Nmap for Pentester: Vulnerability Scan

February 24, 2021 By Raj Chandel

Introduction

Nmap Scripting Engine (NSE) has been one of the most efficient features of Nmap which lets users prepare and share their scripts to automate the numerous tasks that are involved in networking. As we know about the Nmap's speed and. competence, it allows executing these scripts side-by-side. According to the needs of the users, they can pick from the range of available scripts or can create their scripts as per the requirements.

Table of Contents

So, let's get started with listing all the scripts that are available for discovering the vulnerability. Here we see that a list of scripts are available to detect the vulnerabilities. One by one we will run these scripts and check for vulnerabilities.

```
cd /usr/share/nmap/scripts/
ls -al *vulns*
```

```
root@kali:~# cd /usr/share/nmap/scripts/
root@kali:/usr/share/nmap/scripts# ls -al *vuln*
-rw-r--r-- 1 root root  7001 Oct 12 09:29 afp-path-vuln.nse
-rw-r--r-- 1 root root  5923 Oct 12 09:29 ftp-vuln-cve2010-4221.nse
-rw-r--r-- 1 root root  6973 Oct 12 09:29 http-huawei-hg5xx-vuln.nse
-rw-r--r-- 1 root root  7921 Oct 12 09:29 http-iis-webdav-vuln.nse
-rw-r--r-- 1 root root  4111 Oct 12 09:29 http-vmware-path-vuln.nse
-rw-r--r-- 1 root root  3273 Oct 12 09:29 http-vuln-cve2006-3392.nse
-rw-r--r-- 1 root root  6610 Oct 12 09:29 http-vuln-cve2009-3960.nse
-rw-r--r-- 1 root root  2957 Oct 12 09:29 http-vuln-cve2010-0738.nse
-rw-r--r-- 1 root root  5607 Oct 12 09:29 http-vuln-cve2010-2861.nse
-rw-r--r-- 1 root root  4527 Oct 12 09:29 http-vuln-cve2011-3192.nse
-rw-r--r-- 1 root root  5851 Oct 12 09:29 http-vuln-cve2011-3368.nse
-rw-r--r-- 1 root root  4403 Oct 12 09:29 http-vuln-cve2012-1823.nse
-rw-r--r-- 1 root root  4831 Oct 12 09:29 http-vuln-cve2013-0156.nse
-rw-r--r-- 1 root root  2853 Oct 12 09:29 http-vuln-cve2013-6786.nse
-rw-r--r-- 1 root root  5009 Oct 12 09:29 http-vuln-cve2013-7091.nse
-rw-r--r-- 1 root root  2945 Oct 12 09:29 http-vuln-cve2014-2126.nse
-rw-r--r-- 1 root root  3334 Oct 12 09:29 http-vuln-cve2014-2127.nse
-rw-r--r-- 1 root root  3193 Oct 12 09:29 http-vuln-cve2014-2128.nse
-rw-r--r-- 1 root root  2979 Oct 12 09:29 http-vuln-cve2014-2129.nse
-rw-r--r-- 1 root root 14018 Oct 12 09:29 http-vuln-cve2014-3704.nse
-rw-r--r-- 1 root root  4523 Oct 12 09:29 http-vuln-cve2014-8877.nse
-rw-r--r-- 1 root root  7774 Oct 12 09:29 http-vuln-cve2015-1427.nse
-rw-r--r-- 1 root root  3443 Oct 12 09:29 http-vuln-cve2015-1635.nse
-rw-r--r-- 1 root root  4372 Oct 12 09:29 http-vuln-cve2017-1001000.nse
-rw-r--r-- 1 root root  2594 Oct 12 09:29 http-vuln-cve2017-5638.nse
-rw-r--r-- 1 root root  5480 Oct 12 09:29 http-vuln-cve2017-5689.nse
-rw-r--r-- 1 root root  5187 Oct 12 09:29 http-vuln-cve2017-8917.nse
-rw-r--r-- 1 root root  2699 Oct 12 09:29 http-vuln-misfortune-cookie.nse
-rw-r--r-- 1 root root  4225 Oct 12 09:29 http-vuln-wnr1000-creds.nse
-rw-r--r-- 1 root root  6977 Oct 12 09:29 mysql-vuln-cve2012-2122.nse
-rw-r--r-- 1 root root  8904 Oct 12 09:29 rdp-vuln-ms12-020.nse
-rw-r--r-- 1 root root  4011 Oct 12 09:29 rmi-vuln-classloader.nse
-rw-r--r-- 1 root root  6528 Oct 12 09:29 rsa-vuln-roca.nse
-rw-r--r-- 1 root root  4148 Oct 12 09:29 samba-vuln-cve-2012-1182.nse
-rw-r--r-- 1 root root  5238 Oct 12 09:29 smb2-vuln-uptime.nse
-rw-r--r-- 1 root root  7524 Oct 12 09:29 smb-vuln-conficker.nse
-rw-r--r-- 1 root root  6402 Oct 12 09:29 smb-vuln-cve2009-3103.nse
-rw-r--r-- 1 root root 23154 Oct 12 09:29 smb-vuln-cve-2017-7494.nse
-rw-r--r-- 1 root root  6545 Oct 12 09:29 smb-vuln-ms06-025.nse
-rw-r--r-- 1 root root  5386 Oct 12 09:29 smb-vuln-ms07-029.nse
-rw-r--r-- 1 root root  5688 Oct 12 09:29 smb-vuln-ms08-067.nse
-rw-r--r-- 1 root root  5647 Oct 12 09:29 smb-vuln-ms10-054.nse
-rw-r--r-- 1 root root  7214 Oct 12 09:29 smb-vuln-ms10-061.nse
-rw-r--r-- 1 root root  7344 Oct 12 09:29 smb-vuln-ms17-010.nse
-rw-r--r-- 1 root root  4400 Oct 12 09:29 smb-vuln-regsvc-dos.nse
-rw-r--r-- 1 root root  6586 Oct 12 09:29 smb-vuln-webexec.nse
-rw-r--r-- 1 root root 14781 Oct 12 09:29 smtp-vuln-cve2010-4344.nse
-rw-r--r-- 1 root root  7719 Oct 12 09:29 smtp-vuln-cve2011-1720.nse
-rw-r--r-- 1 root root  7603 Oct 12 09:29 smtp-vuln-cve2011-1764.nse
-rw-r--r-- 1 root root  7058 Oct 12 09:29 vulners.nse
root@kali:/usr/share/nmap/scripts#
```

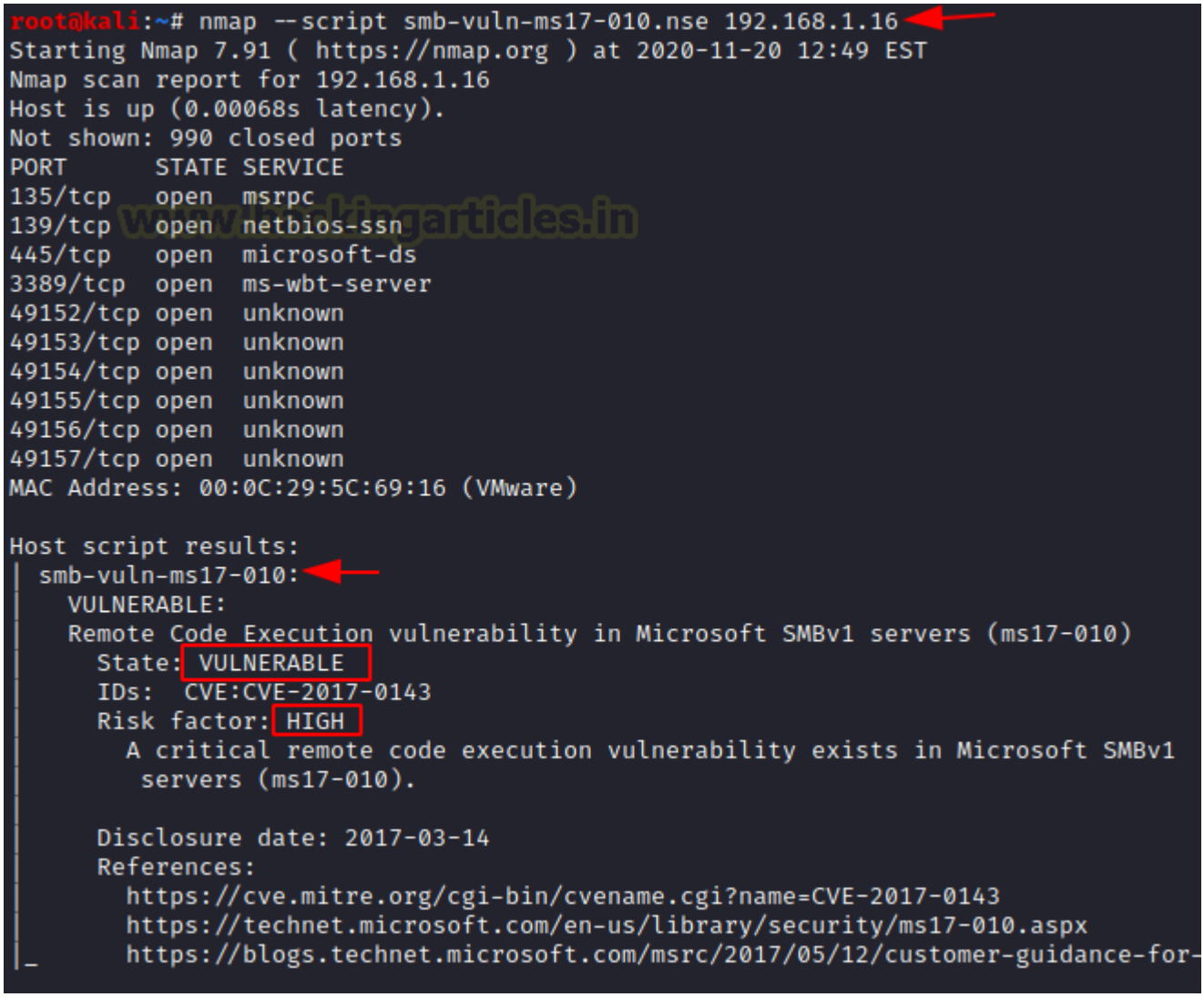
ms17-010 Vulnerability

This script detects whether an SMBv1 server in Microsoft systems is vulnerable to the remote code execution which is commonly known as the **EternalBlue vulnerability**. This vulnerability had been vastly exploited by

ransomware like WannaCry. This works on Windows XP, 2003, 7, 8, 8.1, 10, and server 2008, 2012 and 2016.

You see that on executing this script, you see that the system is susceptible to a vulnerability that is at high risk in nature.

```
nmap --script smb-vuln-ms17-010.nse 192.168.1.16
```



Vsftpd backdoor

This script checks for the presence of **vsFTPd 2.3.4 backdoor vulnerability** by attempting to exploit the backdoor using a harmful command.

```
nmap --script ftp-vsftpd-backdoor -p 21
```

```
root@kali:~# nmap --script ftp-vsftpd-backdoor -p21 192.168.1.12
Starting Nmap 7.91 ( https://nmap.org ) at 2020-11-20 13:15 EST
Nmap scan report for 192.168.1.12
Host is up (0.00026s latency).

PORT   STATE SERVICE
21/tcp open  ftp
| ftp-vsftpd-backdoor:
|   VULNERABLE:
|   vsFTPd version 2.3.4 backdoor
|     State: VULNERABLE (Exploitable)
|     IDs:  CVE:CVE-2011-2523  BID:48539
|       vsFTPd version 2.3.4 backdoor, this was reported on 2011-07-04.
|     Disclosure date: 2011-07-03
|     Exploit results:
|       Shell command: id
|       Results: uid=0(root) gid=0(root)
|     References:
|       http://scarybeastsecurity.blogspot.com/2011/07/alert-vsftpd-download-backdoored.html
|       https://github.com/rapid7/metasploit-framework/blob/master/modules/exploits/unix/ftp/
|       https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2011-2523
|_      https://www.securityfocus.com/bid/48539
MAC Address: 00:0C:29:78:20:90 (VMware)
```

SSL-Poodle Vulnerability

The SSL Poodle is a Man-in the middle exploit whose purpose is to take advantage of the security software running on SSL. On running this script, you see that the system is vulnerable.

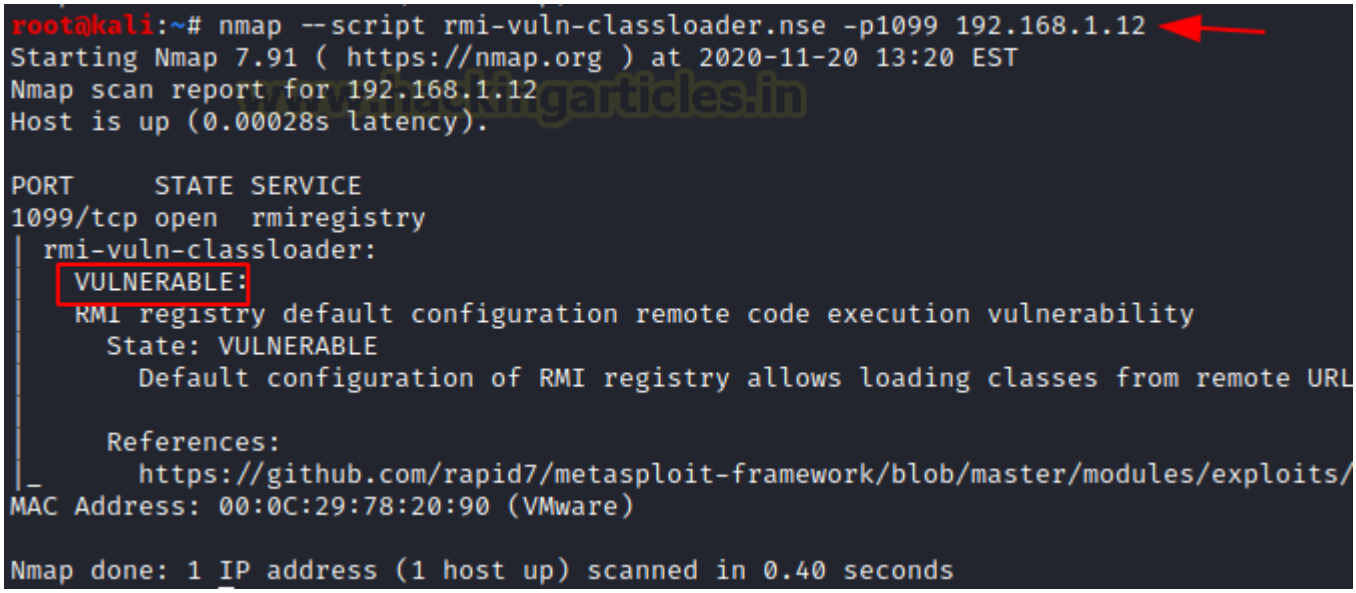
```
nmap -script ssl-poodle 192.168.1.12
```

```
root@kali:~# nmap --script ssl-poodle 192.168.1.12
Starting Nmap 7.91 ( https://nmap.org ) at 2020-11-20 13:18 EST
Nmap scan report for 192.168.1.12
Host is up (0.0027s latency).
Not shown: 977 closed ports
PORT     STATE SERVICE
21/tcp   open  ftp
22/tcp   open  ssh
23/tcp   open  telnet
25/tcp   open  smtp
| ssl-poodle:
|   VULNERABLE:
|   SSL POODLE information leak
|     State: VULNERABLE
|     IDs:  CVE:CVE-2014-3566  BID:70574
|           The SSL protocol 3.0, as used in OpenSSL through 1.0.1i and other
|           products, uses nondeterministic CBC padding, which makes it easier
|           for man-in-the-middle attackers to obtain cleartext data via a
|           padding-oracle attack, aka the "POODLE" issue.
|     Disclosure date: 2014-10-14
|     Check results:
|       TLS_RSA_WITH_AES_128_CBC_SHA
|     References:
|       https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2014-3566
|       https://www.openssl.org/~bodo/ssl-poodle.pdf
|       https://www.securityfocus.com/bid/70574
|_      https://www.imperialviolet.org/2014/10/14/poodle.html
```

Rmi classloader Vulnerability

This script checks whether Java rmiregistry allows class loads or not. The rmiregistry has default configuration which allows the class to load from remote URLs which may lead to remote code execution.

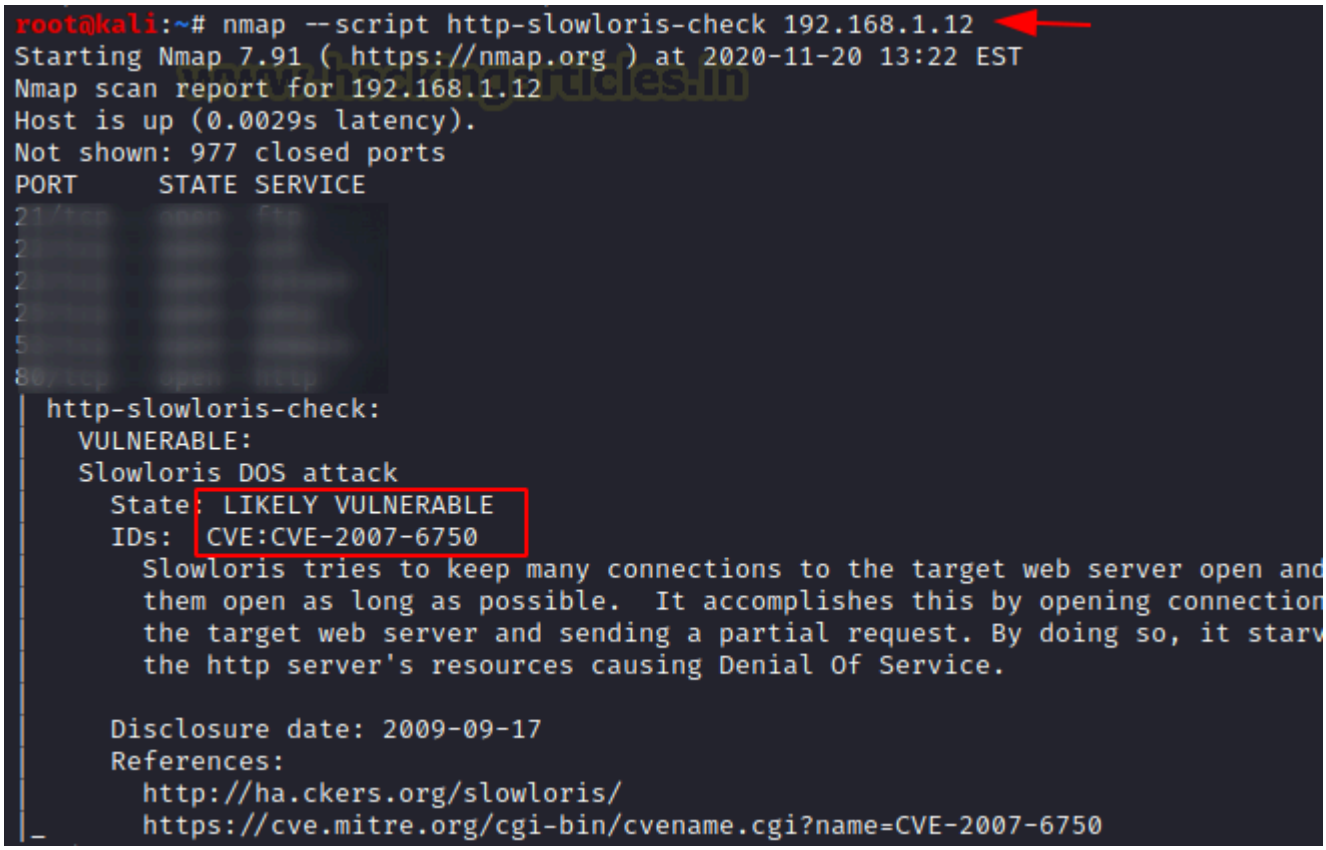
```
nmap --script=rmi-vuln-classloader -p 1099 192.168.1.12
```



HTTP Slowloris Vulnerability

It checks for the vulnerability in the web server Slowloris DoS attack where it does not launch an actual DoS attack. This script will open 2 separate connections to the server and then request for URL in base configuration.

```
nmap -script http-slowloris-check 192.168.1.12
```



SSL-CCS-Injection

This script when run checks if a server is vulnerable to the SSL/TLS “CCS Injection” vulnerability. To exploit this vulnerability using MITM (Man in the Middle Attack), the attacker will then wait for a new TLS connection which will be followed by Client-Sever ‘Hello’ handshake messages.

```
nmap -script ssl-ccs-injection -p 5432 192.168.1.12
```

```
root@kali:~# nmap --script ssl-ccs-injection -p 5432 192.168.1.12
Starting Nmap 7.91 ( https://nmap.org ) at 2020-11-20 13:29 EST
Nmap scan report for 192.168.1.12
Host is up (0.00033s latency).

PORT     STATE SERVICE
5432/tcp open  postgresql
| ssl-ccs-injection:
|   VULNERABLE:
|   SSL/TLS MITM vulnerability (CCS Injection)
|     State: VULNERABLE
|     Risk factor: High
|       OpenSSL before 0.9.8za, 1.0.0 before 1.0.0m, and 1.0.1 before 1.0.1h
|       does not properly restrict processing of ChangeCipherSpec messages,
|       which allows man-in-the-middle attackers to trigger use of a zero
|       length master key in certain OpenSSL-to-OpenSSL communications, and
|       consequently hijack sessions or obtain sensitive information, via
|       a crafted TLS handshake, aka the "CCS Injection" vulnerability.
|
|     References:
|       https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2014-0224
|       http://www.cvedetails.com/cve/2014-0224
|_      http://www.openssl.org/news/secadv_20140605.txt
MAC Address: 00:0C:29:78:20:90 (VMware)
```

Nmap-Vulners

Nmap – Vulners is a NSE script using some well-known service to provide info on vulnerabilities. This script completely depends on having information on software versions therefore works with **-sV** flag.

You can install it using git hub code. Then update the scripts in the NSE database.

```
git clone https://github.com/vulnersCom/nmap-vulners /usr/share/nmap/scripts/vulners
nmap --script-updatedb
```

```
root@kali:~# git clone https://github.com/vulnersCom/nmap-vulners /usr/share/nmap/scripts/vulners
Cloning into '/usr/share/nmap/scripts/vulners' ...
remote: Enumerating objects: 11, done.
remote: Counting objects: 100% (11/11), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 73 (delta 2), reused 4 (delta 1), pack-reused 62
Unpacking objects: 100% (73/73), 433.57 KiB | 622.00 KiB/s, done.
root@kali:~# nmap --script-updatedb
Starting Nmap 7.91 ( https://nmap.org ) at 2020-11-20 13:42 EST
NSE: Updating rule database.
NSE: Script Database updated successfully.
Nmap done: 0 IP addresses (0 hosts up) scanned in 0.32 seconds
```

Let us load the scripts and check the service versions available on the target machine using nmap vulners. Here we see that all the scripts are loaded which can be used for vulnerability detection based on a particular service version.

```
nmap -sV -Pn 192.168.1.12 --script=vulners/vulners.nse
```

```
root@kali:~# nmap -sV -Pn 192.168.1.12 --script=vulners/vulners.nse
Host discovery disabled (-Pn). All addresses will be marked 'up' and scan times will be slow
Starting Nmap 7.91 ( https://nmap.org ) at 2020-11-20 13:51 EST
Nmap scan report for 192.168.1.12
Host is up (0.0020s latency).
Not shown: 977 closed ports
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
| vulners:
|   cpe:/a:openbsd:openssh:4.7p1:
|       PACKETSTORM:101052  7.8     https://vulners.com/packetstorm/PACKETSTORM:101052
|       CVE-2010-4478   7.5     https://vulners.com/cve/CVE-2010-4478
|       CVE-2008-1657   6.5     https://vulners.com/cve/CVE-2008-1657
|       SSV:60656       5.0     https://vulners.com/seebug/SSV:60656    *EXPLOIT*
|       CVE-2017-15906  5.0     https://vulners.com/cve/CVE-2017-15906
|       CVE-2010-5107   5.0     https://vulners.com/cve/CVE-2010-5107
|       CVE-2010-4755   4.0     https://vulners.com/cve/CVE-2010-4755
|       CVE-2012-0814   3.5     https://vulners.com/cve/CVE-2012-0814
|       CVE-2011-5000   3.5     https://vulners.com/cve/CVE-2011-5000
|       CVE-2011-4327   2.1     https://vulners.com/cve/CVE-2011-4327
|_      CVE-2008-3259   1.2     https://vulners.com/cve/CVE-2008-3259
23/tcp   open  telnet      Linux telnetd
25/tcp   open  smtp        Postfix smtpd
53/tcp   open  domain      ISC BIND 9.4.2
| vulners:
|   cpe:/a:isc:bind:9.4.2:
|       SSV:2853        10.0    https://vulners.com/seebug/SSV:2853     *EXPLOIT*
|       CVE-2008-0122   10.0    https://vulners.com/cve/CVE-2008-0122
|       SSV:60184       8.5     https://vulners.com/seebug/SSV:60184    *EXPLOIT*
|       CVE-2012-1667   8.5     https://vulners.com/cve/CVE-2012-1667
|       SSV:60292       7.8     https://vulners.com/seebug/SSV:60292    *EXPLOIT*
|       CVE-2014-8500   7.8     https://vulners.com/cve/CVE-2014-8500
|       CVE-2012-5166   7.8     https://vulners.com/cve/CVE-2012-5166
|       CVE-2012-4244   7.8     https://vulners.com/cve/CVE-2012-4244
|       CVE-2012-3817   7.8     https://vulners.com/cve/CVE-2012-3817
|       CVE-2008-4163   7.8     https://vulners.com/cve/CVE-2008-4163
|       CVE-2010-0382   7.6     https://vulners.com/cve/CVE-2010-0382
|       CVE-2015-8461   7.1     https://vulners.com/cve/CVE-2015-8461
|       CVE-2015-8704   6.8     https://vulners.com/cve/CVE-2015-8704
|       CVE-2009-0025   6.8     https://vulners.com/cve/CVE-2009-0025
|       CVE-2015-8705   6.6     https://vulners.com/cve/CVE-2015-8705
|       CVE-2010-3614   6.4     https://vulners.com/cve/CVE-2010-3614
|       SSV:30099       5.0     https://vulners.com/seebug/SSV:30099    *EXPLOIT*
|       SSV:20595       5.0     https://vulners.com/seebug/SSV:20595    *EXPLOIT*
|       CVE-2016-9444   5.0     https://vulners.com/cve/CVE-2016-9444
|       CVE-2016-2848   5.0     https://vulners.com/cve/CVE-2016-2848
|       CVE-2016-1286   5.0     https://vulners.com/cve/CVE-2016-1286
|       CVE-2015-8000   5.0     https://vulners.com/cve/CVE-2015-8000
|       CVE-2012-1033   5.0     https://vulners.com/cve/CVE-2012-1033
|       CVE-2011-4313   5.0     https://vulners.com/cve/CVE-2011-4313
|       CVE-2011-1910   5.0     https://vulners.com/cve/CVE-2011-1910
|       CVE-2009-0265   5.0     https://vulners.com/cve/CVE-2009-0265
|       SSV:11919       4.3     https://vulners.com/seebug/SSV:11919    *EXPLOIT*
|       EDB-ID:9300     4.3     https://vulners.com/exploitdb/EDB-ID:9300       *EXPLOIT*
|       CVE-2016-1285   4.3     https://vulners.com/cve/CVE-2016-1285
```

```
2121/tcp open  ftp         ProFTPD 1.3.1
| vulners:
|   cpe:/a:proftpd:proftpd:1.3.1:
|       SSV:26016       9.0     https://vulners.com/seebug/SSV:26016    *EXPLOIT*
|       SSV:24282       9.0     https://vulners.com/seebug/SSV:24282    *EXPLOIT*
|       CVE-2011-4130   9.0     https://vulners.com/cve/CVE-2011-4130
|       EDB-ID:8037     7.5     https://vulners.com/exploitdb/EDB-ID:8037       *EXPLOIT*
|       CVE-2019-12815  7.5     https://vulners.com/cve/CVE-2019-12815
|       SSV:20226       7.1     https://vulners.com/seebug/SSV:20226    *EXPLOIT*
|       PACKETSTORM:95517       7.1     https://vulners.com/packetstorm/PACKETSTORM:95517
|       CVE-2010-3867   7.1     https://vulners.com/cve/CVE-2010-3867
|       CVE-2010-4652   6.8     https://vulners.com/cve/CVE-2010-4652
|       CVE-2009-0543   6.8     https://vulners.com/cve/CVE-2009-0543
|       SSV:12523       5.8     https://vulners.com/seebug/SSV:12523    *EXPLOIT*
|       CVE-2009-3639   5.8     https://vulners.com/cve/CVE-2009-3639
|       EDB-ID:16129    5.0     https://vulners.com/exploitdb/EDB-ID:16129      *EXPLOIT*
|       CVE-2019-19272  5.0     https://vulners.com/cve/CVE-2019-19272
|       CVE-2019-19271  5.0     https://vulners.com/cve/CVE-2019-19271
|       CVE-2019-19270  5.0     https://vulners.com/cve/CVE-2019-19270
|       CVE-2019-18217  5.0     https://vulners.com/cve/CVE-2019-18217
|       CVE-2016-3125   5.0     https://vulners.com/cve/CVE-2016-3125
|       CVE-2011-1137   5.0     https://vulners.com/cve/CVE-2011-1137
|       CVE-2008-7265   4.0     https://vulners.com/cve/CVE-2008-7265
|       CVE-2017-7418   2.1     https://vulners.com/cve/CVE-2017-7418
|_      CVE-2012-6095   1.2     https://vulners.com/cve/CVE-2012-6095
3306/tcp open  mysql       MySQL 5.0.51a-3ubuntu5
| vulners:
|   cpe:/a:mysql:mysql:5.0.51a-3ubuntu5:
|       SSV:15006       6.8     https://vulners.com/seebug/SSV:15006    *EXPLOIT*
|       CVE-2009-4028   6.8     https://vulners.com/cve/CVE-2009-4028
|       SSV:3280        4.6     https://vulners.com/seebug/SSV:3280     *EXPLOIT*
|       CVE-2008-2079   4.6     https://vulners.com/cve/CVE-2008-2079
|       EDB-ID:34506    4.0     https://vulners.com/exploitdb/EDB-ID:34506      *EXPLOIT*
|       CVE-2010-3682   4.0     https://vulners.com/cve/CVE-2010-3682
|_      CVE-2010-3677   4.0     https://vulners.com/cve/CVE-2010-3677
5432/tcp open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
| vulners:
|   cpe:/a:postgresql:postgresql:8.3:
|       SSV:60718       10.0    https://vulners.com/seebug/SSV:60718    *EXPLOIT*
|       CVE-2013-1903   10.0    https://vulners.com/cve/CVE-2013-1903
|       CVE-2013-1902   10.0    https://vulners.com/cve/CVE-2013-1902
|       SSV:30015       8.5     https://vulners.com/seebug/SSV:30015    *EXPLOIT*
|       SSV:19652       8.5     https://vulners.com/seebug/SSV:19652    *EXPLOIT*
|       CVE-2010-1447   8.5     https://vulners.com/cve/CVE-2010-1447
|       CVE-2010-1169   8.5     https://vulners.com/cve/CVE-2010-1169
|       SSV:30152       6.8     https://vulners.com/seebug/SSV:30152    *EXPLOIT*
|       CVE-2013-0255   6.8     https://vulners.com/cve/CVE-2013-0255
|       CVE-2012-0868   6.8     https://vulners.com/cve/CVE-2012-0868
|       CVE-2009-3231   6.8     https://vulners.com/cve/CVE-2009-3231
|       SSV:62083       6.5     https://vulners.com/seebug/SSV:62083    *EXPLOIT*
|       SSV:61543       6.5     https://vulners.com/seebug/SSV:61543    *EXPLOIT*
|       CVE-2014-0065   6.5     https://vulners.com/cve/CVE-2014-0065
|       CVE-2014-0064   6.5     https://vulners.com/cve/CVE-2014-0064
|       CVE-2014-0063   6.5     https://vulners.com/cve/CVE-2014-0063
|       CVE-2014-0061   6.5     https://vulners.com/cve/CVE-2014-0061
|       CVE-2012-0866   6.5     https://vulners.com/cve/CVE-2012-0866
```

Conclusion

Hence, we see that it using the nmap scripts we can detect the vulnerabilities present on the system which can be a benefit for the Pen Testers.