

# 网络侦查

## 一【实验目标】

- 了解网络侦察的基本原理
- 掌握获取网络信息的技术。

## 二【实验环境】

- Windows 10 操作系统
- Ubuntu 系统

## 三【实验原理】

网络侦察是使用技术手段，突破侦查对象计算机信息网络安全防护机制，深入其内部网络和专用网络，并进入信息系统，从中获取情报的信息和情报。主要特点是侦查方便、快捷，所获情报内容丰富，获取的信息和情报可用于后续的网络安全的渗透测试和安全加固。

Fping 是一款应用软件，适用于 linux 平台。fping 是一个向网络主机发送 ICMP echo 探测器的程序，类似于 ping，但在 ping 多个主机时性能要好得多。Fping 可以批量扫描主机，并将主机列表写在文件中。

HTTrack 是一个自由、开源的网络爬虫以及离线浏览器。用户可以通过 HTTrack 把互联网上的网站页面下载到本地计算机上。在默认设置下，HTTrack 对网站页面的下载结果是按照原始站点相对链接的结构来组织的。用网页浏览器打开这个被下载下来的网站的页面，就可以离线浏览并获得相应信息了

## 四【实验步骤】

实验具体操作步骤如下：

1. 进入 Ubuntu 系统，如图 1 所示。

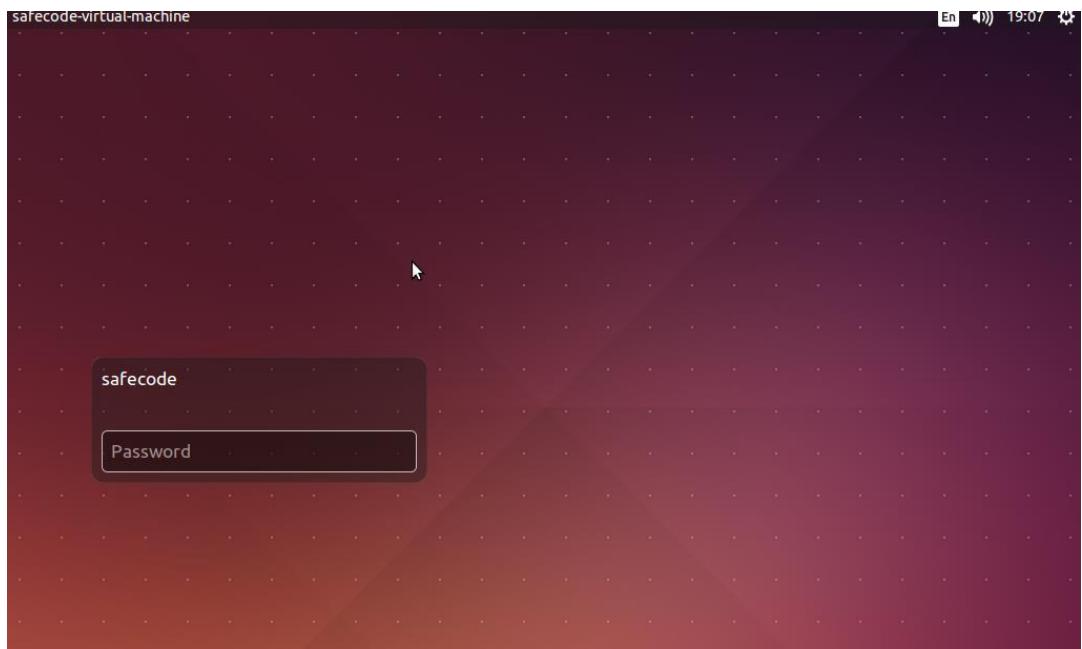


图 1

2. 输入密码【123456】。如图 2 所示

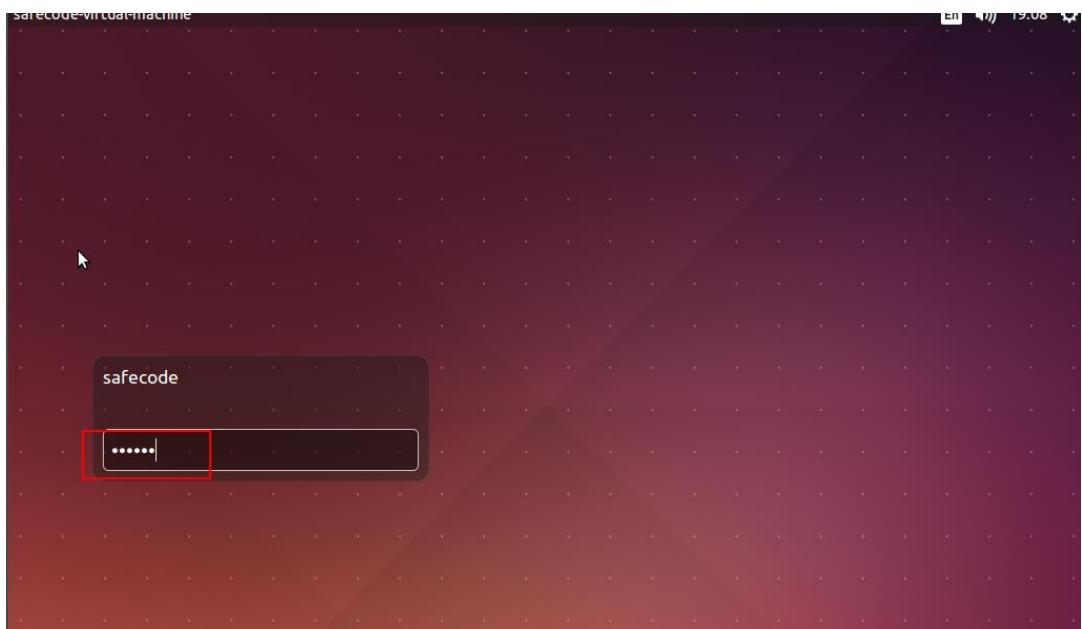


图 2

3. 登录成功后点击左侧导航栏搜索图标，输入【xterm】，开启终端，如图 3 所示。

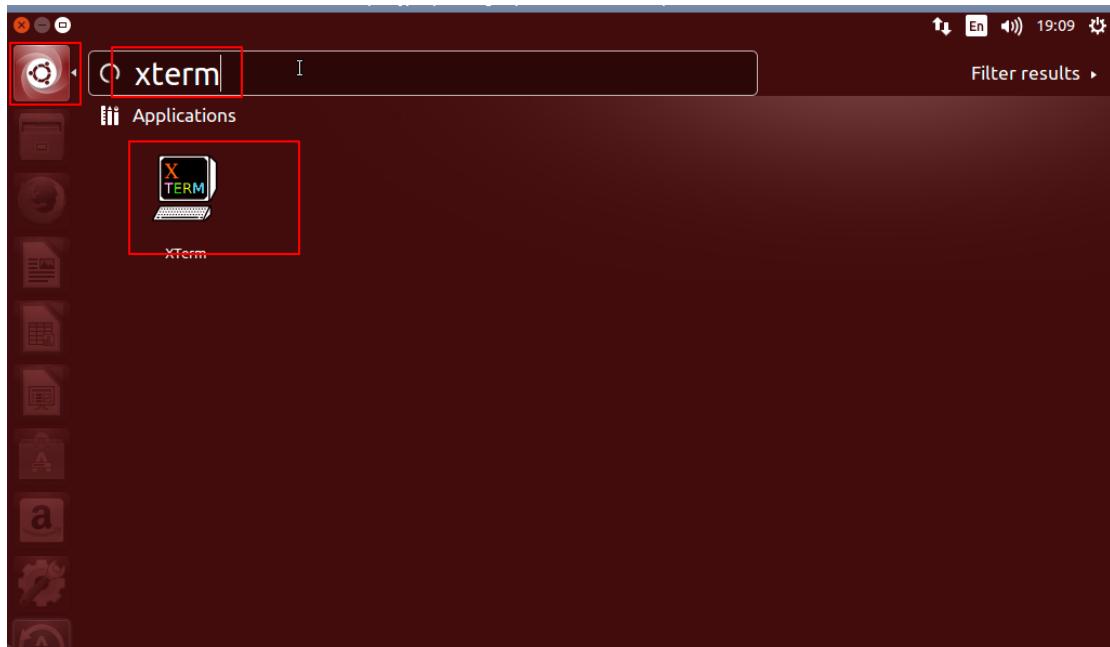


图 3

4. 在终端中输入“ifconfig”。 ifconfig 是 linux 中用于显示或配置网络设备（网络接口卡）的命令，通过此命令查看本机的 IP 地址。本机 IP 为“192.168.49.233”，以实际为准。如图 4 所示

```
safecode@safecode-virtual-machine:~$ ifconfig
eth0      Link encap:Ethernet HWaddr fe:fc:fe:90:85:65
          inet addr:192.168.49.233  Bcast:192.168.55.255  Mask:255.255.248.0
                      inet6 addr: fe80::fcfc:feff%fe90:8565/64 Scope:Link
                        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
                        RX packets:223237 errors:0 dropped:4 overruns:0 frame:0
                        TX packets:9442 errors:0 dropped:0 overruns:0 carrier:0
                        collisions:0 txqueuelen:1000
                        RX bytes:124163035 (124.1 MB)  TX bytes:741366 (741.3 KB)

lo       Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
            UP LOOPBACK RUNNING  MTU:65536  Metric:1
            RX packets:820 errors:0 dropped:0 overruns:0 frame:0
            TX packets:820 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:0
            RX bytes:88314 (88.3 KB)  TX bytes:88314 (88.3 KB)

safecode@safecode-virtual-machine:~$
```

图 4

5. 通过使用 fping 可以扫描 IP 段（如果内网不通请关闭防火墙），-a 选项显示

的是目标 IP 段中的存活主机，`-g` 选项可以生成目标列表。输入命令【`fping -a -g 192.168.49.230 192.168.49.255`】，此处可以看到在整个 IP 段中的存活主机。如图 5 所示

```
collisions:0 txqueuelen:0
RX bytes:88314 (88.3 KB) TX bytes:88314 (88.3 KB)

safecode@safecode-virtual-machine:~$ fping -a -g 192.168.49.230 192.168.49.255
192.168.49.230
192.168.49.233
192.168.49.235
192.168.49.232
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.236
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.236
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.236
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.236
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.237
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ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.239
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.239
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.239
ICMP Host Unreachable from 192.168.49.233 for ICMP Echo sent to 192.168.49.240
```

图 5

6. 进入 win10 系统，输入密码“Admin123456”，如图 6 所示。

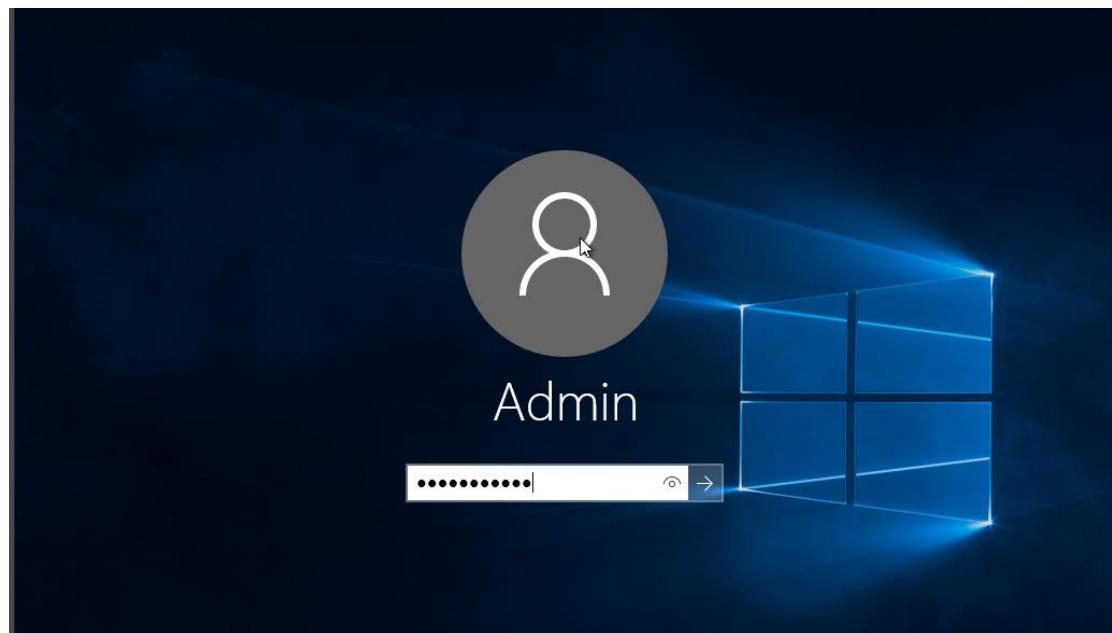


图 6

7. 点击桌面 PHPStudy，点击启动，开启目标网站，如图 7 所示。

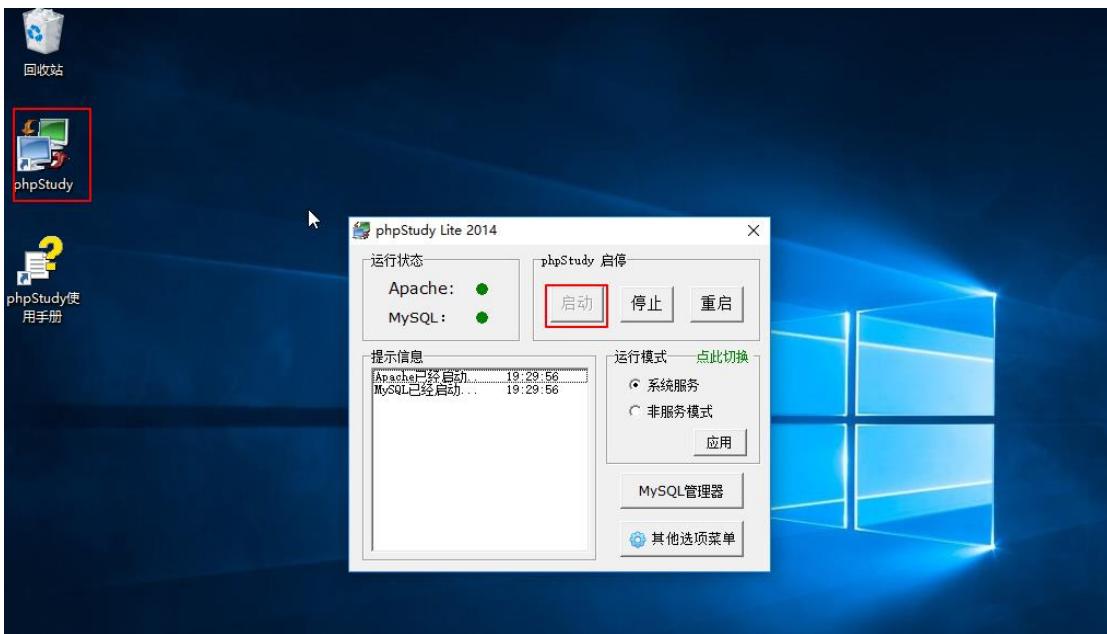


图 7

8. 进入命令提示符输入“ipconfig”，查看本机 IP 地址，如图 8 所示。

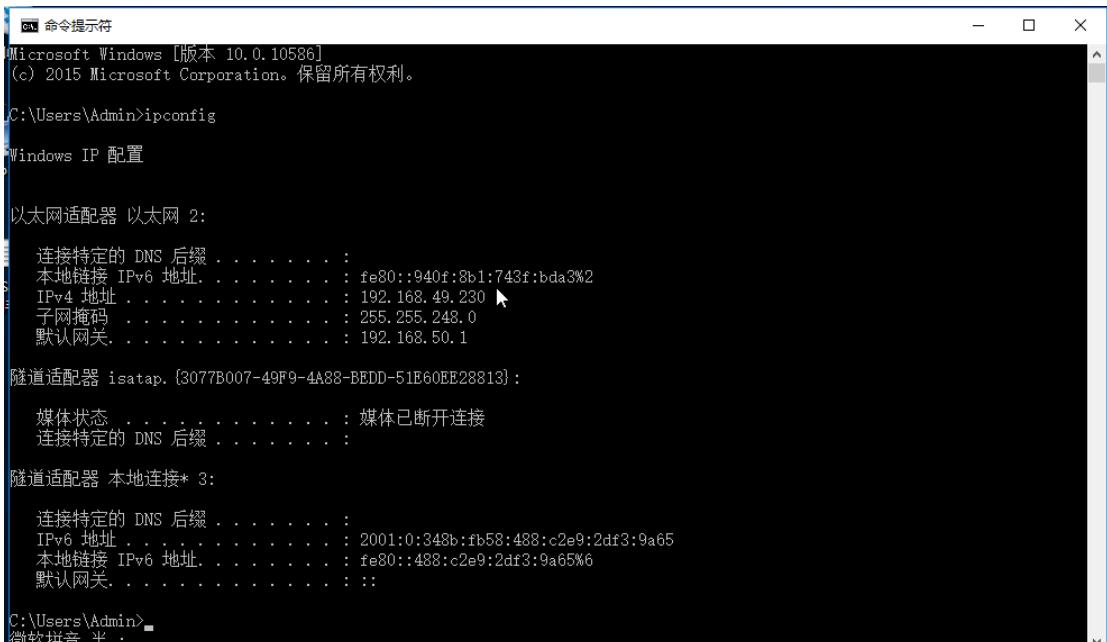
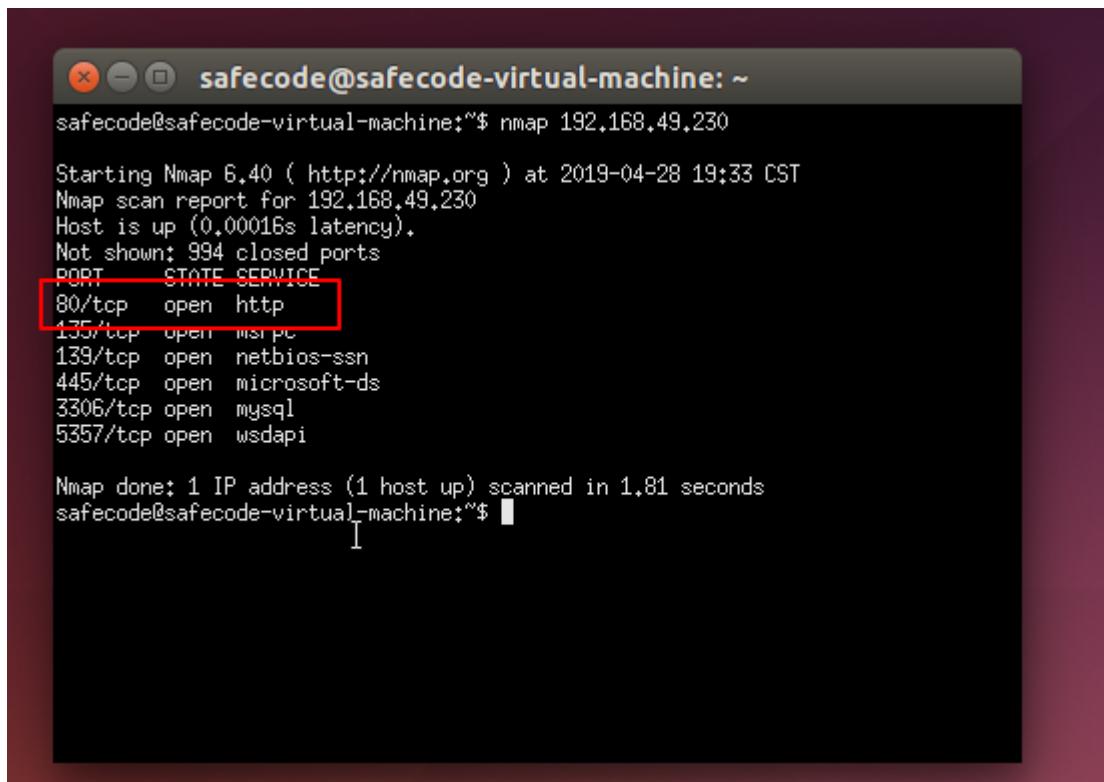


图 8

9. 使用 nmap 对存活主机 IP 192.168.49.230 进行扫描，查看目标主机开放端口，做信息收集分析。通过分析目标主机开放的端口可以发现它开放了 80 端口，意味着目标主机提供 HTTP 服务。如图 9 所示



```
safecode@safecode-virtual-machine: ~
safecode@safecode-virtual-machine:~$ nmap 192.168.49.230
Starting Nmap 6.40 ( http://nmap.org ) at 2019-04-28 19:33 CST
Nmap scan report for 192.168.49.230
Host is up (0.00016s latency).
Not shown: 994 closed ports
PORT      STATE SERVICE
80/tcp    open  http
135/tcp   open  msrpc
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
3306/tcp  open  mysql
5357/tcp  open  wsdapi

Nmap done: 1 IP address (1 host up) scanned in 1.81 seconds
safecode@safecode-virtual-machine:~$
```

图 9

10. 通过访问目标 IP 查看目标网站。在桌面中点击左侧导航中的浏览器。如图 10 所示。

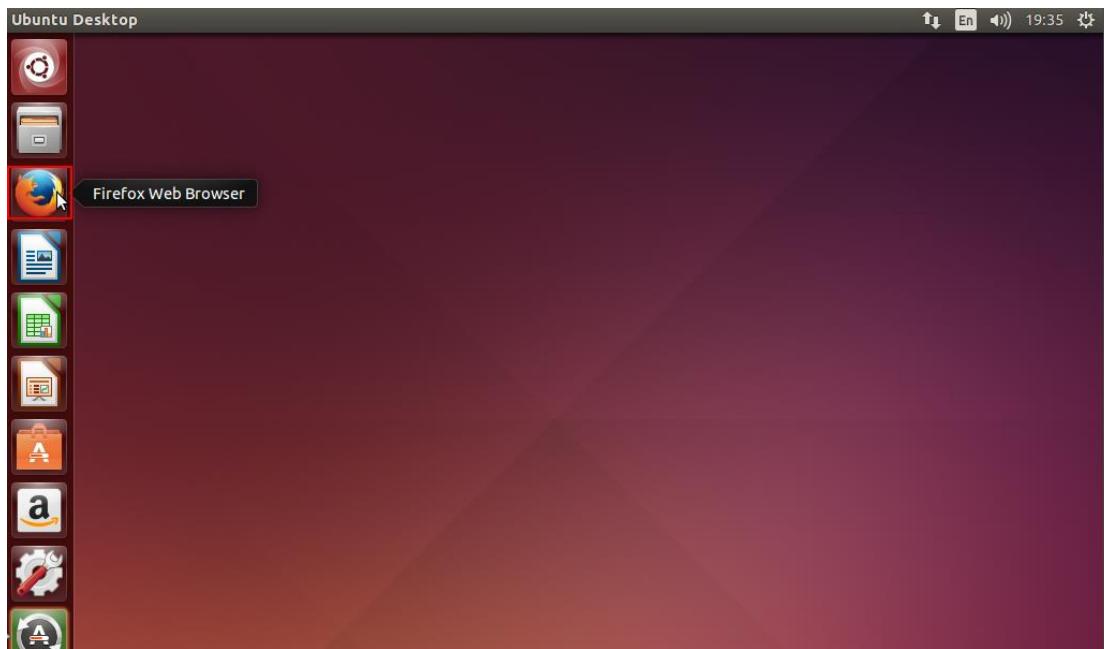


图 10

11. 在地址栏填入目标 IP 地址 “192.168.49.230/dede”，点击【->】，访问目标

网站。如图 11 所示。

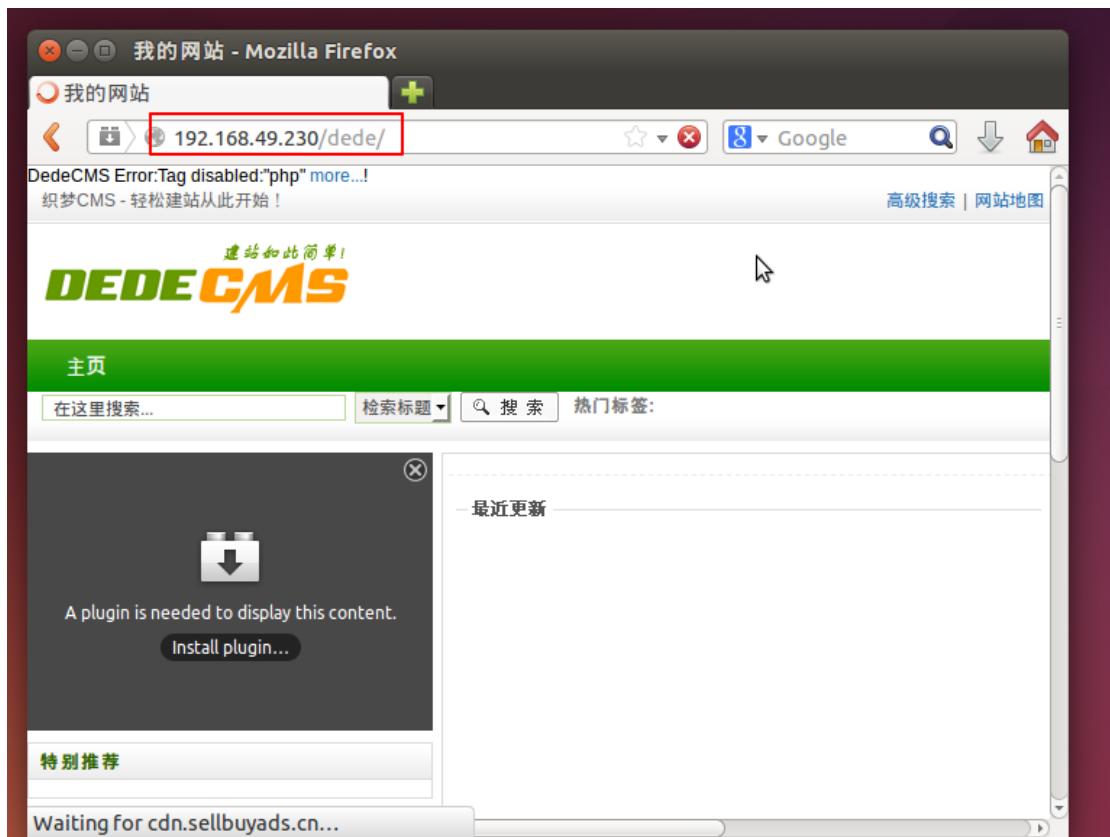
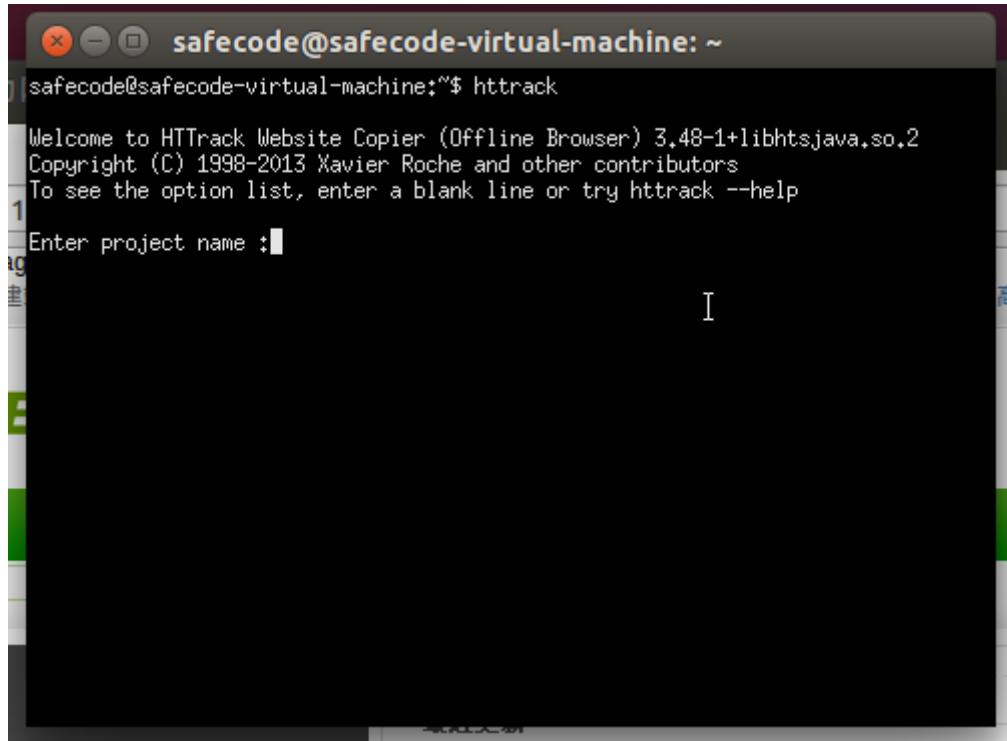


图 11

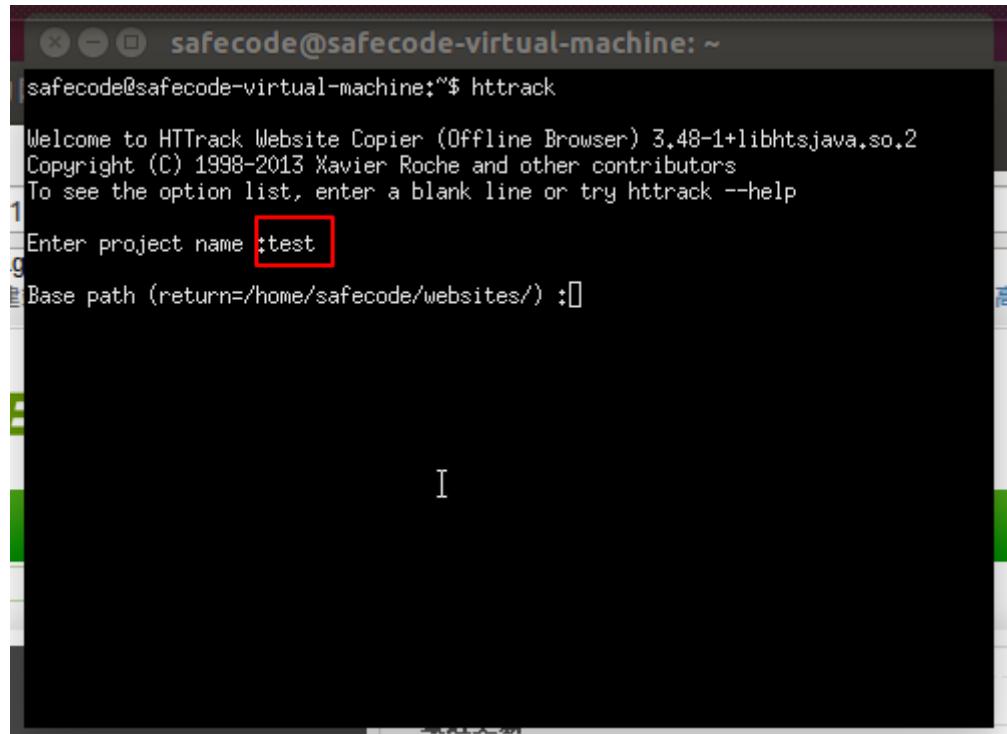
12. 可以发现目标网站可以访问，为了获取足够的信息，并且减少与目标主机的交互，可以将目标网站全部复制下来。HTTrack 是一个网站镜像工具，可以用来复制网站并存储下来。打开【终端】，并在终端中输入“httrack”命令，点击回车可以看到 httrack 的信息。如图 12 所示。



```
safecode@safecode-virtual-machine: ~
safecode@safecode-virtual-machine:~$ httrack
Welcome to HTTrack Website Copier (Offline Browser) 3.48-1+libhttplib.so.2
Copyright (C) 1998-2013 Xavier Roche and other contributors
To see the option list, enter a blank line or try httrack --help
1
Enter project name :
```

图 12

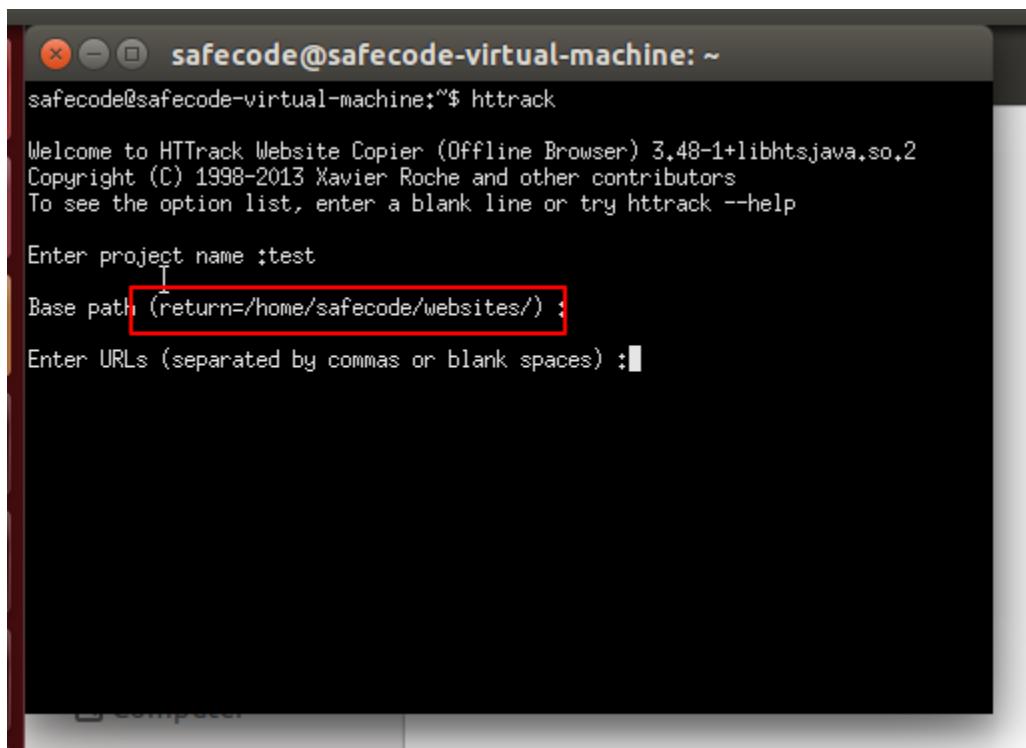
13. 在新出现的命令行中输入工程名称“test”，后面会将保存的网站信息保存到此工程中。如图 13 所示。



```
safecode@safecode-virtual-machine: ~
safecode@safecode-virtual-machine:~$ httrack
Welcome to HTTrack Website Copier (Offline Browser) 3.48-1+libhttplib.so.2
Copyright (C) 1998-2013 Xavier Roche and other contributors
To see the option list, enter a blank line or try httrack --help
1
Enter project name :test
9
Base path (return=/home/safecode/websites/) :[]
```

图 13

14. 在新出现的命令行中输入目标存放路径，此处默认为“/home/safecode/websites”，以 test 命名。如图 14 所示

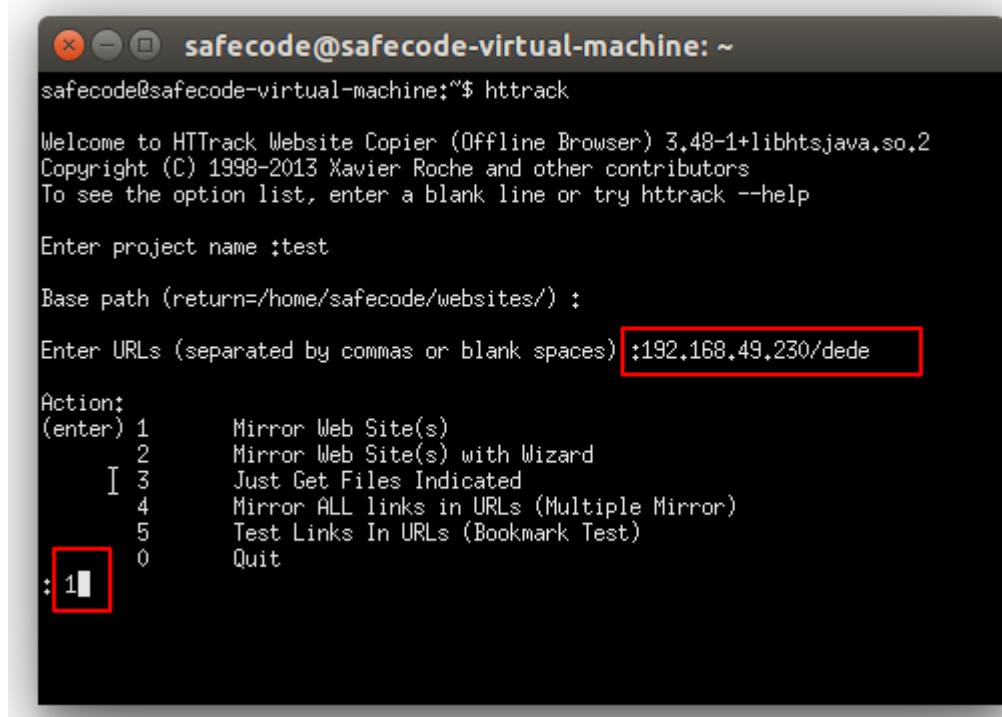


```
safecode@safecode-virtual-machine: ~
safecode@safecode-virtual-machine:~$ httrack
Welcome to HTTrack Website Copier (Offline Browser) 3.48-1+libhttplib.so.2
Copyright (C) 1998-2013 Xavier Roche and other contributors
To see the option list, enter a blank line or try httrack --help

Enter project name :test
Base path (return=/home/safecode/websites/) :
Enter URLs (separated by commas or blank spaces) :■
```

图 14

15. 输入网站 URL 此处输入“192.168.49.230/dede”，Action 输入‘1’即可，如图 15 所示。



```
safecode@safecode-virtual-machine: ~
safecode@safecode-virtual-machine:~$ httrack
Welcome to HTTrack Website Copier (Offline Browser) 3.48-1+libhttplib.so.2
Copyright (C) 1998-2013 Xavier Roche and other contributors
To see the option list, enter a blank line or try httrack --help

Enter project name :test
Base path (return=/home/safecode/websites/) :
Enter URLs (separated by commas or blank spaces) :192.168.49.230/dede
Action:
(enter) 1      Mirror Web Site(s)
            2      Mirror Web Site(s) with Wizard
            3      Just Get Files Indicated
            4      Mirror ALL links in URLs (Multiple Mirror)
            5      Test Links In URLs (Bookmark Test)
            0      Quit
: 1■
```

图 15

16. ‘Proxy, Wildcards, Additional’ 三个选项默认即可，回车跳过，如图 16 所示。

```
Action:  
(enter) 1 Mirror Web Site(s)  
2 Mirror Web Site(s) with Wizard  
3 Just Get Files Indicated  
4 Mirror ALL links in URLs (Multiple Mirror)  
5 Test Links In URLs (Bookmark Test)  
0 Quit  
: 1  
Proxy (return=none) :  
You can define wildcards, like: -*.gif +www.*.com/*.*zip -*img_*.*zip  
Wildcards (return=none) :  
You can define additional options, such as recurse level (-r<number>), separated by blank spaces  
To see the option list, type help  
Additional options (return=none) :  
---> Wizard command line: httrack 192.168.49.230/dede -O "/home/safe@safe-code/websites/test" -Xv  
Ready to launch the mirror? (Y/n) :
```

图 16

17. 输入 Y 即可开始复制网站，如图 17 所示。

```
---> Wizard command line: httrack 192.168.49.230/dede -O "/home/safe@safe-code/websites/test" -Xv  
Ready to launch the mirror? (Y/n) :Y  
Mirror launched on Sun, 28 Apr 2019 19:55:27 by HTTrack Website Copier/3.48-1+libhttplib.so.2 [XR&CO'2013]  
mirroring 192.168.49.230/dede with the wizard help..  
[0xec0840] freeing table ; writes=24 (new=24) moved=0 stashed=0 max-stash-size=0  
avg-moved=0 rehash=0 pool-compact=5 pool-realloc=4 memory=6840  
[0xebc2f0] freeing table ; writes=0 (new=0) moved=0 stashed=0 max-stash-size=0 a  
vg-moved=-nan rehash=0 pool-compact=0 pool-realloc=0 memory=6712  
[0xebf040] freeing table ; writes=1 (new=1) moved=0 stashed=0 max-stash-size=0 a  
vg-moved=0 rehash=0 pool-compact=0 pool-realloc=1 memory=6968  
[0xec10f0] freeing table ; writes=46 (new=46) moved=2 stashed=0 max-stash-size=0  
avg-moved=0.0434783 rehash=0 pool-compact=0 pool-realloc=0 memory=6712  
[0xec2b40] freeing table ; writes=46 (new=46) moved=0 stashed=0 max-stash-size=0  
avg-moved=0 rehash=0 pool-compact=0 pool-realloc=0 memory=6712  
[0xec4590] freeing table ; writes=1 (new=1) moved=0 stashed=0 max-stash-size=0 a  
vg-moved=0 rehash=0 pool-compact=0 pool-realloc=0 memory=6712  
Done.  
Thanks for using HTTrack!  
*  
safe@safe-code-virtual-machine:"$
```

图 17

18. 复制完成后，找到复制目录，即可看到对应网站。如图 18 所示。

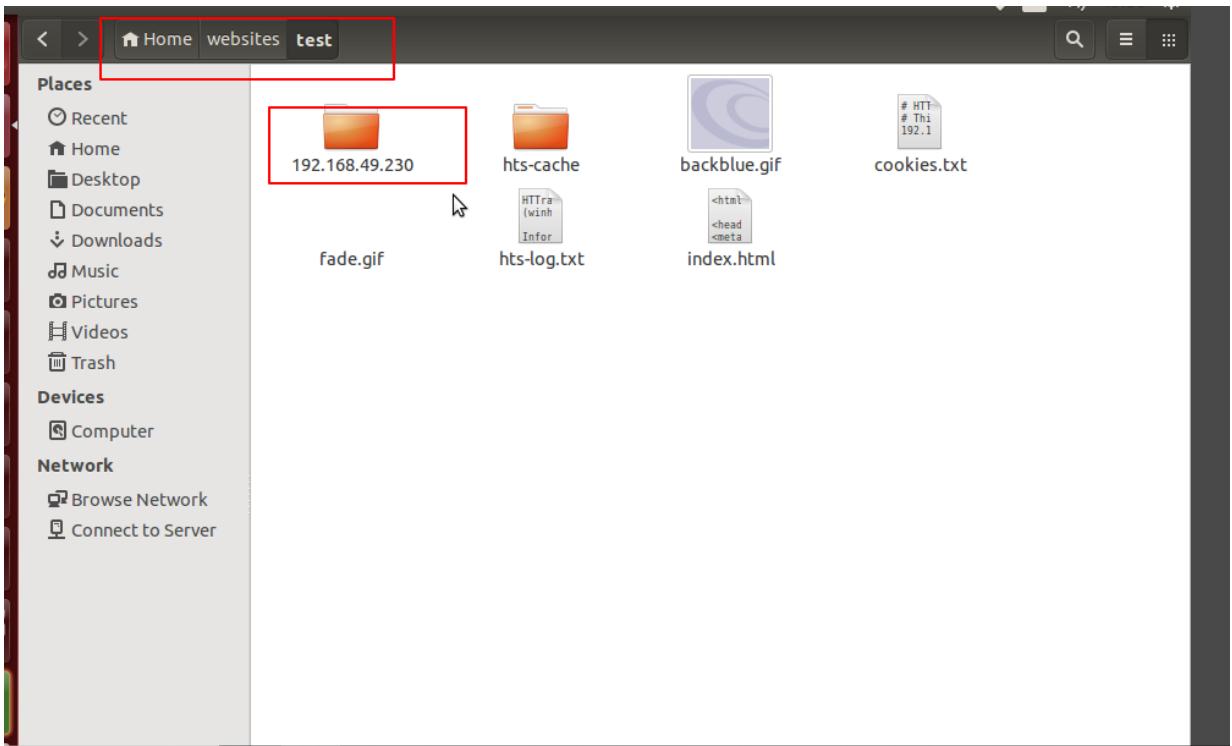


图 18

19. 进入复制网站首页，发现与目标网站一致，如图 19 所示。

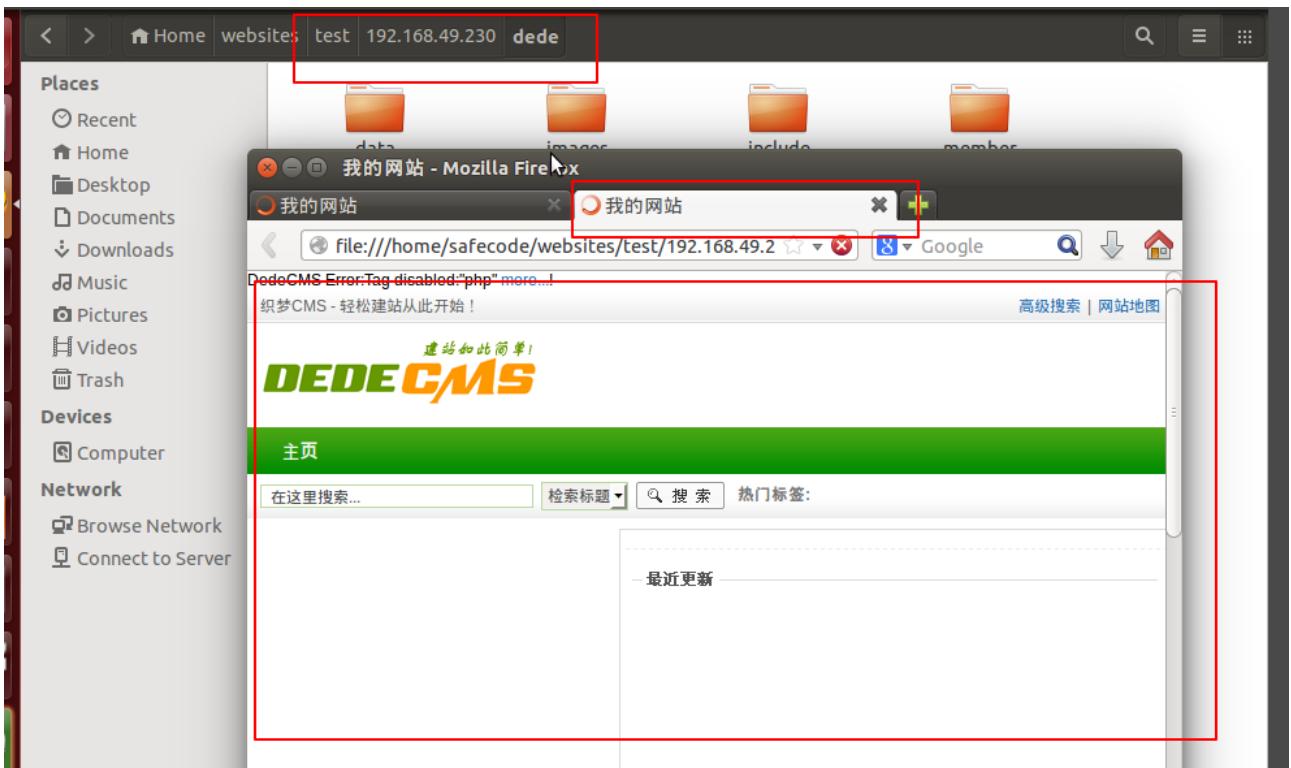


图 19

## 五【实验思考】

- 了解其他网络侦查手段，思考如何更全面的掌握侦查对象的信息？