Experiences with Paste-Monitoring OWASP BeNeLux Day 2016



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- The Computer Incident Response Center Luxembourg (CIRCL) is a government-driven initiative designed to provide a systematic response facility to computer security threats and incidents.
- CIRCL is the CERT for the private sector, communes and non-governmental entities in Luxembourg.

CERT point of view

- Help
 - Acts like a fire brigade
 - Take all reported incidents serious
 - Help: triage, analysis and response
 - Help: technical investigation
 - Reliable and trusted point of contact
 - No duty to report to the police
 - Victim's duty to file a complaint
- Prevent incidents
 - o Early detection
 - o Proactive security

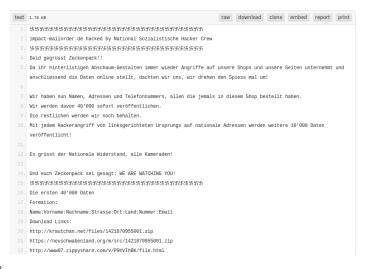
CERT services/tools

- Malware Information Sharing Platform MISP
 - https://www.circl.lu/services/ misp-malware-information-sharing-platform/
- URL Abuse Testing
 - o https://www.circl.lu/services/urlabuse/
- Dynamic Malware Analysis Platform DMA
 - o https://www.circl.lu/services/dynamic-malware-analysis/
- Paste Monitoring & Analysis of Information Leaks Framework -AIL
 - o https://github.com/CIRCL/pystemon
 - o https://github.com/CIRCL/AIL-framework

Paste Monitoring

- Example: http://pastebin.com/
 - Store text online, easy sharing
 - Used by programmers
 - Source code & configuration information
- Abused by attackers to store:
 - Exploit code
 - o Results of running malicious code
 - D0x
 - List of open proxys
 - o Anouncements OP...
 - ->Examples: #OpAlQeeq #OpIsrael #OpSaveGaza

Paste Monitoring: General examples



Paste Monitoring: General examples

#OpISIS- Expose & Destroy By Anonymous RedCult - Pastebin.com

Feb 8, 2015 ... We are Anonymous, We are Legion, We do not forgive, We do not forget, Expect us. -Now, Some of ISIS's Twitter accounts. Sites. Emails that ...

OPisis WE ARE ANONYMOUS - Pastebin.com

pastebin.com/PkM9A6iv

OPisis WE ARE ANONYMOUS. a guest Jan 3rd, 2016 60 Never. rawdownload cloneembedreportprint text 2.36 KB. These are isis accounts and supporter ...

Greetings citizens of the world. We are anonymous. The Flint water ...

pastebin.com/1VHdK8MM

Jan 29, 2016 ... We are anonymous. The Flint water crisis has drawn the attention of anonymous. Anonymous would first like to pay respect to the victims of this ...

We are Anonymous #oplapane - Pastebin.com

pastebin.com/59RVYN9f

12 hours ago ... We are Anonymous. #opJapane. RAW Paste Data. We are Anonymous # opJapane. create new paste / api / trends / syntax languages / fag ...

Hundreds of ISIS Accounts! - Pastebin.com

pastebin.com/N9rPZ3Ar

Nov 15, 2015 ... We Are Anonymous,. We Do Not Forgive,. We Do Not Forget,. Expect us! We are the collective today we bring you a mass amount of isis twitter ...

[APT Sources] We are #Anonymous - Pastebin.com

Aug 12, 2015 ... Kancolle Summer Event 2015: Limited Time Area "Counter Attack! Second SN Operation" will start soon! The operation will last around 20 days ...

Paste Monitoring

- Results of running malicious code
 - o Results of port- and vulnerability scans
 - Lists with vulnerable sites
 - Lists with compromised sites
 - Database dumps
 - Credit Card details
 - Leaked 3rd party credentials

Paste Monitoring: General examples

```
22. [+] Nmap scan report for 1 p.de (85 227.180)
23. Host is up (0.016s latency).
24. Not shown: 64983 closed ports
 26. PORT
             STATE SERVICE
27. 21/tcp open
 28. 80/tcp open
                     http
 30. 139/tcp filtered netbios-ssn
 31. 443/tcp open
                    https
 32. 445/tcp filtered microsoft-ds
 33. 3396/tcp open
 34. 4224/tcp open
                     xtell
 35. 5666/tcp filtered nrpe
 36. 8193/tcp open
37. 25561/tcp open unknown
38. 25565/tcp open minecraft
 39. 25665/tcp filtered unknown
 40. 33517/tcp open unknown
 41. 36123/tcp open unknown
 42. 44121/tcp open unknown
43. 47884/tcp open unknown
```

Paste Monitoring

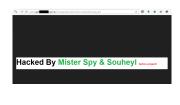
Statistics

- Monitoring up to 30 sources
- Average 1.800.000 pastes/month
- >100 keywords (constituency)
- Leads to 5.250 tickets/month
- Leads to 35 incidents/month
- Leads to 140 investigation/month
- Average 7 investigations/day
- o One investgation: 5 minutes 1 hours
- Challanges
 - Unstructured data

CIRCL #219393 List of URLs

```
http://www.gasxxxx.com//images/jdownloads/screenshots/spy.gif
http://burytoxxxx.co.uk//images/idownloads/screenshots/spv.gif
http://sheriasxxxx.coop//images/idownloads/screenshots/spv.gif
http://www.exxxx.org//images/jdownloads/screenshots/spy.gif
http://www.bexxxx.com//images/jdownloads/screenshots/spy.gif
http://south-xxxx.com//images/idownloads/screenshots/spv.gif
http://ixxx.org//images/jdownloads/screenshots/spy.gif
http://www.exxxx.com.au//images/jdownloads/screenshots/spy.gif
http://www.alphamxxxxxxxxx.co.za//images/idownloads/screenshots/spv.gif
http://www.tablemxxxxxxxx.com//images/jdownloads/screenshots/spy.gif
http://www.dubairealdxxxxxxxxx.com//images/jdownloads/screenshots/spv.gif
http://www.world-xxxxx.com//images/idownloads/screenshots/spv.gif
http://www.nepalmxxxxxxxxxx.com//images/jdownloads/screenshots/spy.gif
http://www.proxxx.xxx.gov.ph//images/jdownloads/screenshots/spy.gif
http://www.aixxx.com//images/idownloads/screenshots/spv.gif
http://www.fcfmixxxxxx.com//images/idownloads/screenshots/spv.gif
http://mdxxxx.org//images/jdownloads/screenshots/spy.gif
http://www.lsxxxx.com//images/jdownloads/screenshots/spy.gif
http://pxxxx.com//images/idownloads/screenshots/spv.gif
http://www.contxxxxx.net//images/jdownloads/screenshots/spv.gif
http://info.farmixxxxxx.fi//images/jdownloads/screenshots/spy.gif
http://www.flxx.be//images/idownloads/screenshots/spv.gif
http://www.solidxxxx.at//images/jdownloads/screenshots/spy.gif
http://www.xxxx.xtc.br//images/jdownloads/screenshots/spy.gif
http://www.fexxxxx.at//images/idownloads/screenshots/spv.gif
http://ontarioxxxxxxxxxx.ca//images/idownloads/screenshots/spv.gif
```

CIRCL #219393 What is behind this URLs?



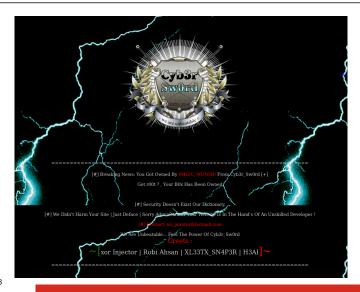


CIRCL #223483 What is behind this URLs?





CIRCL #223483 Defacements



Results of running malicious code

- How can we help?
 - Report to the website owner (constituency)
 - −>Give advices to them
 - Report to other CERTs
- What we can not do?
 - o Contact all website owners outside our constituency

CIRCL #215347 The posting

Target = cpluxxxxxxxxxx.comzul.xxxxx@ymail.com:5a9ac42d67ab0f139848bb0404355051e0dc6fcd10a22e2ca zivanxxxx@vahoo.com:46fe7a6944f6f2bfcebfdef6f06850d94eec1dc02b7722504 xxxxx@teclait.com:092cb6b0a6fb718f20f7704b41173ed52e938432f34a6f389 bscxxxxx@vahoo.com;d93999a44413a63f2dd4e176a349728a23f73aac492a69fcc voxxxx@vahoo.com:e1171a55671a08ec2350902199ba774f82e95f34efe762616 voogesxxxxx@vahoo.com:451a40fb63d53411f86f4f49b21cc468b058c59a4d41f2fe2 vixxxxx@upei.ca:614a858c8643cf7e307fd634364f7d6c235f96837c49d0bd4 yinguxxxxx@ou.edu:e85962e3ee35e3f90fb356485c8ebe5b9ec042bac77f1c190 vgxxxxxx@gmail.com;80674b810fc53e53e048f6aacc3c055ddeb349998b9fc5b1a yemioyxxxxx@yahoo.com:80a0a943d1f509925c7c5552842b4624c2b8effa0d2ec1791 vanninxxxxx@hotmail.com:c18d74cdda28c86615474636d20e2dc5c0b6f2605d570717a vanghxxxxx@gmail.com;bd4cccf43e5eeee42ec13879f9b0dfd3c5f519658638f3f90 vahva.xxxx@gmail.com:e61a87f807ec0e2d3f936a7cec7cb5dca8291060ddd212b4b bendehbia.xxxxxx@hotmail.fr:65324f3ad8e3e85a51740787cf1d1d4bba5c0b84e130e7c60 write2sxxxxxxxxx@gmail.com;20404051a1d5e96aa0f3a038bd15ce8854b8bbc9b67c2883c wmsxxxx0comcast_net:334780689a0ff89ee1034e909bb0bb0bb0bfb4fd732afd7658cf wincyxxx@hotmail.com:681505cf1cb3907277a081c34c1b72df800d0279d48804e38 iacktxxxxx@vahoo.com:51d94e5885764f3aec7058ba3f28107bcf49c5e79401c3fd6 whitegxxxxxx@vahoo.com;79918c71701ab71bae7d700d67fd286d21b2f9c3ec513b7e1 whitegxxxxxx@gmail.com:bc3950cf307a9bc54f103a7ed5275bf724b485c6f1b406bdd

Leaked 3rd party credentials

- How can we help?
 - Report to the ISPs (constituency)
 - ->Advice victims to change this password
 - → Change it everywhere
 - Report to the targeted website owner
 - Report to other CERTs

What to avoid to report?

- Re-postings
- Old passwords
- o Issues that are already fixed
- Unknow targeted site
- Encrypted passwords
- −>We can give no advices

CIRCL #215347 The posting

Target = cpluxxxxxxxxxx.comzul.xxxxx@ymail.com:5a9ac42d67ab0f139848bb0404355051e0dc6fcd10a22e2ca zivanxxxx@vahoo.com:46fe7a6944f6f2bfcebfdef6f06850d94eec1dc02b7722504 xxxxx@teclait.com:092cb6b0a6fb718f20f7704b41173ed52e938432f34a6f389 bscxxxxx@vahoo.com;d93999a44413a63f2dd4e176a349728a23f73aac492a69fcc voxxxx@vahoo.com:e1171a55671a08ec2350902199ba774f82e95f34efe762616 voogesxxxxx@vahoo.com:451a40fb63d53411f86f4f49b21cc468b058c59a4d41f2fe2 vixxxxx@upei.ca:614a858c8643cf7e307fd634364f7d6c235f96837c49d0bd4 yinguxxxxx@ou.edu:e85962e3ee35e3f90fb356485c8ebe5b9ec042bac77f1c190 vgxxxxxx@gmail.com;80674b810fc53e53e048f6aacc3c055ddeb349998b9fc5b1a yemioyxxxxx@yahoo.com:80a0a943d1f509925c7c5552842b4624c2b8effa0d2ec1791 vanninxxxxx@hotmail.com:c18d74cdda28c86615474636d20e2dc5c0b6f2605d570717a vanghxxxxx@gmail.com;bd4cccf43e5eeee42ec13879f9b0dfd3c5f519658638f3f90 vahva.xxxx@gmail.com:e61a87f807ec0e2d3f936a7cec7cb5dca8291060ddd212b4b bendehbia.xxxxxx@hotmail.fr:65324f3ad8e3e85a51740787cf1d1d4bba5c0b84e130e7c60 write2sxxxxxxxxx@gmail.com;20404051a1d5e96aa0f3a038bd15ce8854b8bbc9b67c2883c wmsxxxx0comcast_net:334780689a0ff89ee1034e909bb0bb0bb0bfb4fd732afd7658cf wincyxxx@hotmail.com:681505cf1cb3907277a081c34c1b72df800d0279d48804e38 iacktxxxxx@vahoo.com:51d94e5885764f3aec7058ba3f28107bcf49c5e79401c3fd6 whitegxxxxxx@vahoo.com;79918c71701ab71bae7d700d67fd286d21b2f9c3ec513b7e1 whitegxxxxxx@gmail.com:bc3950cf307a9bc54f103a7ed5275bf724b485c6f1b406bdd

CIRCL #215347 Analysis Stage 1

- What do we get
 - Email addresses : encrypted passwords
 - o Bingo: Target site is quoted

Review the site:

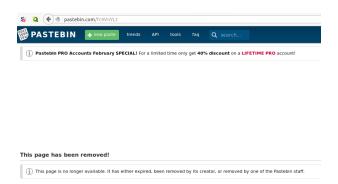


CIRCL #215424 The posting

SEC_EMAIL_ADDRESS.csv EMAIL ADDRESS ENCRYPT PWD FIRSTNAME kente@prairiexxxxxxx.us.74364AD466A3A97E4D1F7E90490FAE13.Kent diann@westxxxxxxx.com.354FA3FB52AAEDAE860431979286EDF0.Diann klpetxxx@mixxxxxxx.edu,67357C6CDE1E652C250A75D3764208D8,Kevin iiamxx@dxxxxx.com.B8AAFA55304D218D9EB11FEE6ADED315.Jim xxxxhambrick@exxxxxx.com.788F54A6D2CA11FA21A3DEE3F85D3BC9.Jim xxnope@chxxxxx.net,558EFB24130D85DA042B45CFD2EA94A8,Judith margexxxxxxk@txx.com.AFBF5EEDB77DE36B8B559F5F896CDEB6.Marge ganderxxx@dataxxxxxxx.com.9D9D1E968BC9BA76E5F8D8E8AE4B9CCA.Gisela bexx@primaryxxxxxxx.com.22FF6D707D7319F1A0AF8543503D5BC5.Albert moniquexxxxxx@ixxx.com,48ABE46CC4C64E840061EC8F65C0AFDD,Monique deedeexxxxxxx@cxxxxxxxxsparks.com.D2AEB85EA85A812D06B849F787074587.Dee dee xxxlmer@devoxxxxx.com.3C7AB6E445E176DD48D4B954FAB1FB31..lohanna xxxxxxxxxxwilson@hotmail.com.359FCF260D068B42AE7CED3B8C91FD7C.Heather mhamxxxx@xxxxview.org.A1926ADE8BAE523F9A0990613992065E.Mark rebecca.xxxxxxxxxx@xx.org.6E1DCB3D49E345DAF44A418E7515480B.Rebecca marshallxxxxxxx@vxxx.com.E6CE602050FEF4B62AEBD637CE356B47.Marshall awaxxxxx@hotmail.com.6590B4DC32FE183748680EC7E75D5FE3.Andrew

CIRCL #215424 Analysis Stage 1

- Review the posting to gather aditional information
- Unfortunatly already suspended

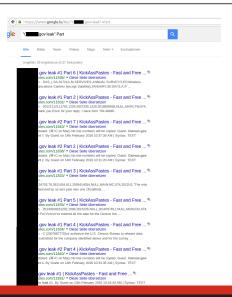


CIRCL #215424 Analysis Stage 1

- Ask Google
- Leads to 1 hit at kickasspastes.com



CIRCL #215424 Search for "*****s.gov leak"



CIRCL #215424 Analyze the set

```
wc -l fc9VnYLt.txt
o 7103
grep -i "\.mil\," fc9VnYLt.txt
0 1
grep -i "\.gov\," fc9VnYLt.txt
0 175
grep -i "\.gov\," fc9VnYLt.txt |cut -f1 -d"," |cut -f2
-d"@" |sort |uniq -c |sort -n
1 ******hs.gov
○ 1 *****a.gov
3 ***.gov
o 170 *****s.gov
```

CIRCL #219989 Posting already suspended

```
wc -l BvMacKhC.txt
   ->5728
grep -i "\.mil\:" BvMacKhC.txt
   ->34
grep -i "\.gov\:" BvMacKhC.txt
   ->43
Google search for one of the leaked MD5 value
   ->Leads to 1 hit in Google Cache
```

CIRCL #219989 From Google cache"



CIRCL #219989 Validate the finding

grep -i altrx BvMacKhC.txt

angela.xxxxxxx@altrxxxxxxx.com:10D56F79CD9DA6496A8627455006FF chris.xxxx@altrxxxxxxx.com:01E16299BC2ADD4679111FCF0E13A8 dan.xxxxxx@altrxxxxxxx.com:19104E6A08A4DD4C579CFCD8AB7249 dimitrios.xxxxxxx@altrxxxxxxx:00A4AB56F3F68987E34360DE4B8498

whois altryyyyyyyyyy.com

Registrant Organization: Altrx Indxxxxxx xxxxxx

...

whois altrxxxxxxx.com

Admin Organization: Altrx Indxxxxxxx xxxxxx

...

CIRCL #215558 pastebin.com/hbjc03Yw

- Grep for ".mil\:"
 - o ryan.xxxxxx@xxxxxxxxx.af.mil:chronic
 - Patrick.xxxxxx@xxxxxxxxxx.af.mil:patrick
 - 48fwxxx@xxxxxxxxxx.af.mil:chapel
 - o phillip.xxxxx@xxxxxxxx.af.mil:allen
- Grep for ".gov\:"
 - o kerrixxxx@xxxx.xxi.gov:kerri
- Grep for ".gov"
 - 1. Leads to 98 hits mainly gov.uk
 - 2. 1x .gov.ie
 - 3. 1x .gov.za

CIRCL #215558 Password Frequency Analysis

• • •

20 password

22 arsenal

22 daniel

24 george

26 joshua

29 charlie

30 matthew

38 123456

43 111

43 liverpool

121 snooker

CIRCL #215558 Analysis Stage 2

- What do we know
 - o Related: co.uk
 - o Related: Snooker
- How to find targeted site?

Google search for: "site:co.uk snooker login"

- ->Unfortunately no helpful results
- What can we do
 - 1. Go back to the data set
 - 2. Grep for "snooker"
 - ->BINGO

CIRCL #210401 The posting



- What do we got
 - Date
 - Email addresses | passwords
 - -> Leaked 3rd party credentials
 - o Obviously many .BR accounts
- What do we miss
 - Usefull information in the header
 - Target details in the posting
- What can we do
 - 1. Search for interesting accounts
 - 2. Identify targeted site
 - 3. Notify our partners in BR

```
Search for interesting accounts
  graziani.xxxx@xxxx.mar.mil.br—Aprovada
  agendaxxxxx@xxxxxxx.rs.gov.br—240202
  CLAUDIAxxxxxx@xxxxx.GOV.BR—9395
  hellenxxxxxx@xxxxxxx.se.gov.br—33917841
  Ocea@xxxxxxxxx.gov.br—180283
  escolaxxxxxx@xxxxxxx.mg.gov.br—171151
  nelxxx@xxxxxx.gov.br—np201356
  maicxxx@xxxx.rs.gov.br-061188
  26 gov.br users
```

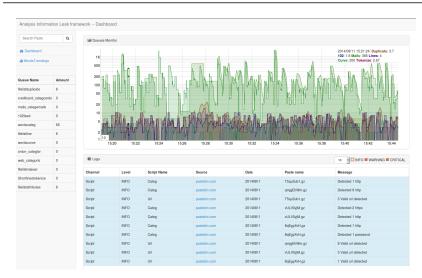
```
Find target: By analyzing the leaked Passwords?
cut -f2 -d"|" qzQF6ib5.txt |sort |uniq -c |sort -n
  4 010203
  4 12345678
  4 hospital
  5 123456789
  6 12345
  6 gabriel
  7 medicina
  8 123
  8 compras
  8 telediu
  13 1234
  79 123456
```

```
Find target: By analyzing the leaked Passwords?
cut grep -i teledi qzQF6ib5.txt
  8x telediu
  vanessxxxxxx@gmail.com—Telediu84
  cluciaxxxxxxx@hotmail.com—teledil
  tarsisxxxxxxx@hotmail.com—telediu71
  amarilxxxxxxx@gmail.com—rodtelediu
  heldexxxxxxx@yahoo.com.br—telediu11
  andrexxxxxxx@vahoo.com.br—telediu150
  dentxxxxxx@telexxxxxxxxxx—233748p
  thainapegxxxxxxx@telexxxxxxx—74697649
```

AIL

- Monitoring Module: Input feeds
- Analysis Module: Deduplication, Indexing, Classification
- Output Module: ZMQ, Redis

AIL



Conclusion

- There are no small incidents
- Want access to services: info@circl.lu
- ->search for past issues?