hackerone

It's the Little Things II

Exploiting Vulnerabilities Through Proper Reconnaissance

Ben Sadeghipour (@Nahamsec)

Intro

- Researcher, pentester, hacker, and bug bounty participant
- Hacker Operations Lead at HackerOne
- 600+ valid vulnerabilities to ~100 companies on HackerOne (Department of Defense, Airbnb, Oath/Yahoo, Snapchat, Valve, Zendesk, etc.)
- Bug Bounty Forum co-founder (@bugbountyforum)

AGENDA

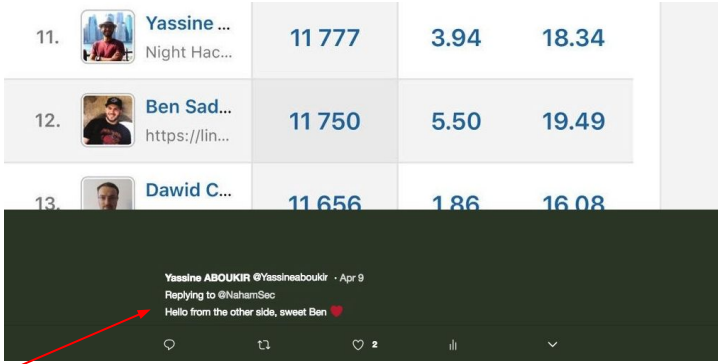
1. Overview
2. Asset Discovery
3. Content Discovery
4. Automation
5. Digital Dumpster Diving
6. Real Life Examples

Why?

- Self improvement
- Networking
- My career was built / boosted thanks to bug bounties

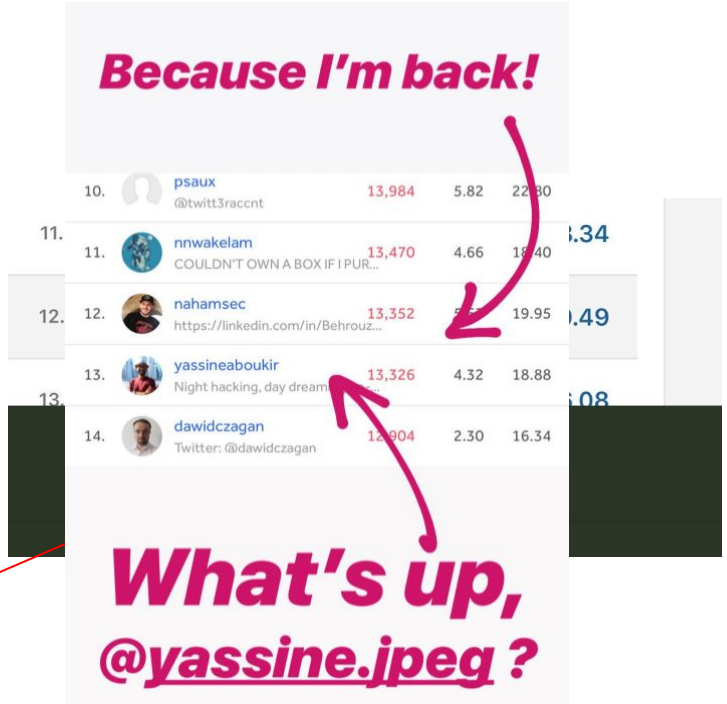
Why?

- Self improvement
- Networking
- My career was built / boosted thanks to bug bounties
- Competition makes it more fun



Why?

- Self improvement
- Networking
- My career was built / boosted thanks to bug bounties
- Competition makes it more fun



Why?

- Self improvement
- Networking
- My career was built / boosted thanks to bug bounties
- Competition makes it more fun
- … who doesn’t like extra cash?

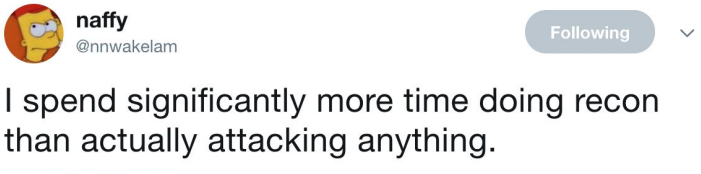
Reconnaissance

Recon (Definition)

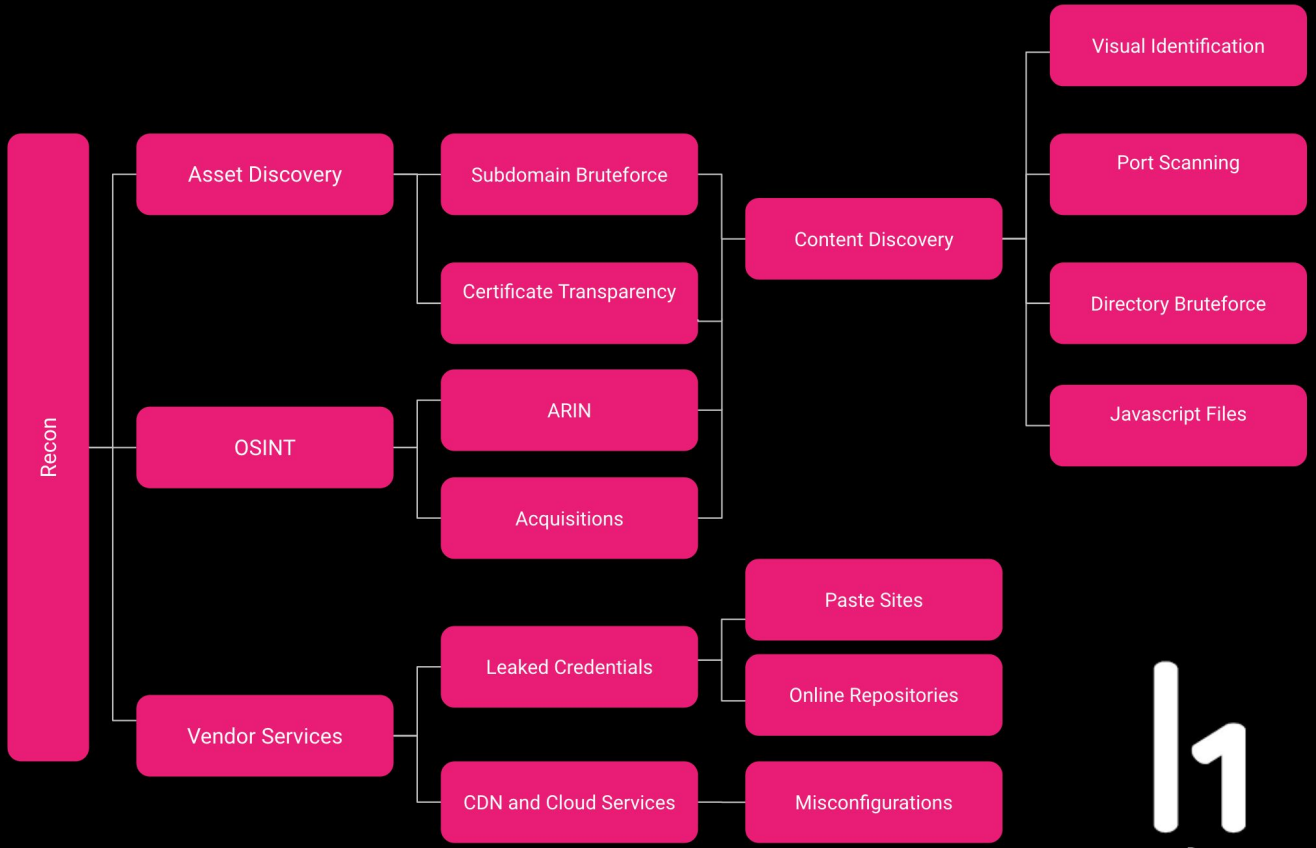
In military operations, reconnaissance or scouting is the exploration outside an area occupied by friendly forces to gain information about natural features and other activities in the area.

Recon (Definition)

- Understanding how the application is built
- Understanding how the application processes data
- Finding all possible “entry” points or company assets
- and finding as many files, folders, or endpoints



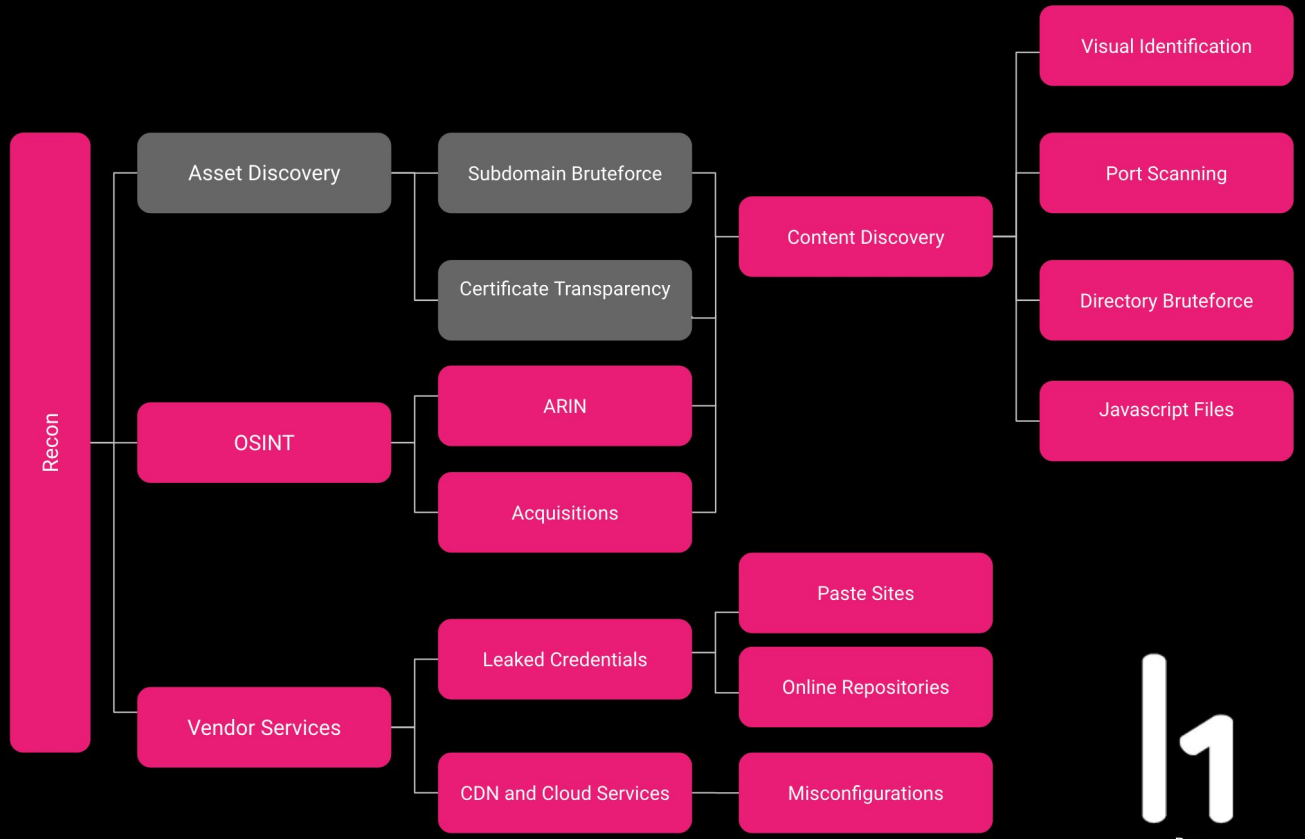
A Visual Guide to Recon



Ben
Sadeghipour
(@nahamsec)

Asset Discovery

A Visual Guide to Recon



Ben
Sadeghipour
(@nahamsec)

Asset Discovery

- Brute force
- Find different environments (.dev, .corp, .stage, uat, etc.)
- Brute force again
  - Different permutations
  - Different environment
    - dashboard.dev.site.com vs dashboard-dev.site.com

Google Dork: site.com +inurl:dev -cdn

- sublist3r
- enumall
- massdns
- altdns
- brutesubs
- dns-parallel-prober
- dnscan
- knockpy
- tko-subs
- HostileSubBruteforce

Asset Discovery

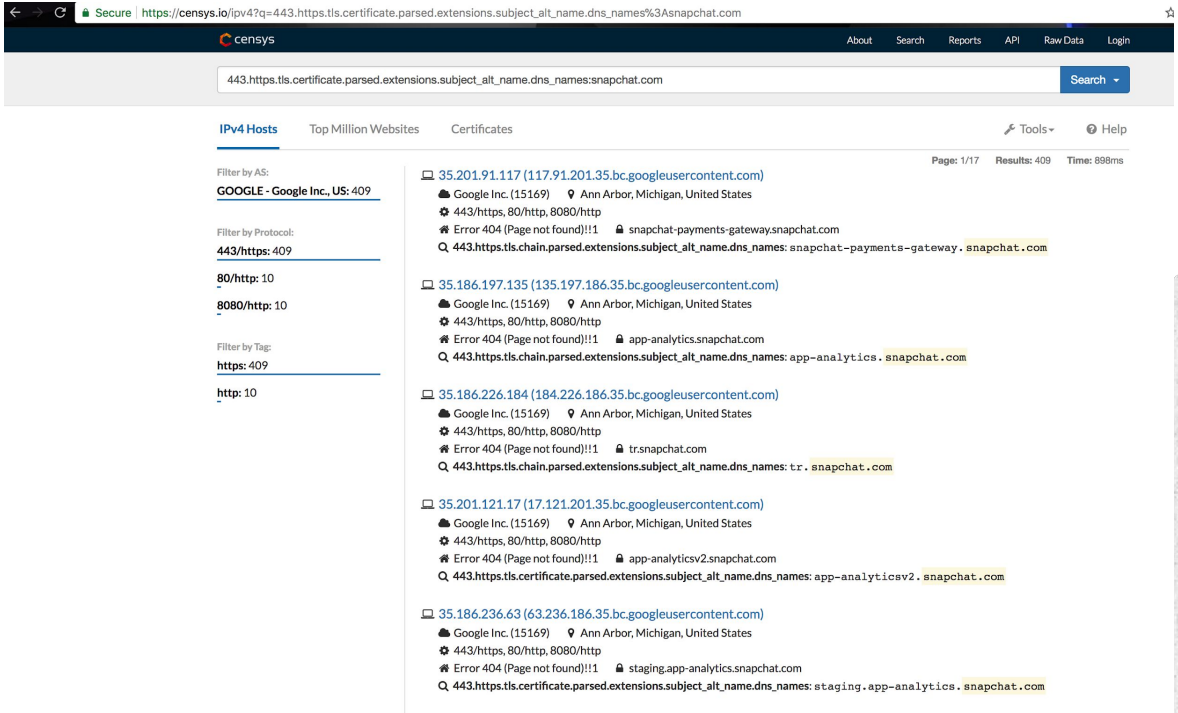
- sublist3r
- enumall
- massdns
- altdns
- brutesubs
- dns-parallel-prober
- dnscan
- knockpy
- tko-subs
- HostileSubBruteforce

Certificate Transparency

How do you find more?

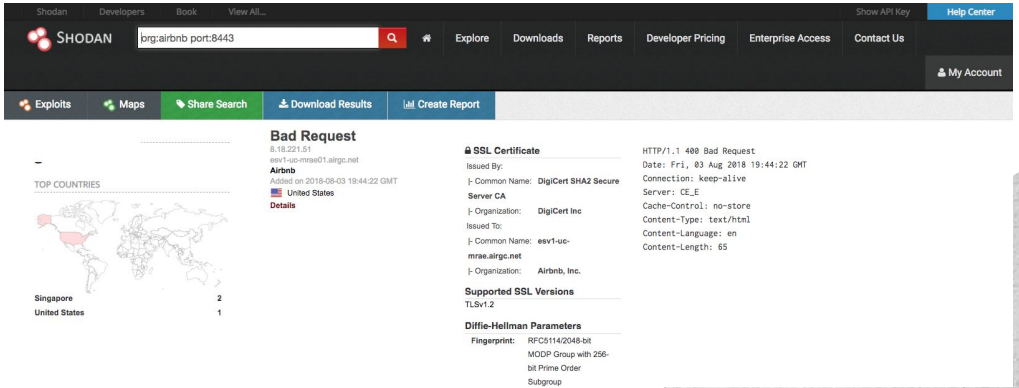
Censys

- Look for SSL certificates:
  - Example: 443.https.tls.certificate.parsed.extensions.subject_alt_name.dns_names:snapchat.com



Shodan

- Search by hostname
- Filter for
  - Ports: 8443, 8080, 8180, etc
  - Title: “Dashboard [Jenkins]”
  - Product:Tomcat
  - Hostname: somecorp.com
  - Org: evilcorp
  - ssl: Google



Certspotter

- Great API
- Easy to automate:
  - Make a bash alias
  - Automate
  - Win


```
root@vps82152:~# certspotter yahoo.com

170prd.fin.yahoo.com
2013-en-imagenes.es.yahoo.com
360.mail.yahoo.com
3arrebni.yahoo.com
7-eleven.yahoo.com
aa.lrd.yahoo.com
about.yahoo.com
abumediamobile.query.yahoo.com
abumedia.yahoo.com
abumedia.yql.yahoo.com
abuse.corp.yahoo.com
abuse.yahoo.com
academy-delivery.cc.corp.yahoo.com
accmgr.secure.webhosting.yahoo.com
accmgr.webhosting.yahoo.com
accountkey.yahoo.com
accountlink.www.yahoo.com
accountlink.yahoo.com
accountservice.corp.yahoo.com
ace.ysm.yahoo.com
aclpushdb.ops.yahoo.com
a-cms.shp.corp.tw1.yahoo.com
actapi.corp.yahoo.com
actualites.yahoo.com
adbuilder.creative.yahoo.com
add.my.yahoo.com
address.yahoo.com
adlatencyvendoroutreach.yahoo.com
admanagerplus.yahoo.com
admanager.yahoo.com
admetricsclone.uadapp.yahoo.com
admetrics.uadapp.yahoo.com
adminapp.creatr.corp.yahoo.com
admin.bb.abuse.yahoo.com
admin.bf1.yhs.search.yahoo.com
admin.ckms.yahoo.com
admincms.corp.yahoo.com
admincms.labs.yahoo.com
```

Certspotter

- Great API
- Easy to automate:
  - Make a bash alias
  - Automate
  - Win

We'll get to this later


```
root@vps82152:~# certspotter yahoo.com

170prd.fin.yahoo.com
2013-en-imagenes.es.yahoo.com
360.mail.yahoo.com
3arrebni.yahoo.com
7-eleven.yahoo.com
aa.lrd.yahoo.com
about.yahoo.com
abumediamobile.query.yahoo.com
abumedia.yahoo.com
abumedia.yql.yahoo.com
abuse.corp.yahoo.com
abuse.yahoo.com
academy-delivery.cc.corp.yahoo.com
accmgr.secure.webhosting.yahoo.com
accmgr.webhosting.yahoo.com
accountkey.yahoo.com
accountlink.www.yahoo.com
accountlink.yahoo.com
accountservice.corp.yahoo.com
ace.ysm.yahoo.com
aclpushdb.ops.yahoo.com
a-cms.shp.corp.tw1.yahoo.com
actapi.corp.yahoo.com
actualites.yahoo.com
adbuilder.creative.yahoo.com
add.my.yahoo.com
address.yahoo.com
adlatencyvendoroutreach.yahoo.com
admanagerplus.yahoo.com
admanager.yahoo.com
admetricsclone.uadapp.yahoo.com
admetrics.uadapp.yahoo.com
adminapp.creatr.corp.yahoo.com
admin.bb.abuse.yahoo.com
admin.bf1.yhs.search.yahoo.com
admin.ckms.yahoo.com
admincms.corp.yahoo.com
admincms.labs.yahoo.com
```

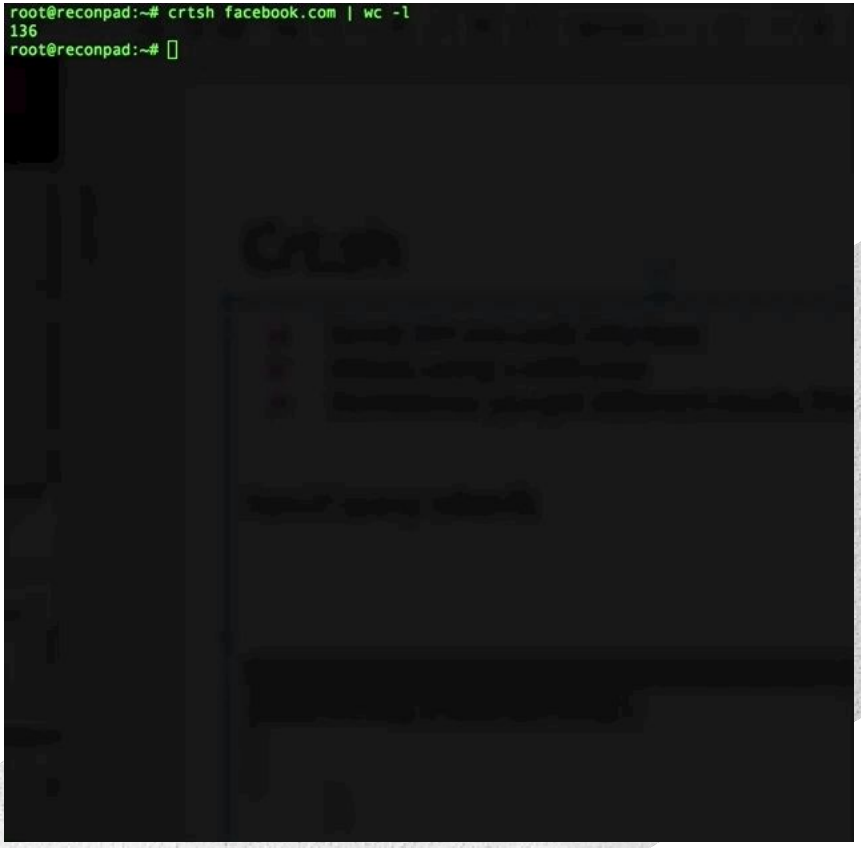
Crt.sh

- Great API and web interface
- Allows using a wild card
- Sometimes you get different results from differents sources

Search query: **Identity LIKE 'www.snapchat.%'**

crt.sh ID	Logged At	Not Before	Not After	Identity
771398392	2018-09-20	2018-09-20	2018-12-19	www.snapchat.pizza
771124506	2018-09-20	2018-09-20	2018-12-19	www.snapchat.sale
771122320	2018-09-20	2018-09-20	2018-12-19	www.snapchat.properties
771099401	2018-09-20	2018-09-20	2018-12-19	www.snapchat.productions
765647951	2018-09-19	2018-09-18	2018-12-17	www.snapchat.timurmuhendislik.com
763811249	2018-09-18	2018-09-18	2018-12-17	www.snapchat.achimhepp.com
759812331	2018-09-17	2018-09-17	2018-12-16	www.snapchat.fashion.blog
751920069	2018-09-15	2018-09-15	2018-12-14	www.snapchat.easyteenvids.com
751920069	2018-09-15	2018-09-15	2018-12-14	www.snapchat.pink

https://crt.sh/?q=www.snapchat.%

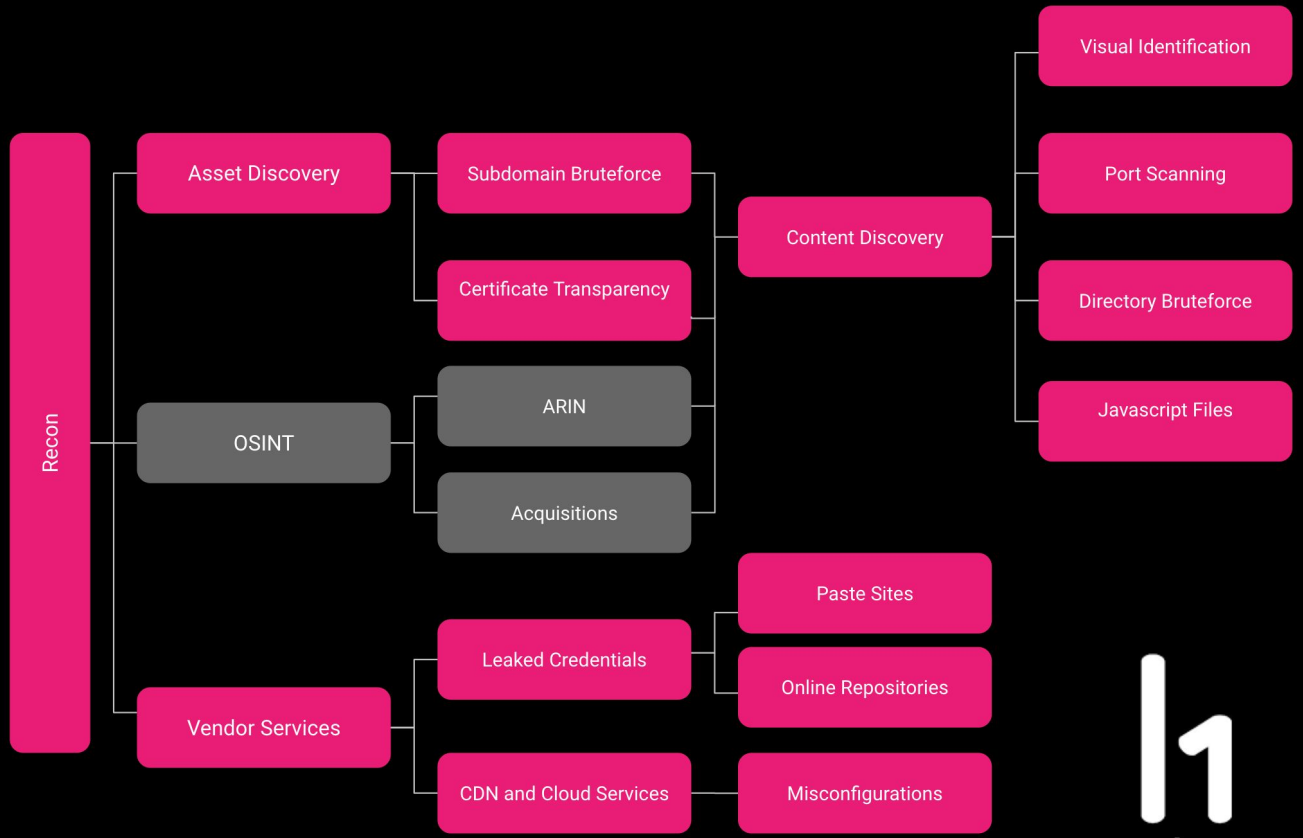


$ curl 'https://crt.sh/?q=%.'$1'&output=json' | jq '.name_value' | sed 's/\"//g' | sed 's/*\.//g'

OSINT

What about other properties?

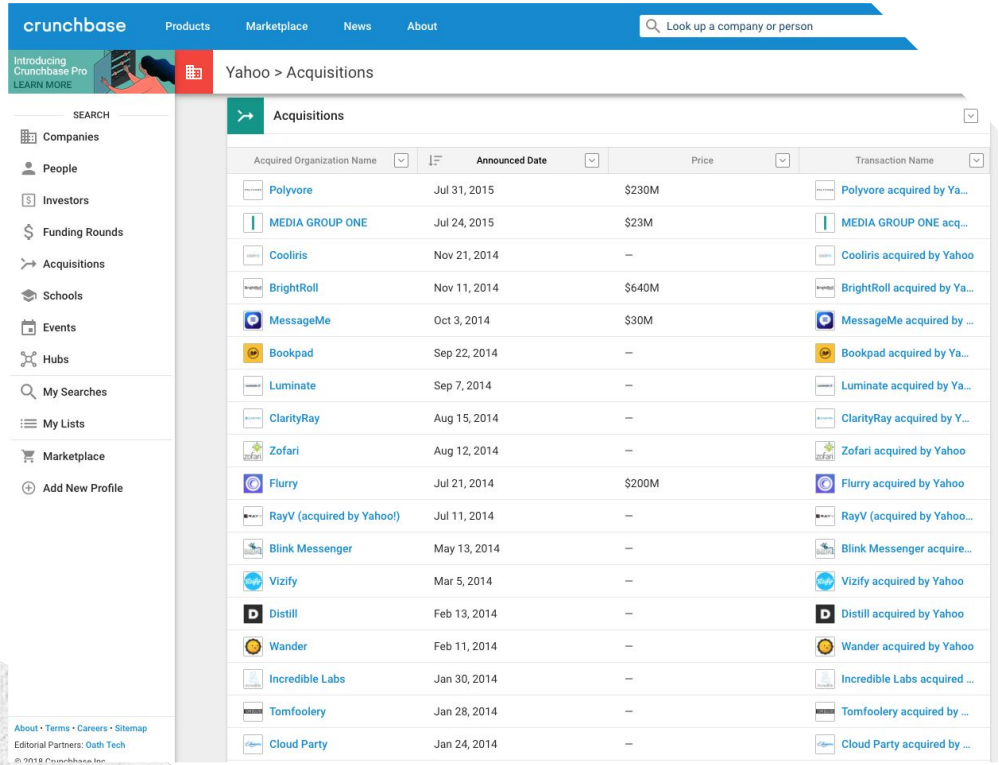
A Visual Guide to Recon



Ben
Sadeghipour
(@nahamsec)

Acquisitions

- Usually in scope (after 6 months)
- Geared towards bigger companies: Facebook, Google, Yahoo, etc.



ARIN

You searched for: **Yahoo**

Customers
Yahoo (C00146168)
Yahoo (C00146169)
Yahoo (C01196389)
Organizations
Yahoo (YAHOO-1)
YAHOO (YAHOO-10)

ARIN

Organization	
Name	Yahoo
Handle	YAHOO-1
Street	701 First Avenue
City	Sunnyvale
State/Province	CA
Postal Code	94089
Country	US
Registration Date	1996-10-14
Last Updated	2013-04-02
Comments	
RESTful Link	https://whois.arin.net/rest/org/YAHOO-1
See Also	Related networks.
See Also	Related autonomous system numbers.
See Also	Related POC records.

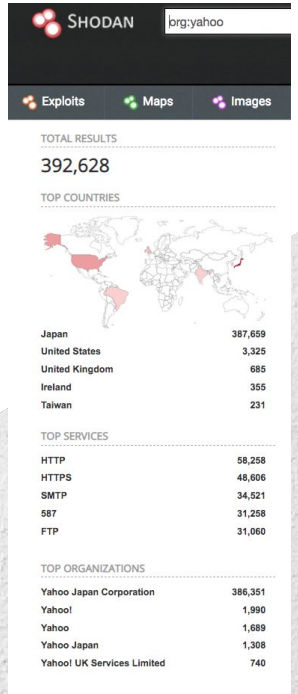
ARIN

Network Resources	
LVLT-YAHOO-1-8-3-34 (NET-8-3-34-0-1)	8.3.34.0 - 8.3.35.255
NET-216-34-77-0 (NET-216-34-77-0-1)	216.34.77.0 - 216.34.77.127
COLOC-1-YAHOO-1-8-8-178 (NET-8-8-178-0-1)	8.8.178.0 - 8.8.178.255
SAVV-64-209-232-0-0-1 (NET-64-209-232-0-1)	64.209.232.0 - 64.209.232.255
SAVV-S235114-9 (NET-64-39-38-208-1)	64.39.38.208 - 64.39.38.223
SAVV-S235114-11 (NET-204-71-177-0-1)	204.71.177.0 - 204.71.177.255
SAVV-S235114-12 (NET-204-71-188-0-1)	204.71.188.0 - 204.71.188.255
SAVV-S235114-17 (NET-216-136-220-128-1)	216.136.220.128 - 216.136.220.255
SAVV-S235114-21 (NET-64-56-197-208-1)	64.56.197.208 - 64.56.197.223
LVLT-YAHOO-1-67-72-118 (NET-67-72-118-0-1)	67.72.118.0 - 67.72.119.255

ARIN

Shodan also helps with this

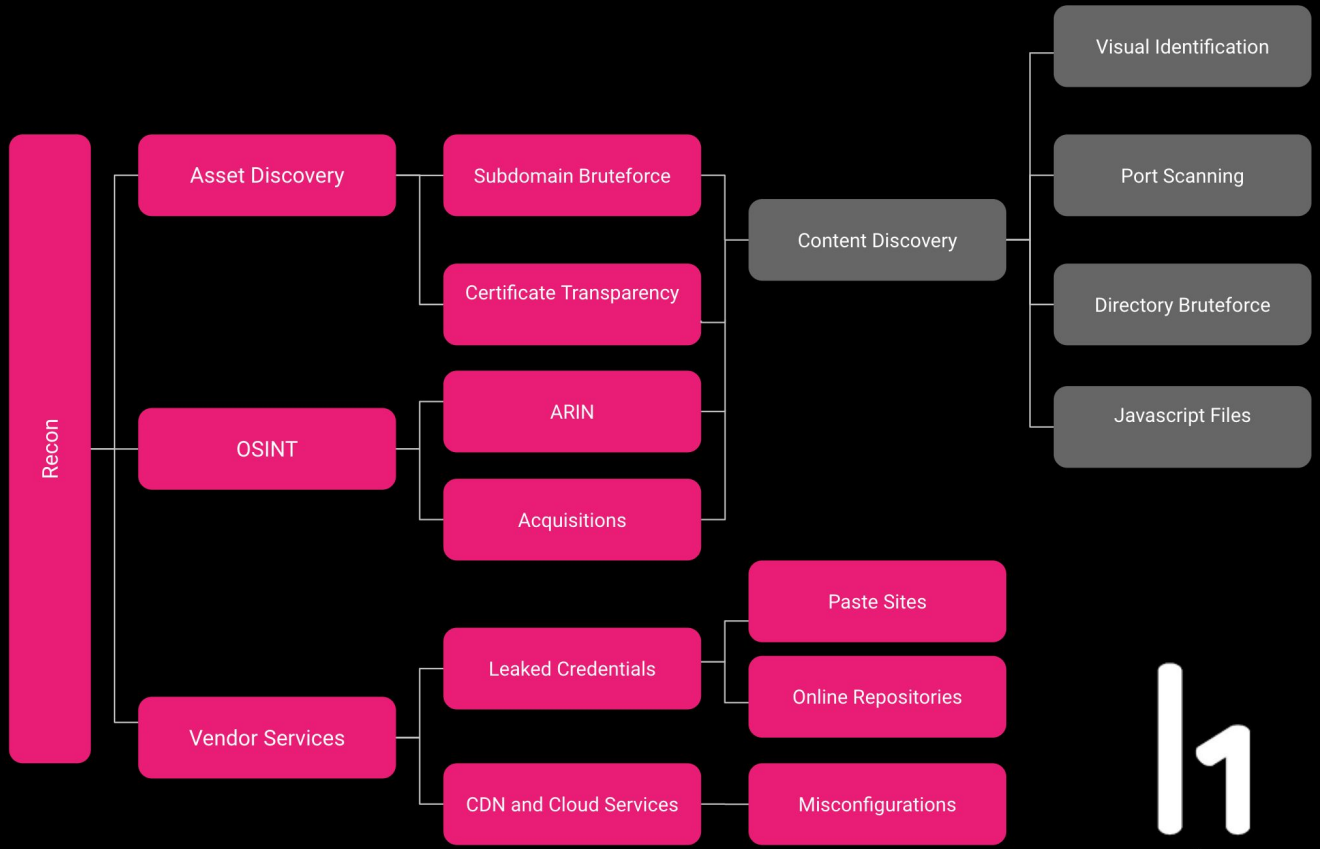
Network Resources	
LVLT-YAHOO-1-8-3-34 (NET-8-3-34-0-1)	8.3.34.0 - 8.3.35.255
NET-216-34-77-0 (NET-216-34-77-0-1)	216.34.77.0 - 216.34.77.127
COLOC-1-YAHOO-1-8-8-178 (NET-8-8-178-0-1)	8.8.178.0 - 8.8.178.255
SAVV-64-209-232-0-0-1 (NET-64-209-232-0-1)	64.209.232.0 - 64.209.232.255
SAVV-S235114-9 (NET-64-39-38-208-1)	64.39.38.208 - 64.39.38.223
SAVV-S235114-11 (NET-204-71-177-0-1)	204.71.177.0 - 204.71.177.255
SAVV-S235114-12 (NET-204-71-188-0-1)	204.71.188.0 - 204.71.188.255
SAVV-S235114-17 (NET-216-136-220-128-1)	216.136.220.128 - 216.136.220.255
SAVV-S235114-21 (NET-64-56-197-208-1)	64.56.197.208 - 64.56.197.223
LVLT-YAHOO-1-67-72-118 (NET-67-72-118-0-1)	67.72.118.0 - 67.72.119.255



Content Discovery

Where the fun begins

A Visual Guide to Recon



Ben
Sadeghipour
(@nahamsec)

Content Discovery

- Port scan

Content Discovery

- Port scan
- Screenshot open ports (default: 80, 443)

Content Discovery

- Port scan
- Screenshot open ports (default: 80, 443)
- Look for interesting
  - Files
  - Directories

Example

- You see an open port on example.com:8433

Example

- You see an open port on example.com:8433
- Directory brute force

Example

- You see an open port on 8433
- Directory brute force
- /admin/ returns 403

Example

- You see an open port on 8433
- Directory brute force
- /admin/ returns 403
- You brute force for more files/directories on /admin/

Example

- You see an open port on 8433
- Directory brute force
- /admin/ returns 403
- You brute force for more files/directories on /admin/
- /admin/users.php returns 200

Example

- You see an open port on 8433
- Directory brute force
- /admin/ returns 403
- You brute force for more files/directories on /admin/
- /admin/users.php returns 200
- Repeat on other domains, ports, folders, etc.

Content Discovery

- Nmap common ports
  (3868,3366,8443,8080,9443,9091,3000,8000,5900,8081,6000,10000,8181,3306,5000,4000,8888,5432,15672,9999,161,4044,7077,4040,9000,8089,443,7447,7080,8880,8983,5673,7443)
- Take screenshots (webscreenshot.py)
- Directory/File brute force

- dirbuster
- gograbber
- gobuster
- dirsearch
- Probably more tools out there?

Content Discovery

- Nmap common ports (3868,3366,8443,8080,9443,9091,3000,8000,5900,8081,6000,10000,8181,3306,5000,4000,8888,5432,15672,9999,161,4044,7077,4040,9000,8089,443,7447,7080,8880,8983,5673,7443)
- Take screenshots (webscreenshot.py)
- Directory/File brute force
  - Robots.txt sometimes does this for you ¯_(ツ)_/¯

- dirbuster
- gograbber
- gobuster
- dirsearch
- Probably more tools out there?

Content Discovery

- **ALWAYS** keep an archive of your reports..

Content Discovery

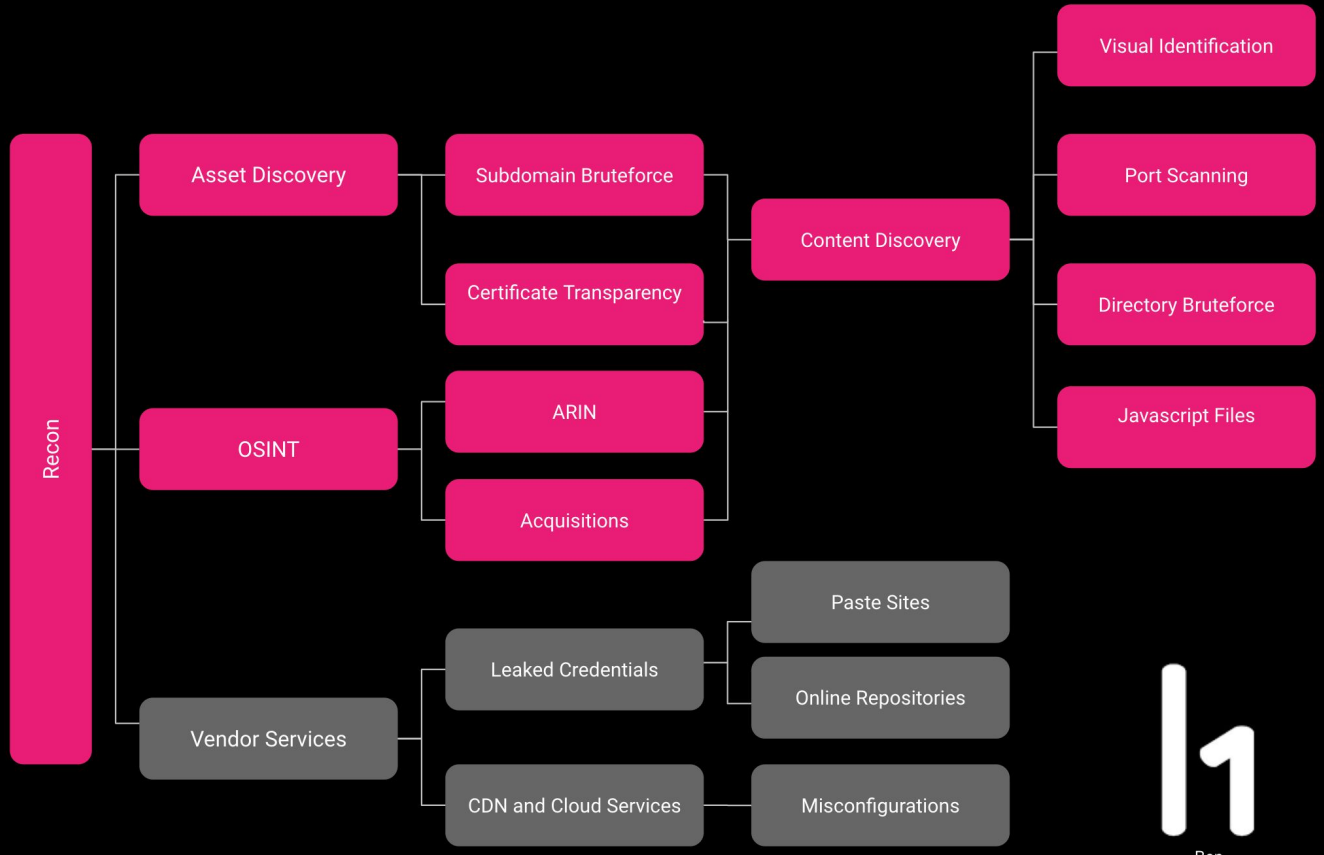
- **ALWAYS** keep an archive of your reports..

```
root@lazyrecon:~/tools/dirsearch/reports# cat **/* | grep jmx-console | wc -l
172
```

```
root@lazyrecon:~/tools/dirsearch/reports# cat **/* | grep manager/html/ | grep 401 | wc -l
9
```

Automation

A Visual Guide to Recon



Ben
Sadeghipour
(@nahamsec)

AWS Recon

- Look for S3 buckets on Google (site:s3.amazonaws.com + inurl:company_name)
- AWS instances (site:amazonaws.com -s3)
- Repeat on Github!
- Automate your work...

Data Centre ▸ Cloud

Australian Broadcasting Corporation leaks passwords, video from AWS S3 bucket

'Advance video content' and years of backups dangled in the cloud

Accenture – Embarrassing data leak business data in a public Amazon S3 bucket

November 02, 2017

Another misconfigured Amazon S3 server leaks data of 50,000 Australian employees

ZDNet

MUST READ MICROSOFT:

Cyber-Safe

Pentagon exposed some of its data on Amazon server

Alteryx S3 leak leaves 123m American

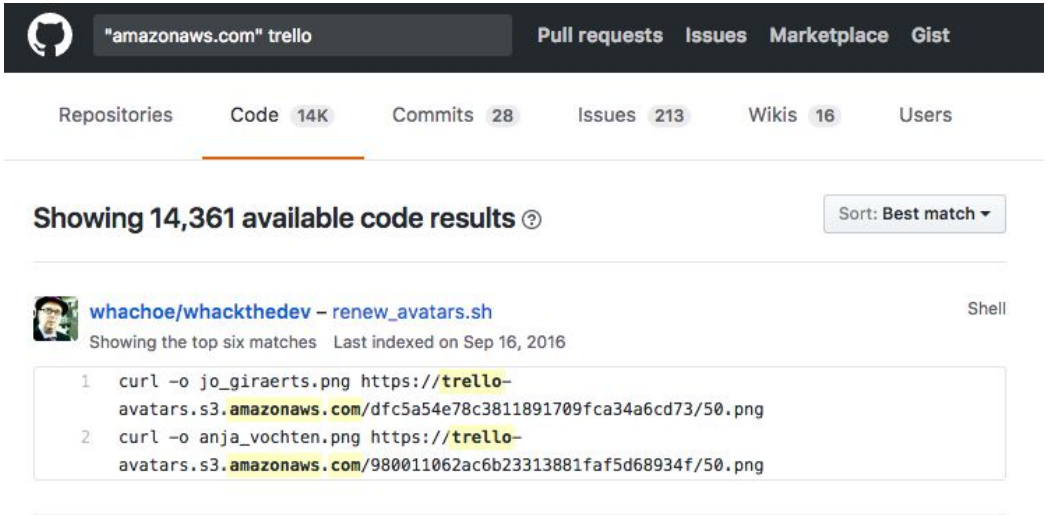
NEWS

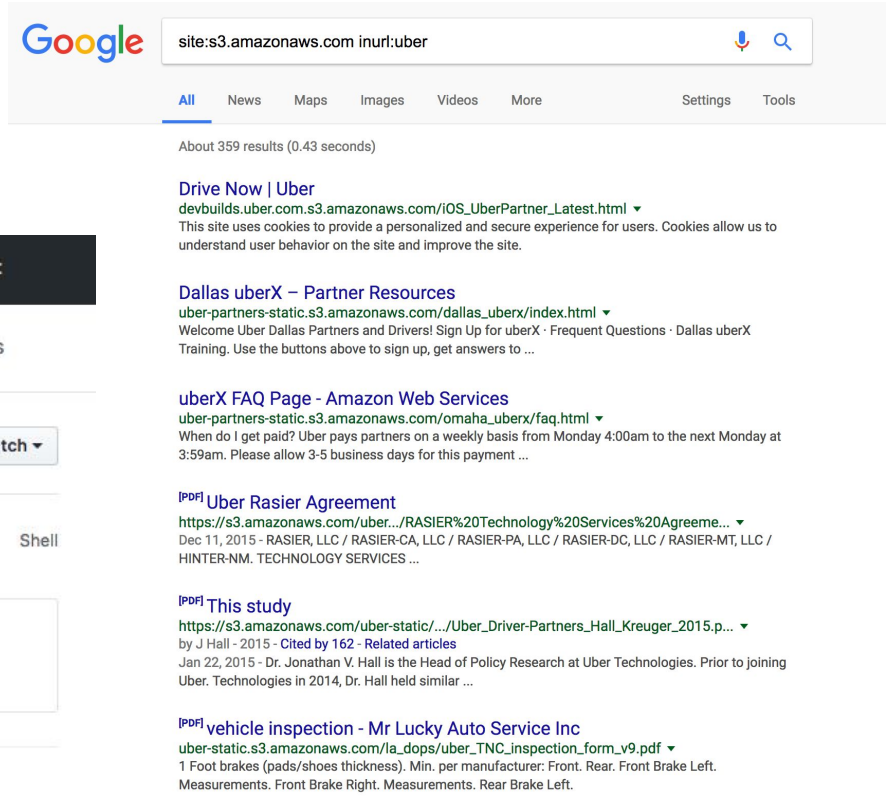
Misconfigured Amazon S3 buckets expose sensitive data

25 SEP 2017 NEWS

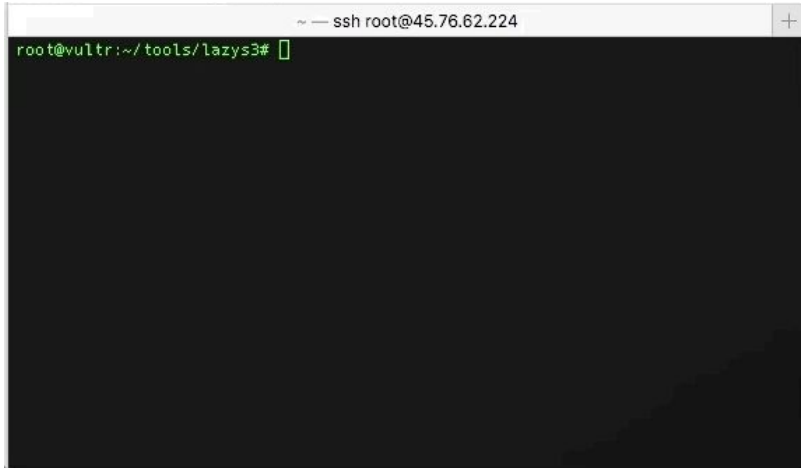
Verizon Hit by Another Amazon S3 Leak

AWS Recon

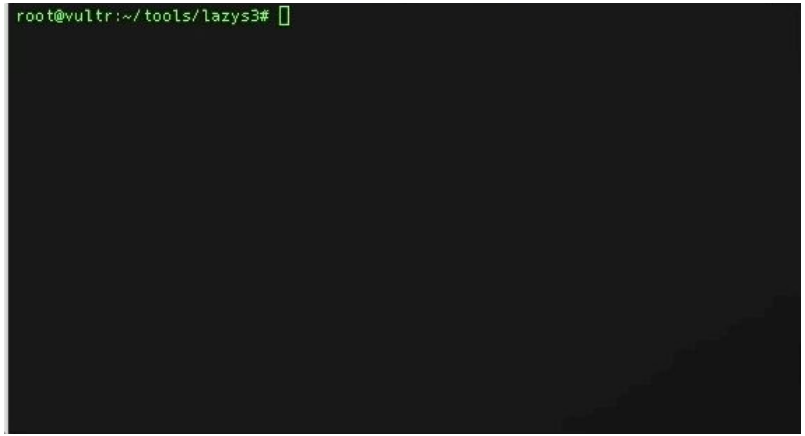

"amazonaws.com" trello
Pull requests
Issues
Marketplace
Gist
Repositories
Code 14K
Commits 28
Issues 213
Wikis 16
Users
Showing 14,361 available code results
Sort: Best match
whachoe/whackthedev – renew_avatars.sh
Shell
Showing the top six matches Last indexed on Sep 16, 2016
1 curl -o jo_giraerts.png https://trello-avatars.s3.amazonaws.com/dfc5a54e78c3811891709fca34a6cd73/50.png
2 curl -o anja_vochten.png https://trello-avatars.s3.amazonaws.com/980011062ac6b23313881faf5d68934f/50.png


Google
site:s3.amazonaws.com inurl:uber
All
News
Maps
Images
Videos
More
Settings
Tools
About 359 results (0.43 seconds)
Drive Now | Uber
devbuilds.uber.com.s3.amazonaws.com/iOS_UberPartner_Latest.html
This site uses cookies to provide a personalized and secure experience for users. Cookies allow us to understand user behavior on the site and improve the site.
Dallas uberX – Partner Resources
uber-partners-static.s3.amazonaws.com/dallas_uberx/index.html
Welcome Uber Dallas Partners and Drivers! Sign Up for uberX · Frequent Questions · Dallas uberX Training. Use the buttons above to sign up, get answers to ...
uberX FAQ Page - Amazon Web Services
uber-partners-static.s3.amazonaws.com/omaha_uberx/faq.html
When do I get paid? Uber pays partners on a weekly basis from Monday 4:00am to the next Monday at 3:59am. Please allow 3-5 business days for this payment ...
[PDF] Uber Rasier Agreement
https://s3.amazonaws.com/uber.../RASIER%20Technology%20Services%20Agreeme...
Dec 11, 2015 - RASIER, LLC / RASIER-CA, LLC / RASIER-PA, LLC / RASIER-DC, LLC / RASIER-MT, LLC / HINTER-NM. TECHNOLOGY SERVICES ...
[PDF] This study
https://s3.amazonaws.com/uber-static/.../Uber_Driver-Partners_Hall_Kreuger_2015.p...
by J Hall - 2015 - Cited by 162 - Related articles
Jan 22, 2015 - Dr. Jonathan V. Hall is the Head of Policy Research at Uber Technologies. Prior to joining Uber. Technologies in 2014, Dr. Hall held similar ...
[PDF] vehicle inspection - Mr Lucky Auto Service Inc
uber-static.s3.amazonaws.com/la_dops/uber_TNC_inspection_form_v9.pdf
1 Foot brakes (pads/shoes thickness). Min. per manufacturer: Front. Rear. Front Brake Left. Measurements. Front Brake Right. Measurements. Rear Brake Left.

S3 Automation



S3 Automation



Certspotter

- Great API
- Easy to automate:
  - Make an alias
  - Automate
  - Win

```
root@vps82152:~# certspotter yahoo.com

170prd.fin.yahoo.com
2013-en-imagenes.es.yahoo.com
360.mail.yahoo.com
3arrebni.yahoo.com
7-eleven.yahoo.com
aa.lrd.yahoo.com
about.yahoo.com
abumediamobile.query.yahoo.com
abumedia.yahoo.com
abumedia.yql.yahoo.com
abuse.corp.yahoo.com
abuse.yahoo.com
academy-delivery.cc.corp.yahoo.com
accmgr.secure.webhosting.yahoo.com
accmgr.webhosting.yahoo.com
accountkey.yahoo.com
accountlink.www.yahoo.com
accountlink.yahoo.com
accountservice.corp.yahoo.com
ace.ysm.yahoo.com
aclpushdb.ops.yahoo.com
a-cms.shp.corp.tw1.yahoo.com
actapi.corp.yahoo.com
actualites.yahoo.com
adbuilder.creative.yahoo.com
add.my.yahoo.com
address.yahoo.com
adlatencyvendoroutreach.yahoo.com
admanagerplus.yahoo.com
admanager.yahoo.com
admetricsclone.uadapp.yahoo.com
admetrics.uadapp.yahoo.com
adminapp.creatr.corp.yahoo.com
admin.bb.abuse.yahoo.com
admin.bf1.yhs.search.yahoo.com
admin.ckms.yahoo.com
admincms.corp.yahoo.com
admincms.labs.yahoo.com
```

Create aliases

```
certspotter(){
        curl -s https://certspotter.com/api/v0/certs\?domain\=$1 | jq '.[].dns_names[]' | sed 's/\"//g' | sed
        's/\*\.//g' | sort -u | grep $1 > ~/$1/$1.txt
}
```

Create aliases

```
certspotter(){
        curl -s https://certspotter.com/api/v0/certs\?domain\=$1 | jq '.[].dns_names[]' | sed 's/\"//g' | sed
        's/\*\.//g' | sort -u | grep $1 > ~/$1/$1.txt
}

dirbruteforce(){
        cd /tools/dirsearch
         cat ~/$1/$1.txt | while read line; do python3 dirsearch.py -e . -u "https://$line"; done
}
```

Create aliases

```
certspotter(){
        curl -s https://certspotter.com/api/v0/certs\?domain\=$1 | jq '.[].dns_names[]' | sed 's/\"//g' | sed
        's/\*\.//g' | sort -u | grep $1 > ~/$1/$1.txt
}

dirbruteforce(){
        cd /tools/dirsearch
         cat ~/$1/$1.txt | while read line; do python3 dirsearch.py -e . -u "https://$line"; done
}

screenshot(){
        python ~/tools/webscreenshot/webscreenshot.py -o ./$1/screenshots/ -i ~/$1/$1.txt --timeout=10 -m
}
```

Create aliases

```
certspotter(){
        curl -s https://certspotter.com/api/v0/certs\?domain\=$1 | jq '.[].dns_names[]' | sed 's/\"//g' | sed
        's/\*\.//g' | sort -u | grep $1 > ~/$1/$1.txt
}

dirbruteforce(){
        cd /tools/dirsearch
         cat ~/$1/$1.txt | while read line; do python3 dirsearch.py -e . -u "https://$line"; done
}

screenshot(){
        python ~/tools/webscreenshot/webscreenshot.py -o ./$1/screenshots/ -i ~/$1/$1.txt --timeout=10 -m
}

recon(){
        certspotter $1
        dirbruteforce $1
        screenshot $1
}
```

Game changer

Put your aliases together

```
recon(){
        certspotter $1
        dirbruteforce $1
        screenshot $1
        [...]
}
```

Usage

```
./lazyrecon.sh target.com
```

About

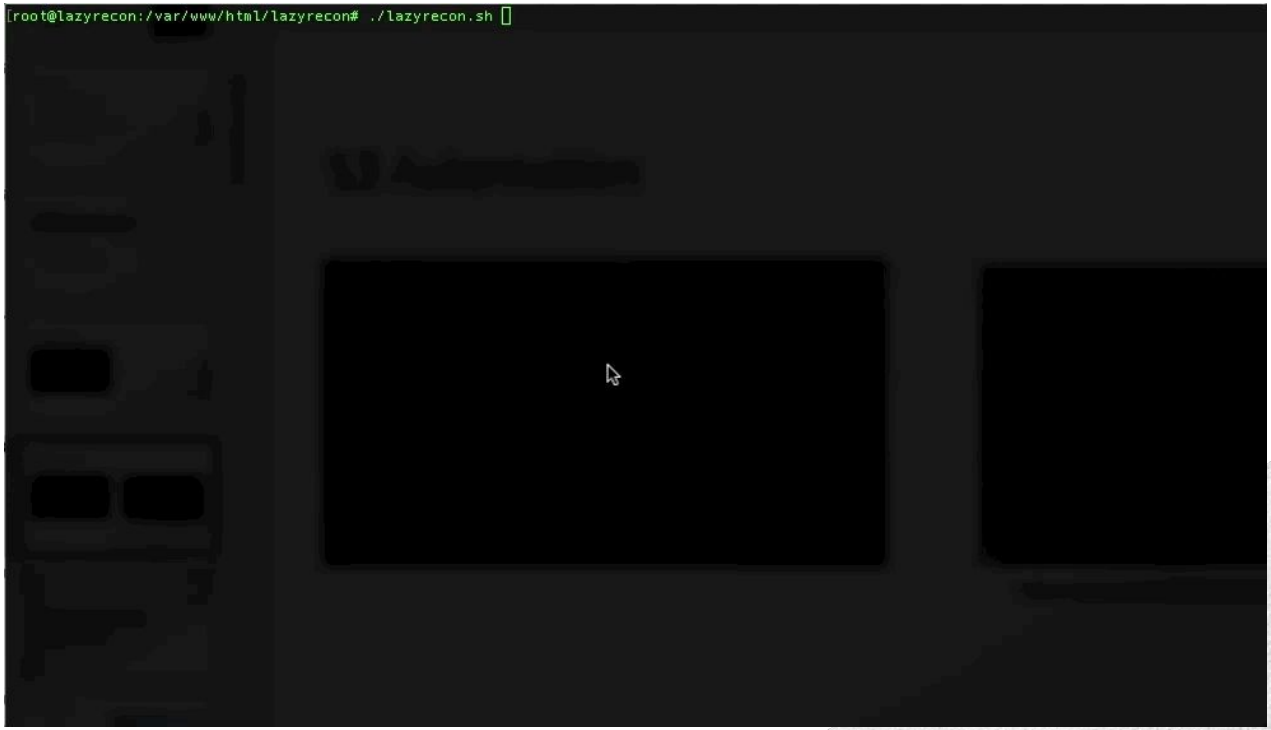
This script is intended to automate your reconnaissance process in an organized fashion by performing the following:

- Create a dated folder with recon notes
- Grab subdomains using Sublist3r and certspotter
- Grab a screenshot of responsive hosts
- Grab the response header
- Perform nmap
- Perform dirsearch
- Generate a HTML report with output from the tools above

This requires Bug Bounty Hunting Tools in order for the tools to work.

Warning: This code was originally created for personal use for myself, so it's a bit messy and hopefully it'll be cleaned up with more features in a later release.

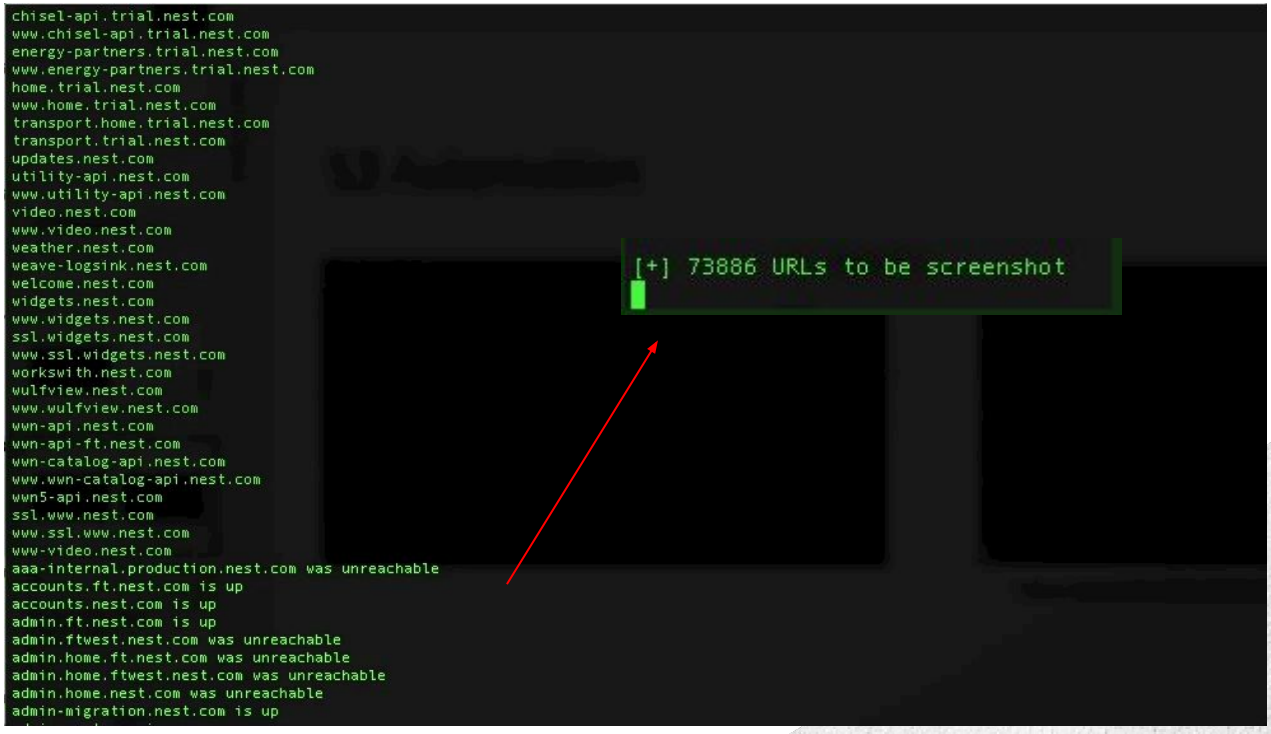
LazyRecon



LazyRecon


chisel-api.trial.nest.com
www.chisel-api.trial.nest.com
energy-partners.trial.nest.com
www.energy-partners.trial.nest.com
home.trial.nest.com
www.home.trial.nest.com
transport.home.trial.nest.com
transport.trial.nest.com
updates.nest.com
utility-api.nest.com
www.utility-api.nest.com
video.nest.com
www.video.nest.com
weather.nest.com
weave-logsink.nest.com
welcome.nest.com
widgets.nest.com
www.widgets.nest.com
ssl.widgets.nest.com
www.ssl.widgets.nest.com
workswith.nest.com
wulfview.nest.com
www.wulfview.nest.com
wwn-api.nest.com
wwn-api-ft.nest.com
wwn-catalog-api.nest.com
www.wwn-catalog-api.nest.com
wwn5-api.nest.com
ssl.www.nest.com
www.ssl.www.nest.com
www-video.nest.com
aaa-internal.production.nest.com was unreachable
accounts.ft.nest.com is up
accounts.nest.com is up
admin.ft.nest.com is up
admin.ftwest.nest.com was unreachable
admin.home.ft.nest.com was unreachable
admin.home.ftwest.nest.com was unreachable
admin.home.nest.com was unreachable
admin-migration.nest.com is up

LazyRecon


chisel-api.trial.nest.com
www.chisel-api.trial.nest.com
energy-partners.trial.nest.com
www.energy-partners.trial.nest.com
home.trial.nest.com
www.home.trial.nest.com
transport.home.trial.nest.com
transport.trial.nest.com
updates.nest.com
utility-api.nest.com
www.utility-api.nest.com
video.nest.com
www.video.nest.com
weather.nest.com
weave-logsink.nest.com
welcome.nest.com
widgets.nest.com
www.widgets.nest.com
ssl.widgets.nest.com
www.ssl.widgets.nest.com
workswith.nest.com
wulfview.nest.com
www.wulfview.nest.com
wwn-api.nest.com
wwn-api-ft.nest.com
wwn-catalog-api.nest.com
www.wwn-catalog-api.nest.com
wwn5-api.nest.com
ssl.www.nest.com
www.ssl.www.nest.com
www-video.nest.com
aaa-internal.production.nest.com was unreachable
accounts.ft.nest.com is up
accounts.nest.com is up
admin.ft.nest.com is up
admin.ftwest.nest.com was unreachable
admin.home.ft.nest.com was unreachable
admin.home.ftwest.nest.com was unreachable
admin.home.nest.com was unreachable
admin-migration.nest.com is up
[+] 73886 URLs to be screenshot

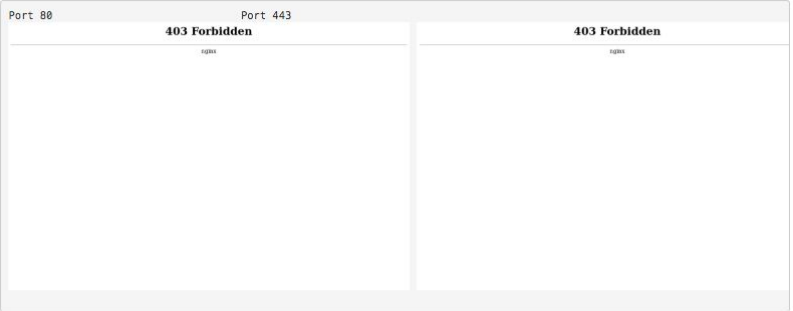
Recon Report for home.qa.nestlabs.com

Generated by LazyRecon on Wed Apr 4 04:42:51 UTC 2018

Dirsearch

```
401    21B   https://home.qa.nestlabs.com:443//users/sign_in
400   166B   https://home.qa.nestlabs.com:443/%2e%2e//google.com
401    21B   https://home.qa.nestlabs.com:443/api-ui
401    21B   https://home.qa.nestlabs.com:443/api-docs/
401    21B   https://home.qa.nestlabs.com:443/apidocs/
401    21B   https://home.qa.nestlabs.com:443/api
401    21B   https://home.qa.nestlabs.com:443/api.log
401    21B   https://home.qa.nestlabs.com:443/api/error_log
401    21B   https://home.qa.nestlabs.com:443/api/
401    21B   https://home.qa.nestlabs.com:443/apibuild.pyc
200     1KB  https://home.qa.nestlabs.com:443/favicon.ico
200   123KB  https://home.qa.nestlabs.com:443/login/
200   123KB  https://home.qa.nestlabs.com:443/login/administrator/
200   123KB  https://home.qa.nestlabs.com:443/login/admin/
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.php
200   123KB  https://home.qa.nestlabs.com:443/login/admin/admin.asp
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.zip
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.jsp
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.asp
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.jar
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.sql
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel/
200   123KB  https://home.qa.nestlabs.com:443/login/index
200   123KB  https://home.qa.nestlabs.com:443/login/super
200   123KB  https://home.qa.nestlabs.com:443/login/oauth/
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.html
200   123KB  https://home.qa.nestlabs.com:443/login/cpanel.aspx
200   123KB  https://home.qa.nestlabs.com:443/login/login
200    26B   https://home.qa.nestlabs.com:443/robots.txt
401    21B   https://home.qa.nestlabs.com:443/sessions/
400    74B   https://home.qa.nestlabs.com:443/session
401    21B   https://home.qa.nestlabs.com:443/session/
401    21B   https://home.qa.nestlabs.com:443/sessions
401    21B   https://home.qa.nestlabs.com:443/user.jsp
401    21B   https://home.qa.nestlabs.com:443/user.asp
401    21B   https://home.qa.nestlabs.com:443/user.php
401    21B   https://home.qa.nestlabs.com:443/user.html
401    21B   https://home.qa.nestlabs.com:443/user/admin
401    21B   https://home.qa.nestlabs.com:443/user/admin.php
401    21B   https://home.qa.nestlabs.com:443/user/login.aspx
401    21B   https://home.qa.nestlabs.com:443/user.jar
401    21B   https://home.qa.nestlabs.com:443/user
401    21B   https://home.qa.nestlabs.com:443/user/login.zip
401    21B   https://home.qa.nestlabs.com:443/user/login.jar
401    21B   https://home.qa.nestlabs.com:443/user/login.php
401    21B   https://home.qa.nestlabs.com:443/user.aspx
401    21B   https://home.qa.nestlabs.com:443/user.sql
401    21B   https://home.qa.nestlabs.com:443/user/login.jsp
401    21B   https://home.qa.nestlabs.com:443/user.txt
401    21B   https://home.qa.nestlabs.com:443/user/
401    21B   https://home.qa.nestlabs.com:443/user/login.html
```

Screeshot



Dig Info

```
; <<>> DiG 9.10.3-P4-Ubuntu <<>> home.qa.nestlabs.com
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 39504
;; flags: qr rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 4, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
;; QUESTION SECTION:
;home.qa.nestlabs.com.          IN      A

;; ANSWER SECTION:
home.qa.nestlabs.com.   87      IN      CNAME   home-hme01-qa-1716690727.us-east-1.elb.amazonaws.com.
home-hme01-qa-1716690727.us-east-1.elb.amazonaws.com. 27 IN A 35.171.205.196
home-hme01-qa-1716690727.us-east-1.elb.amazonaws.com. 27 IN A 34.195.58.159

;; AUTHORITY SECTION:
us-east-1.elb.amazonaws.com. 1103 IN    NS      ns-1119.awsdns-11.org.
us-east-1.elb.amazonaws.com. 1103 IN    NS      ns-1793.awsdns-32.co.uk.
us-east-1.elb.amazonaws.com. 1103 IN    NS      ns-235.awsdns-29.com.
us-east-1.elb.amazonaws.com. 1103 IN    NS      ns-934.awsdns-52.net.

;; Query time: 0 msec
;; SERVER: 108.61.10.10#53(108.61.10.10)
```

Digital Dumpster Diving

Digital Dumpster Diving (I’m a pro at it)

Digital Dumpster Diving

- Leaked credentials
- Leaked api_tokens
- Leaked authorization headers
- [...]

Digital Dumpster Diving

- Leaked credentials
- Leaked api_tokens
- Leaked authorization headers
- [...]

Do you see a pattern here?

Github Recon

Tools and Keywords

- gitrob
- git-all-secrets
- truffleHog
- git-secrets
- repo-supervisor
- Do it manually?

Github Recon

Examples

- “company.com” “dev”
- “dev.company.com”
- “company.com” API_key
- “company.com” password
- “api.company.com” authorization
- GET CREATIVE!

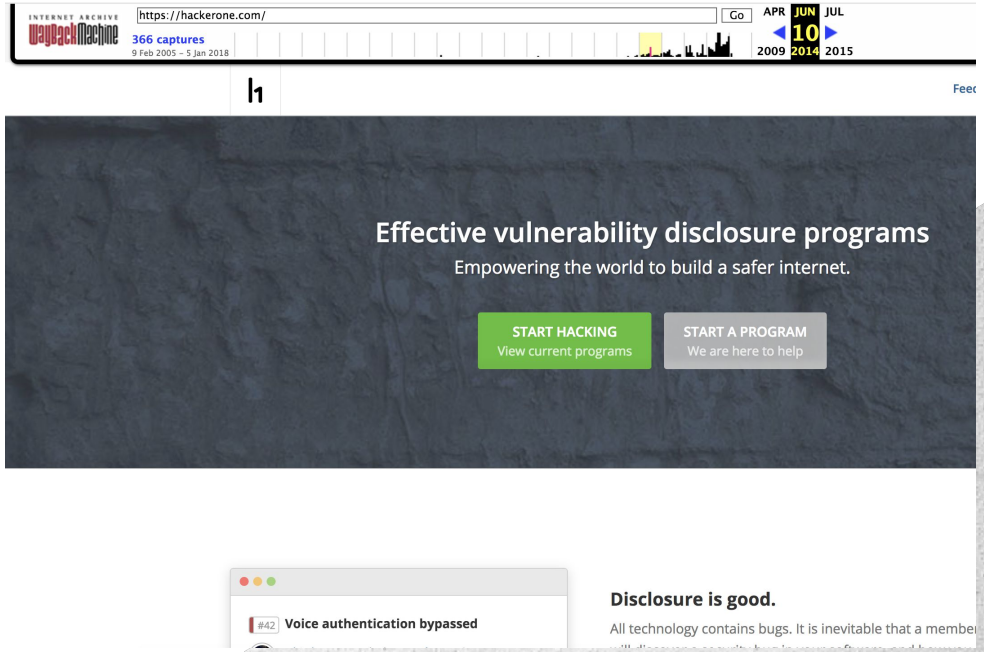
APP_SECRET
consumerkey
JIRA_Password
jdbc
“authorization bearer”
auth_key
consumer_secret
SECURITY-SIGNATURE
X-API
X-Paypal
secret_key
JWK/JWT
SSO_LOGIN
defaultEndpointsProtocol
access_key
accountKey
AWS_Secret
aws_secret_access_key
rexis
api_key

Archive.org (Wayback Machine)

“That's when I found this. An end of the world party featuring DJ Mobley. I'm not an EDM fan myself, but a quick search on the **wayback** machine, and guess what we found all the way from 2003. **You.** An Angelfire page that you created from back in the day. Your very own DJ Mobley fan page.”

Archive.org

- Search for your target
- Select a date
- Review the source -> find JS files
- Find old endpoints/functionality
- Exploit them!



Javascript Files

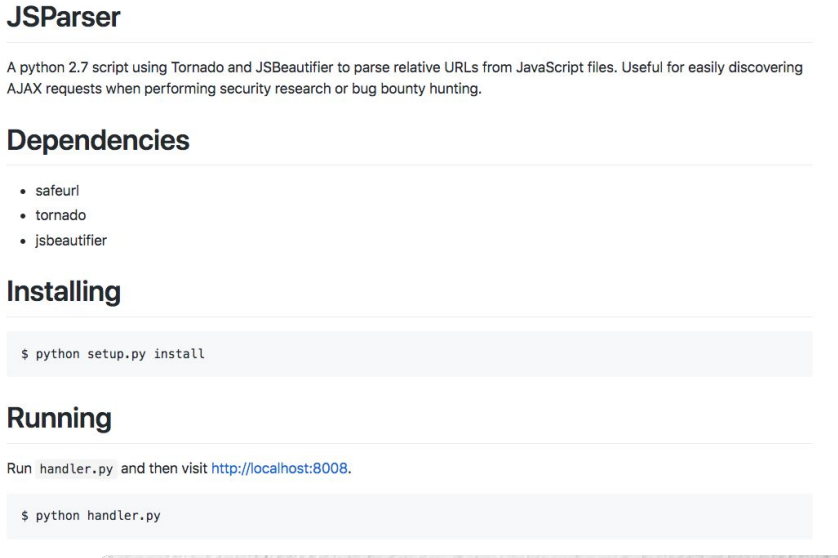
Why?

Javascript Files

- Look for (hidden) endpoints
- Leaked cloud instances and secret_keys
- … and definitely more bugs

Javascript Files

- Look for (hidden) endpoints
- Leaked cloud instances and their secret_keys
- … and definitely more bugs



JSParser

A python 2.7 script using Tornado and JSBeautifier to parse relative URLs from JavaScript files. Useful for easily discovering AJAX requests when performing security research or bug bounty hunting.

Dependencies

- safeurl
- tornado
- jsbeautifier

Installing

```
$ python setup.py install
```

Running

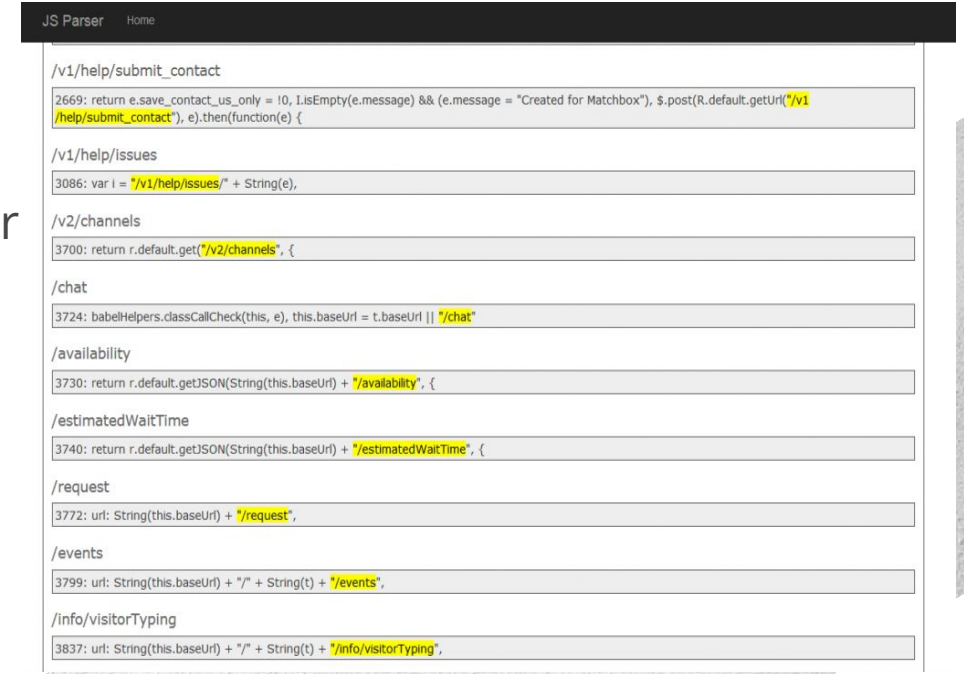
Run `handler.py` and then visit http://localhost:8008.

```
$ python handler.py
```

Javascript Files

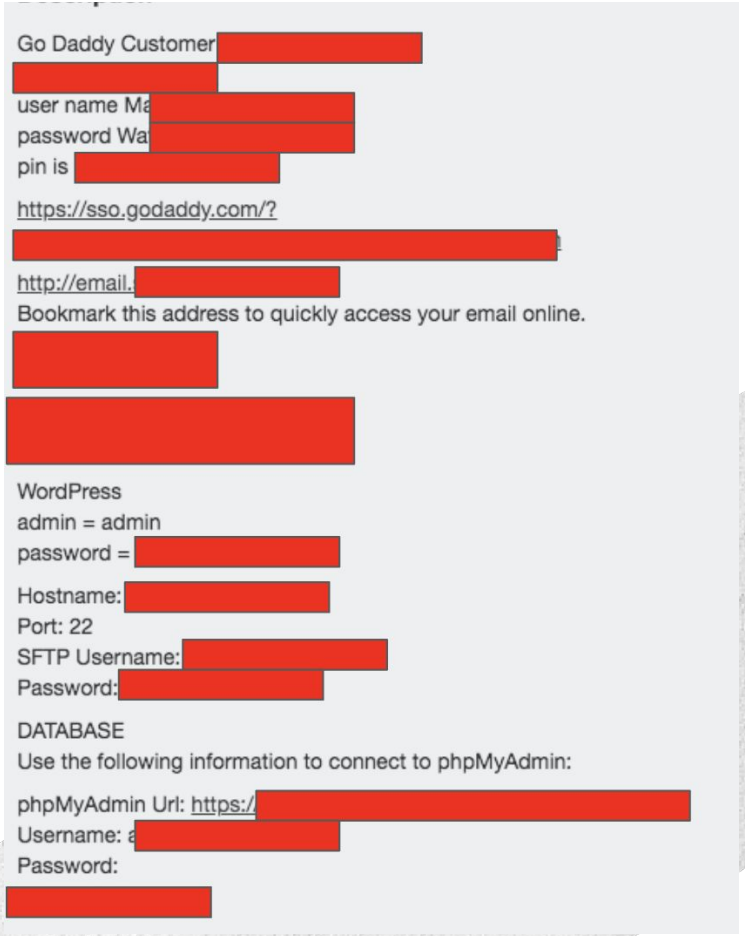
Examples

- Look for (hidden) endpoints
- Leaked cloud instances and their secret_keys
- … and definitely more bugs



Trello Boards

- Site:trello.com intext:ftp
- Site:trello.com intext:ORG



Trello Boards

- Site:trello.com intext:ftp
- Site:trello.com intext:ORG

Go Daddy Customer [redacted]

user name Ma [redacted]
password Wa [redacted]
pin is [redacted]

https://sso.godaddy.com/? [redacted]

http://email. [redacted]
Bookmark this address to quickly access your email online.

[redacted]

WordPress
admin = admin
password = [redacted]

Hostname: [redacted]
Port: 22
SFTP Username: [redacted]
Password: [redacted]

DATABASE
Use the following information to connect to phpMyAdmin:

phpMyAdmin Url: https:/ [redacted]
Username: a [redacted]
Password:

[redacted]

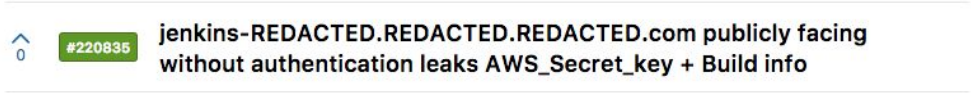
Examples

Examples of Certificate Transparency

Shodan Examples

Search Query: hostname:host.com port:15672

Search Query: hostname:host.com title:Dashboard [Jenkins]



Censys Examples

- Working example:

AUGUST 22, 2017

SECURE YOUR JENKINS INSTANCE OR HACKERS WILL FORCE YOU TO! (SNAPCHAT'S $5,000 VULNERABILITY)

Script Console

Type in an arbitrary Groovy script and execute it on the server. Useful for trouble-shooting and diagnostics. Use the 'println' command to see the output (if you use `System.out`, it will go to the server's stdout, which is harder to see.) Example:

```
println(Jenkins.instance.pluginManager.plugins)
```

All the classes from all the plugins are visible. `jenkins.*`, `jenkins.model.*`, `hudson.*`, and `hudson.model.*` are pre-imported.

```
def sout = new StringBuilder(), serr = new StringBuilder()
def proc = 'echo testing for RCE :)'.execute()
proc.consumeProcessOutput(sout, serr)
proc.waitForOrKill(1000)
println "RCE> $sout err> $serr"
```

Run

Result

```
RCE> testing for RCE :)
 err>
```

Examples of Discovering Endpoints Hidden Inside of Javascript Files

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

"/v2/air_push_notifications

```
7629: return "/v2/air_push_notifications";
```

"/v2/air_sms_notifications

```
7631: return "/v2/air_sms_notifications";
```

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

API Requests

https://www.airbnb.com/api/v2/air_sms_notifications

- Requires that you have a verified phone number in your profile.
- This API request allowed you to send yourself SMS texts.
- There is a length limit on the SMS messages (160)
- Throttling restrictions on SMS only allowed you to send this API request a handful of times every hour

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

API Requests

https://www.airbnb.com/api/v2/air_push_notifications

- Requires that you have a verified phone number, the Airbnb app installed on your phone (with that phone number), and you are logged into the app with that account. (This one took awhile to figure out)
- Instead of sending SMS, it pushed notifications to your phone through the phone app.
- There is no length restriction on the output.
- No throttling which made testing a lot easier compared to SMS

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

POST REQUEST:


```
{"_format":"for_visitor","country":"USA","phone_number":"","template":"messag
e","user_id":,"title":"","body":"","metadata":{},"object_id":"","status":"","
role":"","photo_url":""}
```


If you passed in an invalid template it would give you a list of all the valid templates that you could send.

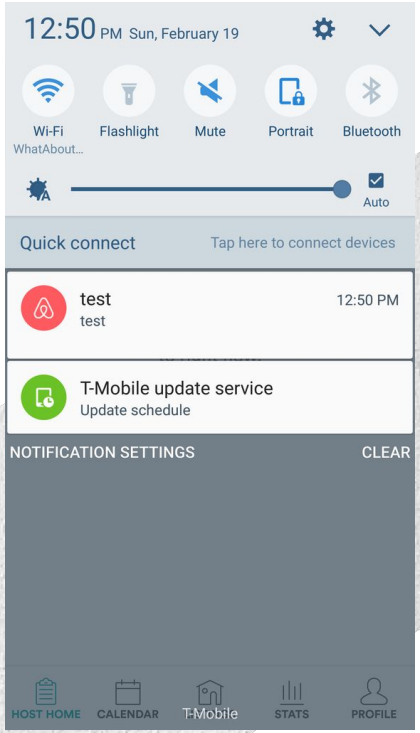
Templates

/api/v2/air_sms_notifications	/api/v2/air_push_notifications
content_framework, custom,	checkpoint, cn_blackout_g20_hangzhou_2016, custom,
host_banner_app_install,	host_never_actives_just_raw_listing,
host_never_actives_just_raw_listing,	host_never_actives_on_description,
host_never_actives_on_description,	host_never_actives_on_photo,
host_never_actives_on_photo,	host_never_actives_on_price_or_booking_setting,
host_never_actives_on_price_or_booking_setting,	identity_verifications, identity_verifications_booking,
message, mobile_photo_upload_app_install,	message_image_attachment, message,
identity_verifications,	midtrip_host_checkup_reminder, mobile_photo_upload,
identity_verifications_booking,	paid_amenity_accepted,
p2_p3_abandon_sms,	paid_amenity_canceled_by_guest,
reservation_alteration_approved,	paid_amenity_canceled_by_host, paid_amenity_declined,
reservation_alteration_declined,	paid_amenity_request, paid_amenity_shop_services,
reservation_guest_accepted,	preapproval_guest_sent, preapproval_guest_withdrawn,
reservation_guest_cancelled,	reservation_alteration_approved,
reservation_guest_declined,	reservation_alteration_request_automatically_accepted,
reservation_host_accepted,	reservation_alteration_declined,
reservation_host_cancelled,	reservation_alteration_request,
reservation_host_declined,	reservation_guest_accepted, reservation_guest_cancelled,
verified_id_app_install,	reservation_guest_declined, reservation_host_accepted,
review_final_reminder_message,	reservation_host_cancelled, reservation_host_declined,
mt_pdp_handoff, mt_native_handoff_generic,	reservation_host_request, reservation_payment_pending,
message_image_attachment,	reservation_host_first_reminder,
guidebook_landing_page,	reservation_host_last_reminder,
wish_lists_native_handoff	review_final_reminder_message, risk_email_updated,
	risk_password_updated, risk_payout_method_updated,
	risk_phone_number_updated, share_your_trip_prompt,
	special_offer_guest, special_offer_guest_expired,
	special_offer_guest_withdrawn,
	special_offer_host_expired, support_message

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

Then we found out we can send ourselves custom messages:

```
{"_format":"for_visitor","country":"USA","phone_numb
er":"","template":"custom","user_id":109764261,"stat
us":"test","title":"test","body:"test"}
```



Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

Then we found out we can send ourselves custom messages:

```
{"_format":"for_visitor","country":"USA","phone_numb
er":"","template":"custom","user_id":109764261,"stat
us":"test","title":"test","body:"test"}
```

What else can we do?

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

Then we found out we can send ourselves custom messages:

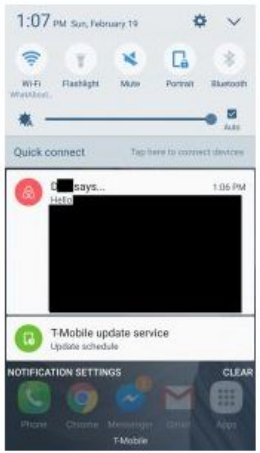
```
{"_format":"for_visitor","country":"USA","phone_numb
er":"","template":"custom","user_id":109764261,"stat
us":"test","title":"test","body:"test"}
```

What else can we do?

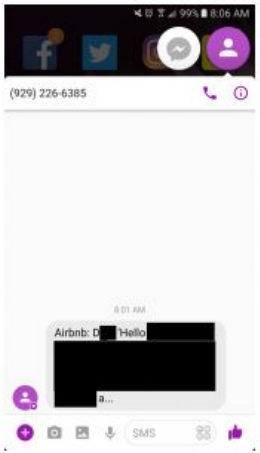
Perhaps enumerate on user_id or object_id in each request and get access to other users' notifications?

Airbnb – Web to App Phone Notification IDOR to view Everyone's Airbnb Messages

Push



SMS



Examples of Digital Dumpster Diving

Dumpster Diving Part 1

- Looked up the “umbrella” company name

Dumpster Diving Part 1

- Looked up the “umbrella” company name
- Combine “umbrella_company” + asset_name + “password”, and found this code on Github:

```
"server": {
        "host": "dedXXXX.PATTERN.PROVIDER.com",
        "port": 21,
        "user": "some_username",
        "password": "definitely_ftp_passwords"
}
```

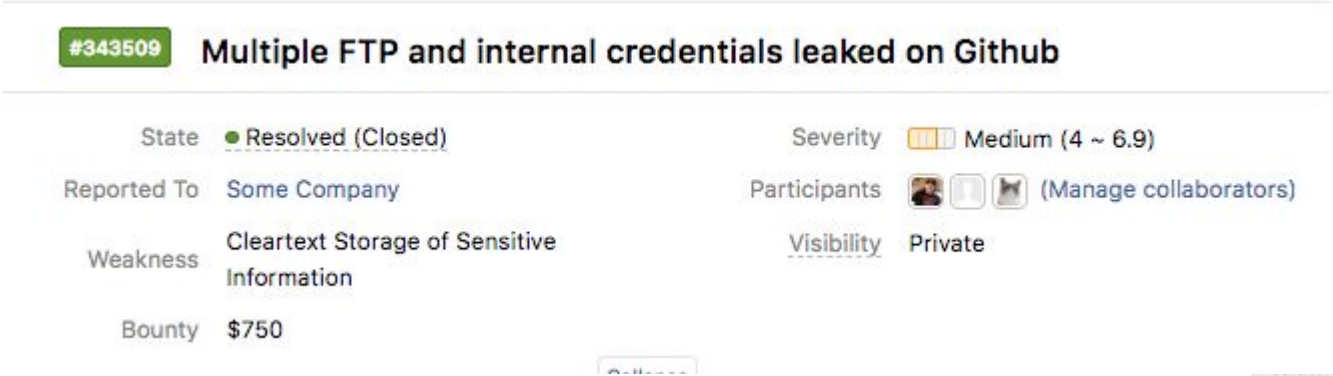
Dumpster Diving Part 1

- Looked up the “umbrella” company name
- Combine “umbrella_company” + asset_name + “password”, and found below code:

```
"server": {
        "host": "dedXXXX.PATTERN.PROVIDER.com",
        "port": 21,
        "user": "some_username",
        "password": "definitely_ftp_passwords"
}
```

- Got access to umbrella_company’s FTP server

Dumpster Diving Part 2



#343509 **Multiple FTP and internal credentials leaked on Github**

State	● Resolved (Closed)	Severity	Medium (4 ~ 6.9)
Reported To	Some Company	Participants	(Manage collaborators)
Weakness	Cleartext Storage of Sensitive Information	Visibility	Private
Bounty	$750		

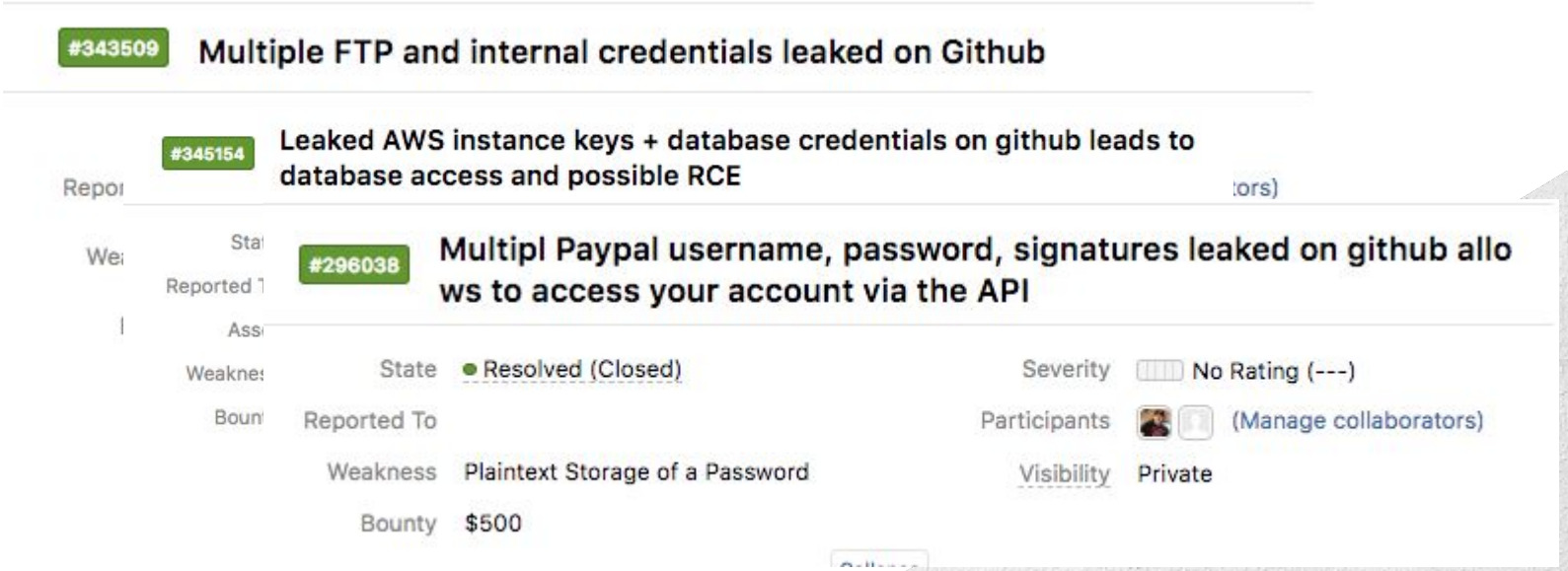
Dumpster Diving Part 2

#343509 **Multiple FTP and internal credentials leaked on Github**

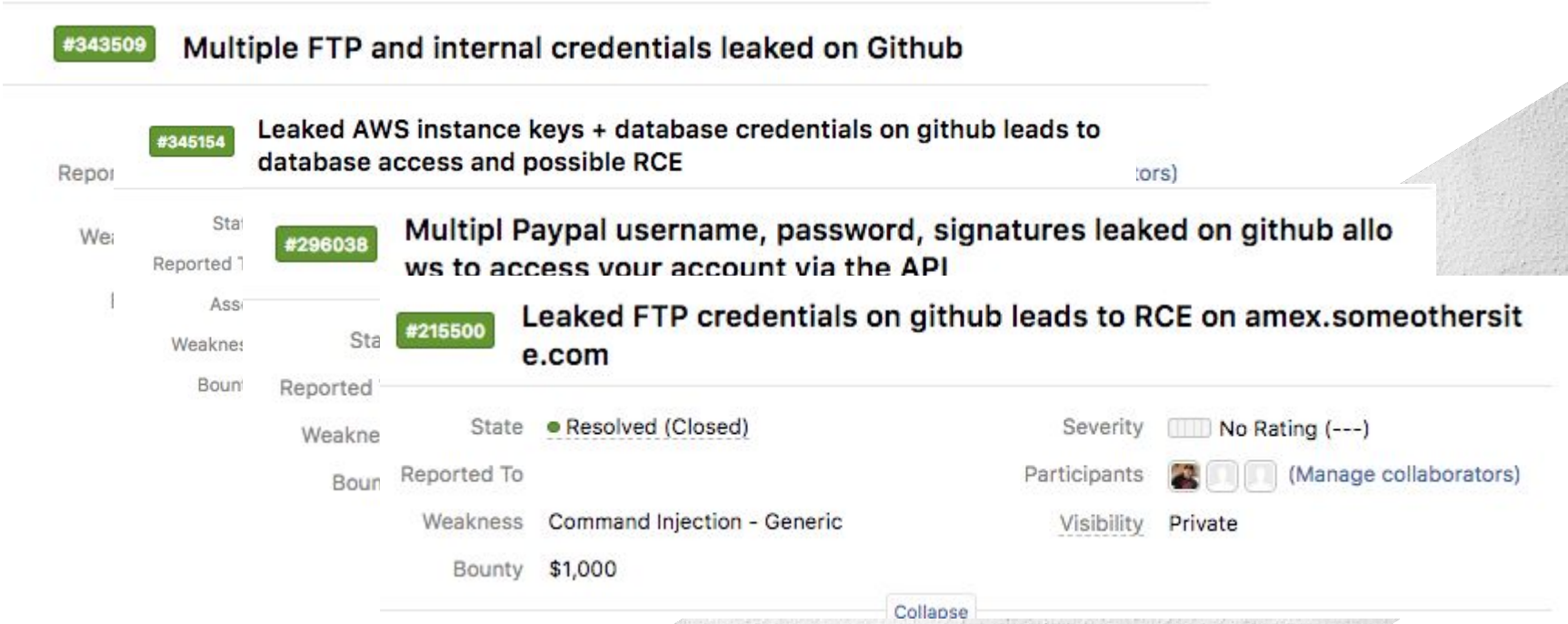
#345154 **Leaked AWS instance keys + database credentials on github leads to database access and possible RCE**

State	Resolved (Closed)	Severity	Critical (9 ~ 10)
Reported To		Participants	
Asset		Visibility	Private
Weakness	Improper Access Control - Generic		
Bounty	$450		

Dumpster Diving Part 2



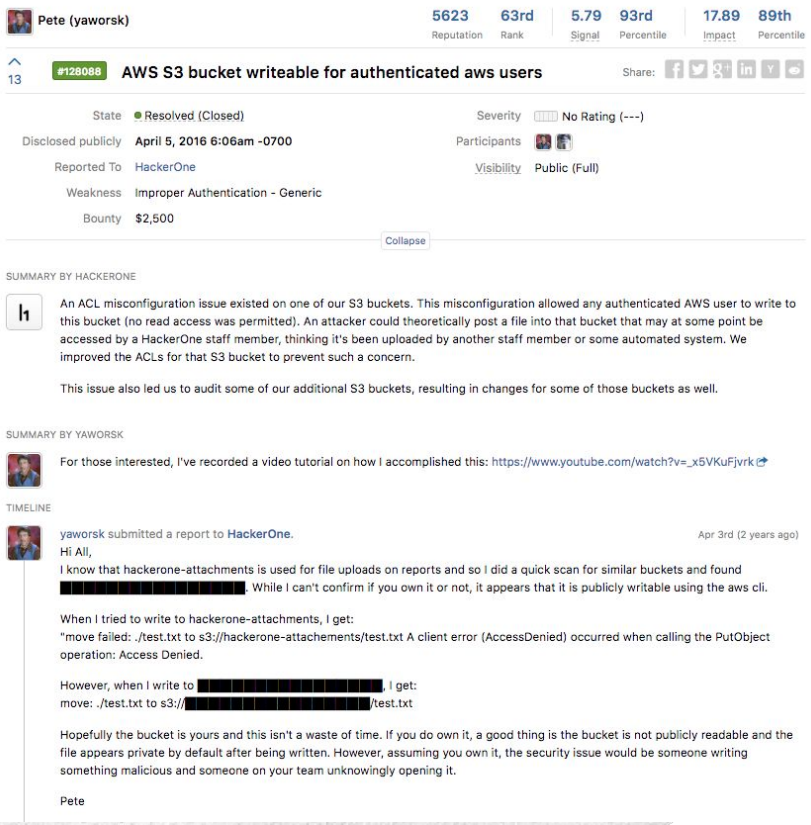
Dumpster Diving Part 2



Example of Readable/Writable S3 Buckets

AWS CLI

- Requires AWS CLI
- $ aws s3 ls s3://bucket-name
- $ aws s3 cp hax0r.txt s3://bucket-name



Pete (yaworsk) 5623 Reputation 63rd Rank 5.79 Signal 93rd Percentile 17.89 Impact 89th Percentile

13 #128088 **AWS S3 bucket writeable for authenticated aws users** Share:

State: Resolved (Closed) Severity: No Rating (---)
Disclosed publicly: April 5, 2016 6:06am -0700 Participants:
Reported To: HackerOne Visibility: Public (Full)
Weakness: Improper Authentication - Generic
Bounty: $2,500

Collapse

SUMMARY BY HACKERONE

An ACL misconfiguration issue existed on one of our S3 buckets. This misconfiguration allowed any authenticated AWS user to write to this bucket (no read access was permitted). An attacker could theoretically post a file into that bucket that may at some point be accessed by a HackerOne staff member, thinking it's been uploaded by another staff member or some automated system. We improved the ACLs for that S3 bucket to prevent such a concern.

This issue also led us to audit some of our additional S3 buckets, resulting in changes for some of those buckets as well.

SUMMARY BY YAWORSK

For those interested, I've recorded a video tutorial on how I accomplished this: https://www.youtube.com/watch?v=_x5VKuFjvrk

TIMELINE

yaworsk submitted a report to HackerOne. Apr 3rd (2 years ago)

Hi All,
I know that hackerone-attachments is used for file uploads on reports and so I did a quick scan for similar buckets and found [redacted]. While I can't confirm if you own it or not, it appears that it is publicly writable using the aws cli.

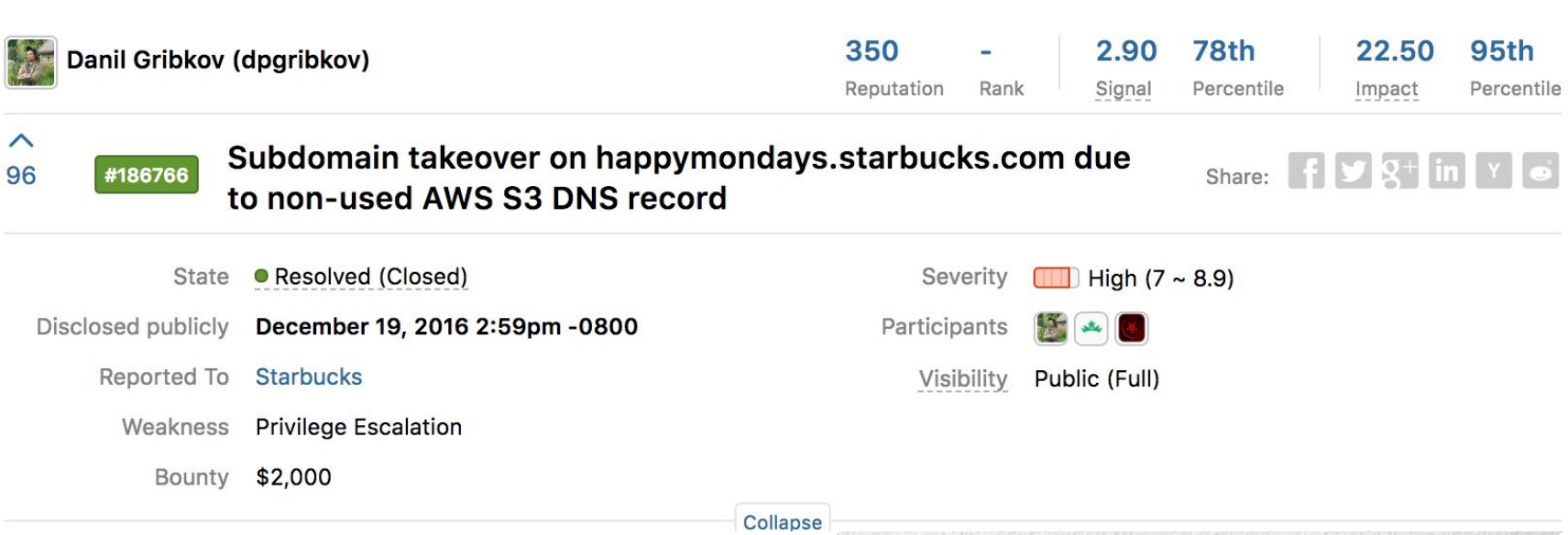
When I tried to write to hackerone-attachments, I get:
"move failed: ./test.txt to s3://hackerone-attachements/test.txt A client error (AccessDenied) occurred when calling the PutObject operation: Access Denied.

However, when I write to [redacted], I get:
move: ./test.txt to s3://[redacted]/test.txt

Hopefully the bucket is yours and this isn't a waste of time. If you do own it, a good thing is the bucket is not publicly readable and the file appears private by default after being written. However, assuming you own it, the security issue would be someone writing something malicious and someone on your team unknowingly opening it.

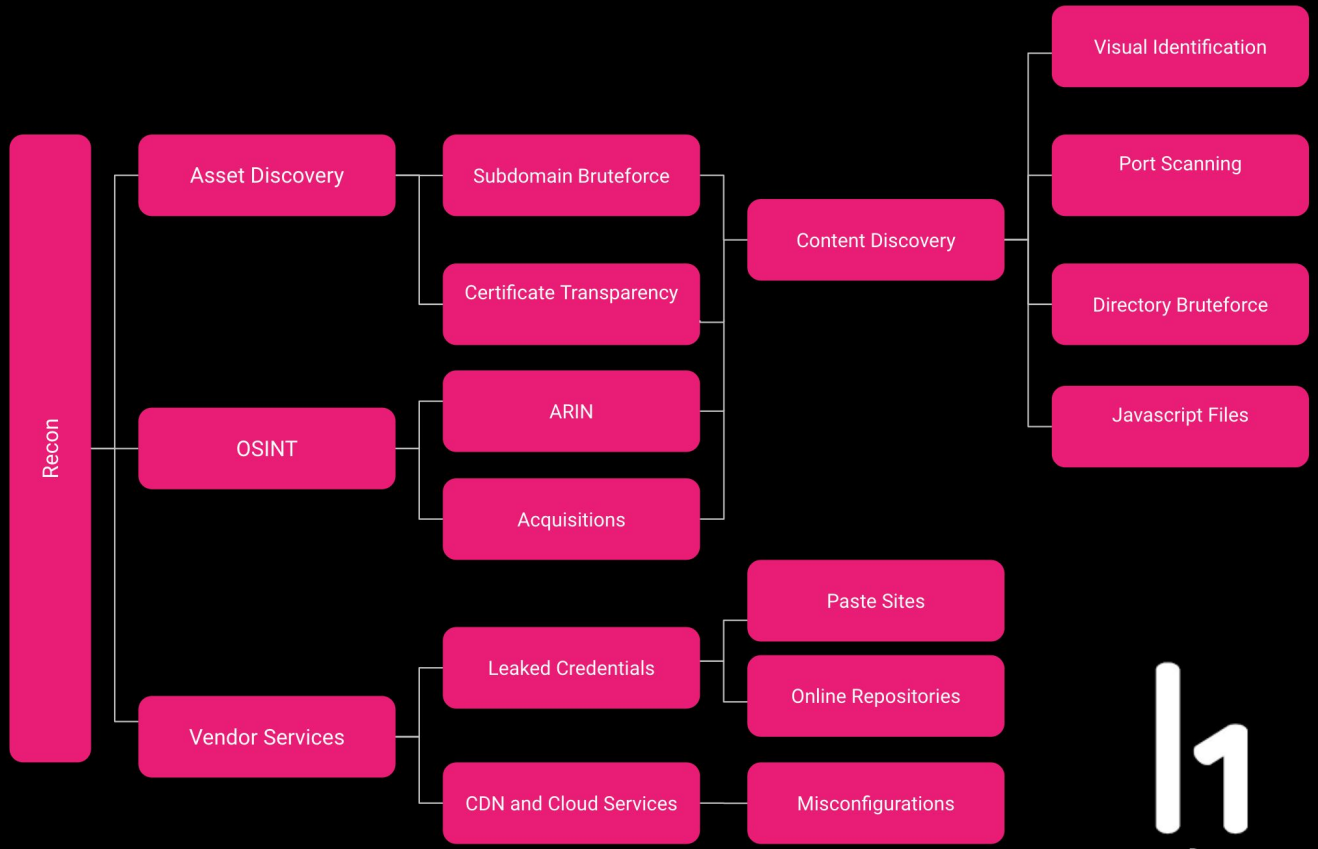
Pete

CNAME Pointing to Unclaimed AWS S3



Recon Automation + Github + Exploitation

A Visual Guide to Recon



Ben
Sadeghipour
(@nahamsec)

Access to all internal API endpoints?

- Asset discovery https://stgsomethjngsomething.something.target.com/
- Content discovery: https://stgsomethjngsomething.something.target.com/internal and

Access to all internal API endpoints?

- Asset discovery https://stgsomethjngsomething.something.target.com/
- Content discovery: https://stgsomethjngsomething.something.target.com/internal and
- Github searches:

```
resp=$(curl -i -s -S "[redacted]/internal/login -X POST \
    -H "Content-Type: application/json" \
    -H 'Accept: application/json, text/javascript, */*; q=0.01' \
    -H 'Connection: keep-alive' -d '{"username":"'[redacted],"password":"'[redacted]"}')
COOKIE="$(echo "$resp" | grep set-cookie | awk '{$1=""; print $0}')" ;\
```

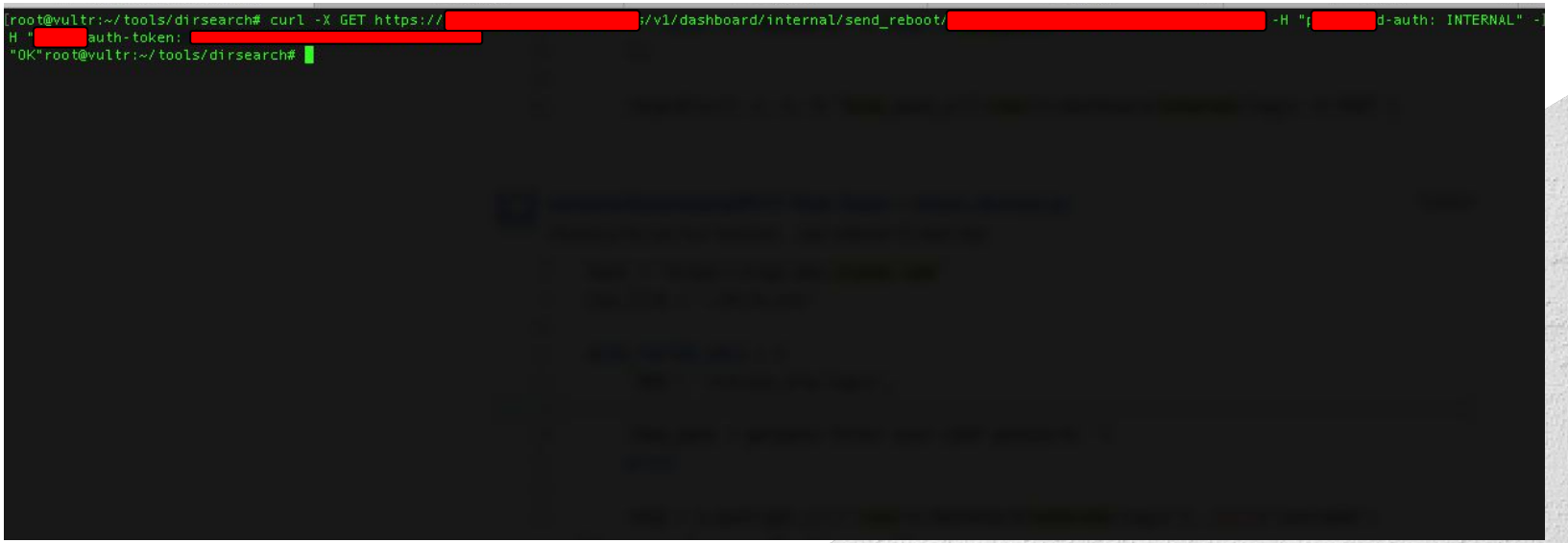
Access to all internal API endpoints?

- Asset discovery https://stgsomethjngsomething.something.target.com/
- Content discovery: https://stgsomethjngsomething1.something.target.com/internal and
- Github searches:

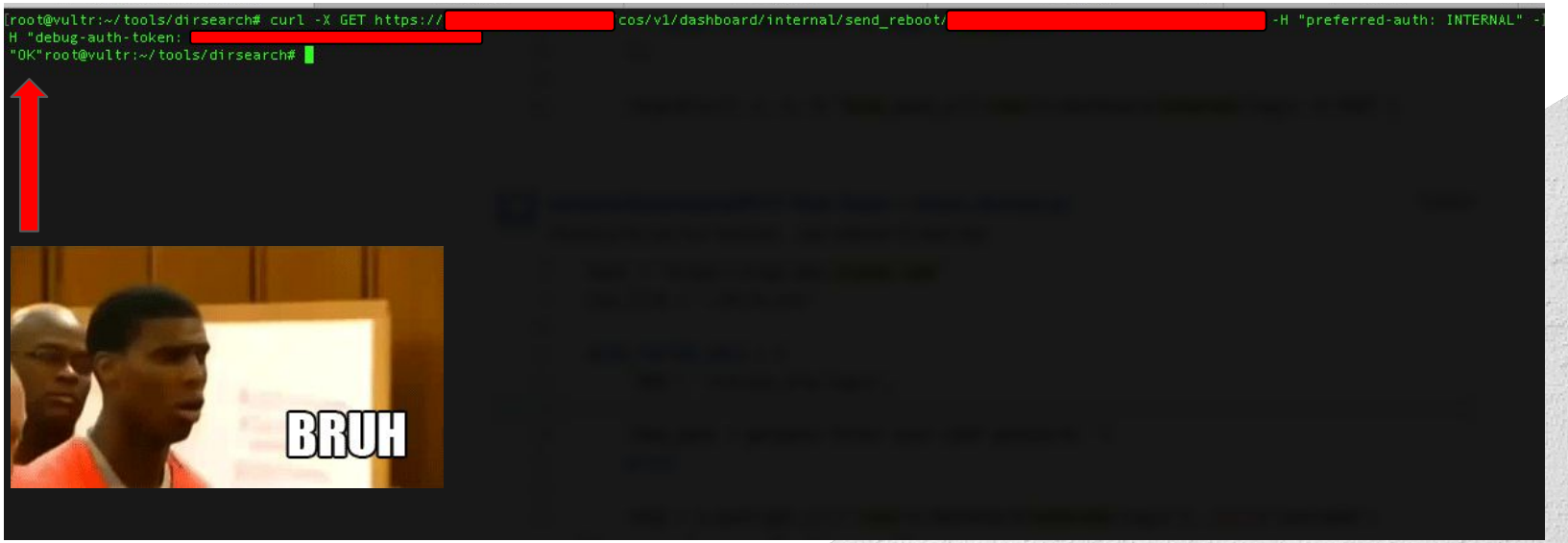
```
resp=$(curl -i -s -S "[redacted]/internal/login -X POST \
    -H "Content-Type: application/json" \
    -H 'Accept: application/json, text/javascript, */*; q=0.01' \
    -H 'Connection: keep-alive' -d '{"username":"'[redacted]","password":"'[redacted]"}')
COOKIE="$(echo "$resp" | grep set-cookie | awk '{$1=""; print $0}')" ;\
```

- Looked for the: hostname+ internal + “auth-token” (on github and found this handy curl command:

Access to all internal API endpoints?



Access to all internal API endpoints?



Access to all internal API endpoints?

- Looked into the JS files on the login page
- Found all of the internal API calls
- Already have an AUTH-TOKEN that works without login
- Combine all of the above:

```
curl -X GET
"https://devsomething.something.target.com/ internal/internal_somet
hing/internal_something_accounts" -H "SOME_KEYWORD-auth: INTERNAL"
-H "debug-token: SORRY_I_HAD_TO_REDACT"
```

Access to all internal API endpoints?

- Looked into the JS files on the login page
- Found all of the internal API calls
- Already have an AUTH-TOKEN that works without login
- Combine all of the above:

```
curl -X GET
"https://devsomething.something.target.com/ internal/internal_accou
nts" -H "SOME_KEYWORD-auth: INTERNAL" -H "debug-token:
SORRY_I_HAD_TO_REDACT"
```

Return all LDAP usernames for brute force ;)?

rewarded nahamsec with a $4,348 bounty and a $192 bonus.

Keep in touch

- **@nahamsec** on all social media
- Check out all of our programs on hackerone.com/**directory**
- **Bensdp@hackerone.com** | **im@ha.cker.af**

Tools

- **Dirsearch** - https://github.com/maurosoria/dirsearch
- **JSParser** - http://github.com/nahamsec/jsparser
- **LazyS3** - https://github.com/nahamsec/lazys3
- **LazyRecon** - https://github.com/nahamsec/lazyrecon
- **Teh_s3_bucketeers** - https://github.com/tomdev/teh_s3_bucketeers

Thank you

- **Thank YOU** for letting me present
- The **Hacker Community** for being so welcoming and sharing their ideas
- A big **thank you** to: Ziot, Tomdev, ITSecurityguard, Jon Bottarini, Luke Tucker, Smiegles, Jobert Abma, Michiel Prins.

Thank You