

STEP Up Your App Development Game

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How should I build my app?



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Splunk Developer Guidance

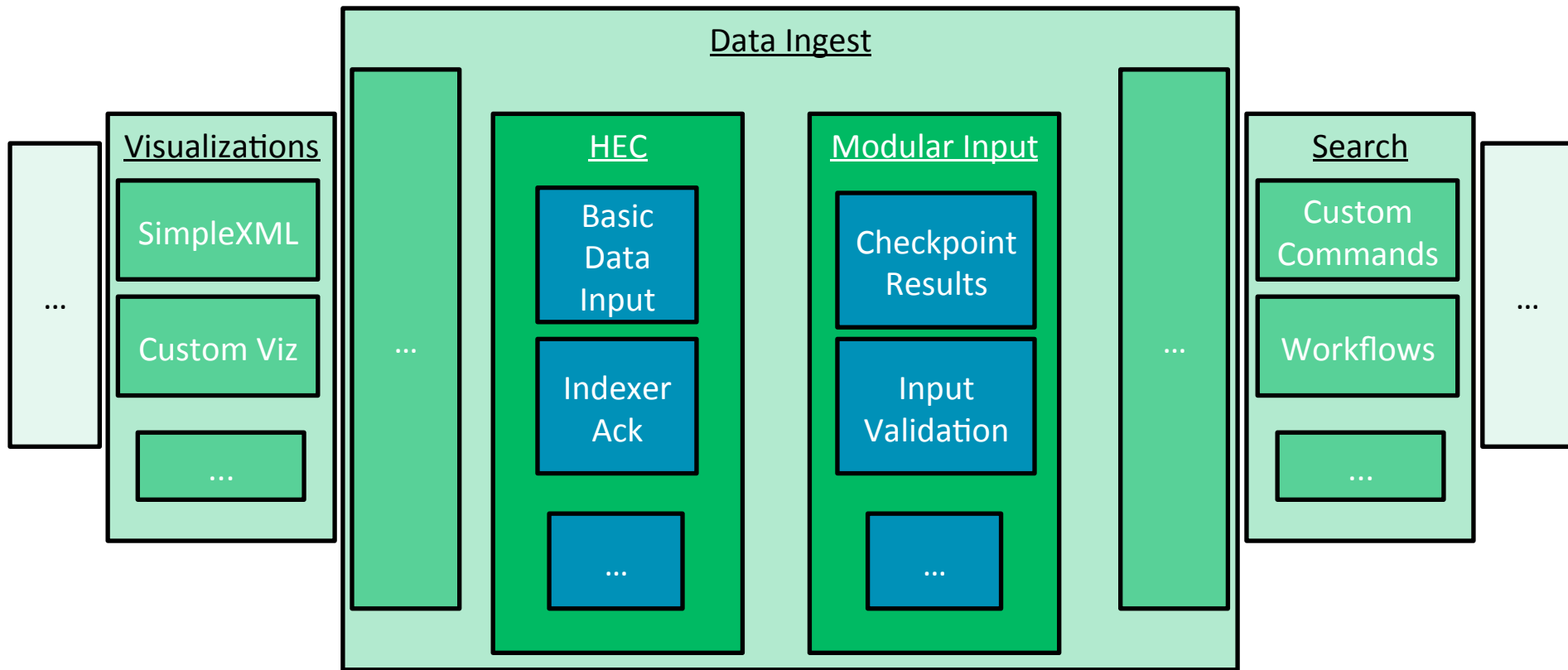
EVERYTHING YOU NEED TO BUILD



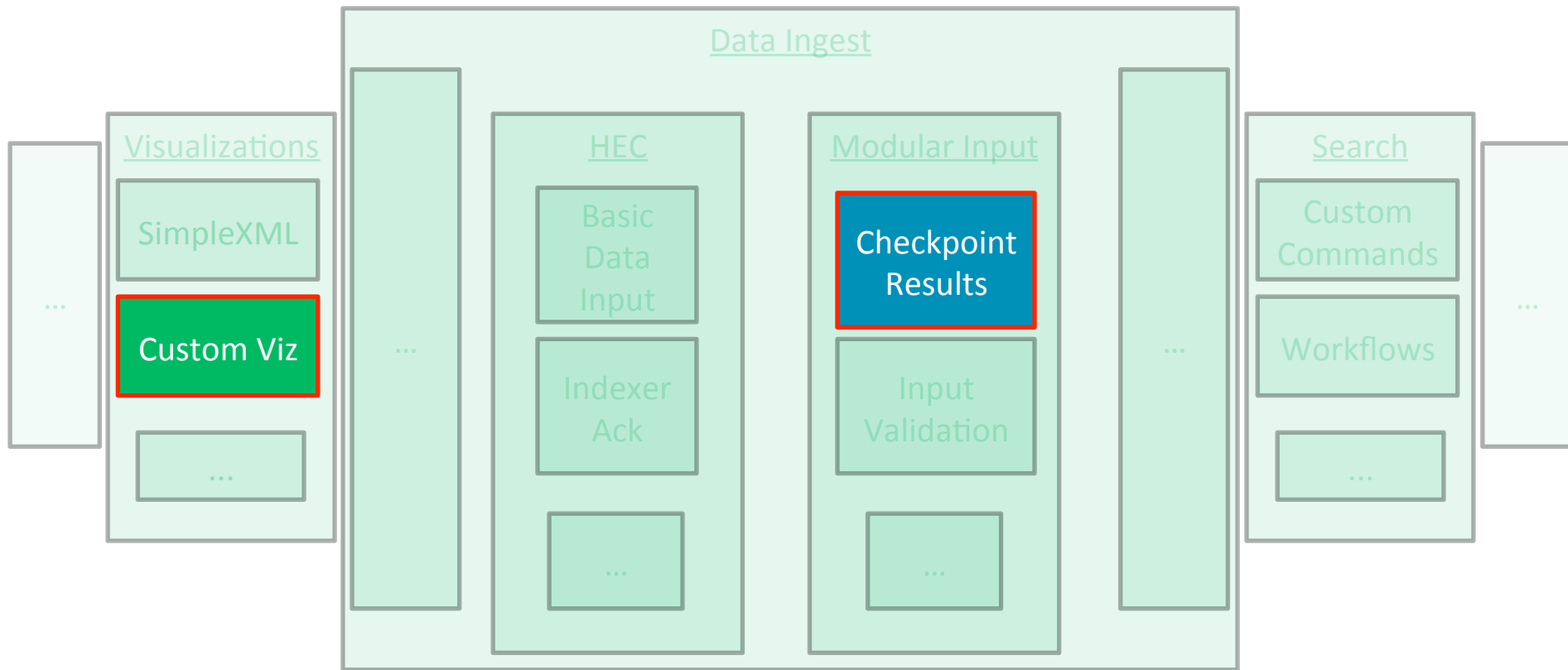
STEP up your game

- STEP - interactive learning environment
- Explore topics through Techniques and Recipes
- Technique: explore the details of features you can use in apps (modular inputs, custom visualizations, custom alert actions, ...)
- Recipe: dive into the details of bringing several techniques together to address a business goal

STEP up your game



STEP up your game



STEP up your game

STEP Preview

2 Techniques

1 Recipe

To



STEP into real-world examples

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Planning a journey

Platform and **tools**:
a kitbag for our journey

UI and **visualizations**:
what the apps look like

Working with data: where it comes from &
how we manage it

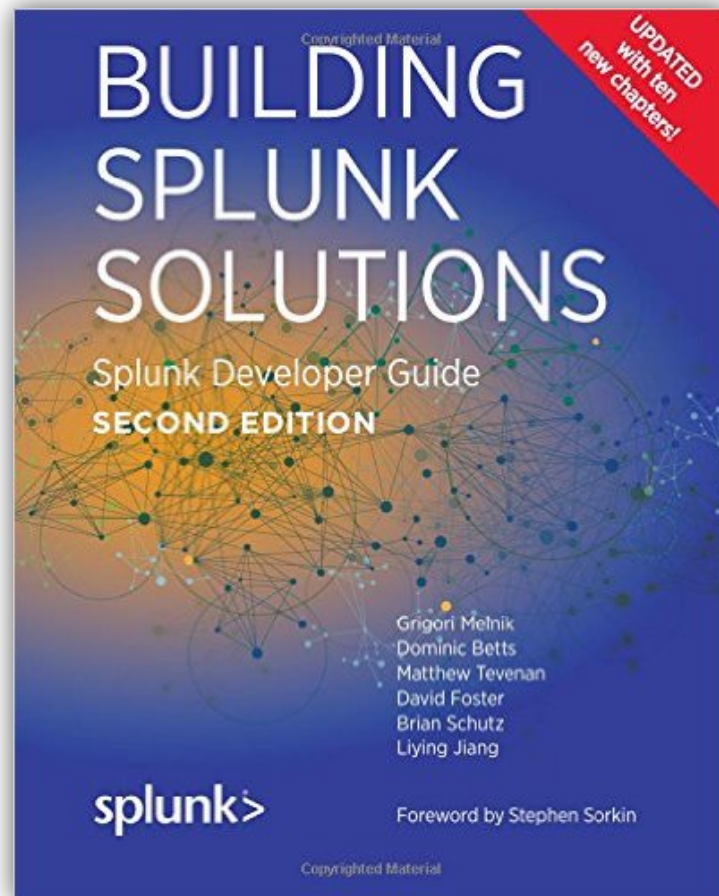
Adding code: using JavaScript and Search
Processing Language

Packaging and **deployment**: reaching our
first destination

Dealing with **OAuth**

Alerting

Building in telemetry with
high-performance data collection



1. Start with a Questions Backlog

- Architecture
 - What does a typical Splunk application reference architecture look like?
 - What common paradigms are applicable to Splunk app development?
 - What are the typical deployment topologies? Why should I choose a specific one? What are the confounding factors on the choice of my topology?
 - How do I partition my Splunk solutions?
 - What are the tradeoffs of various types of inputs?
 - How do I architect my Splunk solution and deployment for a very large scale?
 - How do I architect my Splunk solution for the cloud? What are specific considerations for deploying to AWS or Azure?
 - What's the landscape of Splunk extension points?
 - How do I manage my solution declarative configuration? How do I detect/troubleshoot bad config?
- Development
 - How should I set up my development environment to be productive with Splunk?
 - What are different ways of how I develop my Splunk app ? Pros and cons of using specific SDK vs REST APIs? Pros and cons of using SimpleXML vs Advanced XML vs Web Framework ...
 - How do I analyze a data source for a TA?
 - What are the different ways of enriching the data in Splunk? What are their tradeoffs?
 - When should I use event types and transactions for data classification?
 - How do I extend Splunk to define a custom input capability?
 - When should I use modular inputs vs scripted inputs vs..?
 - What are streaming vs non-streaming outputs considerations?
 - How do I deal with long-running scripts? Handling shutdown/restart of Splunk? Concurrency? State persistence etc.
 - How do I prepare event generation when building/testing an app?
 - What kind of perf testing should I do and how?
 - How do I test UI?
 - How do I security certify my solution?
 - How do I design to satisfy my retention and compliance policies?
 - How do I architect to design my availability requirements?
 - How do I handle geographic disaster recovery / fault tolerance?
 - How do I properly instrument my solution so that I know what's happening?
- Sustained Engineering
 - How do I maintain/service/support Splunk apps?
 - How do my customers handle updating their customized configs once new versions of my app come out?
- Business

How do I package an app? deal with app versioning and updates?

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2. Identify Extensibility Surface Area

▪ Data ingestion & indexing

- **Input**
 - Modular inputs
 - Custom (trained) source types
 - Custom sources
 - HTTP Event Collection
- **Data ingestion pipeline**
 - Field extractions
 - Field transformations
- **Indexing**
 - Custom indexes

▪ Searching

- **Search authoring**
 - Custom search commands
 - Macros (basic, parametrized)
 - Saved searches
- **Data classification**
 - Event types
 - Transactions
- **Data enrichment**
 - Lookups
 - KV store collections
 - Workflow actions
- **Data normalization**
 - Tags
 - Aliases
- **Data mining**
 - cluster & dedup
 - anomalousvalue
 - kmeans
 - predict commands ...

▪ Processing & reporting

- **Search-time mapping**
 - Data models
- **CIM extensions**
- **Custom Visualizations**
- **Custom UI**
- Pages, views & dashboards
 - JS, CSS Extensions
 - Custom setup screens
- **Scheduled processing**
 - Scheduled reports
- **Alerting**
 - Scripted alerts
 - Custom alert actions
- **Branding & navigation**
 - Custom app navigation
 - App branding
- **Manageability**
 - Custom splunkweb controllers
 - Custom splunkd endpoints

3. Mine business requirements
4. Formulate learning objectives
5. Design around 3 and 4

Questions Backlog

- [illegible]

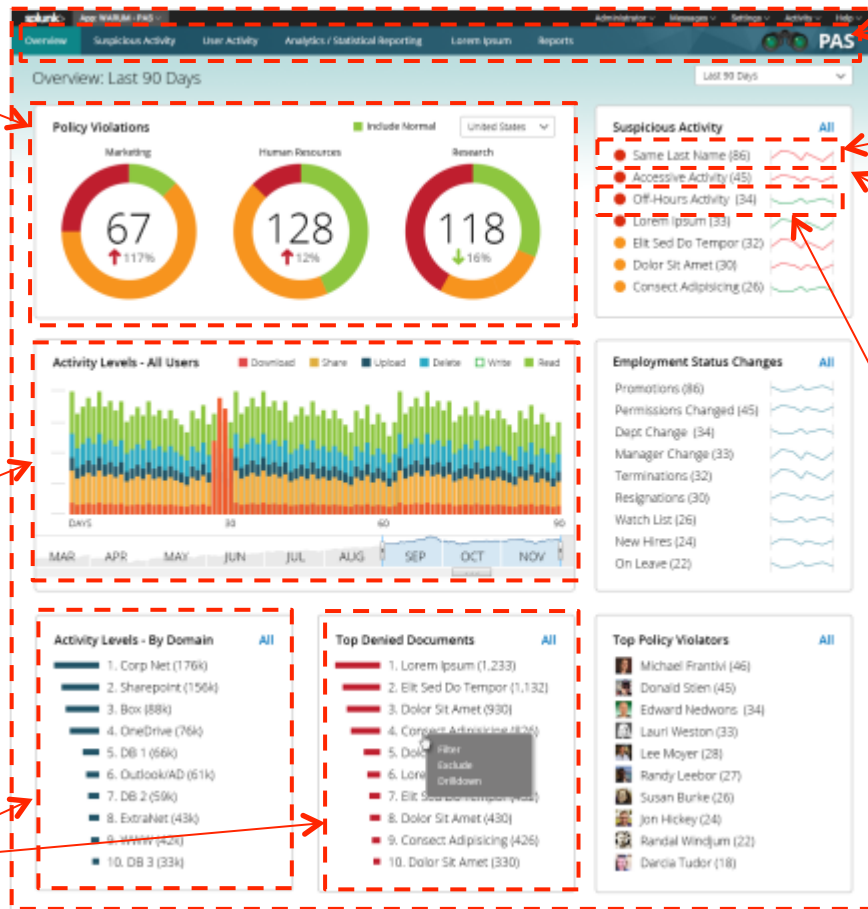
 CONDUCIVE CONSULTING			 splunk® PARTNER
Number	Analysis Type	Use Cases	
1	Dashboard	Single pain that displays vital details across a variety of reports. This will summarize results from select dashboards.	
2	Reactive	User Activity - View all user activity over time, including any modification to a document, the database or file system.	
3	Proactive - Rule	Suspicious Activity - Document access when user not working	
4	Proactive - Rule	Suspicious Activity - Building access when user not working	
5	Proactive - Rule	Suspicious Activity - Building access during holidays	
6	Proactive - Rule	Suspicious Activity - Document access prior to or after change in employment status	
7	Proactive - Rule	Suspicious Activity - Detect that logging on a source may be disabled	
8	Proactive - Rule	Suspicious Activity - Monitor login attempts and report issues	
9	Proactive - Rule	Suspicious Activity - Monitor / Detect users who are logged in from more than one device or location	
10	Proactive - Rule	Suspicious Activity - Monitor excessive activity by	



- Data
 - Search language
 - Aggregating siloed metrics into meaningful KPIs
 - Data manipulation
 - Data normalization
 - Sub-searches
 - Config-driven
 - Persistence with KV store
 - Macros
- Viz:
 - Dynamic scaling
 - Customizing in-the box viz controls

- General search patterns
- Search optimizations
- Ux Prototyping
- Adapting 3rd party viz library
- Composite charts with interactions
- Dealing with high-volume data sets
- Troubleshooting perf issues
- Post-process or not-post-process – deployment implications
- Automated UI testing (w.Selenium)

- Post-processing
- Integrating with 3rd party component
- Unit testing (w.Mocha)
- Persisting state (per user)



- Custom nav
- Ux activities permeating all dev

- Using sub-searches to correlate data
- Troubleshooting searches

- Data mining:
 - Exploration
 - Preparation: filtering/deduping/bucketing
 - Using advanced statistics functions
 - Threshold-based anomaly detection
 - Evaluating goodness /accuracy

- Data modeling
- Using lookups
- Building a baseline lookup table
- Windows of time/Custom time ranges
- Overlaying time data

- Setting the stage
- Overall Splunk app structure
- UI technology selection: Simple XML vs SplunkJS
- Modularity
- Dev & test env
- Dev workflow
- Modularity
- Data onboarding
- CIM compliance
- Tools

Plus non-functional topics:

- App versioning
- Packaging Installation
- Security review

- Deployment
- Publishing to splunkbase
- App certification

Building Solutions on the Splunk Platform

1. Splunk Reference Apps

Complete, working real-world Splunk solutions built together with partners (Conductive, Auth0)

2. Splunk Developer Guide

This is **unbelievable, it covers most everything I learned the hard way...**

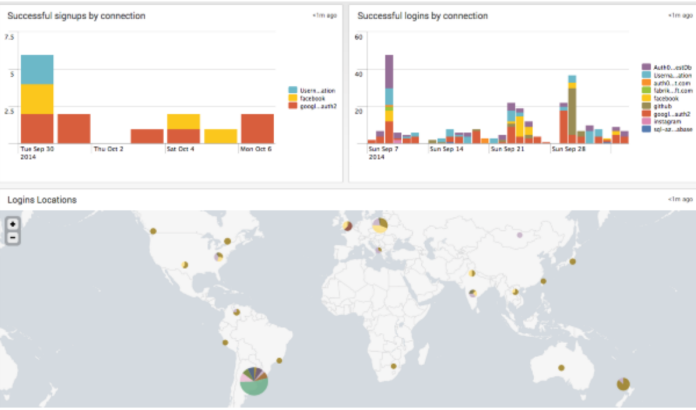
– Bernie Macias, Technical Architect, Zillow

DETAILS

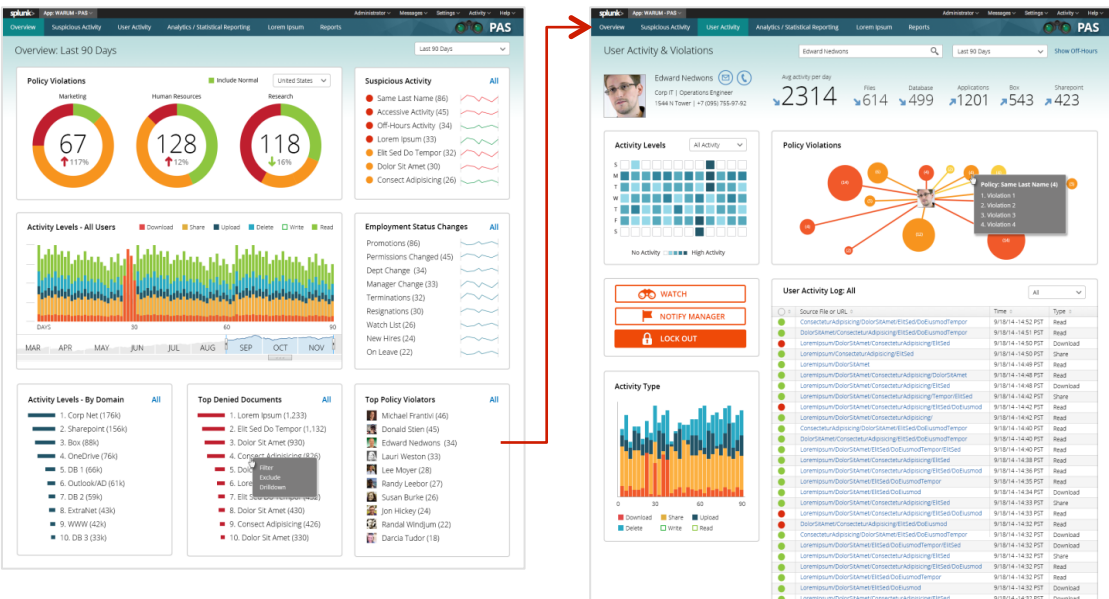
Splunk App for Auth0 pulls your logs and gives you an admin dashboard to monitor usage activity on Auth0. Default views include: signups, successful logins, geo distribution of your users, and more.

Auth0 is an identity management service, built for developers. It provides SSO for custom, social and enterprise accounts.

The App is implemented using SimpleXML dashboards and a nodejs based modular input.



dev.splunk.com/goto/devguide



Splunk Reference App Demo

Splunk Reference App – Pluggable Audit System

splunkbase.splunk.com/app/1934/

OR search name from Splunk Web UI

Takeaways

- App development != rocket science
 - STEP up your game with techniques and recipes
-
- Get in touch with us
 - STEP@splunk.com
 - Leave feedback for STEP
 - Come by our booth, get some swag



Resources

dev.splunk.com



Related breakout sessions & activities

Faster Splunk App Certification with Splunk AppInspect

(Grigori Melnik/Andy Nortrup)

Best Practices for Working with Splunk Cloud

(Dennis Bourg/Eric Six)

HTTP Event Collector in Splunk 6.4 - More Super Powers!

(Glenn Block/Itay Neeman)

Building Splunk Visualizations with the New Custom Visualization API

(Marshall Agnew)

Dashboard Wizardry

(Nicholas Filippi/Siegfried Puchbauer)

Best Practices for Developing Splunk Apps and Add-ons

(Jason Conger)

How to Build a Solution from Scratch: A Case Study of Partner Engagement and Co-Development

(Vladimir Melnik/Igal Vanier)

Onboard Your Data Faster Using the Splunk Add-on Builder

(Elias Haddad/Guodong Wang)

THANK YOU

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