

Developer Tooling and Guidance for Splunk Developer Cloud

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Splunk Developer Cloud

- New option for app developers
 - Separate offering from today's Splunk Cloud
 - Splunk Cloud will continue to be improved and maintained
- SDC is not a product that customers can purchase
- SDC is:
 - A set of services developers can use to build apps (ingest, search, machine learning, ...)
 - APIs, SDKs, and tools developers will use to build apps.
 - A new developer portal with tutorials, documentation, and sample apps
- Closed beta opening next week!

Splunk Developer Cloud

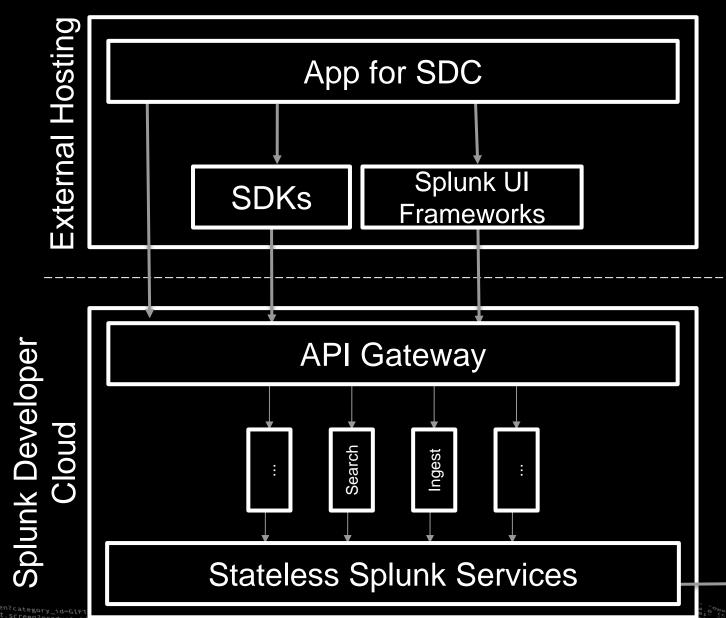
- What do we want out of SDC?
 - Separate execution of apps and Splunk services
 - Apps can run anywhere and are self-hosted
 - Design for scalability
 - Isolate workspaces
 - Easy to manage and extend
 - Service-oriented architecture: state-free, disposable, loosely-coupled services
 - Enforce all interactions via unified, consistent, well-defined APIs

App for Enterprise and Cloud

App / Add-on Splunk Web SDKs **Framework APIs** SplunkD

Splunk Platform

App for Splunk Developer Cloud







New for Splunk Developer Cloud

- SDKs: Go and JavaScript
- Frameworks: Dashboards, SplunkUI, Search Components
- ► **Tools**: Splunk SimData, SDC CLI, an application scaffolding tool, Splunk Data Stream Processor, Splunk Data Discovery
- Examples: multiple small code examples, one medium end-to-end app, one full app (Splunk Sample App for Cisco® ASA)
- Guidance: Splunk Developer Cloud portal with documentation, tutorials, reference material
- Apps:
 - Splunk Insights for Web and Mobile Apps (BETA)
 - Visit the Innovation Labs for more!

Example App **Tools working together**

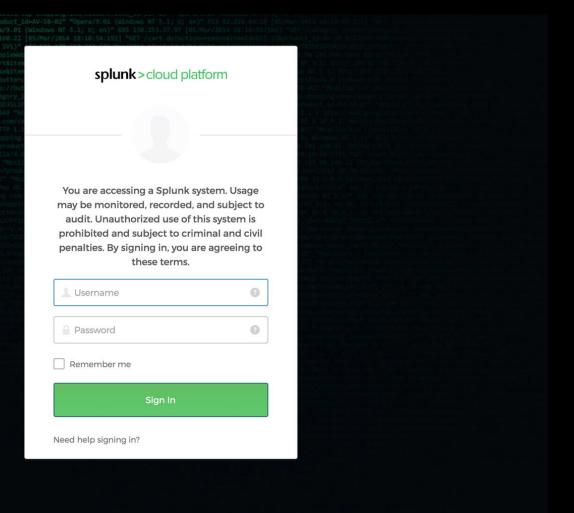
Let's make an app!

- Authenticate with the platform with the /identity service
- Manage data in a dataset with the /catalog service
- Ingest data with the /ingest service
- Search data with the /search service

Authentication

How the platform verifies who you are

- Logging into the platform in-browser
 - Visit https://login.splunkbeta.com/

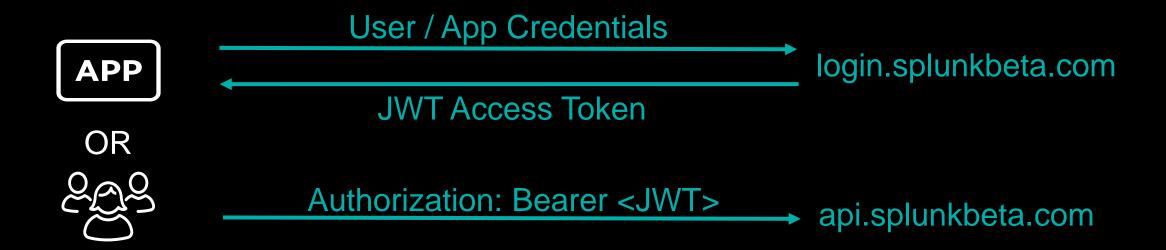




Authentication

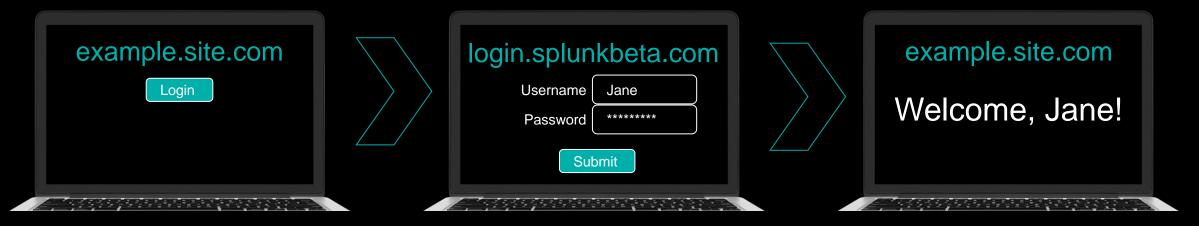
How the platform verifies who you are

- Making requests to https://api.splunkbeta.com programatically
 - HTTPS traffic to the platform uses Authorization header to identify the User or App



How the platform verifies who you are

- Register an App with the App Registry service
 - Allow users to login with https://login.splunkbeta.com/ and redirect to your site



Allow backend clients to authenticate as the App itself using a Client ID / Client Secret



Validate your token against the platform

```
> curl -X GET \
  https://api.splunkbeta.com/$TENANT/identity/v1/validate \
   -H "Authorization: Bearer $BEARER TOKEN"
Response:
 {"name": "me@example.com"}
OR
 {"message": "Error validating request", "code": 401}
```

Validate your token against the platform

Js SDK

```
const client = SplunkCloud({ tokenSource: TOKEN, tenant: TENANT });
client.identity.validate()
    .then(info => {...})
    .catch(err => {...});
```

```
client, err := service.NewClient(&service.Config{
     Token: token,
     Tenant: tenant,
})
info, err = client.IdentityService.Validate()
```

Go SDK



Add a member to a tenant

```
> curl -X POST \
  https://api.splunkbeta.com/$TENANT/identity/v1/members \
  -H "Authorization: Bearer $BEARER TOKEN"
  -H 'Content-Type: application/json'
  -d '{"name":"you@example.com"}'
```

Add a member to a tenant

Js SDK

```
const client = SplunkCloud({ tokenSource: TOKEN, tenant: TENANT });
client.identity.addMember({"name": "you@example.com"})
    .then(member => {...})
    .catch(err => {...});
```

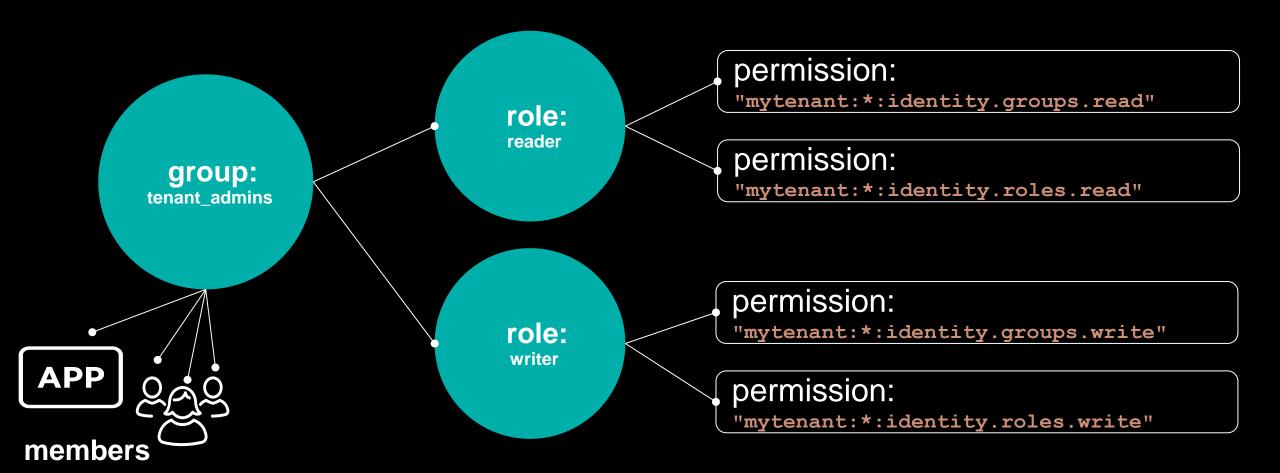
```
client, err := service.NewClient(&service.Config{
    Token: token,
    Tenant: tenant,
})
member, err = client.IdentityService.AddMember("you@example.com")
```

Go SDK



Authorization

How the platform verifies what you can do





Manage Data with Catalog

Create a dataset

```
> curl -X POST \
  https://api.splunkbeta.com/$TENANT/catalog/v1beta1/datasets \
  -H "Authorization: Bearer $BEARER_TOKEN" \
  -H 'Content-Type: application/json' \
  -d '{
        "name": "devops",
        "owner": "me@example.com",
        "kind": "index",
        "disabled": false
    }'
```

Manage Data with Catalog

Create a dataset

Js SDK

```
client.catalog.createDataset({
    name: 'devops',
    kind: 'index',
    disabled: false,
}).then(dataset => {...})
.catch(err => {...});
```

```
dataset, err := client.CatalogService.CreateDataset(&model.DatasetCreationPayload{
    Name: "devops",
    Kind: "index",
})
```

Go SDK



Ingest events

```
> curl -X POST \
  https://api.splunkbeta.com/$TENANT/ingest/v1beta1/events \
  -H "Authorization: Bearer $BEARER TOKEN"
  -d '[{
           "body": "My test event",
           "host": "example.site.com",
           "source": "/var/log",
           "sourcetype": "access combined",
           "timestamp": 1536364275000,
           "attributes": {"index":"devops"}
           "body": "My other test event",
           "host": "example.site.com",
           "source": "/var/log",
            "sourcetype": "access combined",
           "timestamp": 1536364275001,
           "attributes": {"index":"devops"}
       }]'
```

Ingest events

Js SDK

```
const client = SplunkCloud({ tokenSource: TOKEN, tenant: TENANT });
const event1 = {"body": "My test event",
       "host": "example.site.com",
       "source": "/var/log",
       "sourcetype": "access combined",
       "timestamp": 1536364275000,
       "attributes": {"index":"devops"}
};
const event2 = {"body": "My test event",
       "host": "example.site.com",
       "source": "/var/log",
       "sourcetype": "access combined",
       "timestamp": 1536364275000,
       "attributes": {"index":"devops"}
};
client.ingest.postEvents([event1, event2])
    .then(response => {...})
    .catch(err => {...});
```

Ingest events

```
attributes := make(map[string]interface{})
attributes["index"] = "devops"
timeValue := int64(time.Now().Unix() * 1000) // Unix millis
event1 := model.Event{
   Body: "My test event",
   Host: "example.site.com",
   Source: "/var/log",
   Sourcetype: "access combined",
   Timestamp: timeValue,
   Attributes: attributes}
event2 := model.Event{
   Body: "My other test event",
   Host: "example.site.com",
   Source: "/var/log",
   Sourcetype: "access combined",
   Timestamp: timeValue,
   Attributes: attributes}
err = client.IngestService.PostEvents(&[]model.Event{event1, event2})
```

Go SDK



Sending batches of events

Js SDK

```
// Send a batch of events every 5 bytes, 10th event, or 3000 ms
const eb = new EventBatcher(splunk.ingest, 5, 10, 3000);
eb.add({...}).then(response => {...}).catch(err => {...});
eb.add({...}).then(response => {...}).catch(err => {...});
...
eb.stop();
```

```
// Send a batch of events every 5th event or 1000ms
sender, err := client.NewBatchEventsSender(5, 1000)
sender.Run()
err = sender.AddEvent(model.Event{...})
err = sender.AddEvent(model.Event{...})
...
sender.Stop()
```

Go SDK



- Splunk Forwarders can also send data to SDC
- Three Data Availability stations in the source=*Pavillion
- "Gain Control of Your Data Flow Using Stream Processing" (FN1919) -Wednesday 4:30PM

Searching Data Data Fabric Search and SPLv2

- Similarities to Splunk Enterprise
 - Searches are run as asynchronous jobs with a search id
 - Results are available as paginated responses (offset, count)
- Differences from Splunk Enterprise
 - One-shot (synchronous) searches are not supported
 - New Search Processing Language = SPLv2
- ▶ SPLv2
 - Move to formal grammar lexer/parser for consistency and ease-of-use
 - Intro to SPLv2, the Module System, and the Catalog (DEV2043) Thursday 1:30PM

Searching Data

Post a job and get results

```
> export SID=$(curl -X POST \
  https://api.splunkbeta.com/$TENANT/search/v1beta1/jobs \
  -H "Authorization: Bearer $BEARER TOKEN"
  -d '{"query": "| from index:devops | head 5"}' \
  | jq -r .sid)
> curl -X GET \
  https://api.splunkbeta.com/$TENANT/search/v1beta1/jobs/$SID/results \
  -H "Authorization: Bearer $BEARER TOKEN"
```



Searching Data

Post a job and get results

Js SDK

```
const client = SplunkCloud({ tokenSource: TOKEN, tenant: TENANT });
client.search.createJob("| from index:devops | head 5")
     .then(sid => splunk.search.waitForJob(sid)
     .then(job => splunk.search.getResults(sid, { count: 5, offset: 0 }))
     .then(results => {...});
     .catch(err => {...});
```



Searching Data

Post a job and get results

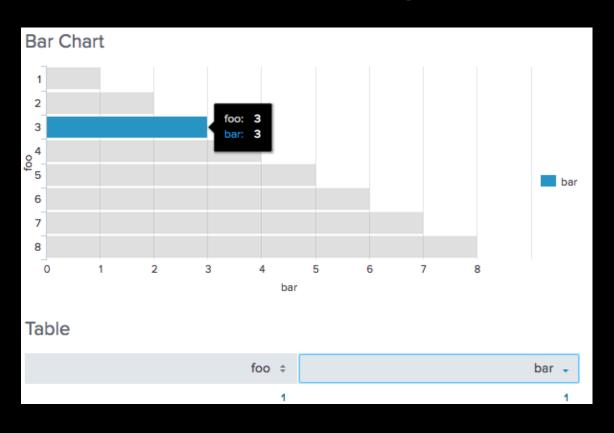
```
search := &model.CreateJobRequest{Query: "| from index:devops | head 5"}
sid, err := client.SearchService.PostJob(search)
err = client.SearchService.WaitForJob(sid, 1000*time.Millisecond)
results, err := client.SearchService.GetResults(sid, 5, 0)
```

Go SDK



Displaying Results

Splunk UI and NEW Splunk Dashboards



```
"columns": [
    ["1", "2", "3", "4", "5", "6", "7", "8"],
    ["1", "2", "3", "4", "5", "6", "7", "8"]
"fields": [{"name": "foo"}, {"name": "bar"}],
"visualizations": {
    "table": {
    "title": "Table",
    "type": "viz.table",
    "dataSources": {"primary": "search1"}
    "table": {
    "title": "Bar Chart",
    "type": "viz.bar",
    "dataSources": {"primary": "search1"}
    "layout": {
    "type": "grid",
    "options": {
        "columns": 12
```

 Dashboards and Analysis UI Components for Developers (DEV1703) -Wednesday 4:30PM





splunk-cloud-create-app splunk-cloud-examples Demo

The barebones app for Splunk Developer Cloud and example apps to get you started

scloud CLI Demo

Perform management tasks, ingest and search data, and more

scloud CLI

(48:10:57:153]
[67/Jan 18:16:57:153]
[67/Jan

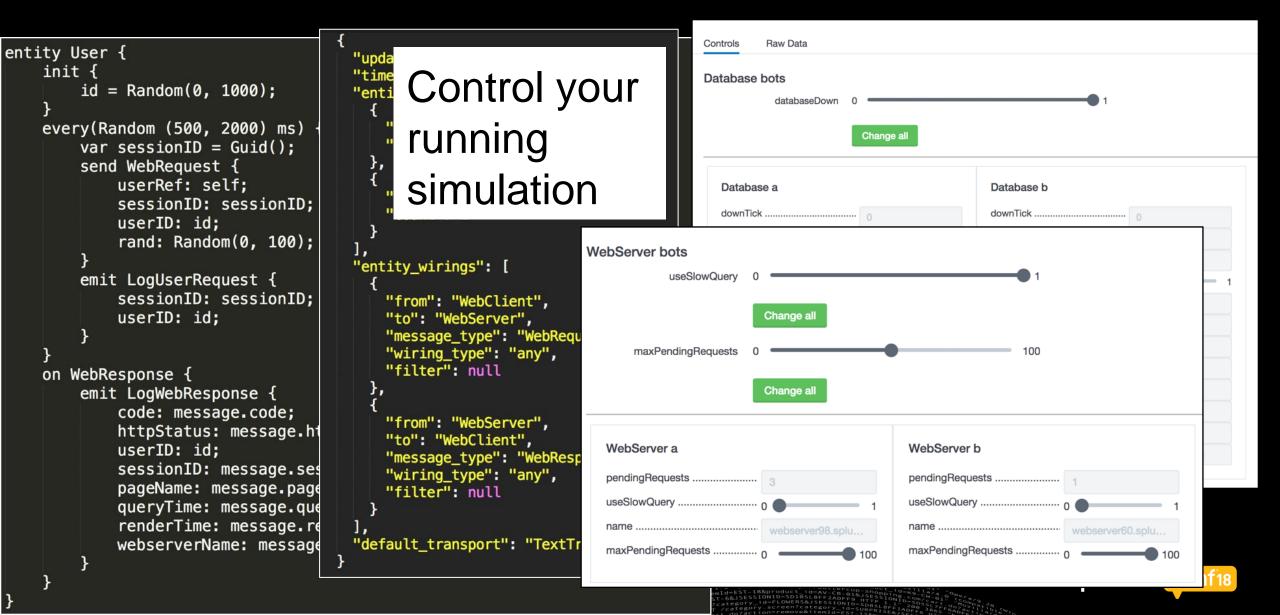


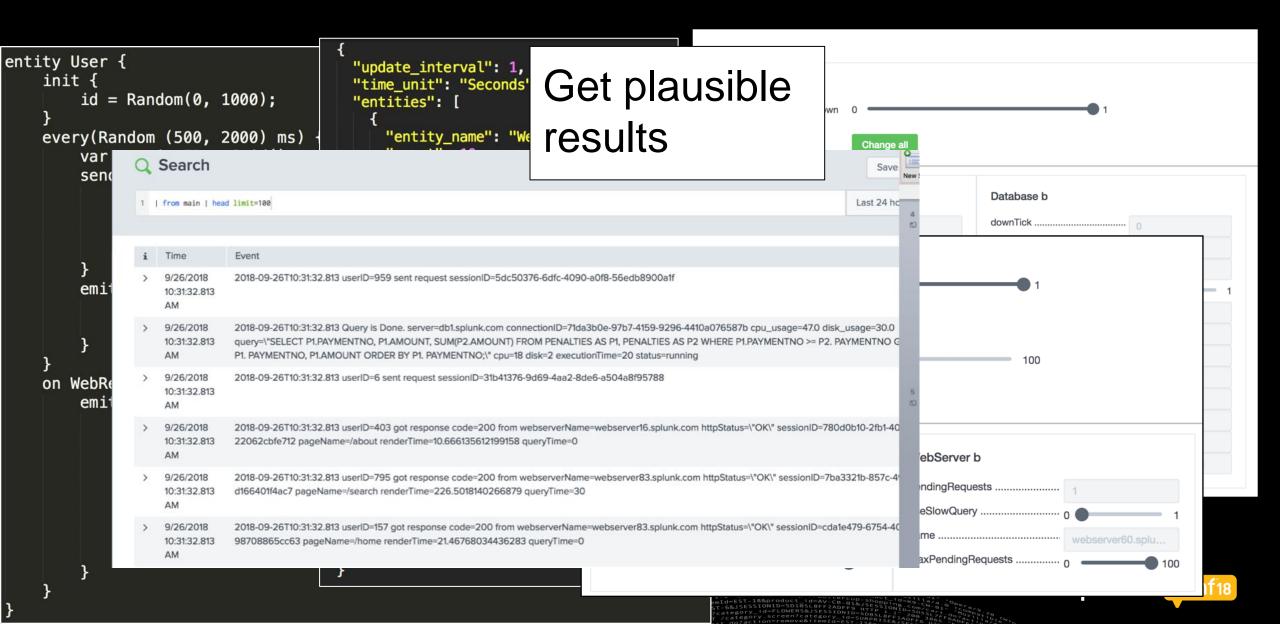
- Fake data for real apps
 - Preview talk from Conf 2017
 - Available now for use with Splunk Enterprise and Splunk Cloud!
 - Works with SDC, too
- Fake Data for real apps
 - Demos
 - Development
 - **Testing**

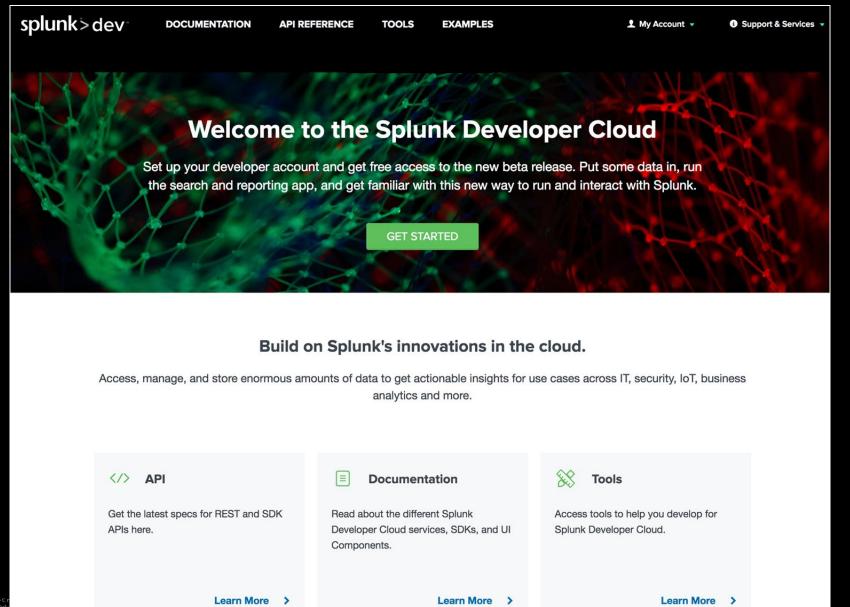
```
entity User {
   init {
                                                 Define actors
       id = Random(0, 1000);
   every(Random (500, 2000) ms) {
                                                 and their
       var sessionID = Guid();
       send WebRequest {
                                                interactions
           userRef: self;
           sessionID: sessionID;
           userID: id;
           rand: Random(0, 100); // Determines which HTTP code we return
       emit LogUserRequest {
           sessionID: sessionID;
           userID: id;
   on WebResponse {
       emit LogWebResponse {
           code: message.code;
           httpStatus: message.httpStatus;
           userID: id:
           sessionID: message.sessionID;
           pageName: message.pageName;
           queryTime: message.queryTime;
           renderTime: message.renderTime;
           webserverName: message.webserverName;
```

```
entity User {
                                        "update_interval": 1,
    init {
                                        "time unit": "Seconds",
        id = Random(0, 1000);
                                        "entities": [
    every(Random (500, 2000) ms)
                                            "entity_name": "WebClient",
        var sessionID = Guid();
                                            "count": 10
        send WebRequest {
             userRef: self:
                                            "entity_name": "WebServer",
             sessionID: sessionID;
                                            "count": 1
             userID: id;
             rand: Random(0, 100);
                                        "entity_wirings": [
        emit LogUserRequest {
             sessionID: sessionID;
                                            "from": "WebClient",
            userID: id;
                                            "to": "WebServer",
                                            "message_type": "WebRequest",
                                            "wiring_type": "any",
                                            "filter": null
    on WebResponse {
        emit LogWebResponse {
             code: message.code;
                                            "from": "WebServer",
            httpStatus: message.ht
                                            "to": "WebClient",
            userID: id:
                                            "message_type": "WebResponse",
            sessionID: message.ses
                                            "wiring type": "any",
             pageName: message.page
                                            "filter": null
             queryTime: message.que
             renderTime: message.re
            webserverName: message
                                        "default_transport": "TextTransport"
```

Define scenarios



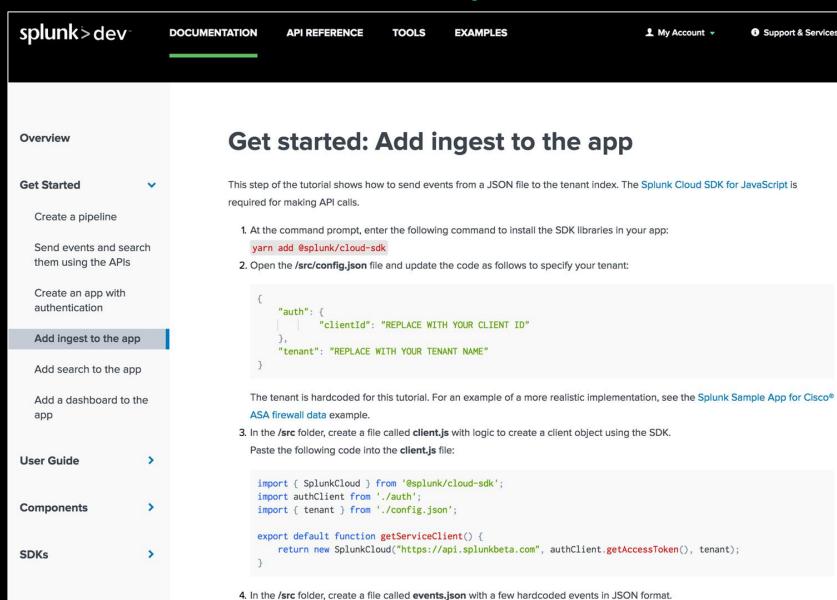






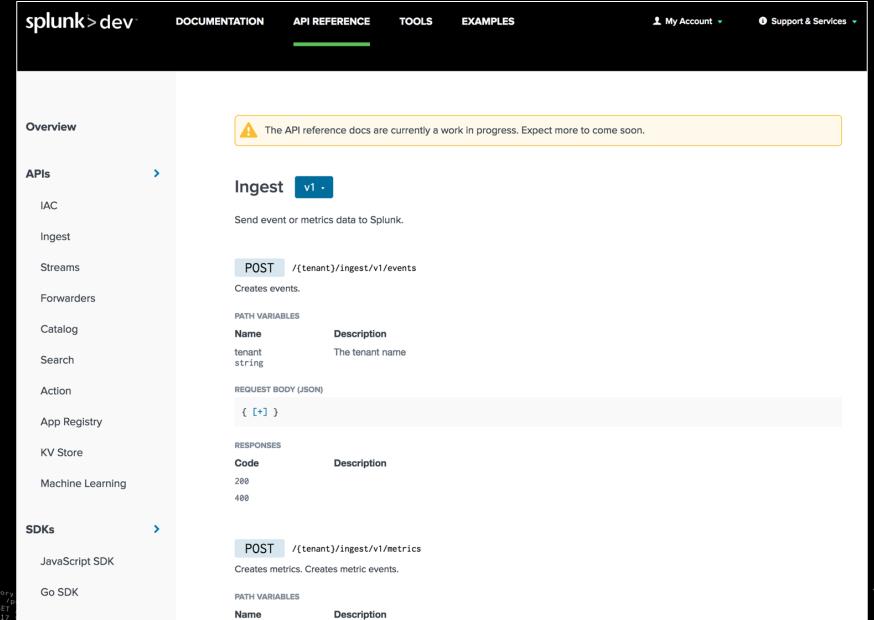
Support & Services ▼

SDC Developer Portal

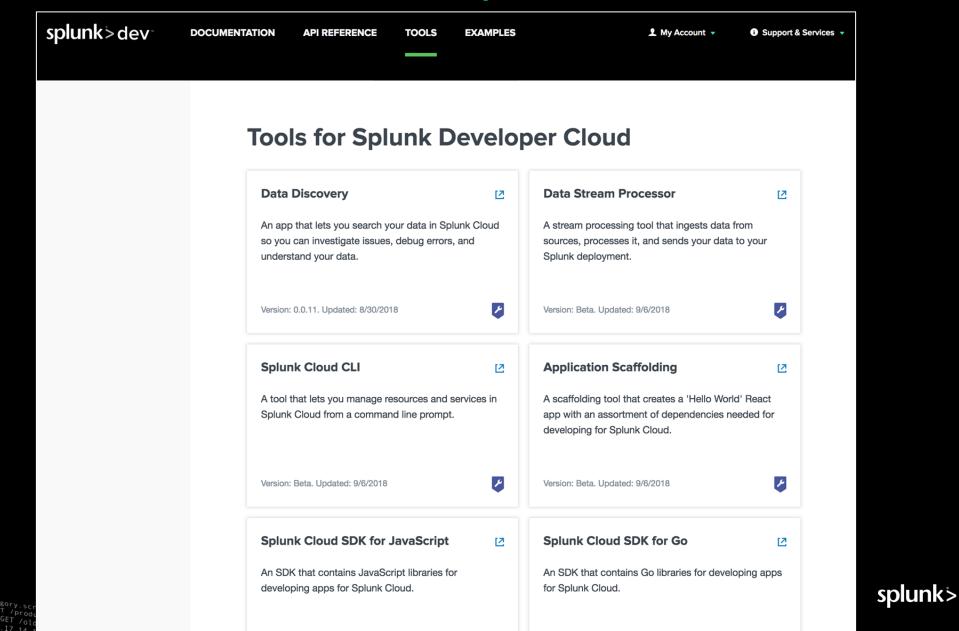


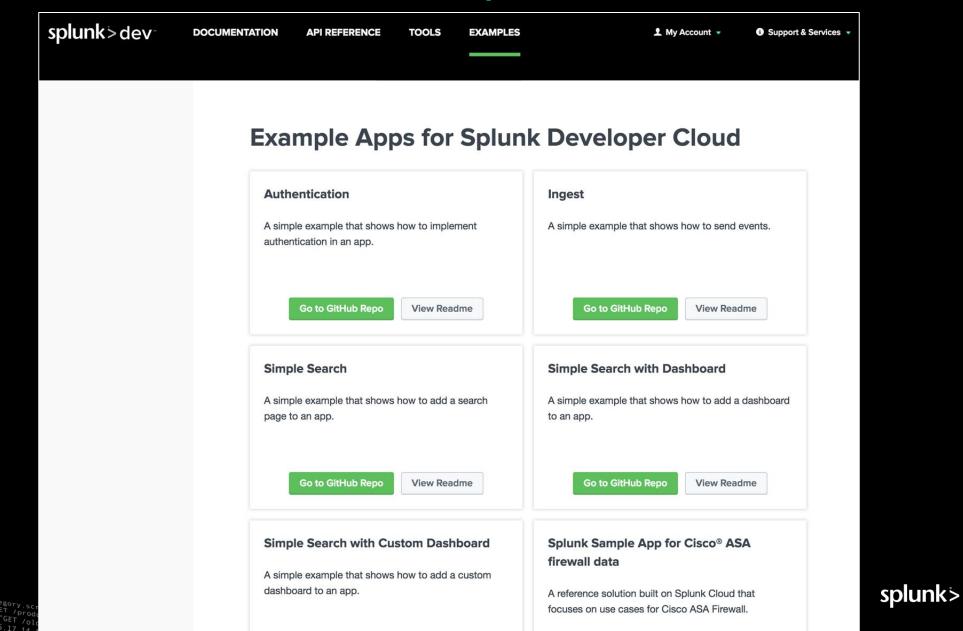
Paste the following JSON into the events.json file:











Join the SDC Beta Program!

- Help test out the Splunk Developer Cloud!
- We're looking for developers with:
 - Experience in building cloud-hosted applications
 - Experience with building Splunk apps
 - Interest in building new solutions on our beta SDC
- Be among the first to try SDC! Apply to join the beta!
 - splunk.com/sdc

Six Great Sessions on Splunk Developer Cloud

- Building Apps for Splunk Developer Cloud (DEV1902) Wednesday 11:30AM
- Splunk Developer Cloud Services and Features (DEV1552) Wednesday 12:45PM
- Partners Build Apps on Splunk Developer Cloud (DEV1846) Wednesday 3:15PM
- Dashboards and Analysis UI Components for Developers (DEV1703) -Wednesday 4:30PM
- Gain Control of Your Data Flow Using Stream Processing (FN1919) -Wednesday 4:30PM
- Intro to SPLv2, the Module System, and the Catalog (DEV2043) Thursday 1:30PM



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Thank You

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