

OLD DOMINION UNIVERSITY

CYSE 301 CYBERSECURITY TECHNIQUES AND OPERATIONS

Assignment #7 Make your Own VPN Server

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(35pt) Create a Linux Instance on GCP named vpn-301-YourMIDAS (show the IP address and region assigned for the VM).

The screenshot shows the Google Cloud Platform interface for VM instances. A table lists the instance 'vpn-301sisma002' with the following details:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
Running	vpn-301sisma002	us-west4-b			10.182.0.2 (NIC)	34.125.33.9 (NIC)	SSH

Below the table, there are several 'Related actions' cards:

- Explore Backup and DR: Back up your VMs and set up disaster recovery.
- View billing report: View and manage your Compute Engine billing.
- Monitor VMs: View other VMs across metrics like CPU and network.
- Explore VM logs: View, search, analyze, and download VM instance logs.
- Set up firewall rules: Control traffic to and from a VM instance.
- Patch management: Schedule patch updates and view patch compliance on VM instances.
- Load balance between VMs: Set up Load Balancing for your applications as your traffic and users grow.

Installing the script from github, and implementing it.

```
Linux vpn-301sisma002.c.prismatic-smoke-420816.internal 6.1.0-20-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.85-1 (2024-04-11) 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.
hshar004@vpn-301sisma002:~$ sudo apt-get install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
git-man liberror-perl patch
Suggested packages:
git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn ed
diffutils-doc
The following NEW packages will be installed:
git git-man liberror-perl patch
0 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 9377 kB of archives.
After this operation, 48.0 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 file:/etc/apt/mirrors/debian.list Mirrorlist [30 B]
Get:2 https://deb.debian.org/debian bookworm/main amd64 liberror-perl all 0.17029-2 [29.0 kB]
Get:3 https://deb.debian.org/debian bookworm/main amd64 git-man all 1:2.39.2-1.1 [2049 kB]
Get:4 https://deb.debian.org/debian bookworm/main amd64 git amd64 1:2.39.2-1.1 [7171 kB]
Get:5 https://deb.debian.org/debian bookworm/main amd64 patch amd64 2.7.6-7 [128 kB]
Fetched 9377 kB in 0s (34.8 MB/s)
Selecting previously unselected package liberror-perl.
(Reading database ... 67169 files and directories currently installed.)
Preparing to unpack .../liberror-perl_0.17029-2_all.deb ...
Unpacking liberror-perl (0.17029-2) ...
Selecting previously unselected package git-man.
Preparing to unpack .../git-man_1%3a2.39.2-1.1_all.deb ...
Unpacking git-man (1:2.39.2-1.1) ...
Selecting previously unselected package git.
Preparing to unpack .../git_1%3a2.39.2-1.1_amd64.deb ...
```

```
ssh.cloud.google.com/v2/ssh/projects/prismatic-smoke-420816/zones/us-west4-b/instances/vpn-301sima002?authuser=0&hl=en_US&p...
ssh.cloud.google.com/v2/ssh/projects/prismatic-smoke-420816/zones/us-west4-b/instances/vpn-301sima002?authuser=0&hl=e...
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE

Preparing to unpack .../git_1%3a2.39.2-1.1_amd64.deb ...
Unpacking git (1:2.39.2-1.1) ...
Selecting previously unselected package patch.
Preparing to unpack .../patch_2.7.6-7_amd64.deb ...
Unpacking patch (2.7.6-7) ...
Setting up liberror-perl (0.17029-2) ...
Setting up patch (2.7.6-7) ...
Setting up git-man (1:2.39.2-1.1) ...
Setting up git (1:2.39.2-1.1) ...
Processing triggers for man-db (2.11.2-2) ...
bshar004@vpn-301sima002:~$ ls
-bash: ls: command not found
bshar004@vpn-301sima002:~$ ls
bshar004@vpn-301sima002:~$ git clone https://github.com/Nyr/openvpn-install.git
Cloning into 'openvpn-install' ...
remote: Enumerating objects: 562, done.
remote: Counting objects: 100% (562/562), done.
remote: Compressing objects: 100% (277/277), done.
remote: Total 562 (delta 298), reused 541 (delta 285), pack-reused 0
Receiving objects: 100% (562/562), 172.99 KiB | 1.32 MiB/s, done.
Resolving deltas: 100% (298/298), done.
bshar004@vpn-301sima002:~$
```

This is supposed to be changed to, DNS server to google, but I forgot to rescreen shot the troubleshooting process from the video.

```
ssh.cloud.google.com/v2/ssh/projects/prismatic-smoke-420816/zones/us-west4-b/instances/vpn-301sima002?authuser=0&hl=en_US&p...
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE

Welcome to this OpenVPN road warrior installer!

This server is behind NAT. What is the public IPv4 address or hostname?
Public IPv4 address / hostname [34.125.33.9]:

Which protocol should OpenVPN use?
 1) UDP (recommended)
 2) TCP
Protocol [1]: 1

What port should OpenVPN listen to?
Port [1194]: 8888

Select a DNS server for the clients:
 1) Current system resolvers
 2) Google
 3) 1.1.1.1
 4) OpenDNS
 5) Quad9
 6) AdGuard
DNS server [1]: 1

Enter a name for the first client:
Name [client]: cyse391[]
```

(35pt) Configure the server and generate a client named "yourMidas_vpn.ovpn" and download it from the server.

```
ssh.cloud.google.com/v2/ssh/projects/prismatic-smoke-420816/zones/us-west4-b/instances/vpn-301sisma002?authuser=0&hl=en_US&p...
ssh.cloud.google.com/v2/ssh/projects/prismatic-smoke-420816/zones/us-west4-b/instances/vpn-301sisma002?authuser=0&hl=en...
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE
Linux vpn-301sisma002.c.prismatic-smoke-420816.internal 6.1.0-20-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.85-1 (2024-04-11) x86_64
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permitted by applicable law.
Last login: Wed Apr 24 20:12:41 2024 from 35.235.245.96
bshar004@vpn-301sisma002:~$ cd openvpn-install/
bshar004@vpn-301sisma002:~/openvpn-install$ pwd
/home/bshar004/openvpn-install
bshar004@vpn-301sisma002:~/openvpn-install$
```

```
SSH-in-browser
UPLOA
sisma002_vpn_ovpn.ovpn
4.9 KB • 1 minute ago
Linux vpn-301sisma002.c.prismatic-smoke-420816.internal 6.1.0-20-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.85-1 (2024-04-11) 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: Wed Apr 24 20:46:27 2024 from 35.235.245.97
bshar004@vpn-301sisma002:~$ pwd
/home/bshar004
bshar004@vpn-301sisma002:~$ cd openvpn-install/
bshar004@vpn-301sisma002:~/openvpn-install$ ls
LICENSE.txt  README.md  cyse301.ovpn  openvpn-install.sh
bshar004@vpn-301sisma002:~/openvpn-install$ pwd
/home/bshar004/openvpn-install
bshar004@vpn-301sisma002:~/openvpn-install$ cd
bshar004@vpn-301sisma002:~$ ls
openvpn-install  sisma002_vpn_ovpn.ovpn
bshar004@vpn-301sisma002:~$
```

Transferred 1 item			
301.ovpn	No such file	Retry	!
301.ovpn	No such file	Retry	!
301.ovpn	No such file	Retry	!
sisma002_vpn_ov...	No such file	Retry	!
sisma002_vpn_ov...	Directory: /home/bshar004/sisma002_...		✓

(30 pt) Connect to your VPN server from a laptop or cell phone client and show the public IP address returned from the website "What is My IP address"

The image shows two screenshots. The top screenshot is from the OpenVPN Connect app, displaying a 'Profiles' screen with a 'CONNECTED' status. The profile is 'OpenVPN Profile' with IP address '34.125.33.9 [sisma002_vpn]'. Below this, 'CONNECTION STATS' shows a speed of 959KB/s. At the bottom, it displays 'BYTES IN 8.56 KB/S' and 'BYTES OUT 1.66 KB/S'. The bottom screenshot is from the website 'What is My IP address'. It shows the user's IP address as 'IPv4: 34.125.33.9' and 'IPv6: Not detected'. The location information is: ISP: Google LLC, City: Las Vegas, Region: Nevada, Country: United States. A map shows the location with a red pin and a tooltip that says 'Click for more details about 34.125.33.9'. There is also a note 'Location not accurate? Update My IP Location'.