



# **Leveraging Google APIs to make your RESTful API self documented and discoverable**

**Dave Brand <dave@mobilescalability.com>**

# RESTful APIs

They're everywhere:

Facebook (fb)

Foursquare (node-foursquare)

Google

Instagram (instagram-node-lib)

...

# Node.js support

Most packages provide a surprisingly thin facade, eg:

```
var FB = require('fb');

FB.api('4', function (res) {
  if(!res || res.error) {
    console.log(!res ? 'error occurred' : res.error);
    return;
  }
  console.log(res.id);
  console.log(res.name);
});
```

<https://github.com/Thuzi/facebook-node-sdk#get>

# What do we really want from a Node binding?

Stay out of my way!

Give me access to everything the underlying service offers,  
especially all the latest features.

Make it easy to use the vendor's docs (since I don't really expect  
the Node binding docs to be up-to-date or complete.)

# Oh... and ALSO abstract away all the API differences

I got work to do. Don't make me look up whether instagram calls my profile photo "photo", "picture", or ...

dream on...

# Google APIs Discovery Service

Bring's SOAP style "discovery" to REST/JSON

Provides a framework upon which to build API explorers (like SoapUI)

See: <https://developers.google.com/discovery/>

# Components

APIs Directory

Discovery document



# APIs Directory

A list of APIs available.

- name
- brief description
- link to its documentation

Each supported API can have multiple Directory entries, one for each of its supported versions.

# Example

```
{  
  "kind": "discovery#directoryItem",  
  "id": "plus:v1",  
  "name": "plus",  
  "version": "v1",  
  "title": "Google+ API",  
  "description": "The Google+ API enables developers to build on top of the Google+ platform.",  
  "discoveryRestUrl": "https://www.googleapis.com/discovery/v1/apis/plus/v1/rest",  
  "discoveryLink": "./apis/plus/v1/rest",  
  "icons": {  
    "x16": "http://www.google.com/images/icons/product/gplus-16.png",  
    "x32": "http://www.google.com/images/icons/product/gplus-32.png"  
  },  
  "documentationLink": "https://developers.google.com/+api/",  
  "preferred": true  
},
```

<https://www.googleapis.com/discovery/v1/apis>

# Discovery document

Descriptions of methods and parameters  
OAuth info

# Example

```
{  
  "kind": "discovery#restDescription",  
  "etag":  
  "\"a3GBuXuTtUYW9BV1SIieU5LiL7w/UF3R3J6GybMqi5Ric8P0pBn_VHE\"",  
  "discoveryVersion": "v1",  
  "id": "plus:v1",  
  "name": "plus",  
  "version": "v1",  
  "revision": "20121115",  
  "title": "Google+ API",  
  "description": "The Google+ API enables developers to build on top of the  
Google+ platform.",  
  "icons": {  
    "x16": "http://www.google.com/images/icons/product/gplus-16.png",  
    "x32": "http://www.google.com/images/icons/product/gplus-32.png"  
  },  
}
```

<https://www.googleapis.com/discovery/v1/apis/plus/v1/rest>

## Continued

```
"documentationLink":  
  "https://developers.google.com/+api/",  
  "protocol": "rest",  
  "baseUrl": "https://www.googleapis.com/plus/v1/",  
  "basePath": "/plus/v1/",  
  "rootUrl": "https://www.googleapis.com/",  
  "servicePath": "plus/v1/",  
  "batchPath": "batch",
```

## Just a bit more...

```
"resources": {  
  "activities": {  
    "methods": {  
      "get": {  
        "id": "plus.activities.get",  
        "path": "activities/{activityId}",  
        "httpMethod": "GET",  
        "description": "Get an activity.",  
        "parameters": {  
          "activityId": {  
            "type": "string",  
            "description": "The ID of the activity to get.",  
            "required": true,  
            "location": "path"  
          }  
        },  
        "parameterOrder": [  
          "activityId"  
        ],  
        "response": {  
          "$ref": "Activity"  
        }  
      }  
    }  
  }  
}
```

# Google's API Explorer

Services > Google+ API v1 > plus.activities.get

**activityId**

:lpitzjkdz22wenhizvyowze3x

The ID of the activity to get. (string)

fields

Selector specifying which fields to include in a partial response.  
[Use fields editor](#)

**bold red** = required

Execute

<https://developers.google.com/apis-explorer/#p/plus/v1/>

# discovery-services-client

Why write:

```
request.get(  
  'https://www.googleapis.com/plus/v1/activities/' +  
  activityId + '?key=' + YOUR_API_KEY, function (err, res) ...
```

when you can write this instead:

```
google.plus.activities({  
  activityId: activityId  
}, function (err, res) ...
```

There are only two hard things in Computer Science:  
cache invalidation and naming things.

-- Phil Karlton



# How about retrofitting a vendor API?

Here are the minimal settings for a single foursquare endpoint:

```
{  
  "baseUrl": "https://api.foursquare.com/v2",  
  "resources": {  
    "venues": {  
      "methods": {  
        "search" : {  
          "path": "/venues/search",  
          "httpMethod": "GET"  
        }  
      }  
    }  
  }  
  ...  
}
```

# Generating functions

I'm generating functions on the fly, eg.  
`google.plus.activities()`

First implementation:

One common method that gets a wrapper for each  
endpoint

```
f = async.apply(commonMethod, data, ...
```

... but that gave me anonymous functions - ugly stack  
traces

# Naming them

```
> f = function () {}
```

```
[Function]
```

```
> f.name
```

```
"
```

```
> f.name = 'named'
```

```
'named'
```

```
> f.name
```

```
"
```

```
> f
```

```
[Function]
```

FAIL!

# Actually naming them

```
> f = new Function('return function named() {}')();  
[Function: named]  
> f.name  
'named'
```

Yes, I am aware this is morally equivalent to eval.

# Your turn

<https://github.com/dbrand666/hands-on-discovery>

