Enhancing Dashboards with JavaScript!

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splunk>

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Who Am I?

Satoshi Kawasaki (hobbes3)

I'm a Ramblin' Wreck from Georgia Tech, and a hell of an engineer— (Aerospace)

but now I'm a consultant at Splunk after some dabbles in web development.

The Strategy

- Expectations
- Why JavaScript?
- Simple XML
- Tools + Tips
- Common Use Cases #1-#8
- References

Expectations

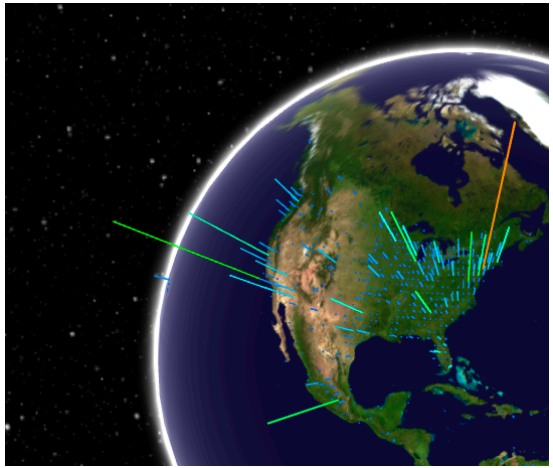
- I can’t teach you JavaScript (for free)
- You need to learn/explore on your own (or hire someone else)
- LMGTFY
- I don't support older Splunk versions (unless I'm paid)
- These slides (by itself) are terrible
- I will go FAST but you can always replay the recording at 0.5x
- This talk will probably only cover 1% of what SplunkJS and Javascript SDK can do

Why JavaScript?

- You’re not limited to Simple XML
- Client-side programming
- It's magic (to end users)!
- It makes bosses and executives happy!

Simple XML

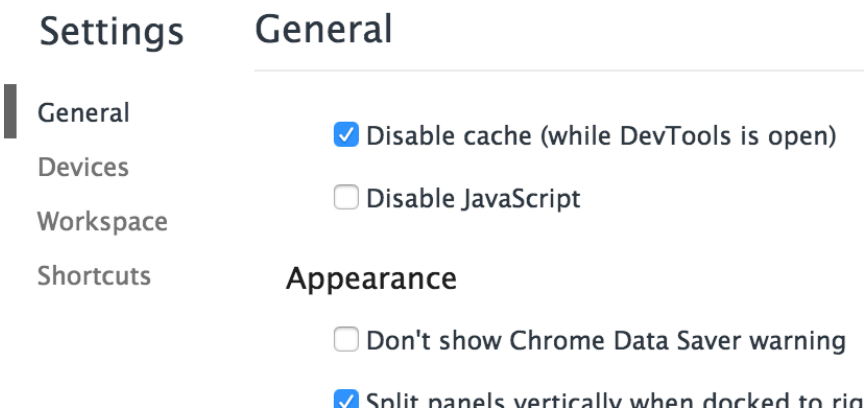
- You may not need JavaScript!
- Simple XML is getting more robust with every 6.x release
- Avoid JavaScript if possible (unless you want job security)
- You can even declare custom visualizations in only Simple XML!



```
<drilldown>
<selection>
<condition>
<change>
<chart depends="$foo$">
<set token="form.foo">
<unset token="cat">
<eval token="foo">
```

Splunk 6.x Dashboard Examples

Tools + Tip



- Chrome/Web Developer Tool
- Browser + Server caching
- Dev Splunk instance (restarts)
- web.conf

```
[settings]
cacheEntriesLimit = 0
minify_js = False
minify_css = False
```

Be the Explorer!

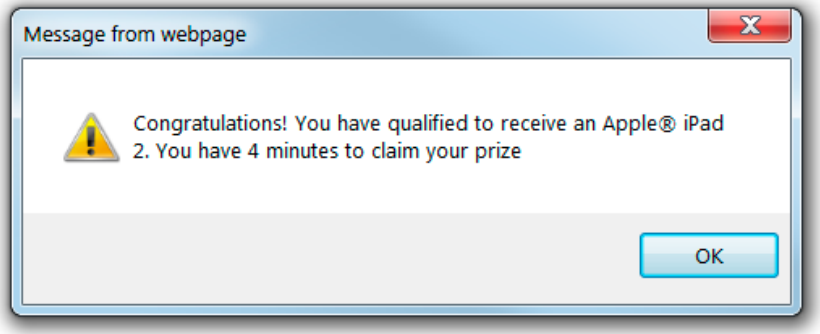
```
> splunkjs.mvc.Components.get("element1")
◂▾ child {_removed: false, id: "element1", name: "element
    ▸ $el: jQuery.fn.init[1]
      _checkExistingMarkup: false
    ▸ _debouncedOnEditModeChange: function ()
    ▸ _events: Object
    ▸ _listeningTo: Object
      _numConfigureCalls: 1
      _removed: false
      _tokenDepsMet: true
      cid: "view2198"
    ▸ contentLoadedDfd: Object
    ▸ el: div#element1.dashboard-element.html.splunk-view
      id: "element1"
    ▸ model: BaseModel.extend.constructor
      name: "element1"
    ▸ options: Object
    ▸ reportReady: Object
    ▾ settings: child
        _applyTokensByDefault: false
      ▸ _bindings: Object
        changing: false
```

And read the docs... especially example code!

Use Case #1: "Hello World"

```
<form script="their_app:their_script.js, foo.js">
```

```
alert("hello world!");
```

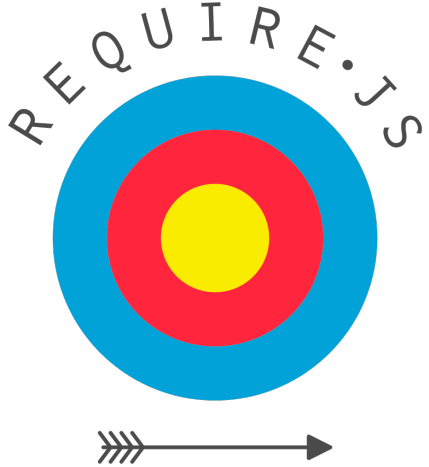


Put in `$SPLUNK_HOME/etc/apps/<my_app>/appserver/static/`

Requires a splunkweb restart to be read for the first time

Use Case #2: RequireJS

```
require([
    "jquery",
    "underscore",
    "splunkjs/mvc",
    "app/my_app/my_include",
    "splunkjs/mvc/simplexml/ready!"
], function(
    $,
    _,
    mvc,
    my_include
) {
    require(["splunkjs/ready!"], function() {
        // foo
    });
});
```



RequireJS is hard... (there, I said it)

Use Case #3: IDs

```
<chart id="my_chart">
<input type="text" token="foo" id="my_input">
<row id="my_row">
<search id="my_search">
```

```
mvc.Components.get("my_chart");
mvc.Components.get("my_search").settings.get("search");
$("#my_chart").slideDown();
```

Avoid this:

```
mvc.Components.get("element3");
$("#input23");
```

Use Case #4: Understanding $tokens$

- URL tokens
- form tokens
- default/unsubmitted tokens
- submitted tokens

.../app/my_app/my_dashboard?earliest=-24h%40h&latest=now&form.foo=bar

```
<input type="text" token="foo">
```

```
var unsubmitted_tokens = mvc.Components.get("default");
var submitted_tokens = mvc.Components.get("submitted");
```

Import "simple_xml_examples:showtokens.js" to understand the token madness!

Use Case #4 cont'd: Manipulating $tokens$

```
function submit_and_update_url() {
    submitted_tokens.set(unsubmitted_tokens.toJSON());
    mvc.Components.get("url").saveOnlyWithPrefix("form\\.", unsubmitted_tokens.toJSON(), {
        replaceState: false
    });
}
```

Setting and unsetting tokens:

```
unsubmitted_tokens.set("form.foo", "bar");
unsubmitted_tokens.unset("form.apple");
submit_and_update_url();
```

Listening to token changes:

```
submitted_tokens.on("change:foo", function() {
    // foo
});
```

WARNING!


Here be dragons!
Circulus Arcticus
TERRA
SAGUENA
CIA.
Norombega pars
OCEANUS
OCEANUS

Use Case #5: Searches and Jobs

Create a basic oneshot search:

```
var service = mvc.createService();

var search = "search index=_* | stats count by index sourcetype";
var search_params = {
    earliest_time: "-5m@m",
    latest_time: "now",
    count: 50
};

service.oneshotSearch(search, search_params, function(err, results) {
    var fields = results.fields;
    var rows = results.rows;
    var sourcetype = results.row[0][fields.indexOf("sourcetype")];
});
```

Soft limit of 100 rows; a hard limit of 50,000 rows!

If you need to retrieve a large data set, then use count+offset and "stitch" it back together (LMGTFY)

Use Case #5 Cont'd: Searches and Jobs

When a search completes:

```
var my_search = mvc.Components.get("my_search");

my_search.on("search:done", function(properties) {
    console.log("DONE!\nSearch job properties:", properties.content);
});
```

Accessing the results of a search:

```
var my_results = my_search.data("results", {count: 20});

my_results.on("data", function() {
    var rows = this.data().rows;
});
```

Use Case #6: Listeners

```
<option name="drilldown">all</option>
```

```
var my_timechart = mvc.Components.get("my_timechart");

my_timechart.on("click", function(e) {
    e.preventDefault();
});
```

Also there are:

- "selection"
- "click:chart"
- "click:legend"
- "click:marker"

```
> e
< ▼Object {field: "count", data: Object, event: Object}
    ▼data: Object
       click.name: "_time"
       click.name2: "count"
       click.value: "1441945500.000"
       click.value2: "1636"
       earliest: 1441945500
       latest: 1441945800
       row._span: 300
       row._time: "1441945500.000"
       row.count: "1636"
     ▶__proto__: Object
    ▶defaultPrevented: function ()
    ▶drilldown: function ()
    ▶event: Object
     field: "count"
    ▶preventDefault: function ()
```

Use Case #7: Render Interceptions

```
require([
    "jquery",
    "splunkjs/mvc",
    "splunkjs/mvc/tableview",
    "splunkjs/mvc/simplexml/ready!"
], function($, mvc, TableView) {
    var MyTableRenderer = TableView.BaseCellRenderer.extend({
        canRender: function(cell) { return cell.field === "foo"; },
        render: function($td, cell) {
            var field = cell.field;
            var value = cell.value;
            $td.text(value + "!");
        }
    });

    mvc.Components.get('my_table').getVisualization(function(tableView) {
        tableView.table.addCellRenderer(new MyTableRenderer());
        tableView.table.render();
    });
```

$SPLUNK_HOME/share/splunk/search_mrsparkle/exposed/js/splunkjs/mvc

Check more table examples at

Use Case #8: More JavaScript SDK

Get the current user:

```
service.currentUser(function(err, user) {
    console.log("Current user: ", user.properties().realname, " (" + user.name + ")");
});
```

- Can do a lot of (dangerous) tasks
- Manage configurations and objects (ie delete and modify objects)
- Log in
- Integrate Splunk results to your own application

References

- JavaScript SDK + Reference
- SplunkJS + Reference
- Simple XML
- Splunk 6.x Dashboard Examples
- Custom Visualizations
- Unofficial: My code snippets

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THANK YOU

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