Empowering Red and Blue Teams with OSINT

c0c0n 2017, Le Meridian, Kochi.

://\$ whoami

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Agenda

- OSINT Overview
- For Red Teams (Offensive)
 - Company Profiling
 - Perimeter Scoping
 - Employee Profiling
- Tools of Trade
- Future Research Areas

- For Blue Team (Defensive)
 - Monitoring and Alerting
 - Intelligent SIEM Rules
 - DLP

OSINT – Open Source Intelligence

(Intelligence on Information publicly available)

Internet gives you RAW Data. Harvest it.

collection and analysis of information

Open Source Intelligence (OSINT) is the

gathered from publicly available sources.

Should be used by?

- Pen-testers
- Security Engineers
- Product Security Companies
- Cyber Investigators
- Sales / Market Research

How OSINT can help Red Teams

Red Teams

- Scoping Attack Surface
- Technology Profiling
- Github
- Paste(s)
- Employee Profiling
- Breach Data
- Nerdy Data

Digital Asset Scoping

- whoIs (who.is) > ASN ID
- Reverse Whols
 - whois -h whois.radb.net -- '-i origin ASN-ID' | grep -Eo "([0-9.]+){4}/[0-9]+" | sort -n | uniq -c
 - https://mxtoolbox.com/SuperTool.aspx
 - Nslookup (terminal)
 - Dig (dig reconvillage.org, dig reconvillage.org cname)
- Acquisitions.

Digital Asset Scoping – Subdomain Enumeration

- Sub-domain Enumeration
 - DNSSEC Walking (Kudos to <u>@jhaddix</u> for suggesting)
 - Certificate Transparency Reports, Forums
 - Shodan/Censys, Cname Records, DNS Dumpster, Netcraft, WolframAlpha
 - Tools Sublist3r, DataSploit.

dnssecwalk (part of the ipV6 Toolkit)

https://www.thc.org/thc-ipv6/

```
Starting DNSSEC walking on server 8.8.8.8 about weberdns.de.
Found: 16g.weberdns.de
Found: 16gggg.weberdns.de.
Found: 16dual weberdns.de.
Found: 32a.weberdns.de.
Found: 32aaaa.weberdns.de.
Found: 32aaaa-long,weberdns.de,
Found: 32dual weberdns.de.
Found: 32dual-long.weberdns.de.
Found: 64a.weberdns.de.
Found: 64gggg, weberdns, de.
Found: 64dual.webendns.de.
Found: fa.weberdns.de.
Found: host-dane, weberdns, de.
Found: _443,_tcp.host-dane.weberdns.de.
Found: host-dane-self.weberdns.de.
Found: _443._tcp.host-dane-self.weberdns.de.
Found: host-dnssec.weberdns.de.
Found: ip.weberdns.de.
Found: lx.weberdns.de.
Found: mail.weberdns.de.
Found: _25._tcp.mail.weberdns.de.
Found: ns0.weberdns.de.
Found: ns1.weberdns.de.
Found: ns1-v4.weberdns.de.
Found: ns1-v6.weberdns.de.
Found: ns2.weberdns.de.
Found: ns3.weberdns.de.
Found: pa.weberdns.de.
Found: sub.sub.weberdns.de.
Found: ttl-long.weberdns.de.
Found: ttl-short.weberdns.de.
Found: txt.weberdns.de.
Found: viola, weberdns, de.
Found: webmail.weberdns.de.
Found: www.weberdns.de.
Done, 35 entries found.
```

Custom Script (Certificate

Transparency Report) - DEMO

```
shubhammittal: Pythoncodes/ $ python certificate transparency domain enum.gy simple.com
****************
CT Subdomain Finder.pv
This scripts walks through Certificate Transparency Reports, and enumerates Domains/Subdomain, Sweet?
*************
I+1 Iterating through page #1
[+] Iterating through page #2
[+] Iterating through page #3
[+] Iterating through page #4
[+] Iterating through page #5
[+] Iterating through page #6
[+] Iterating through page #7
[+] Iterating through page #8
[+] Iterating through page #9
[+] Iterating through page #10
[+] Iterating through page #11
[+] Iterating through page #12
[+] Iterating through page #13
[+] Iterating through page #14
[+] Iterating through page #15
[+] Iterating through page #16
[+] Iterating through page #17
I+1 List of enumerated subdomains
click.e.simple.com
simple.com
banksimple.com
bank.simple.com
akamai-san8.exacttarget.com
ani.simple.com
www.simple.com
links.simple.com
pages.e.simple.com
android.fj.simple.com
status.simple.com
email.simple.com
```

Quick Checks

- HTTP / HTTPS?
- 404 Not Found? 403 Forbidden?
- 500 Internal Server Error?
- .git / .svn / htaccess.txt / bash_history / web.config / admin / , etc.

```
shubharmittal (master*) $ python check subdomain from file.py ripple.com
www.ripple.com: [<DNS IN CNAME rdata: ripple.com.>]
[+] HTTP - www.ripple.com;
[+] HTTPS - www.ripple.com:
alipay.ripple.com: No Records Found
api.ripple.com: No Records Found
auth1.riople.com: No Records Found
blobvault.ripple.com: No Records Found
blog.ripple.com: No Records Found
charts.ripple.com: No Records Found
charts1.ripple.com: No Records Found
charts2.ripple.com: No Records Found
data.ripple.com: [<DNS IN CNAME rdata: p.shared.global.fastly.net.>]
[+] HTTP - data.ripple.com:
[+] HTTPS - data.ripple.com: 200
dev-api-remit, ripple.com: No Records Found
download.ripple.com: [<DNS IN CNAME rdata: d3eq3exmf3460d.cloudfront.net.>]
[+] HTTP - download.ripple.com: 289
[+] HTTPS - download.ripple.com:
forum, ripple, com: No Records Found
history.ripple.com: No Records Found
historytest.ripple.com: No Records Found
huginn.ripple.com: No Records Found
```

acme,i,ripple.com: No Records Found

ejl.i.ripple.com: No Records Found ei2.i.ripple.com: No Records Found

althet1.i.ripple.com: No Records Found

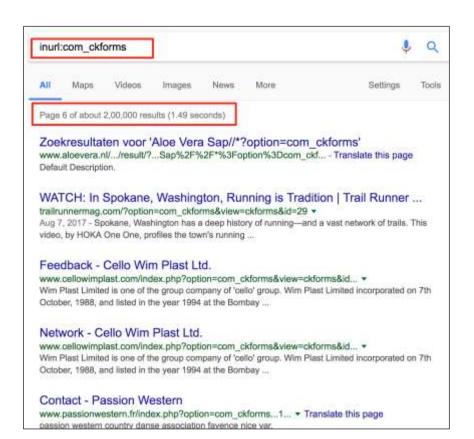
altnet2.i.ripple.com: No Records Found

```
test-north.rc.ripple.com: No Records Found
test-south.rc.ripple.com: No Records Found
ripdtop.ripple.com: [<DNS IN CNAME rdata: ripdtop.ops.ripple.com.>]
[+] HTTP - ripdtop.ripple.com: 401
[+] HTTPS - ripdtop.ripple.com: 401
sl.ripple.com: No Records Found
staging.ripple.com: No Records Found
id.staging.ripple.com: No Records Found
validators.ripple.com: [<DNS IN CNAME rdata: charts2.ripple.com.>]
[+] HTTP - validators.ripple.com: 200
wiki.ripple.com: No Records Found

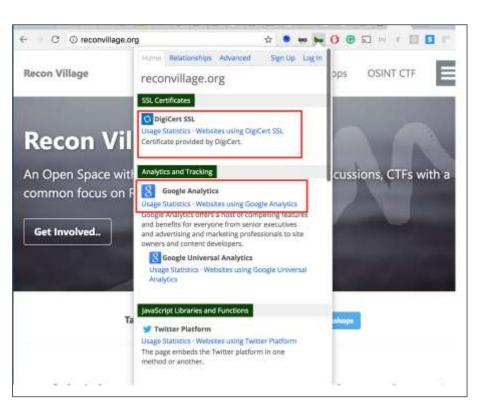
[+] Following subdomains might be vulnerable to Subdomain Take Over Vulnerability.
['http', 'ripdtop.ripple.com']
```

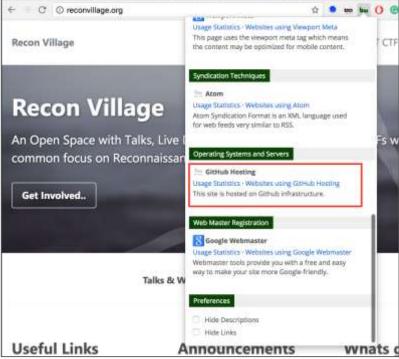
Pro-active Search

```
tr.php?id= : http://www.exploit-db.com/ghdb/2000/
tr.php?id= : http://www.exploit-db.com/ahdb/2001/
option=com mydyngallery : http://www.exploit-db.com/ghdb/2004/
index.php?mod=sondages : http://www.exploit-db.com/ghdb/2006/
trl.php?id=" Forced Matrix : http://www.exploit-db.com/ghdb/2009/
com ckforms : http://www.exploit-db.com/ahdb/2011/
com prayercenter : http://www.exploit-db.com/ghdb/2012/
com conewsletter : http://www.exploit-db.com/ghdb/2015/
add soft.php : http://www.exploit-db.com/ghdb/2016/
/myspeach/ : http://www.exploit-db.com/ghdb/2023/
myLDlinker.php : http://www.exploit-db.com/ghdb/2028/
com idoblog : http://www.exploit-db.com/ghdb/2029/
com gallery "func : http://www.exploit-db.com/ghdb/2036/
 "/modules/myTopics/ : http://www.exploit-db.com/ghdb/2038/
com ckforms : http://www.exploit-db.com/ghdb/2039/
index.php?site=" "W-Agora : http://www.exploit-db.com/ghdb/2040/
categoria.php?ID= comune : http://www.exploit-db.com/ghdb/2041/
index.php?m id= : http://www.exploit-db.com/ahdb/2043/
openwebfund : http://aaa
/index.asp?newsid= : http://www.exploit-db.com/ghdb/2044/
"showCat.php?cat id : http://www.exploit-db.com/ghdb/2045/
inc accountlistmanager.asp : http://www.exploit-db.com/ghdb/2049/
com jomestate : http://www.exploit-db.com/ghdb/2050/
```

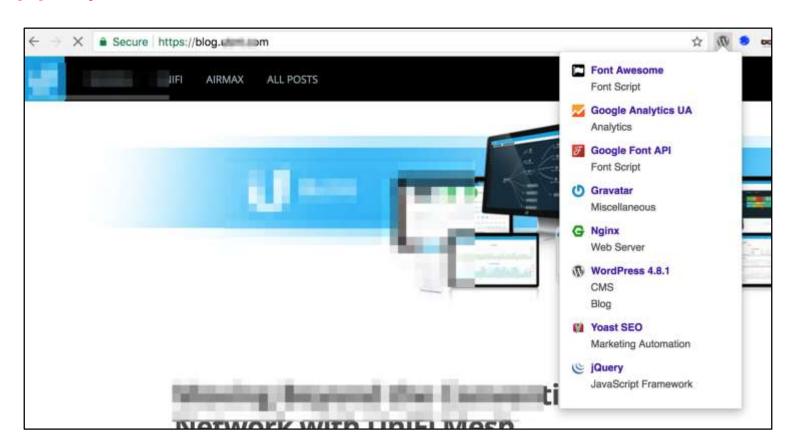


Technology Profiling - BuildWith

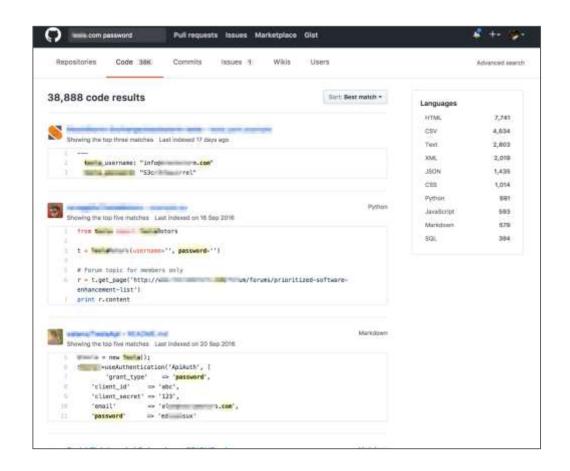


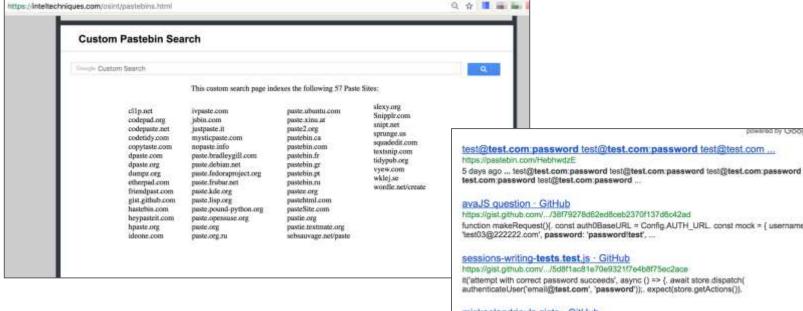


Wappalyzer



Github





Paste(s) Sites

powered by Coogle Lustom Search 5 days ago ... test@test.com:password test@test.com:password test@test.com:password test@test.com function makeRequest()(, const auth0BaseURL = Config.AUTH_URL, const mock = { username: mickaelandrieu's gists · GitHub https://gist.github.com/mickaelandrieu?direction=asc&sort... casperis -includes -utilities/login.js test@test.com password domain test bank.js. Unable to open file: test@test.com. 1 file · 0 forks · 0 comments · 0 stars. Rails 3 with options for devise, jouery, cucumber, capybara, rspec ... https://gist.github.com/odmwebs/707640 Aug 4, 2011 ... gem 'machinist', >= 2.0.0.beta2', :group => :test if machinist, gem 'devise' if puts "The seed user is email 'user@test.com' pass 'please'." end simple-express-server-bearer.is GitHub https://gist.github.com/.../f96124622cfcc7b6d45b2fd7401bf2s1 const Users = [, { id: 1, name: 'Toto', email: 'toto@test.com', password: 'toto123' },]; function generateToken() {. return crypto_randomBytes(32).toString('hex');...}. creating and testing permissions and test groups in diango tests ...

self.user = User.objects.create_user(usemame="test", email="test@test.com", password="test"), def

https://gist.pithub.com/treyruncie/a292366d8ae0de4e50f8

tearDown(self):, self.user.delete(), self.group.delete().

```
C Secure https://publicdbhost.dmca.gripe
 Snusbase.com is the fastest database lookup that has ever existed. Check it out!
  HOME
            ADVANCED SEARCH
                                                                  DIRECTORY
                                  NO-JS SEARCH
                                                    CONTACT
Index of /
...
random/
mega.co.nz partialdump.7z
                                                    19244760
                                                                22-May-2017 12:49 AM
VK.COM 100H.rar
                                                  1202556637
                                                                22-May-2017 01:28 AM
Adobe 152M.tar.qz
                                                  1457520640
                                                                22-May-2017 12:47 AM
investbank.se-2016-04-25.zip
                                                   540535651
                                                                22-May-2017 12:59 AM
DLH.net 3M 2016.7z
                                                    95881345
                                                                22-May-2017 12:28 AM
fling.com 40M users.sql.7z
                                                   627507200
                                                                22-May-2017 12:47 AM
blackhatworld.7s
                                                    67100270
                                                                22-May-2017 12:25 AM
acne.org ibf members 11 25 2014.7s
                                                    45052409
                                                                22-May-2017 12:23 AM
PS3Hax.net.txt.gz
                                                    32544874
                                                                22-May-2017 12:59 AM
torrent-invites.com_forum-2016-08-07.sql.gz
                                                  1016725702
                                                                22-May-2017 01:16 AM
Ashley Madison users.7z
                                                  1773584384
                                                                22-May-2017 12:47 AM
178 all.txt
                                                   266794656
                                                                22-May-2017 12:26 AM
index.php
                                                        3172
                                                                22-May-2017 05:05 PM
xat.72
                                                   2276B5739
                                                                22-May-2017 01:12 AM
Keplit Plain (SHA1).72
                                                   117776109
                                                                22-May-2017 01:14 AM
leet.cc partial.txt.7z
                                                    77383482
                                                                22-May-2017 12:53 AM
Tumblr 2013 users.72
                                                  2114751092
                                                                22-May-2017 01:35 AM
NaughtyAmerica.7z
                                                   299009564
                                                                22-May-2017 12:59 AM
Zoosk.com.7z
                                                  1802518298
                                                                22-May-2017 01:39 AM
MineField188K.7z
                                                    18419822
                                                                22-May-2017 12:50 AM
nulled.io.sql.7s
                                                   760252229
                                                                22-May-2017 01:06 AM
muslimmatch.com.72
                                                   110125592
                                                                22-May-2017 12:54 AM
brazzers com April 2013.7z
                                                    13982175
                                                               22-May-2017 12:25 AM
Libero.it 900k.zip
                                                    42068740
                                                                22-May-2017 12:52 AM
STRATEGR USERS DATABASE, 72
                                                    46643274
                                                                22-May-2017 01:01 AM
17.Media.rar
                                                   775184173
                                                                22-May-2017 12:35 AM
STRATEGR EMAIL BACK.7x
                                                    96631480
                                                                22-May-2017 01:01 AM
Ashley Madison users.gr
                                                  1801781248
                                                                22-May-2017 12:47 AM
patreondump.tar.gs
                                                  3997819699
                                                                22-May-2017 01:41 AM
inesh.rer
                                                   427671552
                                                                22-May-2017 12:47 AM
Arma3Life.sql
                                                   105118884
                                                                22-May-2017 12:26 AM
OwnagePranks2016.7z
                                                   116115769
                                                                22-May-2017 12:59 AM
kaimin001.com.7s
                                                    98443782
                                                                22-May-2017 12:54 AM
taobao.7z
                                                   158520312
                                                                22-May-2017 01:03 AM
linkedin all.7±
                                                  4535170532
                                                                22-May-2017 01:41 AM
Solomid.net ipb November 2014.txt.7s
                                                    11854746
                                                                22-May-2017 01:00 AM
```

Public Password Dumps

Not 'Google' Search Engines

- Metasearch engine Polymeta.com
- People search engine -Pipl.com, Peekyou, Marketvisual
- Business/Company Search Zoominfo
- Social Search Engine Socialmention.com
- Phone Number Search Engine Truecaller
- Wayback machine
- Computational knowledge engine Wolframalpha
- Clustering Search Engine search.carrot2.org

Domain IP History



Domain IP History

- Cloudflare / Incapsula / Sucuri.
- Domain History reveals earlier IP Addresses.
- IP still Live = Bypass rate limiting, firewall rules, etc.

IP history results	ed 2000 Legista (seculoperat 1960)			
IP Address	Location	IP Address Owner	Last seen on this II	
69.172.200.235	New York - United States	Cogeco Peer 1	2017-08-15	
50.23.225.49	Dallas - United States	SoftLayer Technologies Inc.	2017-06-18	
69.172.200.235	New York - United States	Cogeco Peer 1	2017-06-17	
50.23.225.49	Dallas - United States	SoftLayer Technologies Inc.	2017-06-11	
69.172.200.235	New York - United States	Cogeco Peer 1	2017-06-10	
204.12.0.50	Newark - United States	HostMySite	2011-04-04	

Public Scan Engines

- https://www.qualys.com/forms/freescan/
- https://urlscan.io
- https://asafaweb.com



MetaData

Data about the Data.

Can find:

- Applications used to generate PDF/Docx./etc. on servers
- Exif Data (Media File Data)
- Geologations
- Author
- Platform

shubhammittal:Downloads/ \$ exiftool tast______ ExifTool Version Number : 10.14 : New Jacobson and File Name Directory File Size : 185 kB File Modification Date/Time : 2016:05:15 13:29:11+05:30 File Access Date/Time : 2017:08:13 18:08:43+05:30 File Inode Change Date/Time : 2016:05:15 13:29:11+05:30 File Permissions : rw-r--r--: PDF File Type File Type Extension : odf : application/pdf MIME Type PDF Version : 1.5 Linearized : Yes Tagged PDF : Yes XMP Toolkit : Adobe XMP Core 5.6-c014 79.156797, 2014/08/20-09:53:02 Create Date : 2015:07:31 13:01:53-04:00 Metadata Date : 2015:07:31 13:01:53-04:00 Modify Date : 2015:07:31 13:01:53-04:00 Creator Tool : Adobe InDesign CC 2014 (Windows) Instance ID : uuid:4/91e430-b5a8-4/f8-bled-c/b5df5435a4 Original Document ID : xmp.did:bbc7e9fa-731f-3541-a38c-1379df186c6b Document ID : xmp.id:73d6b67e-4760-c94e-b778-66690f3304c7 Rendition Class : proof:pdf Derived From Instance ID : xmp.iid:1a9d5212-808d-2e49-a064-73f4917221cd : xmp.did:b63aa7a0-7b56-9f44-acb1-95d05affeaee Derived From Document ID Derived From Original Document ID: xmp.did:bbc7e9fa-731f-3541-a38c-1379df186c6b Derived From Rendition Class : default History Action : converted History Parameters : from application/x-indesign to application/pdf : Adobe InDesign CC 2014 (Windows) History Software Agent History Changed History When : 2015:07:31 13:01:53-04:00 Format : application/pdf : Adobe PDF Library 11.0 Producer Trapped : False Page Count : Adobe InDesign CC 2014 (Windows) Creator

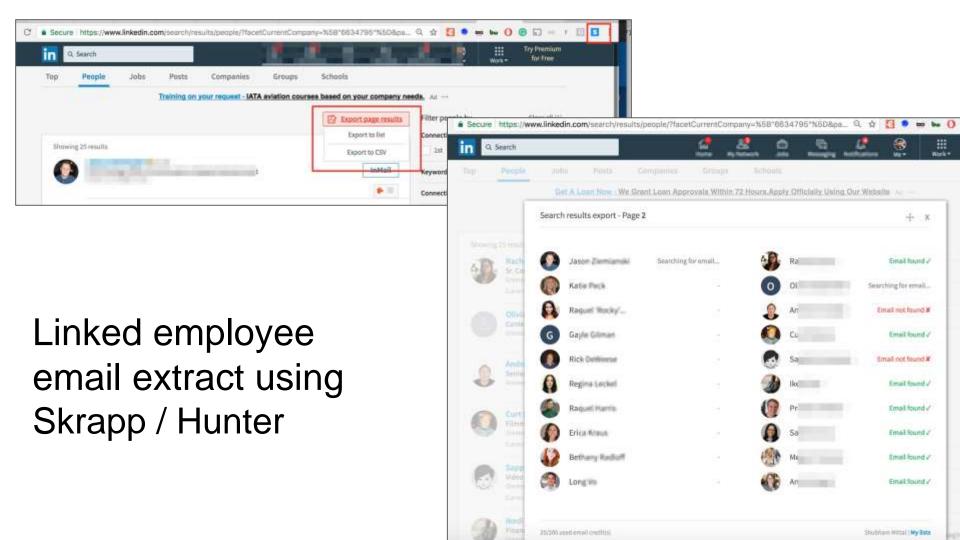
Employee Profiling

- Email-harvestor
- **DataSploit**
- LinkedIn
 - https://www.linkedin.com/search/results/companies/?keywords= company&origin=SWITCH SEARCH VERTICAL
- Email Hunter
- Skrapp

mt/dataepioit |shubharmittal:datasploit/ (master*) \$ python domain/domain_emailhunter.py test.com

---> Harvesting Email Addresses:.

mike@test.com second@test.com alice@test.com sample@test.com pavel.boiko@test.com emily.bache@test.com someone@test.com recipient@test.com internal@test.com external@test.com contact@test.com anonymous@test.com me@test.com customer@test.com root@test.com matt@test.com amanda@test.com sender@test.com deepa@test.com address9test.com zoe.clarke@test.com lisa@test.com tony@test.com to@test.com alan.alston@test.com alicia.foster@test.com fiona.murphy@test.com kanar@test.com isaac@test.com miller-aichholz@test.com richard@test.com anend.kumar@test.com santosh@test.com henry.pan@test.com david.boyne@test.com iyad@test.com lucas@test.com matthew@test.com gaston@test.com pascal@test.com marco@test.com matt.hall@test.com halim@test.com kevin@test.com jane9test.com dirk@test.com userPtest.com

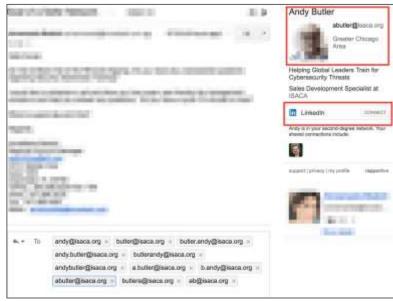


```
shubhammittal:Pythoncodes/ $ python email_pattern_generator.py
[+] Generating Email ID Patterns for Andy Butler AT isaca.org

andy@isaca.org
butler@isaca.org
butler.andy@isaca.org
butlerandy@isaca.org
andybutler@isaca.org
a.butler@isaca.org
b.andy@isaca.org
b.andy@isaca.org
abutler@isaca.org
butler@isaca.org
```

Custom Script

```
SVS
name = sys.argv[1]
domain = sys.argv[2]
 rint "[+] Generating Email ID Patterns for %s AT %s\n" % (name, domain)
names = name.split(' ')
firstname = str.lower(names[0])
lastname = str. lower(names[-1])
   len(names) = 2:
    middlename str.lower(names[-2])
               (firstname, domain) #shubham
  int "asares" #
      "%5@%5"
                (lastname, domain) #mittel
      HS SOFIGH
                (lastname + "." + firstname, domain)
                (firstname + "." + lastname, domain)
                                                         # shubham.mittal
      "SEMS"
      "Sass"
                (lastname + firstname, domain)
                                                     # mittəlshubham
      "$5/85"
                (firstname + lastname, domain)
                (firstname[0] + "." + lastname, domain) # s.mittal
      "SS@$5"
                (lastname[0] "." | firstname, domain) # m.shubham
      "SSONES"
                (firstname[0] + lastname, domain)
      "%5@55"
      HIS OF SH
                (lastname # firstname[0], domain)
                                                        # mittals
               (firstname[0] | lastname[0], domain)
      "95695" N
```



Code

Rapportive

Email-id to Username?

Social Media Accounts

Forum Searches (boardreader.com)

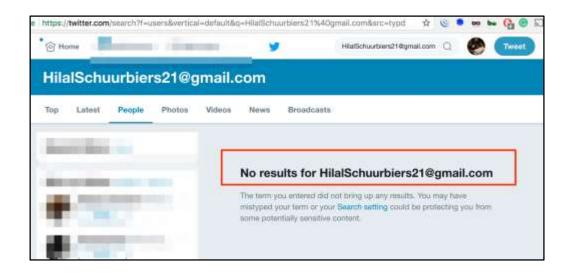
Clearbit / Full Contact

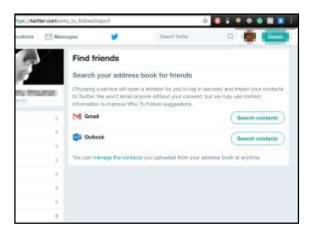
DataSploit

```
shubhammittal:datasploit/ (master*) $ python emailOsint.py upgoingstaar@gmail.com
---> Basic Email Check(s)..
       free Email Address?: Yes
Can this domain recieve emails?: Yes
Is it a Disposable email?: No
---> Searching Clearbit
twitter details:
bio: Author of @datasploit and manages @reconvillage. Tweets are Personal. #InfoSec #OSINT
handle: upgoingstar,
site: https://github.com/upgoingstar/,
location: Bangalore,
favorites: 290,
following: 611,
id: 16852719,
statuses: 1312.
avatar: https://pbs.twimg.com/profile_images/2281757680/xhqe02vqyw37ivglli8f.jpeg,
site details:
```

- >> User to Images, Reverse Image Search, User profiling (More useful for SE)
- >> Find leaked creds, tokens, confidential urls/IPs, slack keys, api key, etc.

Email-id to Username?









JOIN THE BLUE TEAM!

We have cookies! And Caboose!

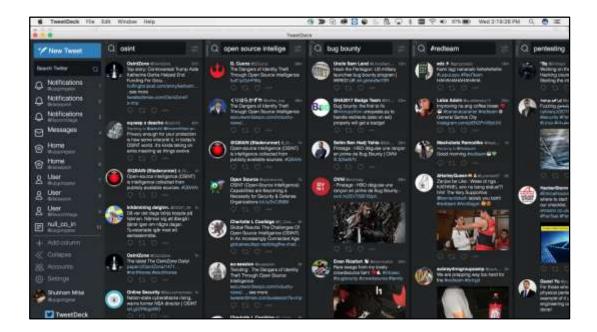
Blue Team.

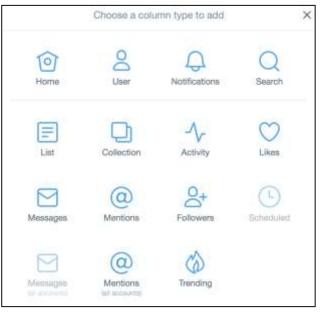
- Active Monitoring on keywords.
- Alerting (while reducing noise)
- Scan/OSINT your Attack Surface Area
 - Scoping is not required Simply find the perimeter from Devops/Central Deployment Team.
- Keep an eye on Employees (Profile their personal code share accounts).
- Review Job Openings / Questions in Forums, etc.
- Defensive Measures Data Loss Prevention
 - Strip off metadata from files going outside.

Tweetmonitor.py / Tweetdeck

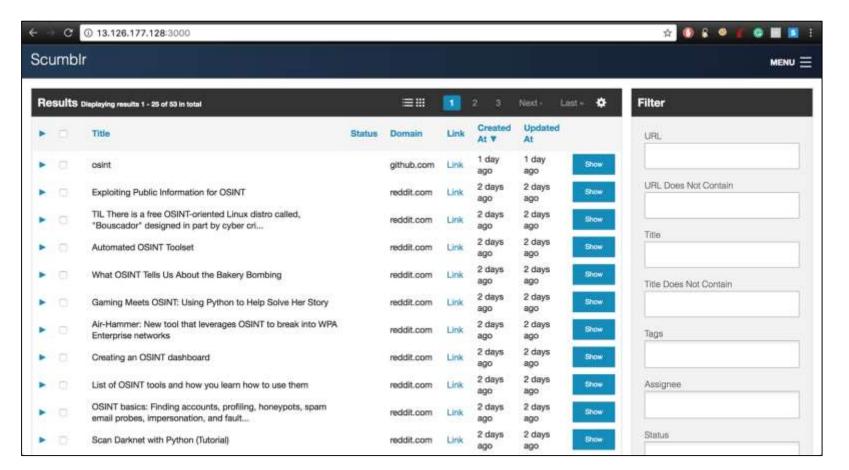


Tweetmonitor.py / Tweetdeck

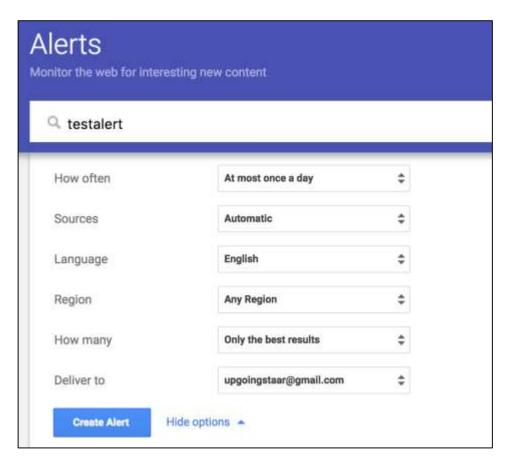




Scumblr



Google Alerts



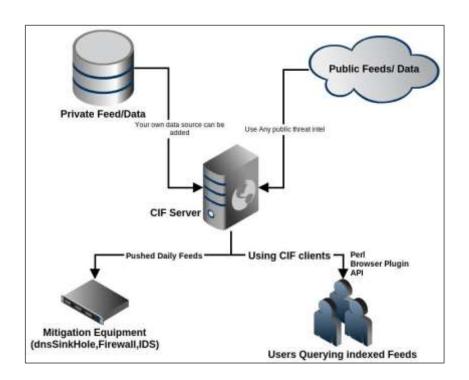
Page Monitor - ChangeDetect / Follow.net

	,	Follow.net Stories	Inbox	has 1 new story - go2 follow.net/email/cli	10/09/2016
0.0	>	Follow.net Stories	Inbox	has 1 new story - go2.follow.net/email/cli	01/09/2016
	,	Follow.net Stories	inbox	has 1 new story - goZ.follow.net/email/cli	30/08/2016
		Follow.net Stories	Inbox	has 1 new story - go2.follow.net/email/cli	24/08/2016
	*	Follow.net Stories	Inbox	nas 6 new stories - go2.follow.net/email/clici	23/08/2016
日本	,	Follow.net Stories	Inbox	has 2 new stories - go2 follow net/email/	12/08/2016
		Follow.net Stories	Indox	has 1 new story - goZ.follow.net/email/cli	11/08/2016
		Follow.net Stories	Inbox	has 1 new story - go2.follow.net/email/cli	08/08/2016
	,	Follow.net Stories	Inbox	new stories - go2 follow.net/email/click?F	24/07/2016
	,	Follow.net Stories	Intrax	has 4 new stories - go2.follow.net/email/	22/07/2016
	,	Follow.net Stories	Indox	has 40 new stories - go2.follow.net/email	21/07/2016
		Follow.net Stories	Inbak	has 1 new story - go2 follow.net/email/cli	20/07/2016
	,	Follow.net Stories	Inbox	has 1 new story - go2.follow.net/email/cli	08/07/2016
	>	Follow.net Stories	Inbox	has 3 new stories - go2.follow.net/email/	21/06/2016
	*	Follow.net Stories	Inbox	new story - goZ follow.net/email/click?ha	09/06/2016
		Follow.net Stories	Inbox	has 1 new story - go2.follow.net/email/cli	05/06/2016
		Follow.net Stories	Inbox	has 1 new story - go2 follow net/email/cli	04/06/2016



SIEM << Threat Intel Feed (robtex,etc., check for already blacklisted IPs)

Collective Intelligence Framework



Tools of Trade

Spiderfoot Maltego

Recon-ng Gosint

Scmublr Belati

DataSploit X-ray

Sublist3r Exiftool

Tinfoleak

Gitrob

theHarvestor

Foca

Future Research

- Data Co-relation
- Noise Reduction
- Tap Darknet



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