Multimedia im Netz (Online Multimedia)

Wintersemester 2014/15

Übung 09 (Hauptfach)

Today‘s Agenda

- Spot the error!
- Mash-Ups
- Discussion: Assignment 07

Spot the Error! (1)

```
$.each(jsonResponse,function(key,value){
    var child = $(div);
    child.attr(id,key);
    child.html(value);
    child.appendTo($('#output'));
});
```

Spot the Error! (2)

```
var loadCallback = function(data){
    $('#output').html(data);
};
$.ajax({
    url : '/index.html',
    type: POST,
    success: loadCallback(data)
});
```

Spot the Error! (3)

```
var inputField = $('#filterinput');
inputField.keyup(function(e){
    var value = this.val();
    filterByTitle(value);
});
```

Mash-Ups

- Aggregation of multimedia content
- One specific topic (e.g. a music band)
- Content originates from external web services
- Mashups parse the data and display it nicely

- Get inspired: http://www.programmableweb.com/mashups/

Public APIs and Services

- Find a list of services here: http://www.programmableweb.com/category/all/apis

Example: Spotify

- Some end points in the Spotify API do not require authentication:
  - Search: https://developer.spotify.com/web-api/search-item/
  - Tracks: https://developer.spotify.com/web-api/get-track/
  - Albums: https://developer.spotify.com/web-api/get-album/
  - Artists: https://developer.spotify.com/web-api/get-artist/

- Spotify supports cross-domain XHR
- Return type: JSON

Spotify Example

- Searching for a track: https://api.spotify.com/v1/search?type=track&q=last%20christmas
- Response:


```
{
  - tracks: {
        href: "https://api.spotify.com/v1/search?query=last+christmas&offset=0&limit=1&type=track",
      - items: [
          - {
              + album: {…},
              + artists: […],
              + available_markets: […],
                disc_number: 1,
                duration_ms: 265653,
                explicit: false,
              + external_ids: {…},
              + external_urls: {…},
                href: "https://api.spotify.com/v1/tracks/0F2o0i9Qg7lFU9unvIPzvi",
                id: "0F2o0i9Qg7lFU9unvIPzvi",
                name: "Last Christmas - Single Version",
                popularity: 71,
                preview_url: "https://p.scdn.co/mp3-preview/689464ebb21c115971868ce5d8a46ddc065a97c9",
                track_number: 1,
                type: "track",
                uri: "spotify:track:0F2o0i9Qg7lFU9unvIPzvi"
            }
        ],
        limit: 1,
        next: "https://api.spotify.com/v1/search?query=last+christmas&offset=1&limit=1&type=track",
        offset: 0,
        previous: null,
        total: 7243
    }
}
```

Task: Spotify API Query

- Use jQuery to access the Spotify API
- Documentation: https://developer.spotify.com/web-api/search-item/
- Endpoint URL: https://api.spotify.com/v1/search

- Search parameters:
  - Track: ‘Last Christmas’
  - Limit: 5
- Do a console.log() of the result

- Time: 10 Minutes.

Authentication

- Many services require you to sign up for an **access key** to the application programming interfaces (APIs)
  - Usually sent via a GET/POST parameter to identify the origin
  - Used to monitor requests and quota.
  - Fixed quota of requests for some services (which you'll unlikely exceed)

- Advanced Authorization: OAuth

OAuth

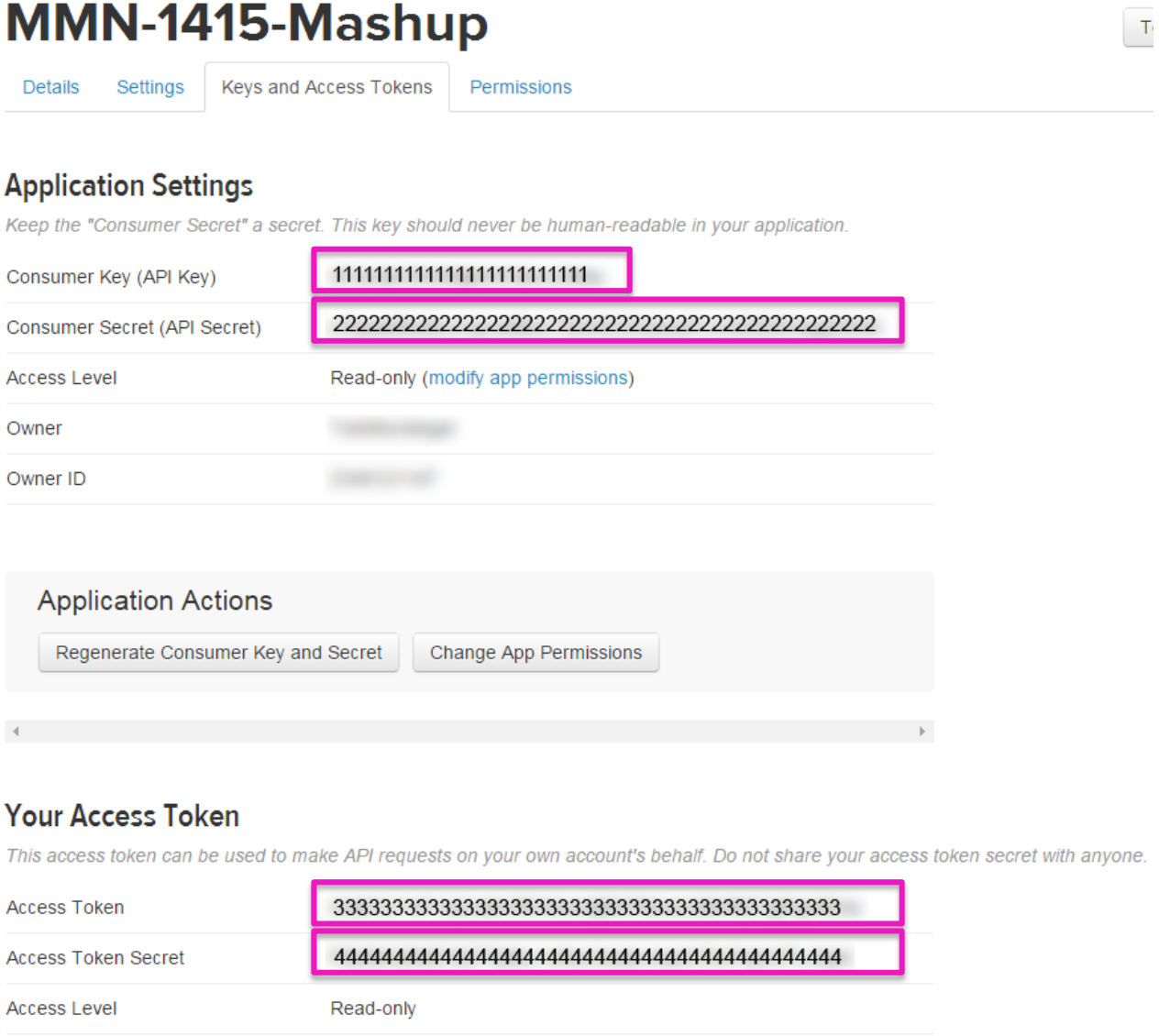
- Motivation: Users want to ensure that web apps can only access what has been approved by the users themselves.
- Solution: OAuth
  Standardized protocol for API authorization
- Providers issue access tokens to apps allowing them to operate in their name
- Many APIs support the OAuth mechanism
- Further readings:
  - http://hueniverse.com/oauth/
  - http://oauth.net/

Twitter & OAuth

- The Twitter API not accessible from client-side JavaScript, because the API secrets would become readable.

- There are two variants in twitter:
  - Application-User authentication:
    - App acts on behalf of user
    - Authentication ensures permissions for each app
  - Application-only authentication:
    - App does not have any user-context (e.g. profile name)
    - Only allows access to publicly available information on twitter

Register a Twitter App



NodeJS and Twitter

- We can use our own node app to access the Twitter API

- Libraries make our lives easier!
  - "Passport" provides general access to OAuth providers,
  - For our example, we use the `twitter` package that includes all steps for authentication.

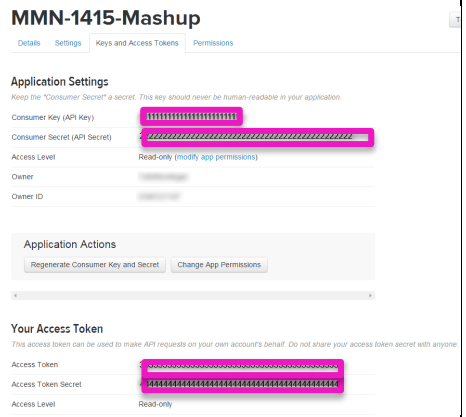
- More info: https://www.npmjs.com/package/twitter

- Use it in your app:
  `npm install twitter --save`

config/config.private.js

```
module.exports = {

    twitter : {
        consumerKey : '1111111111111111',
        consumerSecret : '22222222222222222222',
        accessToken : '333333333333333333333333',
        accessTokenSecret : '44444444444444444444'
    }
};
```



routes/twitter.js (1)

- Define the Twitter access
- Example:

```
var router = require('express').Router();
var config = require('../config/config.private');

var Twitter = require('twitter');

var client = new Twitter({
   consumer_key: config.twitter.consumerKey,
   consumer_secret: config.twitter.consumerSecret,
   access_token_key: config.twitter.accessToken,
   access_token_secret: config.twitter.accessTokenSecret
});
```

routes/twitter.js (2)

- We create a route that handles the twitter requests
- Example:

```
router.post('/searchTweets', function(request, response)
{
    var query = request.body.query;
    client.get("search/tweets",
        {q:query},
        function(error,docs){
            response.json(docs);
    });
});
```

app.js

- We use the route in the Express app:
```
app.use('/api/twitter',require('./routes/twitter'));
```

- That’s all there is to do at the back end.

In the front end

- In the front end, we call our own API instead of the twitter API
- Example:

```
$.post('api/twitter/searchTweets',
    {query : 'my query'},
    function(data){
        console.log(data);
});
```

Assignment 9

- **Topic**: Mashup
- **Due date**: 12.01.2015
- **Due in**: 4 Weeks
- **Notes**: There won’t be a new assignment until then ;)
- **Next tutorial**:
  - Discussion of Assignment 08
  - Programming consultation
  - Presentation of your solutions

Thanks!

What are your questions?