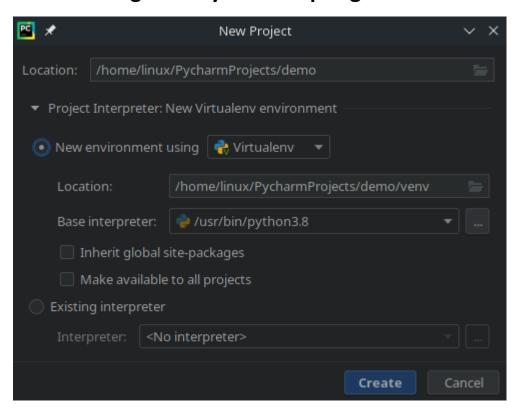
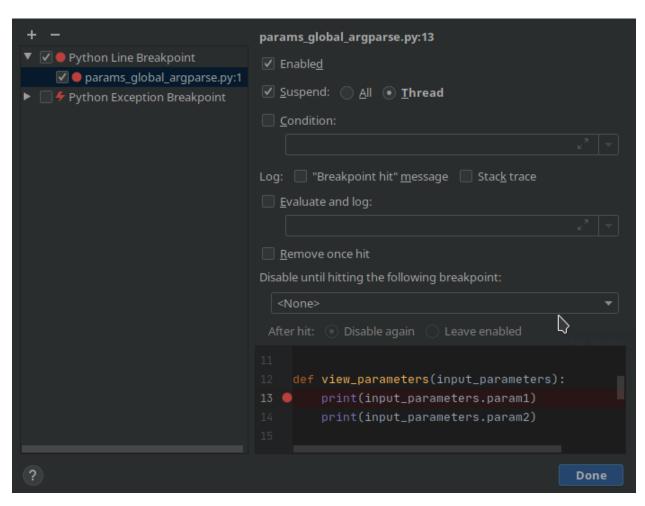
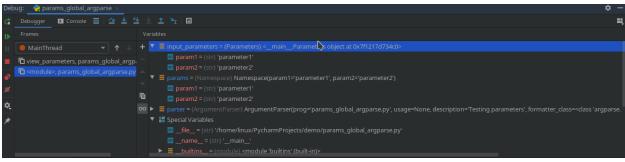
# **Chapter 1: Working with Python Scripting**







# **Chapter 2: System Programming Packages**

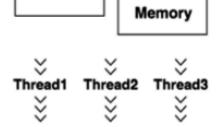
```
class Thread(_Verbose)
    A class that represents a thread of control.

This class can be safely subclassed in a limited fashion.

Method resolution order:
    Thread
    __Verbose
    __builtin__.object

Methods defined here:
    __init__(self, group=None, target=None, name=None, args=(), kwargs=None, verbose=None)
```

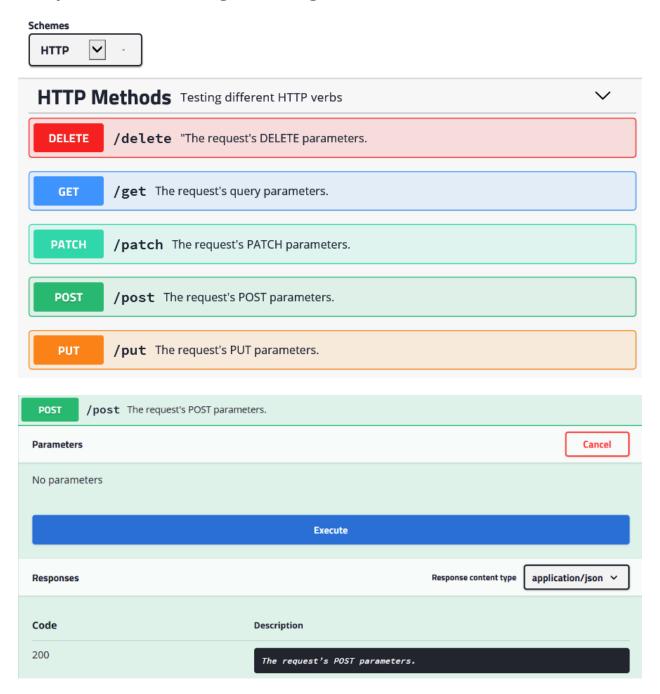
# Main Process



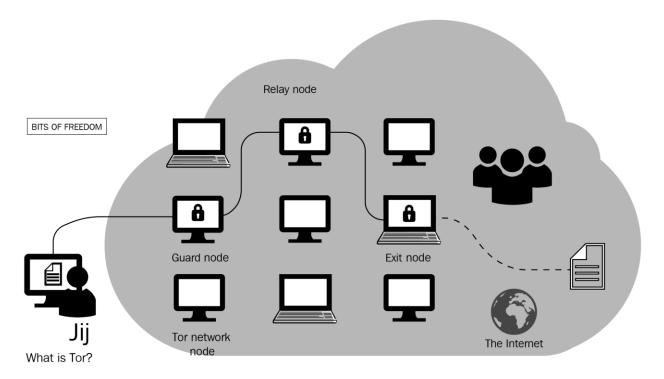
# **Chapter 3: Socket Programming**

No Images

# **Chapter 4: HTTP Programming**



# **Chapter 5: Connecting to the Tor Network and Discovering Hidden Services**



## Congratulations. Your browser is configured to use Tor.

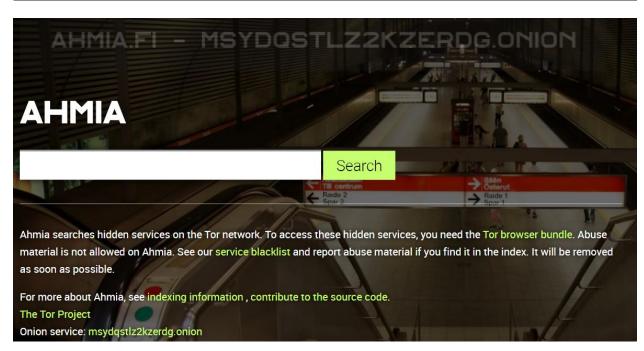
Please refer to the Tor website for further information about using Tor safely. You are now free to browse the Internet anonymously.

```
## Configuration file for a typical Tor user
## Last updated 22 September 2015 for Tor 0.2.7.3-alpha.
## (may or may not work for much older or much newer versions of Tor.)
##
## Lines that begin with "## " try to explain what's going on. Lines
## that begin with just "#" are disabled commands: you can enable them
## by removing the "#" symbol.
##
## See 'man tor', or https://www.torproject.org/docs/tor-manual.html,
## for more options you can use in this file.
##
## Tor will look for this file in various places based on your platform:
## https://www.torproject.org/docs/fag#torrc
## Tor opens a SOCKS proxy on port 9050 by default -- even if you don't
## configure one below. Set "SOCKSPort 0" if you plan to run Tor only
## as a relay, and not make any local application connections yourself.
#SOCKSPort 9050 # Default: Bind to localhost:9050 for local connections.
#SOCKSPort 192.168.0.1:9100 # Bind to this address:port too.
```

Tor 0.2.9.14 running on Linux with Libevent 2.0.21-stable,
Tor can't help you if you use it wrong! Learn how to be
Read configuration file "/etc/tor/torrc".
ontrolPort is open, but no authentication method has been
pgrade your Tor controller as soon as possible.
Opening Socks listener on 127.0.0.1:9050
Opening Control listener on 127.0.0.1:9051
Bootstrapped 0%: Starting
Bootstrapped 80%: Connecting to the Tor network
Bootstrapped 85%: Finishing handshake with first hop
Bootstrapped 90%: Establishing a Tor circuit
Tor has successfully opened a circuit. Looks like client
Bootstrapped 100%: Done

```
Bootstrapped 0%: Starting
Bootstrapped 5%: Connecting to directory server
Bootstrapped 10%: Finishing handshake with directory server
Bootstrapped 15%: Establishing an encrypted directory connection
Bootstrapped 20%: Asking for networkstatus consensus
Bootstrapped 25%: Loading networkstatus consensus
I learned some more directory information, but not enough to build a circuit:
Bootstrapped 40%: Loading authority key certs
Bootstrapped 45%: Asking for relay descriptors
I learned some more directory information, but not enough to build a circuit:
have 0% of guards bw, 0% of midpoint bw, and 0% of exit bw = 0% of path bw.)
Bootstrapped 50%: Loading relay descriptors
Bootstrapped 55%: Loading relay descriptors
Bootstrapped 61%: Loading relay descriptors
Bootstrapped 66%: Loading relay descriptors
Bootstrapped 72%: Loading relay descriptors
Bootstrapped 80%: Connecting to the Tor network
Bootstrapped 90%: Establishing a Tor circuit
Tor has successfully opened a circuit. Looks like client functionality is work
Bootstrapped 100%: Done
Relaying Disabled, Control Port (open): 9051
page 3 / 5 - m: menu, p: pause, h: page help, q: quit
   Configuration (press
 DataDirectory (General Option)
                                  If set, authenticates controllers via a cookie
Location for storing runtime data (state, keys, etc)
  DataDirectory
```

```
kelaying Dis
opu: 0.2% tor, 1
Relaying Disabled, Control Port (open): 9051
                 1.7% nyx mem: 37 MB (1.1%)
     2 / 5 - m: menu, p: pause, h: page help, q: quit
ections (1 outbound, 11 circuit, 1 control):
35.255.105.40:51608 --> 64.227.73.144:9001 (us)
   185.255.105.40:51608
                                                                                                           +23.2m (OUTBOUND)
   185.255.105.40
                                    51.89.200.121:443 (fr)
                                                                     Purpose: General, Circuit ID: 84 1.0m (CIRCUIT)
                                                                                                               3 / End
      51.89.200.121:443 (fr)
                                                                     Purpose: General, Circuit ID: 81 2.0m (CIRCUIT)
                                                                                                               1 / Guard
                                                                                                               2 / Middle
                                                                                                               3 / End
   185.255.105.40
      64.227.73.144:9001 (us)
                                                                                                               1 / Guard
                                                                                                               2 / Middle
                                                                                                               3 / End
   185.255.105.40
                                                                     Purpose: General, Circuit ID: 77 3.0m (CIRCUIT)
                                                                                                               1 / Guard
       137.74.19.202:20 (fr)
                                                                                                               3 / End
```



[+] Commencing Onion Inspection
[+] Tor Running Normally
[!] Inspecting Onion --> http://xmh57jrzrnw6insl.onion/
[+] Sending Request
[+] Onion Up & Running --> ACTIVE
[+] Retrieving Onion Title
[+] Onion Title --> TORCH: Tor Search!
[!] Inspecting Onion --> http://facebookcorewwwi.onion/
[+] Sending Request
[+] Onion Up & Running --> ACTIVE
[+] Retrieving Onion Title
[+] Onion Title --> Facebook - Log In or Sign Up
[!] Inspecting Onion --> http://sms4tor3vcr2geip.onion/
[+] Sending Request

-> INACTIVE

```
$ docker run -e DEBUG_LEVEL=1 --rm -it milesrichardson/onion-nmap -p 80,443 facebookcorewwwi.onion
[tor_wait] Wait for Tor to boot... (might take a while)
[tor_wait retry 0] Check socket is open on localhost:9050...
[tor_wait retry 0] Socket OPEN on localhost:9050
[tor_wait retry 0] Check SOCKS proxy is up on localhost:9050 (timeout 2 )...
[tor_wait retry 0] SOCKS proxy DOWN on localhost:9050, try again...
[tor_wait retry 1] Check socket is open on localhost:9050...
[tor_wait retry 1] Socket OPEN on localhost:9050
[tor_wait retry 1] Check SOCKS proxy is up on localhost:9050 (timeout 4 )...
[tor_wait retry 1] SOCKS proxy UP on localhost:9050
[tor_wait] Done. Tor booted.
[nmap onion] nmap -p 80,443 facebookcorewwwi.onion
[proxychains] config file found: /etc/proxychains.conf
[proxychains] preloading /usr/lib/libproxychains4.so
[proxychains] DLL init: proxychains-ng 4.12
Starting Nmap 7.60 ( https://nmap.org ) at 2019-08-24 14:54 UTC
[proxychains] Dynamic chain ... 127.0.0.1:9050 ... facebookcorewwwi.onion:80 ... 0K [proxychains] Dynamic chain ... 127.0.0.1:9050 ... facebookcorewwwi.onion:443 ... 0K
RTTVAR has grown to over 2.3 seconds, decreasing to 2.0
RTTVAR has grown to over 2.3 seconds, decreasing to 2.0
```

```
building circuit...
{'origin': '209.141.41.103'}
renewing circuit...
{'origin': '205.185.124.65'}
Server nginx
Date Mon, 06 Apr 2020 13:28:25 GMT
Content-Type text/html; charset=UTF-8
Transfer-Encoding chunked
Connection keep-alive
Vary Accept-Encoding
ETag W/"5e87b9a5-1531"
Strict-Transport-Security max-age=0
X-Frame-Options SAMEORIGIN
Content-Security-Policy default-src https: blob: data: 'unsafe-inline' 'unsafe-eval'; frame-ancestors 'self'
X-XSS-Protection 1;mode=block
X-Content-Type-Options nosniff
Referrer-Policy origin
Expect-CT max-age=0
Expires Mon, 06 Apr 2020 13:28:24 GMT
Cache-Control no-cache
Content-Encoding gzip
```

```
.. data:: Signal (enum)
 Signals that the tor process will accept.
 .. versionchanged:: 1.3.0
Added the HEARTBEAT signal.
 Signal
                             Description
 **RELOAD** or **HUP**
                             reloads our torrc
 **SHUTDOWN** or **INT**
**DUMP** or **USR1**
                              shut down, waiting ShutdownWaitLength first if we're a relay
                              dumps information about open connections and circuits to our log
 **DEBUG** or **USR2**
                              switch our logging to the DEBUG runlevel
 **HALT** or **TERM**
                             exit tor immediately
 **NEWNYM**
                             switch to new circuits, so new application requests don't share any circuits
 **CLEARDNSCACHE**
                              clears cached DNS results
                              trigger a heartbeat log message
 **HEARTBEAT**
```

```
433
434
      Sent from the client to the server. The syntax is:
435
436
         "SIGNAL" SP Signal CRLF
437
         Signal = "RELOAD" / "SHUTDOWN" / "DUMP" / "DEBUG" / "HALT" /
438
                   "HUP" / "INT" / "USR1" / "USR2" / "TERM" / "NEWNYM" /
439
                  "CLEARDNSCACHE" / "HEARTBEAT" / "ACTIVE" / "DORMANT"
440
441
442
      The meaning of the signals are:
443
444
          RELOAD
                    -- Reload: reload config items.
445
          SHUTDOWN -- Controlled shutdown: if server is an OP, exit immediately.
446
                       If it's an OR, close listeners and exit after
447
                       ShutdownWaitLength seconds.
448
          DUMP
                    -- Dump stats: log information about open connections and
449
                       circuits.
450
          DEBUG
                    -- Debug: switch all open logs to loglevel debug.
451
                    -- Immediate shutdown: clean up and exit now.
          CLEARDNSCACHE -- Forget the client-side cached IPs for all hostnames.
452
453
          NEWNYM
                    -- Switch to clean circuits, so new application requests
454
                       don't share any circuits with old ones. Also clears
455
                       the client-side DNS cache. (Tor MAY rate-limit its
456
                        response to this signal.)
457
          HEARTBEAT -- Make Tor dump an unscheduled Heartbeat message to log.
                    -- Tell Tor to become "dormant". A dormant Tor will
458
          DORMANT
459
                       try to avoid CPU and network usage until it receives
460
                       user-initiated network request. (Don't use this
461
                       on relays or hidden services yet!)
462
          ACTIVE
                    -- Tell Tor to stop being "dormant", as if it had received
463
                       a user-initiated network request.
Circuit 10 (GENERAL)
 - CE3FE883C6C9EF475EA097DC3E33A6F32B852DA1 (AIKO, 78.129.218.56)
 - 12CF6DB4DAE106206D6C6B09988E865C0509843B (ATZv5, 159.69.114.110)
 +- E19D4503D2FD584C8099A954270A9BC819596E74 (Unnamed, 51.68.206.35)
Circuit 11 (GENERAL)
 |- CE3FE883C6C9EF475EA097DC3E33A6F32B852DA1 (AIKO, 78.129.218.56)
 - 44DF1007B545B4D8057F279025EBB33CF99BE227 (Kroell, 80.241.214.102)
 +- 9612664500871798CFB52E8A71A956F316AA0503 (Polaris, 130.230.113.235)
Circuit 12 (GENERAL)
  - CE3FE883C6C9EF475EA097DC3E33A6F32B852DA1 (AIKO, 78.129.218.56)
  - 9E1E4F5B5F94812D02C4D18CB4086CE71CA5C614 (torpidsDEhetzner1, 78.46.217.214)
 +- 615ABEA2DE76EB3760BC51E7306BAA59F15CD8F2 (Cloud, 5.135.158.101)
Circuit 13 (GENERAL)
 - CE3FE883C6C9EF475EA097DC3E33A6F32B852DA1 (AIKO, 78.129.218.56)

    91B14EB2893544F0EC8F16086261A10B8E46B5C5 (okthx, 163.172.210.167)

 +- 03EE7DDD931D92BB57B81B3038AE7C40A08AB237 (Shockrealm, 123.30.128.138)
Circuit 14 (GENERAL)
 - CE3FE883C6C9EF475EA097DC3E33A6F32B852DA1 (AIKO, 78.129.218.56)
```

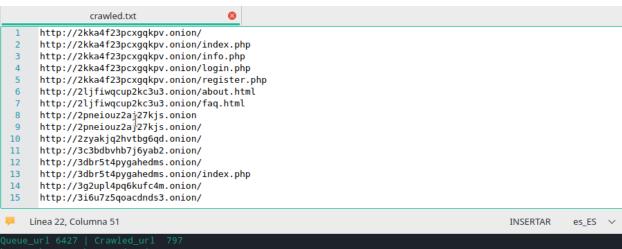
432 3.7. SIGNAL

```
DuckDuckGo's introduction points are...

209.59.173.26:443 => 3b5ji6reaxcbecgfpuzo2himulv6soxw
82.197.218.97:9001 => jtkn77xts4ojakrccagzchfmmon6f324
51.77.251.192:443 => v33md65a7qlpjeywhc7qmuefxf2nh2ip
145.220.0.15:9001 => 3nnbaaks7n4tp4bpac253775aetytqsc
194.55.13.50:9001 => 7v43p6jdbbmljdtv6oewmgcay4bfcedy
212.51.134.4:9001 => ejgd3uo763yreglajbynjcktespohqtp
173.212.239.78:9201 => hm7ukg6vr6lnyduow7ib6ie7zcadym67
85.17.127.129:443 => nqztww63upp6pj4c4qgls4gcogv75uiz
54.38.145.211:80 => s3h6c6fb2esitwovtigk4f76q322hj47
87.246.156.175:9001 => d4hokdo3mcksqhfjnpwif7zvpnt3vr7u
```

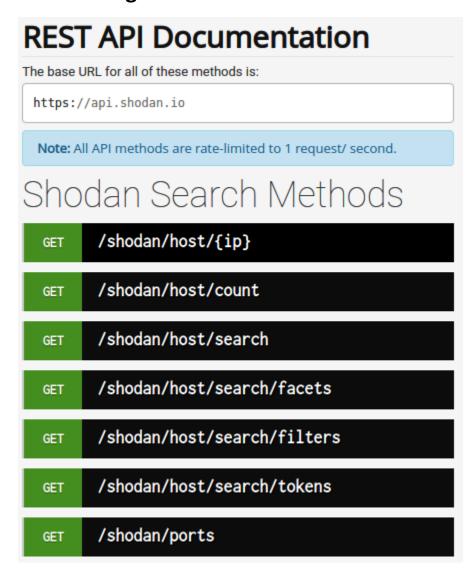
```
Links Found - 52

http://ow24et3tetp6tvmk.onion/
Tor Web Wallet
http://sfpieiezy2s_Maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/
http://sfpieiezy2s_maa.onion/index.php
http://ow24et3tetp6tvmk.onion/login.php
Tor Web Wallet
http://ow24et3tetp6tvmk.onion/login.php
Tor Web Wallet
http://ow24et3tetp6tvmk.onion/login.php
Tor Web Wallet
http://sfpieiezy2s_maa.onion/index.php
http://sfpieiezy2s_maa.onion/index.php
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/
http://sfpieiezy2sin4a.onion/index.php
http://sfpieiezy2sin4a.onion/
http://sfpieiezy2sin4a.onion/
http://sfpieiezy2sin4a.onion/
http://sfpieiezy2sin4a.onion/
http://sfpieiezy2sin4a.onion/
http://sfpieiezy2sin4a.onion/index.php
ht
```



Queue\_url 6427 | Crawled\_url 797
http://kenny7svk4sg2mcj.onion/
Thread-22 now crawl starts http://kenny7svk4sg2mcj.onion/
Queue\_url 6427 | Crawled\_url 797
http://stacvvulbayktqlf.onion/img/stacvvulbayktqlf/gallery\_05.jpg
Thread-30 now crawl starts http://stacvvulbayktqlf.onion/img/stacvvulbayktqlf/gallery\_05.jpg
Queue\_url 6427 | Crawled\_url 797
http://lg7iwjj3ajzz2cmd.onion/index.php/store-listing/
Thread-15 now crawl starts http://lg7iwjj3ajzz2cmd.onion/index.php/store-listing/
Queue\_url 6427 | Crawled\_url 797
http://hidden24vowyrcic.onion/index.php?route=product/product&path=62&product\_id=271
Thread-46 now crawl starts http://hidden24vowyrcic.onion/index.php?route=product/product&path=62&product\_id=271
Queue\_url 6429 | Crawled\_url 798
HTTP Error 404: Not Found
http://deepmartyqzff15n.onion/products/paypal-transfer-2000/
Thread-11 now crawl starts http://deepmartyqzff15n.onion/products/paypal-transfer-2000/
Queue\_url 6428 | Crawled\_url 799

# **Chapter 6: Gathering Information from Servers**



### LOOK FOR SUBDOMAINS Sub-domain enumeration. Discover hosts related to a specifc domain. www.python.org Clear Help Results for your query: www.python.org 75 results found. Showing 1 to 75 of 75 entries. **Domains** chat.uk.python.org empleo.es.python.org dinsdale.python.orgpycon-archives.python.org comunidad.es. python.orgBINARYEDGE.IO - WE SCAN THE ENTIRE INTERNET FILTER BY: TO HELP YOU UNDERSTAND WHAT IS BEING EXPOSED ICS DATABASE IOT www,python.org MALWARE WEBSERVER CAMERA

Ports	Entries*	Products	Entries	Countries	Entries	ASNs	Entries
443/tcp	456	Apache	34	United States	336	54113 FASTLY, US	334
80/tcp	142	Apache httpd	31	Germany	33	14061 DIGITALOCEAN-ASN, US	34
9999/tcp	4	nginx	29	France	28	63949 LINODE-AP Linode, LLC, US	33
5000/tcp	1	nginx/1.10.3 (Ubuntu)	17	United Kingdom	21	47570 V2O-SIA-AS, LV	18
8000/tcp	1	nginx/1.10.3	16	Latvia	18	20473 AS-CHOOPA, US	15

Help

Clear

	attack	Update HTTP Response Splitting resources	5 months ago
	discovery	added php scheme	5 months ago
	docs	from https://github.com/attackercan/	4 years ago
	regex	cross-updating with https://github.com/andresriancho/w3af/blob/master	4 years ago
	web-backdoors	Add files in asmx format	9 months ago
	wordlists-misc	Resolvers file for subdomain brute force	2 years ago
	wordlists-user-passwd	Update readme.txt	8 months ago
	.gitignore	added Null representations for double encoding, format string $\ensuremath{\%^*}$ and .	3 years ago
	README.md	Update README.md	8 months ago
	_copyright.txt	Update _copyright.txt	9 months ago
	fuzzdb-icon.png	Add files via upload	8 months ago
	fuzzdb.png	Add files via upload	8 months ago
 D	GenericBlind.txt	Removed PGSQL per Issue #2	3 years ago
	GenericBlind.txt Generic_SQLI.txt	Removed PGSQL per Issue #2 Fix #144	3 years ago 4 years ago
		Fix <b>#144</b>	
	Generic_SQLI.txt	Fix <b>#144</b>	4 years ago
	Generic_SQLI.txt MSSQL.txt	Fix #144  Added a numeric check	4 years ago 16 months ago
0	Generic_SQLI.txt  MSSQL.txt  MSSQL_blind.txt	Fix #144  Added a numeric check  Fix #144	4 years ago 16 months ago 4 years ago
	Generic_SQLI.txt  MSSQL.txt  MSSQL_blind.txt  MySQL.txt	Fix #144  Added a numeric check  Fix #144  Fix #144	4 years ago 16 months ago 4 years ago 4 years ago
	Generic_SQLI.txt  MSSQL.txt  MSSQL_blind.txt  MySQL.txt  MySQL_MSSQL.txt	Fix #144  Added a numeric check  Fix #144  Fix #144  Fix #144	4 years ago 16 months ago 4 years ago 4 years ago 4 years ago

### **Chapter 7: Interacting with FTP, SFTP, and SSH Servers**

```
gen) banner: SSH-2.0-OpenSSH 7.6p1 Ubuntu-4ubuntu0.3
(gen) compatibility: OpenSSH 7.3+, Dropbear SSH 2016.73+ (gen) compression: enabled (zlib@openssh.com)
(kex) curve25519-sha256
(kex) curve25519-sha256@libssh.org
                                                      -- [warn] unknown algorithm
(kex) ecdh-sha2-nistp256
                                                      -- [info] available since OpenSSH 5.7, Dropbear SSH 2013.62
(kex) ecdh-sha2-nistp384
                                                      -- [info] available since OpenSSH 5.7, Dropbear SSH 2013.62
(kex) ecdh-sha2-nistp521
                                                       -- [info] available since OpenSSH 5.7, Dropbear SSH 2013.62
  kex) diffie-hellman-group-exchange-sha256
                                                                  using custom size modulus (possibly weak)
(kex) diffie-hellman-group-exchange-sha256 -- [info] available since OpenSSH 4.4
(kex) diffie-hellman-group16-sha512
(kex) diffie-hellman-group18-sha512
                                                      -- [info] available since OpenSSH 7.3, Dropbear SSH 2016.73
-- [info] available since OpenSSH 7.3
(kex) diffie-hellman-group14-sha1 (kex) diffie-hellman-group14-sha1 (kex) diffie-hellman-group14-sha1 (kex) diffie-hellman-group14-sha1 (- [info] available since OpenSSH 3.9, Dropbear SSH 0.53
 (key) rsa-sha2-512
                                                      -- [info] available since OpenSSH 7.2
                                                      -- [warn] using weak random number generator could reveal the key
(key) ecdsa-sha2-nistp256
                                                     -- [info] available since OpenSSH 5.7, Dropbear SSH 2013.62
(key) ecdsa-sha2-nistp256
# encryption algorithms (ciphers)
(enc) chacha20-poly1305@openssh.com
                                                      -- [info] available since OpenSSH 6.5
(enc) chacha20-poly1305@openssh.com
                                                       -- [info] default cipher since OpenSSH 6.9.
                                                       -- [info] available since OpenSSH 3.7, Dropbear SSH 0.52
-- [info] available since OpenSSH 3.7
(enc) aes128-ctr
```

# Key Exchange Algorithms

Oakley Group 14 should be secure for now.  diffie-hellman-group16-sha512 Diffie-Hellman with 4096-bit MODP Group 16 with SHA-512 hash 3 Secure diffie-hellman-group18-sha512 Diffie-Hellman with 8192-bit MODP Group 18 with SHA-512 hash 3 Secure diffie-hellman-group-exchange- Diffie-Hellman with MODP Group Exchange with SHA-256 hash 3 Secure sha256  curve25519-sha256 Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash 3 Secure exchange-sha2-nistp256 Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash 3 Secure exchange-sha2-nistp256 Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash 3 Secure exchange-sha2-nistp256 Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash 3 Secure exchange-sha2-nistp384 Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash 3 Secure exchange-sha2-nistp384			
diffie-hellman-group18-sha512  Diffie-Hellman with 8192-bit MODP Group 18 with SHA-512 hash  Gecure 25519-sha256  Curve25519-sha256  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-321 curve with SHA-384 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash  Gecure 25519-sha256  Elliptic Curve Diffie-Hellman on NI	diffie-hellman-group14-sha256		Secure
diffie-hellman-group-exchange- sha256  curve25519-sha256  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash   Secure  curve25519-sha256  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash   Secure  ecdh-sha2-nistp256  Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash   Secure  ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   Secure  ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-384 hash   Secure  ecdh-sha2-nistp521  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Weak  Weak	diffie-hellman-group16-sha512	Diffie-Hellman with 4096-bit MODP Group 16 with SHA-512 hash 🕄	Secure
Sha256  curve25519-sha256  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash   curve25519-sha256@libssh.org  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash   Secure  ecdh-sha2-nistp256  Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash   Secure  Edh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   Secure  Possible NSA Indicator  Ecdh-sha2-nistp521  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Secure  Weak  Under SHA-1 bash   Secure  Weak  Weak	diffie-hellman-group18-sha512	Diffie-Hellman with 8192-bit MODP Group 18 with SHA-512 hash €	Secure
curve25519-sha256@libssh.org  Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash   Secure  ecdh-sha2-nistp256  Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash   Ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   Ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   Ecdh-sha2-nistp521  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Eccure  Ecdh-sha2-nistp521  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Eccure  Ecdh-sha2-nistp521  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Eccure  Eccu		Diffie-Hellman with MODP Group Exchange with SHA-256 hash €	Secure
ecdh-sha2-nistp256  Elliptic Curve Diffie-Hellman on NIST P-256 curve with SHA-256 hash   ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   secure  Possible NSA Incircum.  Ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   secure  Ecdh-sha2-nistp521  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   secure  Ediffie-hellman-group14-sha1  Diffie-Hellman with 2048-bit Oakley Group 14 with SHA-1 hash   Weak	curve25519-sha256	Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash 6	Secure
Possible NSA Incidence  Elliptic Curve Diffie-Hellman on NIST P-384 curve with SHA-384 hash   Ecdh-sha2-nistp384  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Ecture  Ecture  Ecture  Ecture  Ecture  Ecture  Ecture  Ecture  Ecture  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Ecture	curve25519-sha256@libssh.org	Elliptic Curve Diffie-Hellman on Curve25519 with SHA-256 hash 6	Secure
Possible NSA backdoo.  Elliptic Curve Diffie-Hellman on NIST P-521 curve with SHA-512 hash   Secure  But the state of the	ecdh-sha2-nistp256	<u>·</u>	Secure
Prosible NSA bookdoo.  Diffie-hellman-group14-sha1  Diffie-Hellman with 2048-bit Oakley Group 14 with SHA-1 hash   Weak  Weak	ecdh-sha2-nistp384	<u> </u>	Secure
7	ecdh-sha2-nistp521	<u>·</u>	Secure
	diffie-hellman-group14-sha1		Weak

# Server Host Key Algorithms

ssh-ed25519	Ed25519, an Edwards-curve Digital Signature Algorithm (EdDSA) 1	Secure
ssh-ed25519	Ed25519, an Edwards-curve Digital Signature Algorithm (EdDSA) 1	Secure

### **Chapter 8: Working with Nmap Scanner**

```
Nmap 7.60 ( https://nmap.org )
Usage: nmap [Scan Type(s)] [Options] {target specification}
TARGET SPECIFICATION:
  Can pass hostnames, IP addresses, networks, etc.
  Ex: scanme.nmap.org, microsoft.com/24, 192.168.0.1; 10.0.0-255.1-254
  -iL <inputfilename>: Input from list of hosts/networks
  -iR <num hosts>: Choose random targets
  --exclude <host1[,host2][,host3],...>: Exclude hosts/networks
  --excludefile <exclude file>: Exclude list from file
HOST DISCOVERY:
  -sL: List Scan - simply list targets to scan
  -sn: Ping Scan - disable port scan
  -Pn: Treat all hosts as online -- skip host discovery
  -PS/PA/PU/PY[portlist]: TCP SYN/ACK, UDP or SCTP discovery to given ports
  -PE/PP/PM: ICMP echo, timestamp, and netmask request discovery probes
  -PO[protocol list]: IP Protocol Ping
  -n/-R: Never do DNS resolution/Always resolve [default: sometimes]
  --dns-servers <serv1[,serv2],...>: Specify custom DNS servers
  --system-dns: Use OS's DNS resolver
  --traceroute: Trace hop path to each host
SCAN TECHNIQUES:
  -sS/sT/sA/sW/sM: TCP SYN/Connect()/ACK/Window/Maimon scans
  -sU: UDP Scan
  -sN/sF/sX: TCP Null, FIN, and Xmas scans
  --scanflags <flags>: Customize TCP scan flags
  -sI <zombie host[:probeport]>: Idle scan
  -sY/sZ: SCTP INIT/COOKIE-ECHO scans
  -s0: IP protocol scan
  -b <FTP relay host>: FTP bounce scan
```

## **Chapter 9: Interacting with Vulnerability Scanners**

Nessus - 8.11.0			<b>≧</b> View	Release Notes *
Nessus-8.11.0-debian6_i386.deb	Debian 6, 7, 8, 9 / Kali Linux 1, 2017.3 i386(32-bit)	38.8 MB	Jul 14, 2020	Checksum
Nessus-8.11.0-amzn.x86_64.rpm	Amazon Linux 2015.03, 2015.09, 2017.09, Amazon Linux 2	41.2 MB	Jul 14, 2020	Checksum
● Nessus-8.11.0-x64.msi	Windows Server 2008, Server 2008 R2*, Server 2012, Server 2012 R2, 7, 8, 10, Server 2016, Server 2019 (64-bit)	75.7 MB	Jul 14, 2020	Checksum
Nessus-8.11.0-Win32.msi	Windows 7, 8, 10 (32-bit)	69.8 MB	Jul 14, 2020	Checksum

#### Welcome to Nessus Essentials

- 24

To get started, launch a host discovery scan to identify what hosts on your network are available to scan. Hosts that are discovered through a discovery scan do not count towards the 16 host limit on your license.

Enter targets as hostnames, IPv4 addresses, or IPv6 addresses. For IP addresses, you can use CIDR notation (e.g., 192.168.0.0/24), a range (e.g., 192.168.0.1-192.168.0.255), or a comma-separated list (e.g., 192.168.0.0, 192.168.0.1).

#### **Targets**

Example: 192.168.1.1-192.168.1.5, 192.168.2.0/24, test.com

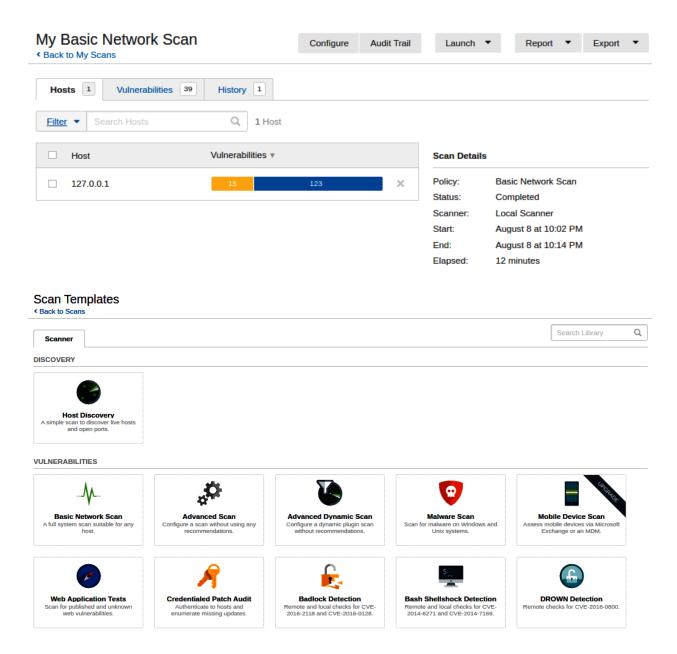
### My Host Discovery Scan Results

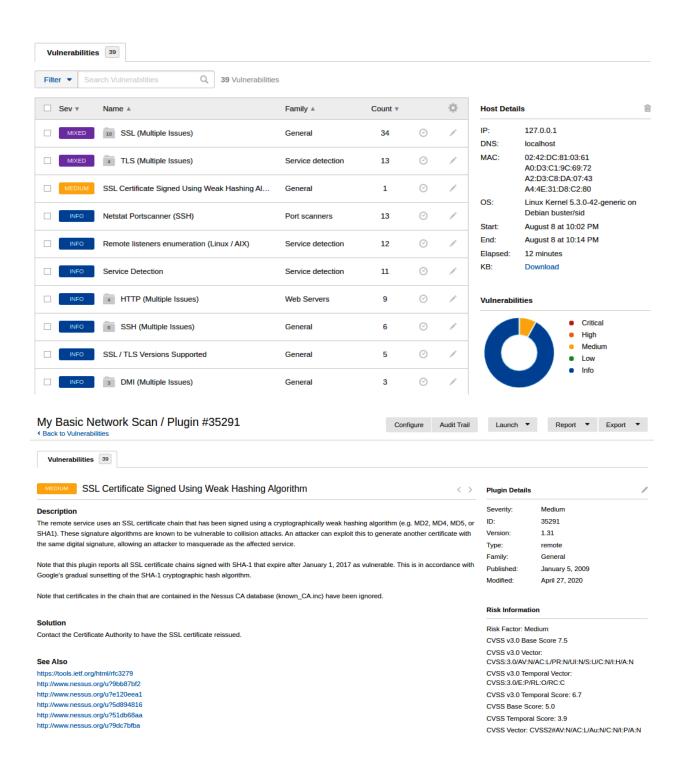
×

Nessus found the following hosts listed below from your list of targets (127.0.0.1).

To launch your first basic network scan, select the hosts you want to scan. These hosts count towards the 16 host limit on your license.

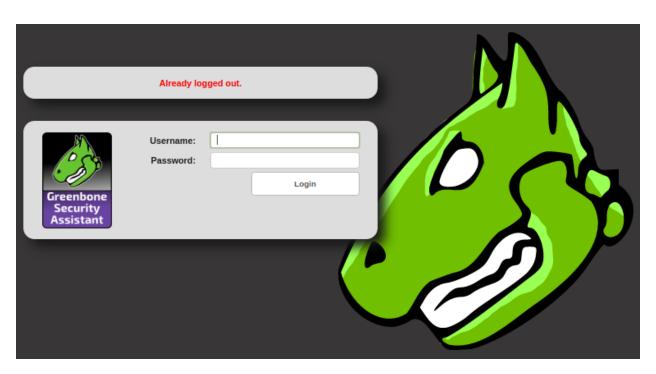


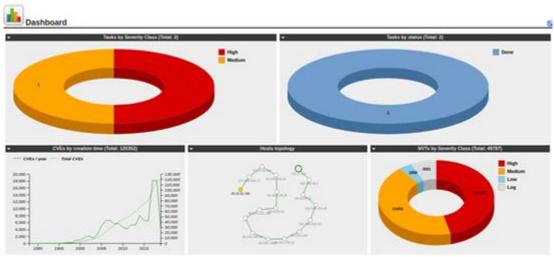


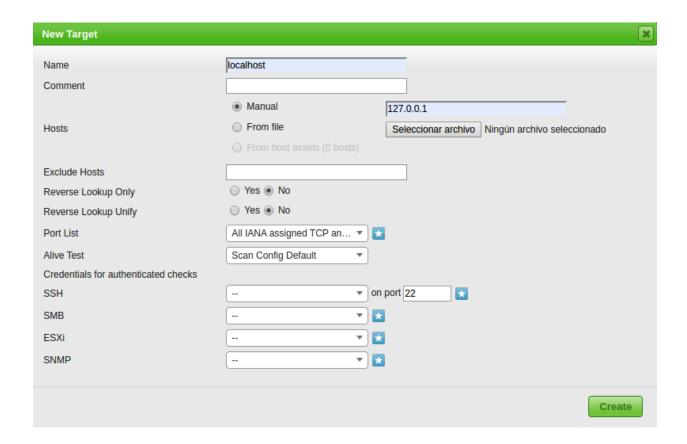


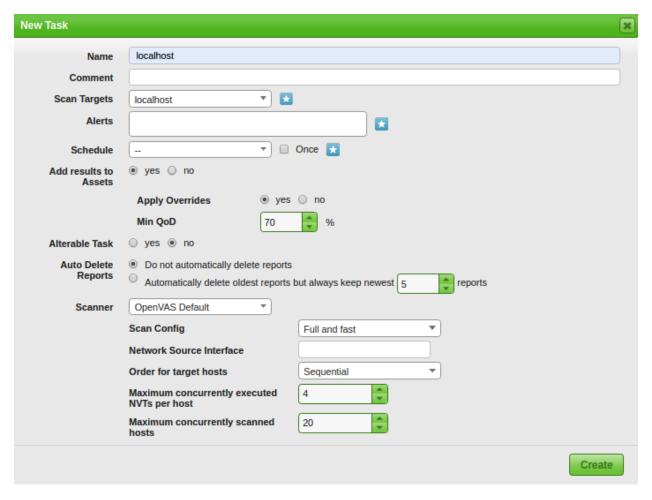
Е	Paquete	Versión instalada	Última versión	Descripción
<b>(</b>	greenbone-security-assistant		7.0.2+dfsg.1-2build1	remote network security auditor - web interface
<b>(</b>	greenbone-security-assistant-cor		7.0.2+dfsg.1-2build1	architecture independent files for greenbone-security-assistant
	libopenvas-dev		9.0.1-4	remote network security auditor - static libraries and headers
	libopenvas-doc		9.0.1-4	remote network security auditor - libraries documentation
<b>(</b>	libopenvas9		9.0.1-4	remote network security auditor - shared libraries
<b>(</b>			9.0.2	remote network security auditor - dummy package
<b>(</b>	openvas-cli		1.4.5-1	Command Line Tools for OpenVAS
<b>(</b>	openvas-manager		7.0.2-2	Manager Module of OpenVAS
<b>(</b>	openvas-manager-common		7.0.2-2	architecture independent files for openvas-manager
	openvas-nasl		9.0.1-4	remote network security auditor - nasl tool
<b>(</b>	openvas-scanner		5.1.1-3	remote network security auditor - scanner

```
root@kali:~# openvas-setup
[>] Checking redis.conf
[*] Editing redis.conf
[>] Checking openvassd.conf
[*] Adding to openvassd.conf
[>] Restarting redis-server
[>] Checking OpenVAS certificate infrastructure
OK: Directory for keys (/var/lib/openvas/private/CA) exists.
OK: Directory for certificates (/var/lib/openvas/CA) exists.
OK: CA key found in /var/lib/openvas/private/CA/cakey.pem
OK: CA certificate found in /var/lib/openvas/CA/cacert.pem
OK: CA certificate verified.
OK: Certificate /var/lib/openvas/CA/clientcert.pem verified.
OK: Certificate /var/lib/openvas/CA/servercert.pem verified.
OK: Your OpenVAS certificate infrastructure passed validation.
[>] Updating OpenVAS feeds
[*] [1/3] Updating: NVT
```











						[
Vulnerability		Severity	QoD	Host	Location	Created
CPE Inventory		0.0 (Log)	80%	127.0.0.1	general/CPE-T	Thu Aug 6 21:32:53 2020
DIRB (NASL wrapper)		0.0 (Log)	98%	127.0.0.1	443/tcp	Thu Aug 6 21:29:21 2020
OpenVAS / Greenbone Vulnerability Manager Default Credentials	0	10.0 (High)	100%	127.0.0.1	9390/tcp	Thu Aug 6 21:25:29 2020
wapiti (NASL wrapper)		0.0 (Log)	98%	127.0.0.1	443/tcp	Thu Aug 6 21:24:48 2020
SSL/TLS: HTTP Strict Transport Security (HSTS) Missing	0	0.0 (Log)	80%	127.0.0.1	443/tcp	Thu Aug 6 21:23:05 2020

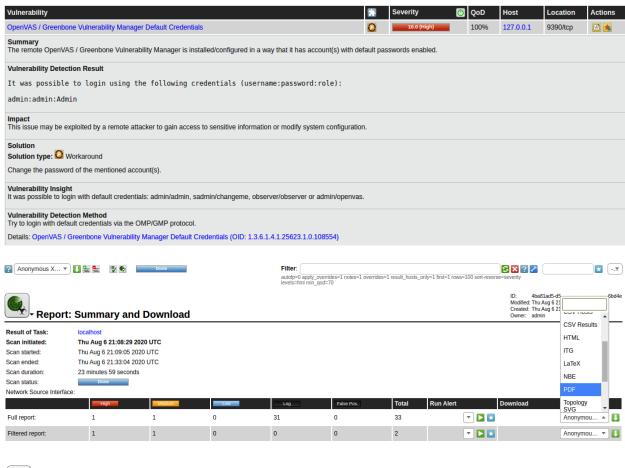


Kentico <= 12.0.14 Remote Code Execution

Web application

# Result: OpenVAS / Greenbone Vulnerability Manager Default Credentials

ID: 2ce3a347-6c6a-4178-a607-9b80777d4 Created: Thu Aug 6 21:25:29 2020 Modified: Thu Aug 6 21:25:29 2020





Wed Apr 3 2019-04-2019 03T09:02:33+0000 CVE-2019-10068

# **Chapter 10: Identifying Server Vulnerabilities in Web Applications**



Vulnerable test websites for Acunetix Web Vulnerability Scanner.

Name	URL	Technologies	Resources	
SecurityTweets	http://testhtml5.vulnweb.com	nginx, Python, Flask, CouchDB	Review Acunetix HTML5 scanner or learn more on the topic.	
Acuart	http://testphp.vulnweb.com	Apache, PHP, MySQL	Review Acunetix PHP scanner or learn more on the topic.	
Acuforum	http://testasp.vulnweb.com	IIS, ASP, Microsoft SQL Server	Review Acunetix SQL scanner or learn more on the topic.	
Acublog	http://testaspnet.vulnweb.com	IIS, ASP.NET, Microsoft SQL Server	Review Acunetix network scanner or learn more on the topic.	
REST API	http://rest.vulnweb.com/	Apache, PHP, MySQL	Review Acunetix scanner or learn more on the topic.	
€ → ℃	<b>û</b>	i testphp.vulnwek	o.com/search.php?test=query	
acunetix acuart				
TEST and Demonstration site for Acunetix Web Vulnerability Scanner				
home   categ	home   categories   artists   disclaimer   your cart   guestbook   AJAX Demo			
search art	searched fo	or:		

<script>alert(' go

Browse categories



Usage: python sqlmap [options] Options: Show basic help message and exit -h, --help -hh Show advanced help message and exit Show program's version number and exit --version v VERBOSE Verbosity level: 0-6 (default 1) Target: At least one of these options has to be provided to define the target(s) -u URL, --url=URL Target URL (e.g. "http://www.site.com/vuln.php?id=1") -g GOOGLEDORK Process Google dork results as target URLs These options can be used to specify how to connect to the target URL --data=DATA Data string to be sent through POST HTTP Cookie header value --cookie=COOKIE --random-agent Use randomly selected HTTP User-Agent header value --proxy=PROXY Use a proxy to connect to the target URL --tor Use Tor anonymity network Check to see if Tor is used properly --check-tor

#### Enumeration: These options can be used to enumerate the back-end database management system information, structure and data contained in the tables. Moreover you can run your own SQL statements -a, --all Retrieve everything -b, --banner Retrieve DBMS banner Retrieve DBMS current user --current-user Retrieve DBMS current database --current-db --passwords Enumerate DBMS users password hashes Enumerate DBMS database tables --tables --columns Enumerate DBMS database table columns Enumerate DBMS schema --schema --dump Dump DBMS database table entries --dump-all Dump all DBMS databases tables entries -D DB DBMS database to enumerate -T TBL DBMS database table(s) to enumerate -C COL DBMS database table column(s) to enumerate

| Database: information Table: engines [8 entries]  | n_schema   |                                    |   |   |
|---|--|------------------------------------|---|---|
| XA   ENGINE   | COMMENT  | SUPPORT                            | SAVEPOINTS                                | TRANSACTIONS  |
| YES   InnoDB<br>  NO   MRG MYISAM<br>  NO   BLACKHOLE<br>  NO   CSV<br>  NO   MEMORY<br>  NULL   FEDERATED<br>  NO   ARCHIVE<br>  NO   MYISAM | Supports transactions, row-level locking, and foreign keys<br>  Collection of identical MyISAM tables<br>  /dev/null storage engine (anything you write to it disappears)<br>  CSV storage engine<br>  Hash based, stored in memory, useful for temporary tables<br>  Federated MySQL storage engine<br>  Archive storage engine<br>  Default engine as of MySQL 3.23 with great performance | YES YES YES YES YES NO YES DEFAULT | YES<br>NO<br>NO<br>NO<br>NO<br>NULL<br>NO | YES<br>  NO<br>  NO<br>  NO<br>  NO<br>  NULL<br>  NO<br>  NO |



Q IPv4 Hosts \$

OpenSSL 1.0.1

Expand

Register Sign In

Sweden

#### Protocol:

1.35M 80/http

1.22M 443/https

434.11K 22/ssh

345.83K 21/ftp

291.83K 3306/mysql

■ More

#### Tag:

1.62M http

1.16M https

434.11K ssh

345.83K ftp

316.18K smtp

■ More

#### **212.63.193.8**

SPACEDUMP-AS This ASN is located on STHIX at Tulegatan Stokab (30880)

>\_ Unix 🌼 80/http

# 404 Not Found

Q 80.http.get.body: OpenSSL / 1.0.1 PHP/5.2.17 Server at

#### A 45.55.115.225

■ DIGITALOCEAN-ASN (14061)
San Francisco, California, United States

DATABASE MYSQL

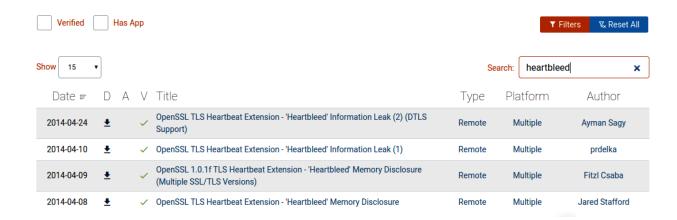
#### ∆ 107.170.246.84 (droppanel-healthcheck-1.0.1-1732)

■ DIGITALOCEAN-ASN (14061)
San Francisco, California, United States

CentOS 22/ssh, 3306/mysql, 443/https, 80/http

♣ 503 Service Unavailable 
♣ droppanel-Healthcheck-1.0.1-1732

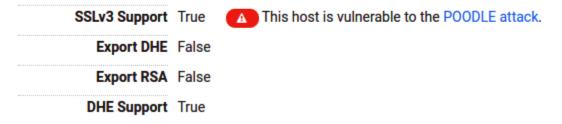
DATABASE MYSQL



#### Heartbleed

Heartbleed Heartbleed Vulnerable

### **Cryptographic Configuration**





#### **Protocol Details** No, server keys and hostname not seen elsewhere with SSLv2 (1) For a better understanding of this test, please read this longer explanation DROWN (2) Key usage data kindly provided by the Censys network search engine; original DROWN website here (3) Censys data is only indicative of possible key and certificate reuse; possibly out-of-date and not complete Secure Renegotiation Supported Secure Client-Initiated Renegotiation No Insecure Client-Initiated Renegotiation No BEAST attack Not mitigated server-side (more info) SSL 3: θxa, TLS 1.0: θxa POODLE (SSLv3) Vulnerable INSECURE (more info) SSL 3: 0xa POODLE (TLS) No (more info) **Zombie POODLE** No (more info) TLS 1.2: θxθθθα GOLDENDOODLE No (more info) TLS 1.2: θxθθθα OpenSSL 0-Length No (more info) TLS 1.2 : θxθθθα Sleeping POODLE No (more info) TLS 1.2: θxθθθα Yes, TLS\_FALLBACK\_SCSV supported (more info) Downgrade attack prevention SSL/TLS compression RC4 Yes INSECURE (more info) **Heartbeat (extension)** Heartbleed (vulnerability) Yes (more info) Ticketbleed (vulnerability) No (more info) OpenSSL CCS vuln. (CVE-2014-0224) Yes EXPLOITABLE (more info)

```
Usage: sslyze [options] target1.com target2.com:443 target3.com:443{ip} etc...
Options:
                        show program's version number and exit
  --version
  -h, --help
                        show this help message and exit
                        Regular HTTPS scan; shortcut for --sslv2 --sslv3
  --regular
                        --tlsv1 --tlsv1 1 --tlsv1 2 --tlsv1 3 --reneg --resum
                        --certinfo --http get --hide rejected ciphers
                        --compression --heartbleed --openssl ccs --fallback
                        --robot
  Trust stores options:
    --update trust stores
                        Update the default trust stores used by SSLyze. The
                        latest stores will be downloaded from https://github.c
                        om/nabla-c0d3/trust stores observatory. This option is
                        meant to be used separately, and will silence any
                        other command line option supplied to SSLyze.
```

### **Chapter 11: Security and Vulnerabilities in Python Modules**

**Warning:** Executing shell commands that incorporate unsanitized input from an untrusted source makes a program vulnerable to shell injection, a serious security flaw which can result in arbitrary command execution. For this reason, the use of <a href="https://shell-True">shell-True</a> is **strongly discouraged** in cases where the command string is constructed from external input:

```
>>> from subprocess import call
>>> filename = input("What file would you like to display?\n")
What file would you like to display?
non_existent; rm -rf / #
>>> call("cat " + filename, shell=True) # Uh-oh. This will end badly...
```

shell=False disables all shell based features, but does not suffer from this vulnerability; see the Note in the Popen constructor documentation for helpful hints in getting shell=False to work.

When using shell=True, pipes.quote() can be used to properly escape whitespace and shell metacharacters in strings that are going to be used to construct shell commands.

```
usage: bandit [-h] [-r] [-a {file,vuln}] [-n CONTEXT_LINES] [-c CONFIG_FILE]
[-p PROFILE] [-t TESTS] [-s SKIPS] [-l] [-i]
[-f {csv,custom,html,json,screen,txt,xml,yaml}]
[--msg-template MSG_TEMPLATE] [-o [OUTPUT_FILE]] [-v] [-d]
[--ignore-nosec] [-x EXCLUDED_PATHS] [-b BASELINE]
[--ini INI_PATH] [--version]
[targets [targets ...]]
Bandit - a Python source code security analyzer
positional arguments:
   targets
                                          source file(s) or directory(s) to be tested
optional arguments:
    -h, --help
                                          show this help message and exit
   -r, --recursive find and process files in subdirectories
-a {file,vuln}, --aggregate {file,vuln}
                                          aggregate output by vulnerability (default) or by
                                          filename
   -n CONTEXT_LINES, --number CONTEXT_LINES

maximum number of code lines to output for each issue
-c CONFIG_FILE, --configfile CONFIG_FILE

optional config file to use for selecting plugins and
overriding defaults
    -p PROFILE, --profile PROFILE
                                          profile to use (defaults to executing all tests)
    -t TESTS, --tests TESTS
                                          comma-separated list of test IDs to run
```

#### Metrics:

Total lines of code: 110675 Total lines skipped (#nosec): 0

blacklist: Consider possible security implications associated with subprocess module.

Test ID: B404 Severity: LOW Confidence: HIGH

File: libcloud/contrib/generate\_provider\_logos\_collage\_image.py

More info: http://docs.openstack.org/developer/bandit/blacklists/blacklist\_imports.html#b404-import\_subprocess

31 import argparse 32 import subprocess 33 import random

subprocess\_popen\_with\_shell\_equals\_true: subprocess call with shell=True identified, security issue.

Test ID: B602 Severity: HIGH Confidence: HIGH

File: libcloud/contrib/generate\_provider\_logos\_collage\_image.py

More info: http://docs.openstack.org/developer/bandit/plugins/subprocess\_popen\_with\_shell\_equals\_true.html

76 cmd = cmd % values

77 subprocess.call(cmd, shell=True)

78

subprocess popen with shell equals true: subprocess call with shell=True identified, security issue.

Test ID: B602 Severity: HIGH Confidence: HIGH

# **Plugin ID Groupings**

| ID   | Description                            |
|------|--|
| B1xx | misc tests                             |
| B2xx | application/framework misconfiguration |
| ВЗхх | blacklists (calls)                     |
| B4xx | blacklists (imports)                   |
| В5хх | cryptography                           |
| В6хх | injection                              |
| В7хх | XSS                                    |

```
More Info: https://bandit.readthedocs.io/en/latest/plugins/b602_subprocess_popen_with_shell_equals_true.html

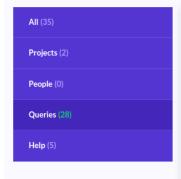
pop('/bin/gcc --version', shell=True)
Popen('/bin/gcc --version', shell=True)

>> Issue: [8604:any_other_function_with_shell_equals_true] Function call with shell=True parameter identified, possible security issue.
Severity: Medium Confidence: Low
Location: .\subprocess_shell.py:12
More Info: https://bandit.readthedocs.io/en/latest/plugins/b604_any_other_function_with_shell_equals_true.html
pop('/bin/gcc --version', shell=True)
Popen('/bin/gcc --version', shell=True)
```

| ID   | Name   | Calls  | Severity |
|------|--------|--|----------|
| B301 | pickle | <ul> <li>pickle.load</li> <li>pickle.load</li> <li>pickle.Unpickler</li> <li>cPickle.loads</li> <li>cPickle.load</li> <li>cPickle.Unpickler</li> <li>dill.loads</li> <li>dill.load</li> <li>dill.load</li> </ul> | Medium   |

```
+ def _encode_invalid_chars(component, allowed_chars, encoding='utf-8'):
144
            """Percent-encodes a URI component without reapplying
            onto an already percent-encoded component. Based on
            rfc3986.normalizers.encode_component()
            ....
147
            if component is None:
     +
149 +
                return component
            # Try to see if the component we're encoding is already percent-encoded
            # so we can skip all '%' characters but still encode all others.
            percent_encodings = len(normalizers.PERCENT_MATCHER.findall(
                                    compat.to_str(component, encoding)))
            uri_bytes = component.encode('utf-8', 'surrogatepass')
     +
            is_percent_encoded = percent_encodings == uri_bytes.count(b'%')
            encoded_component = bytearray()
            for i in range(0, len(uri_bytes)):
                # Will return a single character bytestring on both Python 2 & 3
                byte = uri_bytes[i:i+1]
164
                byte_ord = ord(byte)
                if ((is_percent_encoded and byte == b'%')
                        or (byte_ord < 128 and byte.decode() in allowed_chars)):
                    encoded_component.extend(byte)
```

```
General Options:
 -h, --help
--isolated
                              Show help.
                              Run pip in an isolated mode, ignoring environment variables and user configuration.
  -v, --verbose
                              Give more output. Option is additive, and can be used up to 3 times.
  -V, --version
                              Show version and exit.
  -q, --quiet
                              Give less output. Option is additive, and can be used up to 3 times (corresponding to
                              WARNING, ERROR, and CRITICAL logging levels).
  --log <path>
                              Path to a verbose appending log.
                              Specify a proxy in the form [user:passwd@]proxy.server:port.
  --proxy <proxy>
                              Maximum number of retries each connection should attempt (default 5 times).
  --retries <retries>
                              Set the socket timeout (default 15 seconds).
  --timeout (sec>
  --exists-action <action>
                              Default action when a path already exists: (s)witch, (i)gnore, (w)ipe, (b)ackup,
                              (a)bort).
   -trusted-host <hostname>
                              Mark this host as trusted, even though it does not have valid or any HTTPS.
  -cert <path>
                              Path to alternate CA bundle.
  --client-cert <path>
                              Path to SSL client certificate, a single file containing the private key and the
                              certificate in PEM format
```



#### Queries (28)

#### Binding a socket to all network interfaces (py/bind-socket-all-network-interfaces)

Binding a socket to all interfaces opens it up to traffic from any IPv4 address and is therefore associated with security risks.

#### 'input' function used in Python 2 (py/use-of-input)

The built-in function 'input' is used which, in Python 2, can allow arbitrary code to be run.

#### Use of insecure SSL/TLS version (py/insecure-protocol)

Using an insecure SSL/TLS version may leave the connection vulnerable to attacks.

#### **Default version of SSL/TLS may be insecure** (py/insecure-default-protocol)

 $Leaving \ the \ SSL/TLS \ version \ unspecified \ may \ result \ in \ an \ insecure \ default \ protocol \ being \ used.$ 

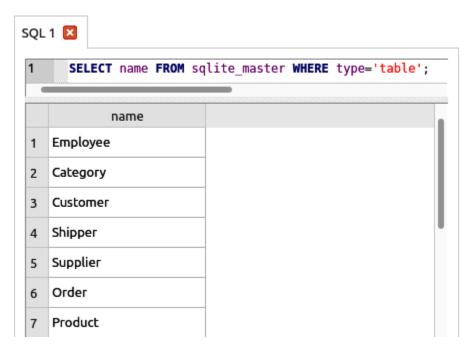
#### Reflected server-side cross-site scripting (py/reflective-xss)

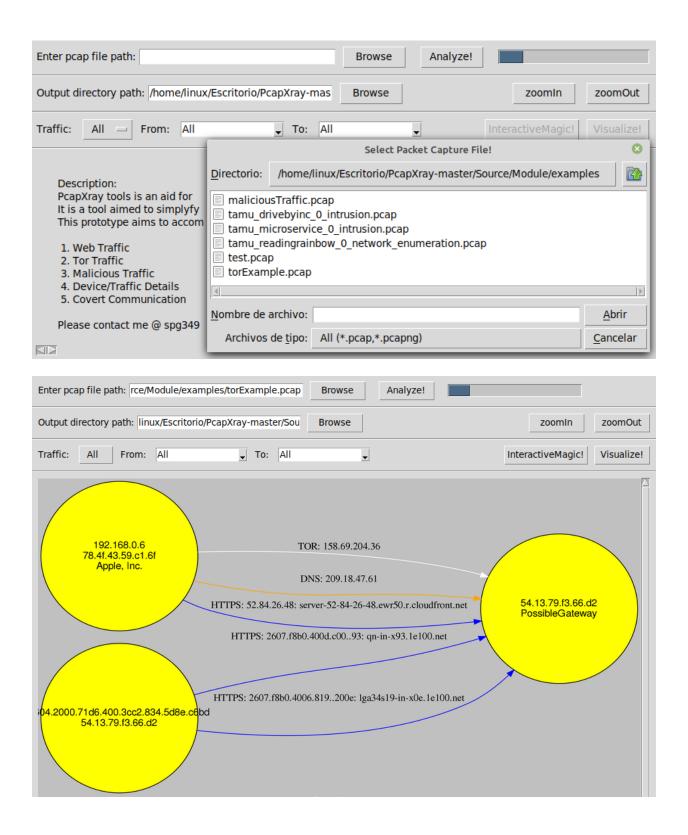
 $Writing \ user \ input \ directly \ to \ a \ web \ page \ allows \ for \ a \ cross-site \ scripting \ vulnerability.$ 

Incomplete URL substring sanitization (py/incomplete-url-substring-sanitization)

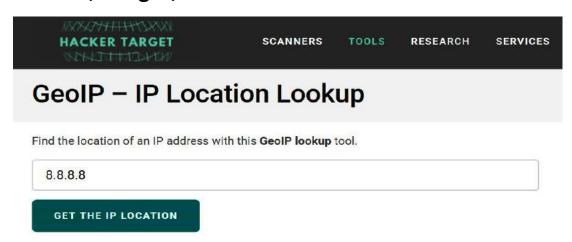
# **Chapter 12: Python Tools for Forensics Analysis**

| Nombre                  | Tipo | Esquema  |
|-------------------------|------|--|
| □ III Tablas (13)       |      |  |
| + 🔳 Category            |      | CREATE TABLE "Category" ( "Id" INTEGER PRIMARY     |
| ■ Customer              |      | CREATE TABLE "Customer" ( "Id" VARCHAR(8000) F     |
| CustomerCustomerDemo    |      | CREATE TABLE "CustomerCustomerDemo" ( "Id" VA      |
| CustomerDemographic     |      | CREATE TABLE "CustomerDemographic" ( "Id" VAR      |
| + III Employee          |      | CREATE TABLE "Employee" ( "Id" INTEGER PRIMAR'     |
| + III EmployeeTerritory |      | CREATE TABLE "EmployeeTerritory" ( "Id" VARCHAI    |
| + 🗐 Order               |      | CREATE TABLE "Order" ( "Id" INTEGER PRIMARY KE     |
| + 🔳 OrderDetail         |      | CREATE TABLE "OrderDetail" ( "Id" VARCHAR(8000     |
| + III Product           |      | CREATE TABLE "Product" ( "Id" INTEGER PRIMARY I    |
| + 🔳 Region              |      | CREATE TABLE "Region" ( "Id" INTEGER PRIMARY K     |
| + 📰 Shipper             |      | CREATE TABLE "Shipper" ( "Id" INTEGER PRIMARY F    |
| + 🗐 Supplier            |      | CREATE TABLE "Supplier" ( "Id" INTEGER PRIMARY     |
| + III Territory         |      | CREATE TABLE "Territory" ( "Id" VARCHAR(8000) PF   |
| 📎 Índices (0)           |      |  |
| ─ ■ Vistas (1)          |      |  |
| ProductDetails_V        |      | CREATE VIEW [ProductDetails_V] as select p.*, c.Ca |
| Disparadores (0)        |      |  |





# Chapter 13: Extracting Geolocation and Metadata from Documents, Images, and Browsers

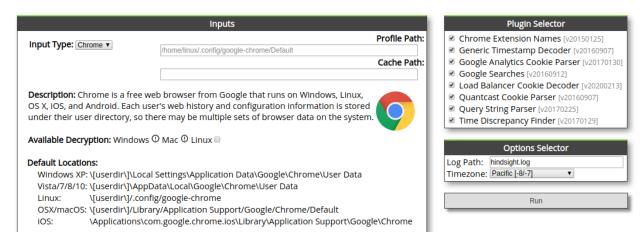


| Nombre                  | Tipo | Esquema  |
|-------------------------|------|--|
| ⊡ 🔢 Tablas (13)         |      |  |
| moz_anno_attributes     |      | CREATE TABLE moz_anno_attributes ( id INTEGE   |
| + moz_annos             |      | CREATE TABLE moz_annos ( id INTEGER PRIMAR     |
| + moz_bookmarks         |      | CREATE TABLE moz_bookmarks ( id INTEGER PR     |
| → moz_bookmarks_deleted |      | CREATE TABLE moz_bookmarks_deleted ( guid T    |
| moz_historyvisits       |      | CREATE TABLE moz_historyvisits ( id INTEGER PF |
| moz_inputhistory        |      | CREATE TABLE moz_inputhistory ( place_id INTE  |
| + moz_items_annos       |      | CREATE TABLE moz_items_annos ( id INTEGER P    |
| moz_keywords            |      | CREATE TABLE moz_keywords ( id INTEGER PRIM    |
| + moz_meta              |      | CREATE TABLE moz_meta (key TEXT PRIMARY K      |
| moz_origins             |      | CREATE TABLE moz_origins ( id INTEGER PRIMAF   |
| + moz_places            |      | CREATE TABLE moz_places ( id INTEGER PRIMAR    |
| sqlite_sequence         |      | CREATE TABLE sqlite_sequence(name,seq)         |
| sqlite_stat1            |      | CREATE TABLE sqlite_stat1(tbl,idx,stat)        |

| New Database                   |              |  |  |  |
|--------------------------------|--------------|--|--|--|
| Database Structure Browse Data | Edit Pragmas | Execute SQL  |  |  |
| 🕠 Create Table 🦠 Create Index  | Modify Table | □ Delete Table   |  |  |
| Name                           | Type         | Schema   |  |  |
| ➤ III Tables (12)              |              |  |  |  |
| > downloads                    |              | CREATE TABLE downloads (id INTEGER PRIMARY KEY, guid VARCHAR NOT NULL, current_path LONGVARCH      |  |  |
| downloads_slices               |              | CREATE TABLE downloads_slices (download_id INTEGER NOT NULL,offset INTEGER NOT NULL,received_byte  |  |  |
| downloads_url_chains           |              | CREATE TABLE downloads_url_chains (id INTEGER NOT NULL,chain_index INTEGER NOT NULL,url LONGVARC   |  |  |
| keyword_search_terms           |              | CREATE TABLE keyword_search_terms (keyword_id INTEGER NOT NULL,url_id INTEGER NOT NULL,lower_terr  |  |  |
| > 🔳 meta                       |              | CREATE TABLE meta(key LONGVARCHAR NOT NULL UNIQUE PRIMARY KEY, value LONGVARCHAR)                  |  |  |
| segment_usage                  |              | CREATE TABLE segment_usage (id INTEGER PRIMARY KEY,segment_id INTEGER NOT NULL,time_slot INTEGE    |  |  |
| > segments                     |              | CREATE TABLE segments (id INTEGER PRIMARY KEY,name VARCHAR,url_id INTEGER NON NULL)                |  |  |
| sqlite_sequence                |              | CREATE TABLE sqlite_sequence(name,seq)   |  |  |
| typed_url_sync_metadata        |              | CREATE TABLE typed_url_sync_metadata (storage_key INTEGER PRIMARY KEY NOT NULL,value BLOB)         |  |  |
| > 🔳 urls                       |              | CREATE TABLE "urls"(id Integer Primary Key Autoincrement, url Longvarchar, title Longvarchar,      |  |  |
| visit_source                   |              | CREATE TABLE visit_source(id INTEGER PRIMARY KEY,source INTEGER NOT NULL)                          |  |  |
| > iii visits                   |              | CREATE TABLE visits(id INTEGER PRIMARY KEY,url INTEGER NOT NULL,visit_time INTEGER NOT NULL,from_v |  |  |
| ➤ 🦠 Indices (11)               |              |  |  |  |
| > % keyword_search_terms_in    |              | CREATE INDEX keyword_search_terms_index1 ON keyword_search_terms (keyword_id, lower_term)          |  |  |
| > % keyword_search_terms_in    |              | CREATE INDEX keyword_search_terms_index2 ON keyword_search_terms (url_id)                          |  |  |
| > % keyword_search_terms_in    |              | CREATE INDEX keyword_search_terms_index3 ON keyword_search_terms (term)                            |  |  |
| > segment_usage_time_slo       |              | CREATE INDEX segment_usage_time_slot_segment_id ON segment_usage(time_slot, segment_id)            |  |  |
| > 🦠 segments_name              |              | CREATE INDEX segments_name ON segments(name)   |  |  |
| > 🦠 segments_url_id            |              | CREATE INDEX segments_url_id ON segments(url_id)   |  |  |
| > segments_usage_seg_id        |              | CREATE INDEX segments_usage_seg_id ON segment_usage(segment_id)                                    |  |  |
| > wrls_url_index               |              | CREATE INDEX urls_url_index ON urls (url)  |  |  |
| visits_from_index              |              | CREATE INDEX visits_from_index ON visits (from_visit)  |  |  |

| Name  ✓ III Tables (12) | Туре        | Schema  |
|-------------------------|-------------|---|
| ✓ ■ downloads           |             | CREATE TABLE downloads (id INTEGER PRIMARY KEY,quid VARCHAR NOT NULL,current path LONGVARCH |
| id                      | INTEGER     | `id` INTEGER  |
| guid                    | VARCHAR     | `guid` VARCHAR NOT NULL   |
| current_path            | LONGVARCHAR | `current_path` LONGVARCHAR NOT NULL   |
| atarget_path            | LONGVARCHAR | `target_path` LONGVARCHAR NOT NULL  |
| start_time              | INTEGER     | `start_time` INTEGER NOT NULL   |
| received_bytes          | INTEGER     | `received_bytes` INTEGER NOT NULL   |
| total_bytes             | INTEGER     | `total_bytes` INTEGER NOT NULL  |
| state                   | INTEGER     | `state` INTEGER NOT NULL  |
| danger_type             | INTEGER     | `danger_type` INTEGER NOT NULL  |
| interrupt_reason        | INTEGER     | `interrupt_reason` INTEGER NOT NULL   |
| hash                    | BLOB        | `hash` BLOB NOT NULL  |
| end_time                | INTEGER     | `end_time` INTEGER NOT NULL   |
| opened                  | INTEGER     | `opened` INTEGER NOT NULL   |
| referrer                | VARCHAR     | `referrer` VARCHAR NOT NULL   |
| site_url                | VARCHAR     | `site_url` VARCHAR NOT NULL   |
| 🗎 tab_url               | VARCHAR     | `tab_url` VARCHAR NOT NULL  |
| tab_referrer_url        | VARCHAR     | `tab_referrer_url` VARCHAR NOT NULL   |
| http_method             | VARCHAR     | `http_method` VARCHAR NOT NULL  |
| by_ext_id               | VARCHAR     | `by_ext_id` VARCHAR NOT NULL  |
| by_ext_name             | VARCHAR     | `by_ext_name` VARCHAR NOT NULL  |
| etag                    | VARCHAR     | `etag` VARCHAR NOT NULL   |

Hindsight is a free tool for analyzing web artifacts. To get started, select the 'Input Type' below and fill out the 'Input Path' field. Review the plugins and options on the right, and hit the 'Run' button at the bottom.



# **Chapter 14: Cryptography and Steganography**

No Images