

OLD DOMINION UNIVERSITY

CYSE 301 CYBERSECURITY TECHNIQUES AND OPERATIONS

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## Assignment #7 Make Your Own VPN Server

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Assignment directions:

1. **(35pt )** Create a Linux Instance on GCP named “vpn-301(then choose a name)”

Free trial status: \$298.49 credit and 89 days remaining. Activate your full account to get unlimited access to all of Google Cloud—use any remaining credits, then pay only for what you use. DISMISS ACTIVATE

Google Cloud My First Project Search (/) for resources, docs, products, and more Search

Compute Engine VM instances CREATE INSTANCE IMPORT VM REFRESH LEARN

Virtual machines

- VM instances
- Instance templates
- Sole-tenant nodes
- Machine images
- TPUs
- Committed use discounts
- Reservations
- Migrate to Virtual Machines

Storage

- Disks
- Marketplace
- Release Notes

VM instances

INSTANCES OBSERVABILITY INSTANCE SCHEDULES

Filter Enter property name or value

| Status                              | Name            | Zone           | Recommendations | In use by | Internal IP       | External IP          | Connect |
|-------------------------------------|-----------------|----------------|-----------------|-----------|-------------------|----------------------|---------|
| <input checked="" type="checkbox"/> | vpn-301-jrus020 | europe-west1-b |                 |           | 10.132.0.3 (nic0) | 34.140.27.137 (nic0) | SSH     |

Related actions

- Explore Backup and DR NEW Back up your VMs and set up disaster recovery
- View billing report View and manage your Compute Engine billing
- Monitor VMs View outlier 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

2. **(35pt )** Configure the server and generate a client named "choose your name" and download it from the server.

Mozilla Firefox https://ssh.cloud.google.com/v2/ssh/projects/aerial-ceremony-421103/zones/europe-west1-b/instances/vpn-301

SSH-in-browser UPLOAD FILE DOWNLOAD FILE

```
Linux vpn-301-jrus020 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 00:45:26 2024 from 35.235.240.114
jmrussell1202@vpn-301-jrus020:~$ ls
openvpn-install
jmrussell1202@vpn-301-jrus020:~$ cd op
-bash: cd: op: No such file or directory
jmrussell1202@vpn-301-jrus020:~$ cd openvpn-install/
jmrussell1202@vpn-301-jrus020:~/openvpn-install$ ls
LICENSE.txt README.md jrus020_vpn.ovpn openvpn-install.sh
jmrussell1202@vpn-301-jrus020:~/openvpn-install$ pwd
/home/jmrussell1202/openvpn-install
jmrussell1202@vpn-301-jrus020:~/openvpn-install$
```

Transferred 1 item

jrus020\_vpn.ovpn Directory: /home/jmrussell202/openvp...

DISMISS ACTIVATE

Search

LEARN

Internal IP External IP Connect

10.132.0.3 (nic0) 34.140.27.137 (nic0) SSH

Monitor VMs View outlier VMs across metrics like CPU and network

Explore VM logs View, search, analyze, and download VM instance logs

Load balance between VMs Set up Load Balancing for your applications as your traffic and users grow

The screenshot shows the Google Cloud Firewall Manager console for project 'aerial-ceremony-421103'. The 'Firewall policies' section is active, displaying a table of VPC firewall rules. A notification states 'Successfully created firewall rule "allow-vpn-traffic"'. The table lists rules for 'allow-vpn-traffic', 'default-allow-icmp', and 'default-'. An OpenVPN Connect app window is overlaid on the right, showing a 'CONNECTED' status for the 'OpenVPN Profile' with public IP 34.140.27.137. Connection stats show 37.7KB/s, 3.48 KB/s in, and 719 B/s out. The private IP is 10.8.0.2.

| Name               | Type    | Targets      | Filters    | Protocols / ports | Action | Priority | Network |
|--------------------|---------|--------------|------------|-------------------|--------|----------|---------|
| allow-vpn-traffic  | Ingress | vpn          | IP ranges: | udp:8888          | Allow  | 1000     | default |
| default-allow-icmp | Ingress | Apply to all | IP ranges: | icmp              | Allow  | 65534    | default |
| default-           | Ingress | Apply to all | IP ranges: | tcp:0-65535       | Allow  | 65534    | default |

3. (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 addressLinks to an external site."](https://www.whatismyip.com)

The screenshot shows the WhatIsMyIP.com website. The main content area displays the following information:

- My Public IPv4: [34.140.27.137](https://www.whatismyip.com/ip/34.140.27.137)
- My Public IPv6: [2600:8805:1a2a:c300:3506:209d:c763:de6e](https://www.whatismyip.com/ip/2600:8805:1a2a:c300:3506:209d:c763:de6e)
- My IP Location: Brussels, BRU BE
- My ISP: Google LLC

A video player on the left shows a thumbnail of Lily Allen. The website also features a 'START NOW' button and a 'QUICK SPEED TEST' link.