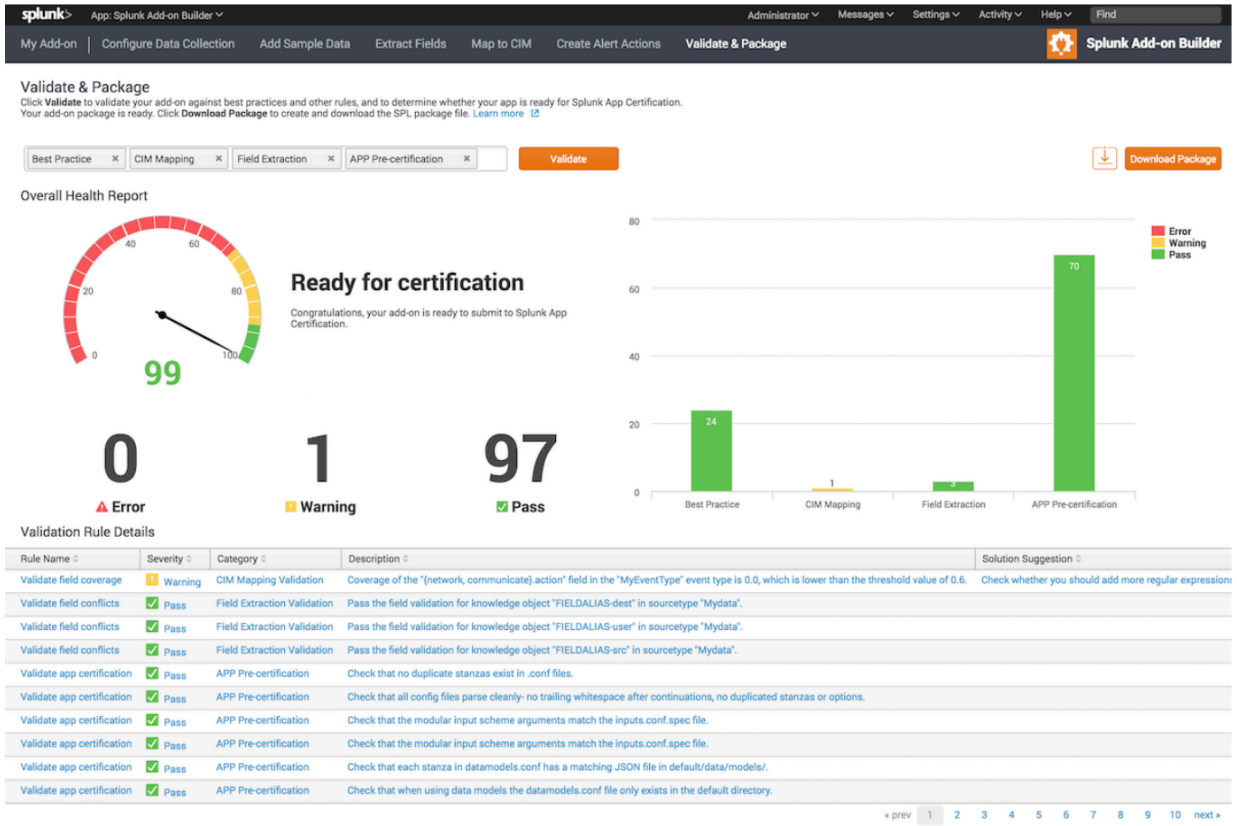
DO NOT DO

- Data Model Accelerations enabled by default
- Configuration in a /local/ directory
  - Supply a baseline of configuration in /default/
- Add excessive configuration
  - eventtypes / props / transforms etc.
- Assume index names in Searches and Dashboards
  - Consider using a macro instead

Splunk Add-on Builder

Add-ons Made Easy!

- Step by Step Process
- Save time and effort
- Easily package up Content
- Designed for making TA's
- Easy data source mapping to Splunk Common Information Model
- Prepare for Splunk Certification



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Demo / Walkthrough

Let’s (quickly) take a look

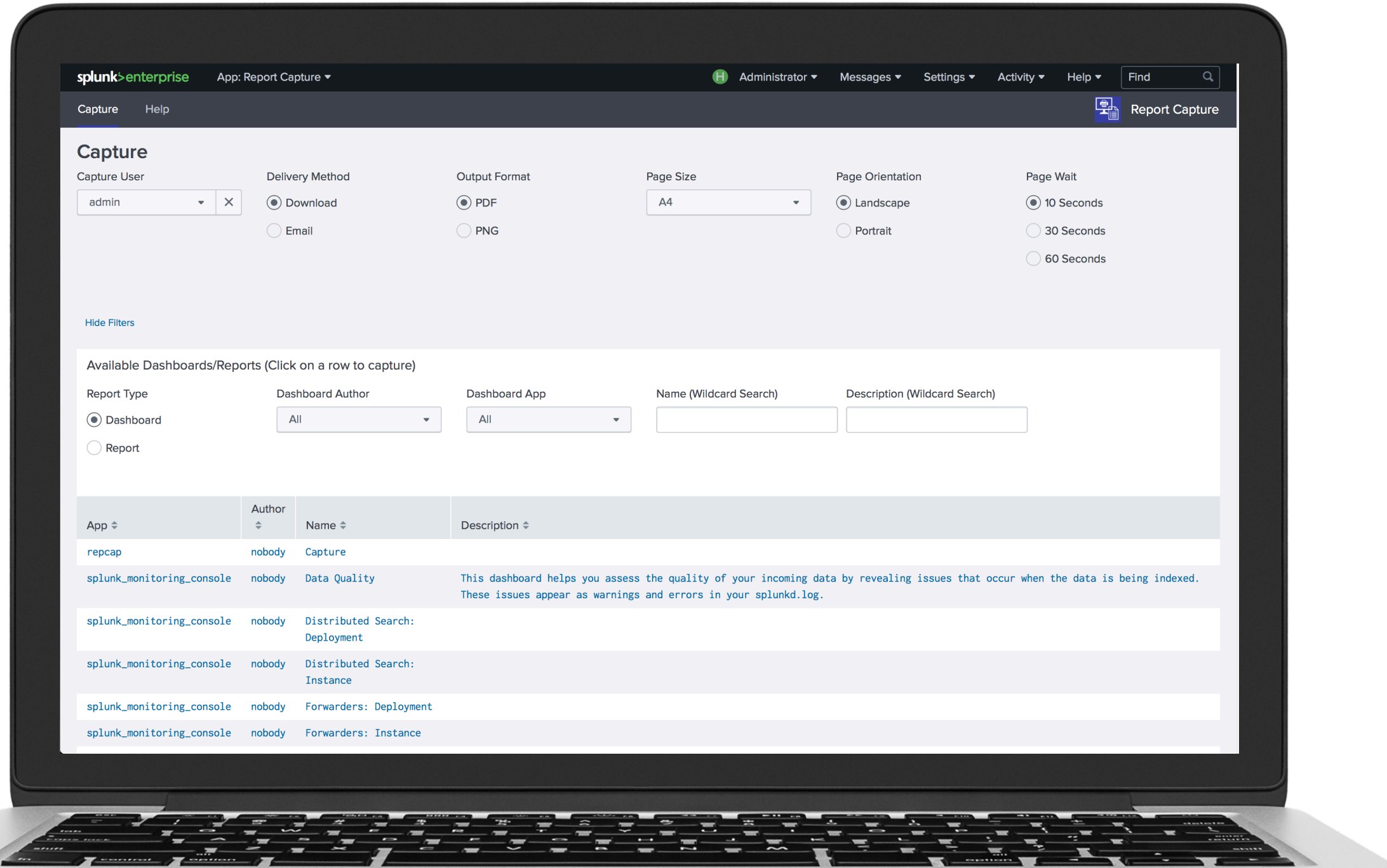
Something Cool

We built it!

The Report Creator App

Fix Splunk PDF Generation

- Out of the Box PDF Generation is not great
- Aim to re-work PDF generation within Splunk
- Integrate within existing Splunk UI
- Completely server side solution
- Integration with custom Python script and JavaScript Libraries (PhantomJS, CasperJS)



The Report Creator App

Extending Splunk Functionality

- Custom REST API endpoint – `web.conf`
- Custom config file – `recap.conf`
- Python controller script – `repcapsvc.py`
- UI Elements
- Setup Screen – `setup.xml`

```
/Users/meglin/dev/repcap
├── README
│   ├── repcap.conf.spec
│   └── web.conf.spec
├── appserver
│   └── controllers
│       └── repcapsvc.py
├── bin
├── default
│   ├── app.conf
│   ├── data
│   │   └── ui
│   │       ├── nav
│   │       │   └── default.xml
│   │       └── views
│   │           ├── capture.xml
│   │           └── help.xml
│   ├── repcap.conf
│   ├── setup.xml
│   └── web.conf
├── examples
│   └── repcap_scripted.py
├── metadata
│   └── default.meta
└── static
    ├── appIcon.png
    ├── appIconAlt.png
    ├── appIconAlt_2x.png
    ├── appIcon_2x.png
    ├── html_error.htm
    ├── html_info.htm
    ├── html_test.htm
    └── screenshot.js
```

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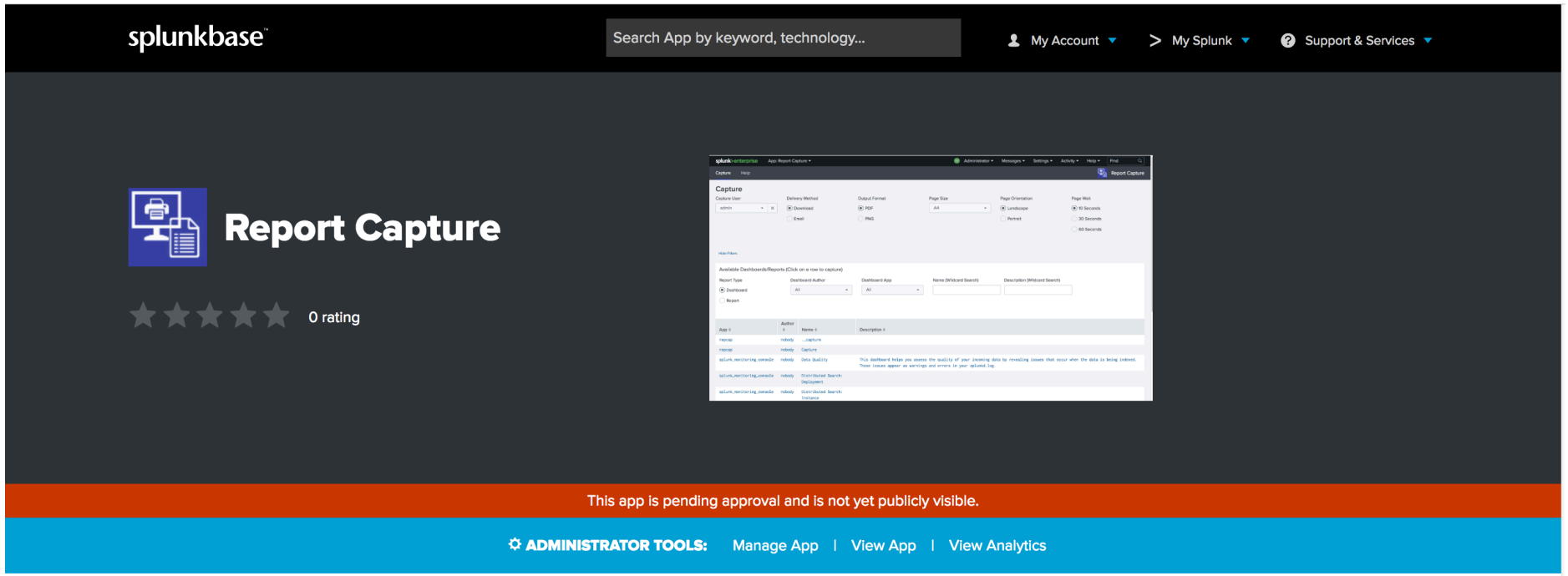
The Report Creator App

Available on Splunkbase!!



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Apps On Splunkbase

Getting it out there!

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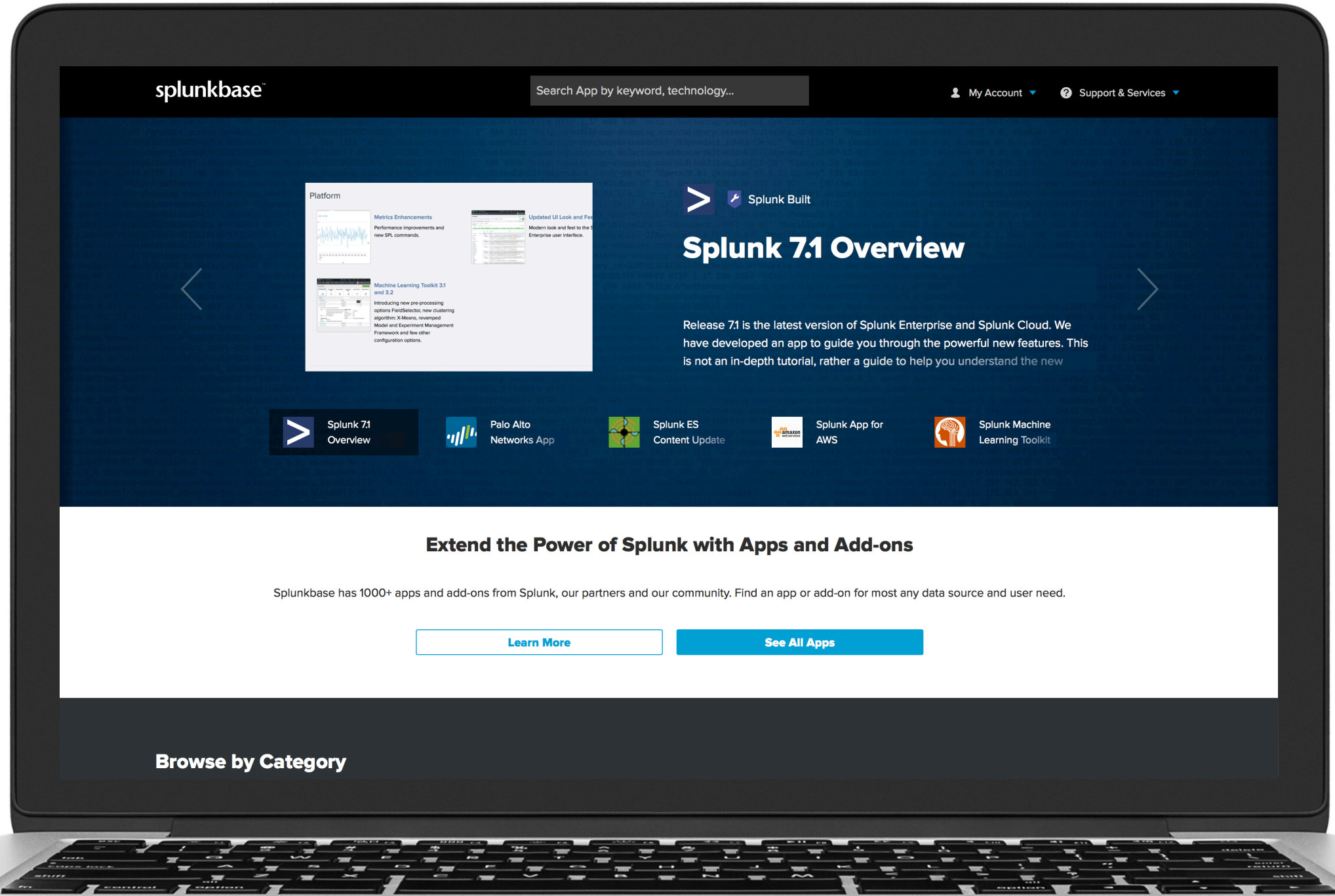
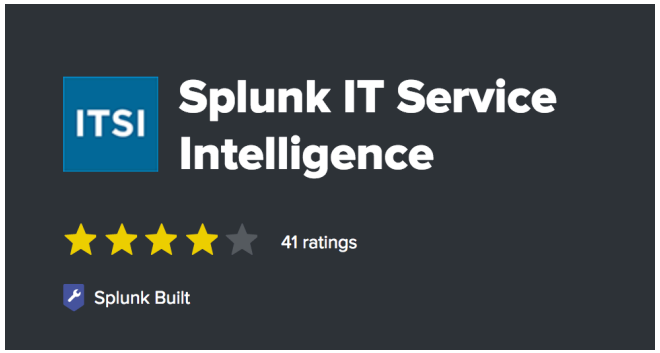


Apps on Splunkbase

Splunkbase?

- Splunk Managed repository of Apps and TA's
- One stop shop for all your Splunk needs

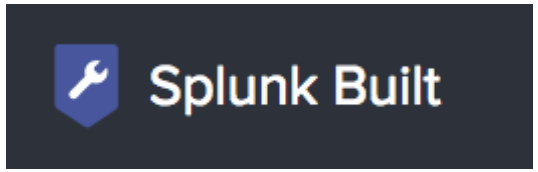


Splunk Built

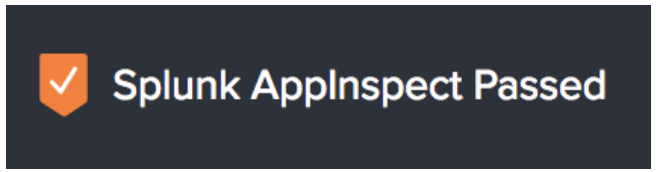
AppInspect Passed

Apps on Splunkbase

Splunk & Third Party



- Splunk Built First Party App
- Supported and Validated by Splunk



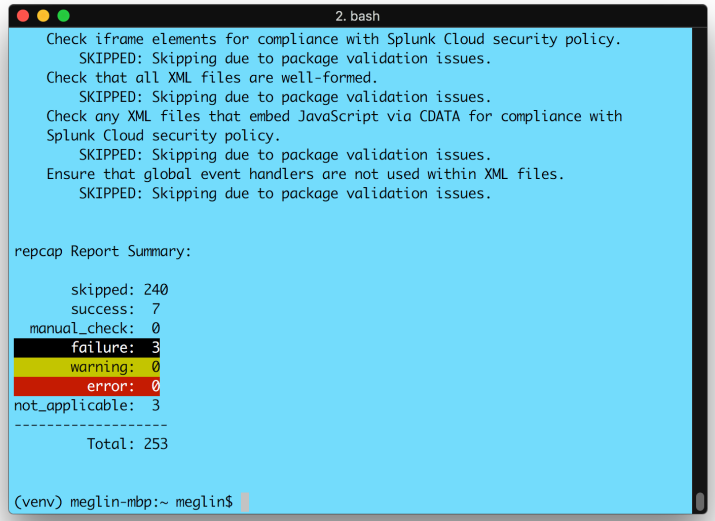
- Splunk Certified Third Party Apps
- Mark of Validation and Quality
- Supported by the Creator

** Not always available for Splunk Cloud **

Validating for Splunkbase

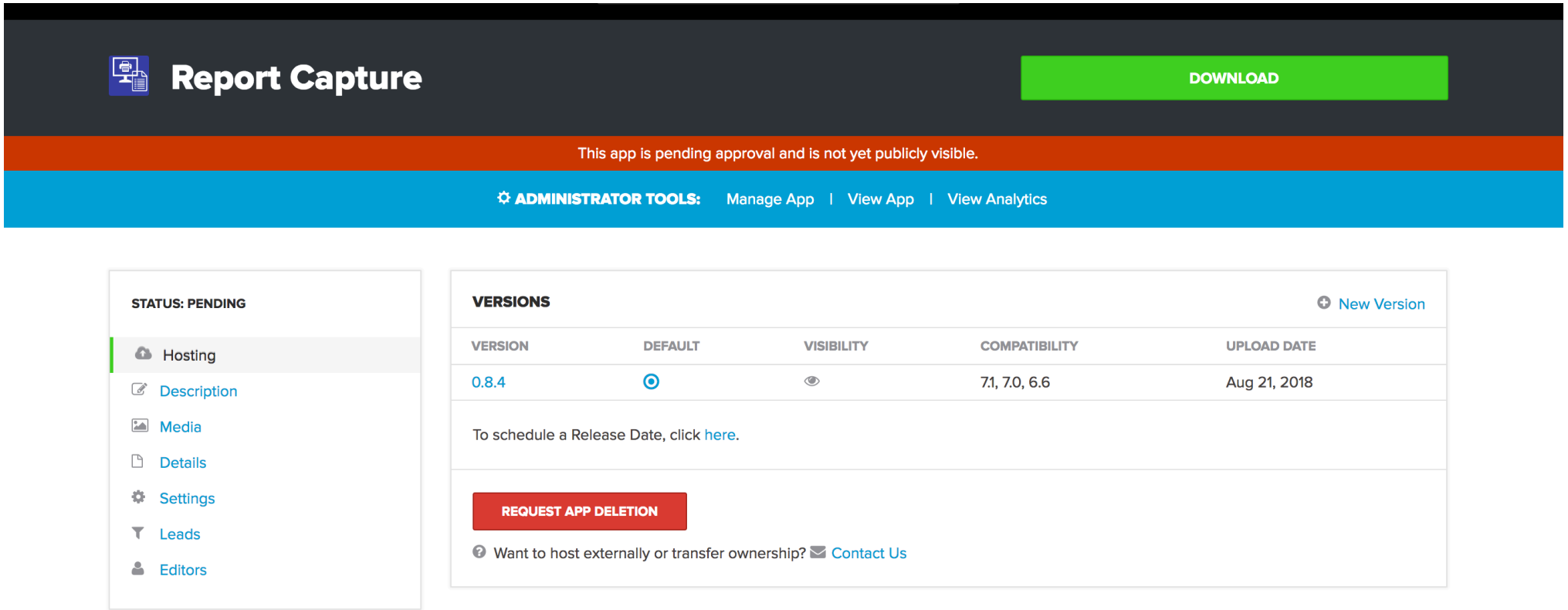
AppInspect

- Download and install tool from Splunk Dev
  - http://dev.splunk.com/view/appinspect/SP-CAAAE9U
- Install pre-requisites
- Run your App through AppInspect *before* submitting to Splunkbase
  - `splunk-appinspect inspect app_path/app_filename.tgz --mode precert --included-tags splunk_appinspect`
  - Review the output and correct any Failures



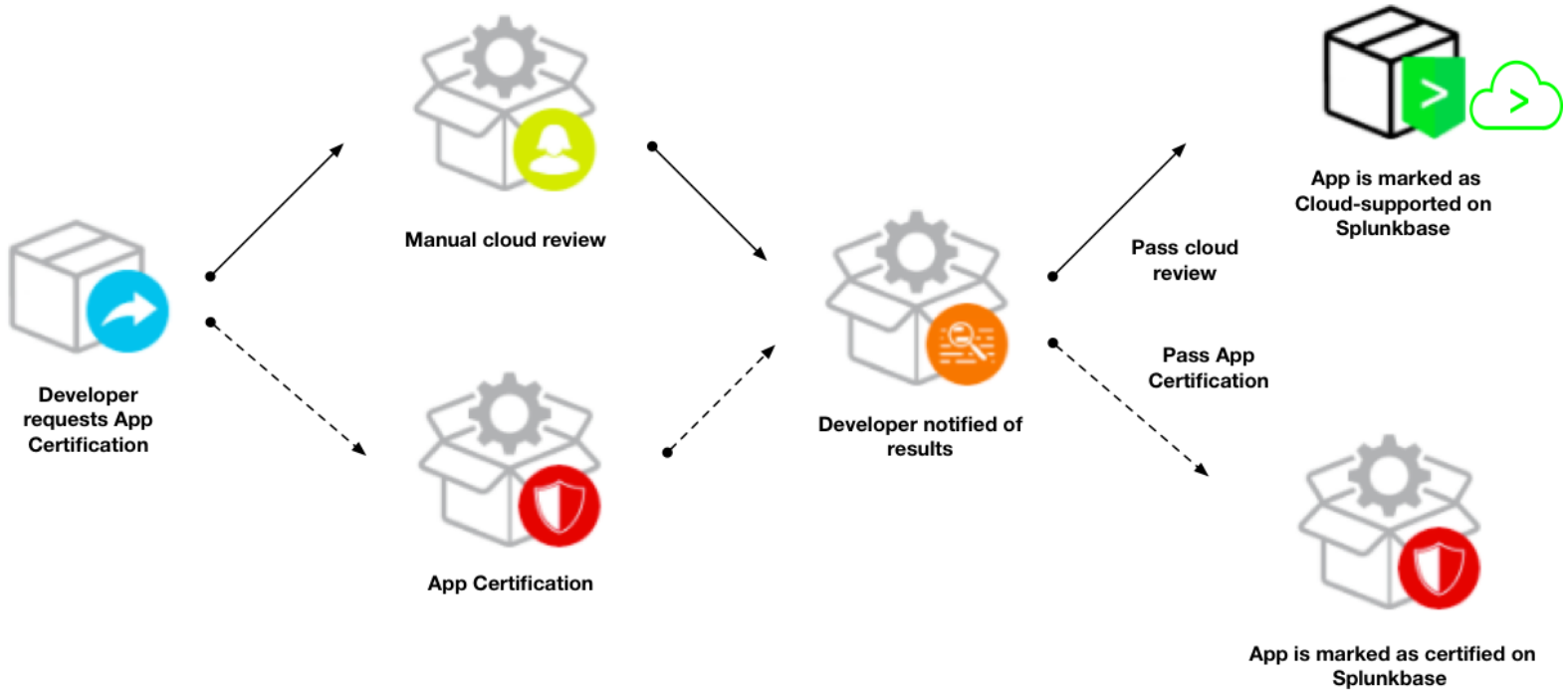
Validating for Splunkbase

- Apps will be reviewed



Validating for Splunk Cloud

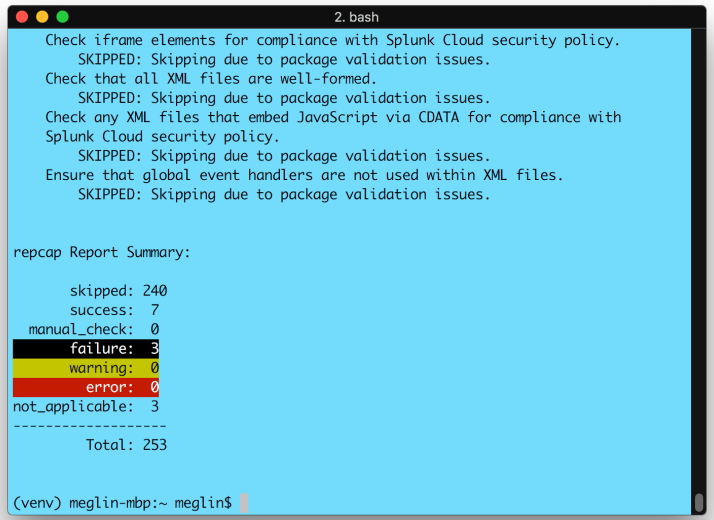
- Strict set of criteria required for an App to be “Cloud Certified”
- Certification Process once Submitted to Splunkbase



Validating for Splunk Cloud

AppInspect

- Download and install tool from Splunk Dev
  - http://dev.splunk.com/view/appinspect/SP-CAAAE9U
- Install pre-requisites
- Run your App through AppInspect *before* submitting to Splunkbase
  - `splunk-appinspect inspect app_path/app_filename.tgz --mode precert --included-tags cloud`
  - Review the output and correct any Failures



Validating for Splunk Cloud

A quick how to

1. Register for a Splunk Developer Account
2. Run your App through Splunk AppInspect
   - Exhaustive Criteria List - http://dev.splunk.com/view/app-cert/SP-CAAAE3H
3. Make some Documentation!
   - Release Notes
   - Description
   - Splunk Enterprise Version Compatibility
   - CIM Compatibility
4. Decide to host on Splunkbase or Externally
5. Submit @ https://splunkbase.splunk.com/new/

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Key Takeaways

1. Don’t overload Apps / TA’s with config. Smaller, more atomic is best
2. Don’t assume how Splunk has been configured
3. Always test your creations
4. Remember configuration precedence rules

Further Reading & Links

1. Releasing Apps on Splunkbase / into Splunk Cloud - http://dev.splunk.com/view/SP-CAAAFD8
2. Developing Apps & Add-ons - http://dev.splunk.com/view/SP-CAAAFD7
3. Vetting Apps & Add-ons for Splunk Cloud - http://dev.splunk.com/view/app-cert/SP-CAAAE85
4. Report Creator App - https://splunk.box.com/s/eio1gby3hzjta5mr3rs8t0z5p5z5s9wz **<UPDATE TO SB LINK>**

Learn More

1. DEV1545 - Go From Dashboards to Applications With Ease: SplunkJS for Non-Developers

2. DEV1293 - Worst practices for building Splunk Apps and Add-ons and how to avoid them

3. FN1329 - I've Got Over 70,000 Servers and Two Months to Get the Universal Forwarder Installed.

Thank You

Don't forget to rate this session in the .conf18 mobile app