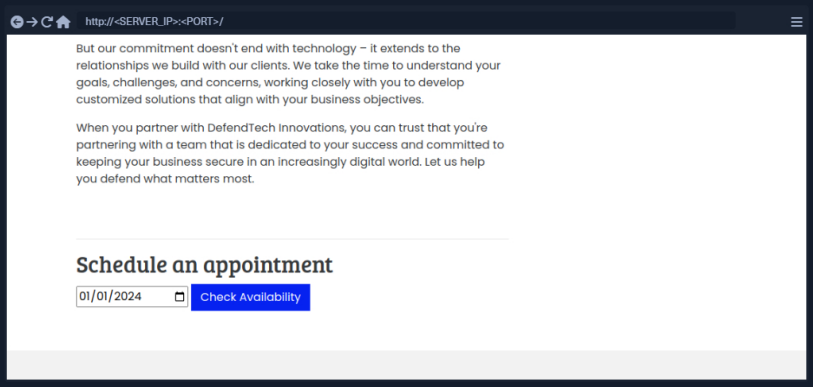
Identifying SSRF

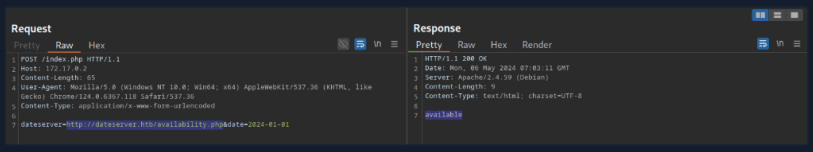
After discussing the basics of SSRF vulnerabilities, let us jump right into an example web application.

Confirming SSRF

Looking at the web application, we are greeted with some generic text as well as functionality to schedule appointments:

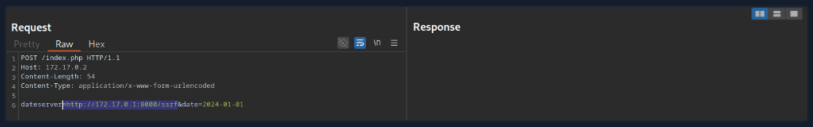


After checking the availability of a date, we can observe the following request in Burp:



As we can see, the request contains our chosen date and a URL in the parameter `dateserver`. This indicates that the web server fetches the availability information from a separate system determined by the URL passed in this POST parameter.

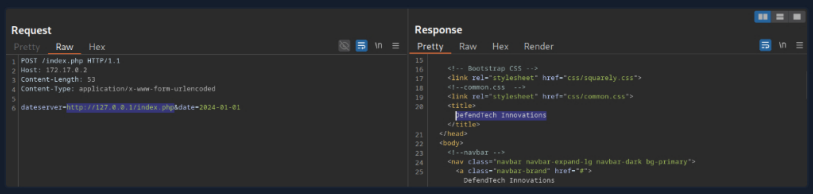
To confirm an SSRF vulnerability, let us supply a URL pointing to our system to the web application:



In a `netcat` listener, we can receive a connection, thus confirming SSRF:

```
Identifying SSRF

MisaelMacias@htb[/htb]$ nc -lnvp 8000

listening on [any] 8000 ...
connect to [172.17.0.1] from (UNKNOWN) [172.17.0.2] 38782
GET /ssrf HTTP/1.1
Host: 172.17.0.1:8000
Accept: */*
```

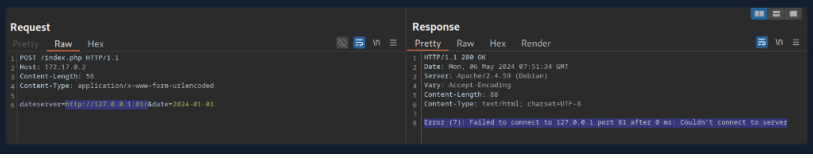
To determine whether the HTTP response reflects the SSRF response to us, let us point the web application to itself by providing the URL `http://127.0.0.1/index.php`:



Since the response contains the web application's HTML code, the SSRF vulnerability is not blind, i.e., the response is displayed to us.

Enumerating the System

We can use the SSRF vulnerability to conduct a port scan of the system to enumerate running services. To achieve this, we need to be able to infer whether a port is open or not from the response to our SSRF payload. If we supply a port that we assume is closed (such as `81`), the response contains an error message:



My Workstation

OFFLINE

Start Instance

∞ / 1 spawns left

This enables us to conduct an internal port scan of the web server through the SSRF vulnerability. We can do this using a fuzzer like `ffuf`. Let us first create a wordlist of the ports we want to scan. In this case, we'll use the first 10,000 ports:

Identifying SSRF

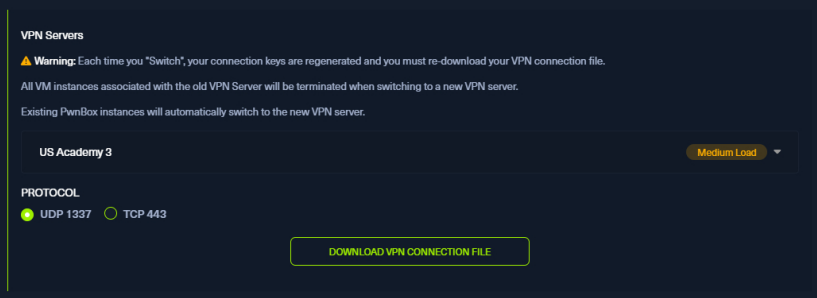
```
MisaelMacias@htb[/htb]$ seq 1 10000 > ports.txt
```

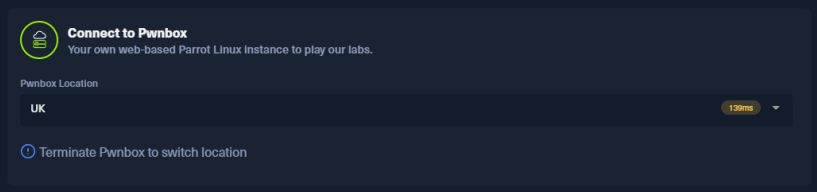
Afterward, we can fuzz all open ports by filtering out responses containing the error message we have identified earlier.

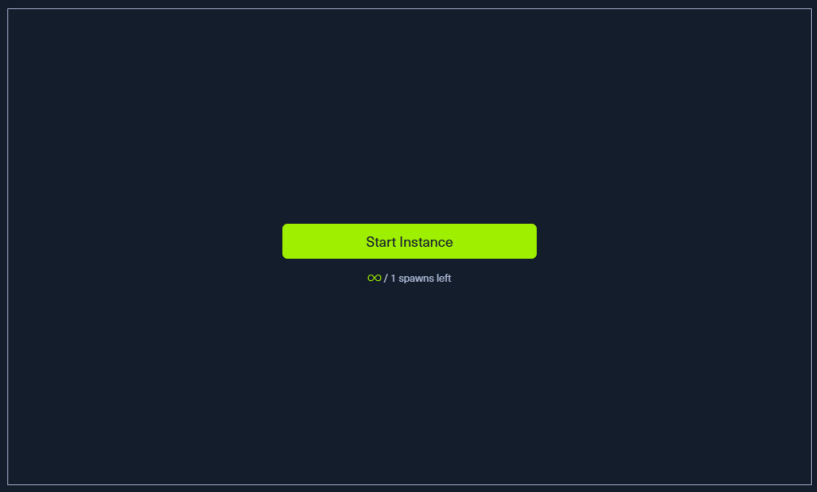
Identifying SSRF

```
MisaelMacias@htb[/htb]$ ffuf -w ./ports.txt -u http://172.17.0.2/index.php -X POST -H "Content-Type: application/x-www

<SNIP>

[Status: 200, Size: 45, Words: 7, Lines: 1, Duration: 0ms]
    * FUZZ: 3306
[Status: 200, Size: 8285, Words: 2151, Lines: 158, Duration: 338ms]
    * FUZZ: 80
```

The results show that the web server runs a service on port `3306`, typically used for a SQL database. If the web server ran other internal services, such as internal web applications, we could also identify and access them through the SSRF vulnerability.







Waiting to start...

Enable step-by-step solutions for all questions

Questions

Answer the question(s) below to complete this Section and earn cubes!

Cheat Sheet

Download VPN Connection File

Target(s): Click here to spawn the target system!

+1 Exploit a SSRF vulnerability to identify an internal web application. Access the internal application to obtain the flag.

8.0.53

Submit

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