Web Crawlers

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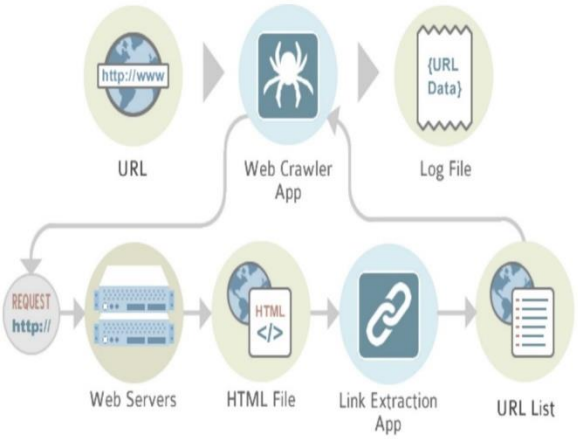
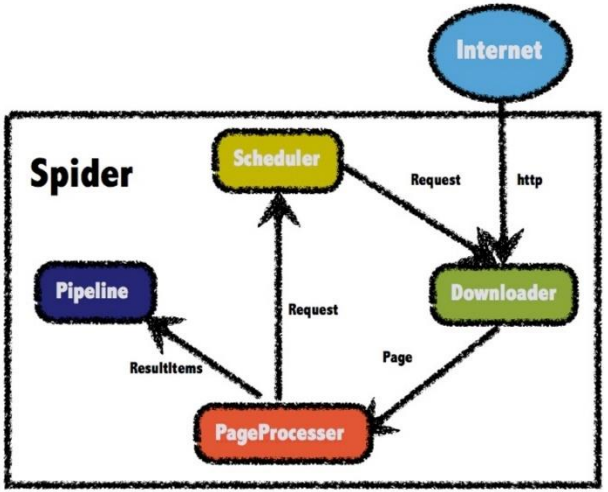
What are Web Crawlers?

- Web crawlers are known by a variety of names – industry jargon labels them spiders or bots but technically they are referred to as web crawlers





```
root@LUCKY64:~# msfconsole

IIIIII    dTb.dTb        _.---._
  II     4'  v  'B    .'"".'/|\`.""'.
  II     6.     .P  :  .' / | \ `.  :
  II     'T;. .;P'  '.'  /  |  \  `.'
  II      'T; ;P'    `. /   |   \ .'
IIIIII     'YvP'       `-.__|__.-'

I love shells --egypt


       =[ metasploit v4.14.28-dev                         ]
+ -- --=[ 1662 exploits - 951 auxiliary - 293 post        ]
+ -- --=[ 486 payloads - 40 encoders - 9 nops             ]
+ -- --=[ Free Metasploit Pro trial: http://r-7.co/trymsp ]

msf > use auxiliary/crawler/msfcrawler
msf auxiliary(msfcrawler) > set RHOSTS 192.168.10.79
RHOSTS => 192.168.10.79
msf auxiliary(msfcrawler) > exploit

[*] Loading modules: /usr/share/metasploit-framework/data/msfcrawler
[*] Loaded crawler module Simple from /usr/share/metasploit-framework/data/msfcrawler/basic.rb...
[*] Loaded crawler module Comments from /usr/share/metasploit-framework/data/msfcrawler/comments.rb...
[*] Loaded crawler module Forms from /usr/share/metasploit-framework/data/msfcrawler/forms.rb...
[*] Loaded crawler module Frames from /usr/share/metasploit-framework/data/msfcrawler/frames.rb...
[*] Loaded crawler module Image from /usr/share/metasploit-framework/data/msfcrawler/image.rb...
[*] Loaded crawler module Link from /usr/share/metasploit-framework/data/msfcrawler/link.rb...
[*] Loaded crawler module Objects from /usr/share/metasploit-framework/data/msfcrawler/objects.rb...
[*] Loaded crawler module Scripts from /usr/share/metasploit-framework/data/msfcrawler/scripts.rb...
[*] OK
[*] URI LIMITS ENABLED: 10 (Maximum number of requests per uri)
[*] Target: 192.168.10.79 Port: 80 Path: / SSL:
[*] >> [200] /
[*] >> [200] /twiki/
[*] >> [200] /phpMyAdmin/
[*] >> [200] /mutillidae/
[*] >> [302] /dvwa/
[302] Redirection to: login.php
```

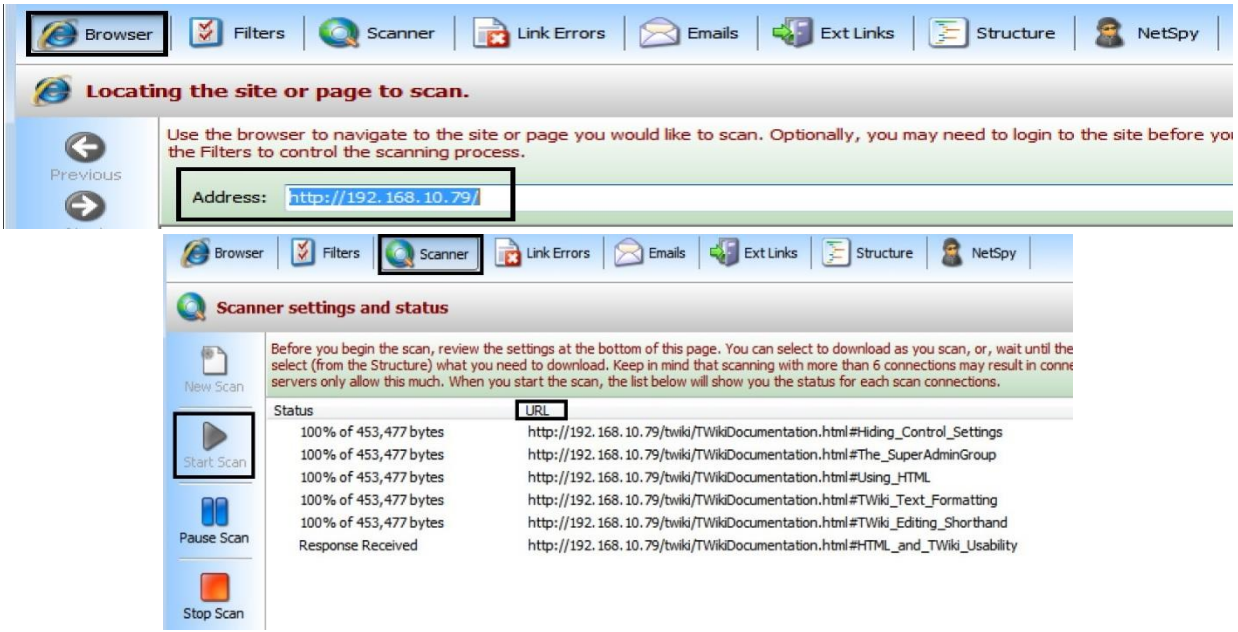
Ways to crawl a website

```
root@LUCKY64:~# httrack http://192.168.10.79 -O /root/Site
WARNING! You are running this program as root!
It might be a good idea to run as a different user
Mirror launched on Mon, 07 Aug 2017 03:03:55 by HTTrack Website Copier/3.49-2 [XR&CO'2014]
mirroring http://192.168.10.79 with the wizard help..
* 192.168.10.79/phpMyAdmin/phpmyadmin.css.php?lang=en-utf-8&convcharset=utf-8&token=9ee469a33b32a6dc48c85c600f485c6d&js_f
* 192.168.10.79/mutillidae/images/twitter.gif (1828 bytes) - OK
* 192.168.10.79/mutillidae/images/youtube_256_256.png (39246 bytes) - OK

* 192.168.10.79/mutillidae/index.php?page=documentation/how-to-access-Mutillidae-over-Virtual-Box-network.php (21603 byte
* 192.168.10.79/mutillidae/index.php?page=php-errors.php (22462 bytes) - OK
Bytes saved:     4,57MiB              Links scanned:   6/75 (+65)
Time:    4min57s                      Files written:   69
Transfer rate:  12,27KiB/s (10,77KiB/s)Files updated:   0
Active connections:      4            Errors:  0

Current job: parsing HTML file (45%)
 request -      192.168.10.79/dvwa/login.php     0B /     8,00KiB
```

```
root@LUCKY64:~/Site/192.168.10.79# pwd
/root/Site/192.168.10.79
root@LUCKY64:~/Site/192.168.10.79# ls -la
total 52
drwxr-xr-x 12 root root 4096 Aug  7 03:09 .
drwxr-xr-x  4 root root 4096 Aug  7 03:03 ..
drwxr-xr-x  2 root root 4096 Aug  7 03:16 dav
drwxr-xr-x  3 root root 4096 Aug  7 03:12 dvwa
drwxr-xr-x  2 root root 4096 Aug  7 03:08 icons
-rw-r--r--  1 root root 1162 Aug  7 03:02 index.html
drwxr-xr-x  6 root root 4096 Aug  7 03:16 mutillidae
drwxr-xr-x  3 root root 4096 Aug  7 03:09 oops
drwxr-xr-x  3 root root 4096 Aug  7 03:08 p
drwxr-xr-x  3 root root 4096 Aug  7 03:10 phpMyAdmin
drwxr-xr-x  3 root root 4096 Aug  7 03:09 rdiff
drwxr-xr-x  4 root root 4096 Aug  7 03:12 twiki
drwxr-xr-x  3 root root 4096 Aug  7 03:09 view
```

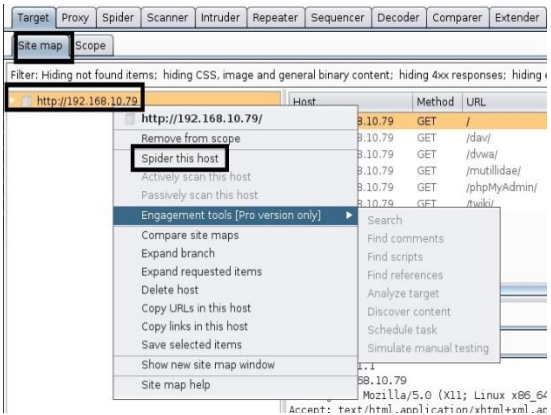
Ways to crawl a website

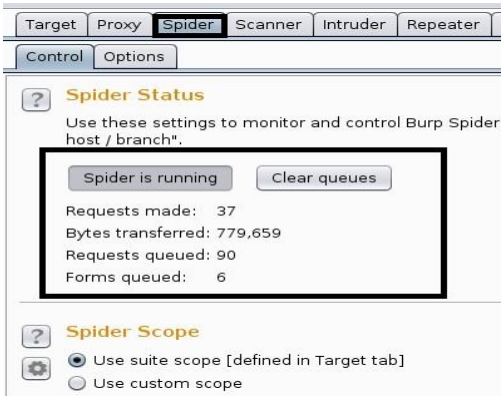
- Black Widow



Ways to crawl a website

- Burp Suite Spider





Ways to crawl a website

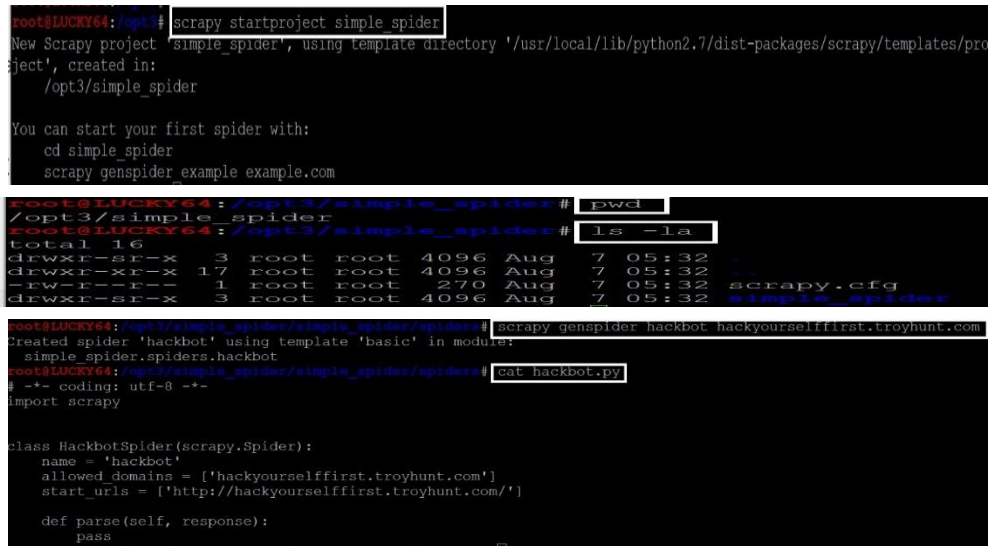
- Scrapy framework (https://doc.scrapy.org/en/master/intro/tutorial.html)

```
pip install scrapy
```

```
root@LUCKY64:/opt3# scrapy -h
Scrapy 1.4.0 - no active project

Usage:
  scrapy <command> [options] [args]

Available commands:
  bench         Run quick benchmark test
  fetch         Fetch a URL using the Scrapy downloader
  genspider     Generate new spider using pre-defined templates
  runspider     Run a self-contained spider (without creating a project)
  settings      Get settings values
  shell         Interactive scraping console
  startproject  Create new project
  version       Print Scrapy version
  view          Open URL in browser, as seen by Scrapy

  [ more ]      More commands available when run from project directory

Use "scrapy <command> -h" to see more info about a command
```

Ways to crawl a website

- Scrapy framework (https://doc.scrapy.org/en/master/intro/tutorial.html)



Ways to crawl a website

- Scrapy framework (https://doc.scrapy.org/en/master/intro/tutorial.html)

```
root@LUCKY64:/opt3/simple_spider/simple_spider/spiders# scrapy runspider hackbot.py
2017-08-07 06:14:48 [scrapy.utils.log] INFO: Scrapy 1.4.0 started (bot: simple_spider)
2017-08-07 06:14:48 [scrapy.utils.log] INFO: Overridden settings: {'NEWSPIDER_MODULE': 'simple_spider.spiders', 'SPIDER_L
OADER_WARN_ONLY': True, 'SPIDER_MODULES': ['simple_spider.spiders'], 'ROBOTSTXT_OBEY': True, 'BOT_NAME': 'simple_spider'}
2017-08-07 06:14:48 [scrapy.middleware] INFO: Enabled extensions:
```

```
2017-08-07 06:14:49 [scrapy.core.engine] DEBUG: Crawled (200) <GET http://hackyourselffirst.troyhunt.com/robots.txt> (ref
erer: None)
2017-08-07 06:14:49 [scrapy.core.engine] DEBUG: Crawled (200) <GET http://hackyourselffirst.troyhunt.com/> (referer: None
)
2017-08-07 06:14:49 [scrapy.core.engine] INFO: Closing spider (finished)
```

Ways to crawl a website

- Scrapy framework (https://doc.scrapy.org/en/master/intro/tutorial.html)
  - ▲ Example Spider (extract all links and follow them)

```
root@LUCKY64:/opt3/simple_spider/simple_spider/spiders# cat bot.py
# -*- coding: utf-8 -*-

import scrapy
from scrapy.spiders import CrawlSpider, Rule
from scrapy.linkextractors import LinkExtractor
#from scrapy.linkextractors import LxmlLinkExtractor

class HackbotSpider(CrawlSpider):
    name = 'bot'
    start_urls = [
          'http://192.168.10.79/',
          'http://192.168.10.79/dvwa/'
                ]


    rules=[
        Rule(LinkExtractor(canonicalize=True, unique=True), follow=True, callback="parse")]

    def start_requests(self):
        for url in self.start_urls:
            yield scrapy.Request(url, callback=self.parse, dont_filter=True)

    def parse(self, response):
         print ('Processing...' + response.url)
         links = LinkExtractor(canonicalize=True, unique=True).extract_links(response)
         print links
```

```
scrapy runspider bot.py
```

```
017-08-07 07:47:28 [scrapy.core.engine] DEBUG: Crawled (200) <GET http://192.168.10.79/dvwa/login.php> (referer: None)
rocessing...http://192.168.10.79/
Link(url='http://192.168.10.79/twiki/', text='TWiki', fragment='', nofollow=False), Link(url='http://192.168.10.79/phpMy
dmin/', text='phpMyAdmin', fragment='', nofollow=False), Link(url='http://192.168.10.79/mutillidae/', text='Mutillidae',
fragment='', nofollow=False), Link(url='http://192.168.10.79/dvwa/', text='DVWA', fragment='', nofollow=False), Link(url
'http://192.168.10.79/dav/', text='WebDAV', fragment='', nofollow=False)]
```

References

- Wikipedia
https://en.wikipedia.org/wiki/Web_crawler
- ScienceDaily
https://www.sciencedaily.com/terms/web_crawler.htm
- Metasploit
https://www.metasploit.com
- HTTrack
https://www.httrack.com
- Black Widow
http://softbytelabs.com/us/downloads.html
- Burp Suite
https://portswigger.net/burp
- Scrapy
https://scrapy.org/