

Module 7: Assignment- 1

Tasks To Be Performed:

1. Deploy 2 VMs with Ubuntu and Apache2 installed
2. Change index.html to include the following text
 - a. "This is VM1" on VM1
 - b. "This is VM2" on VM2
3. Create a load balancer which will balance the traffic between these two VMs

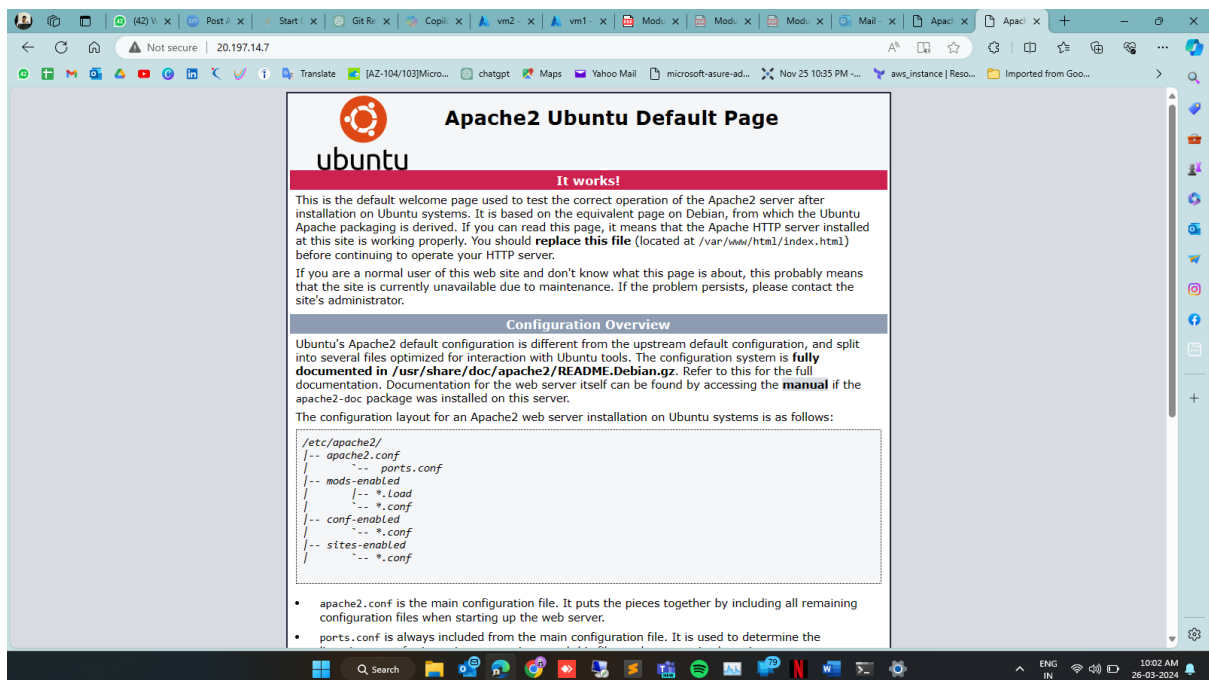
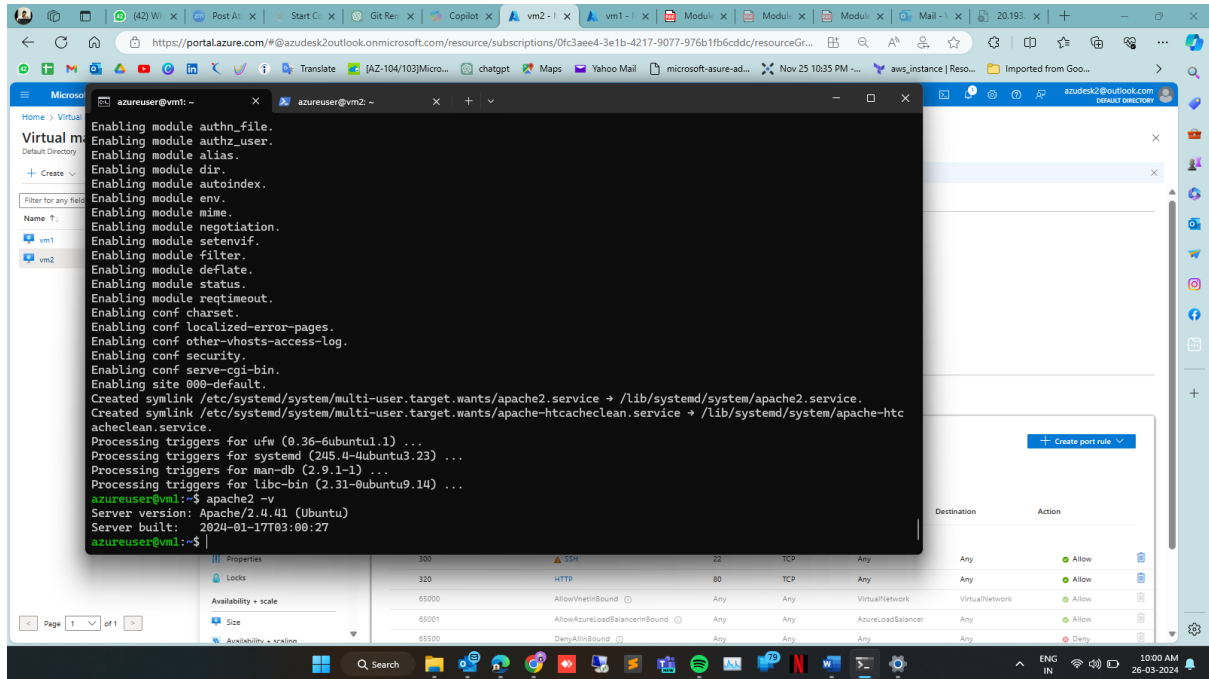
The screenshot displays the 'vm1 | Network settings' page in the Microsoft Azure portal. The left sidebar shows the 'Virtual machines' section with 'vm1' and 'vm2' listed. The main content area shows the 'Network settings' for 'vm1'. The 'Network interface / IP configuration' section shows 'vm1205_1 (primary) / ipconfig1 (primary)'. The 'Essentials' section lists the network interface, virtual network, public IP address (20.197.14.7), private IP address (10.0.0.4), and admin security rules. The 'Rules' section shows a table of inbound port rules for the network security group 'vm1nsg620'.

Priority	Name	Port	Protocol	Source	Destination	Action
300	SSH	22	TCP	Any	Any	Allow
320	HTTP	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow

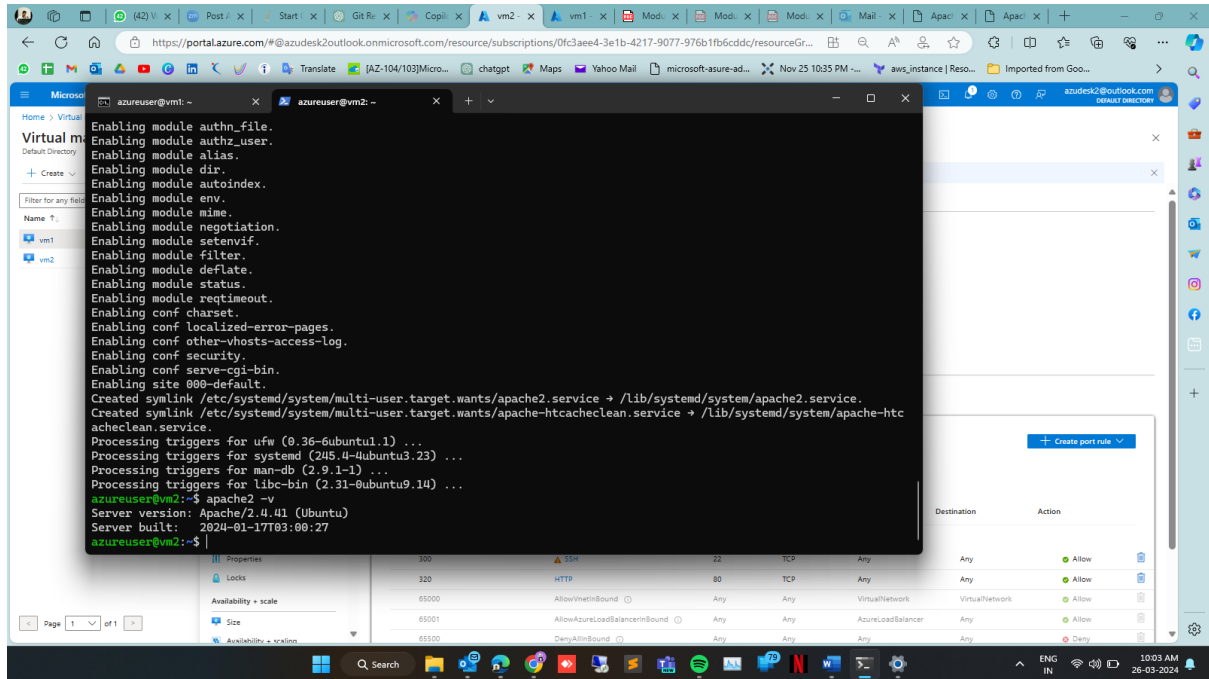
The screenshot displays the 'vm2 | Network settings' page in the Microsoft Azure portal. The left sidebar shows the 'Virtual machines' section with 'vm1' and 'vm2' listed. The main content area shows the 'Network settings' for 'vm2'. The 'Network interface / IP configuration' section shows 'vm227_1 (primary) / ipconfig1 (primary)'. The 'Essentials' section lists the network interface, virtual network, public IP address (20.197.15.207), private IP address (10.0.0.5), and admin security rules. The 'Rules' section shows a table of inbound port rules for the network security group 'vm2nsg'.

Priority	Name	Port	Protocol	Source	Destination	Action
300	SSH	22	TCP	Any	Any	Allow
320	HTTP	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow

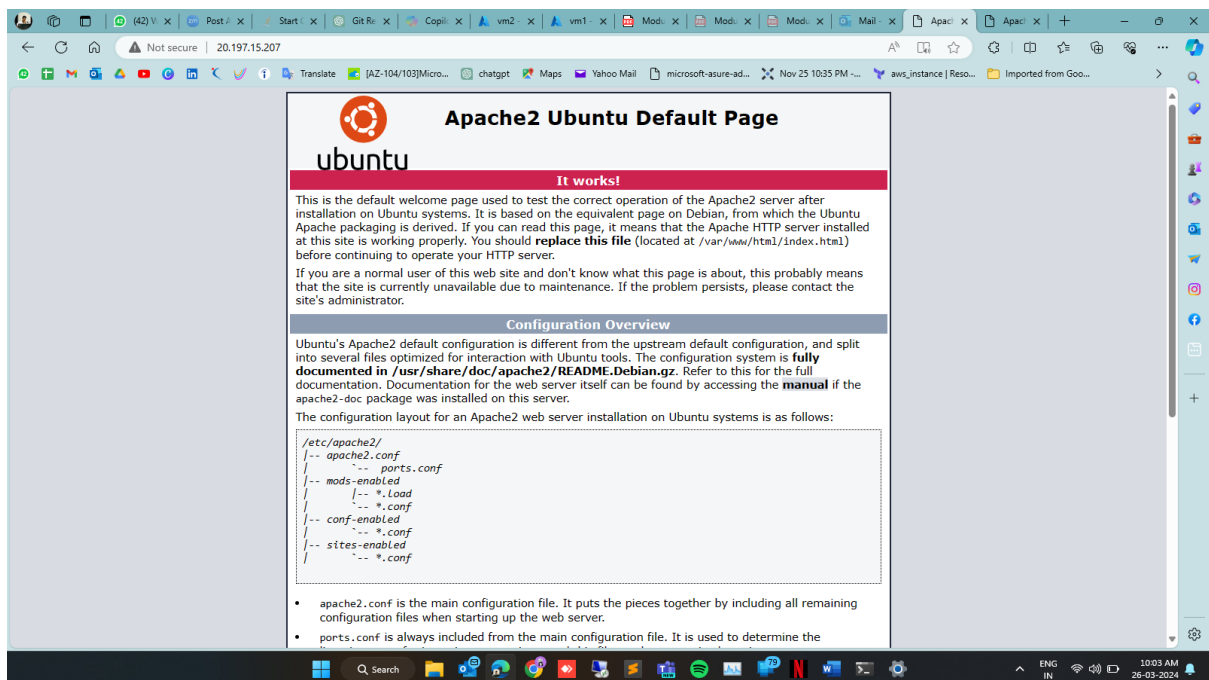
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```
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-headers-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36-6ubuntu1.1) ...
Processing triggers for systemd (245.4-4ubuntu3.23) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.14) ...
azuresuser@vm2:~$ apache2 -v
Server version: Apache/2.4.41 (Ubuntu)
Server built: 2024-01-17T03:00:27
azuresuser@vm2:~$
```



Apache2 Ubuntu Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

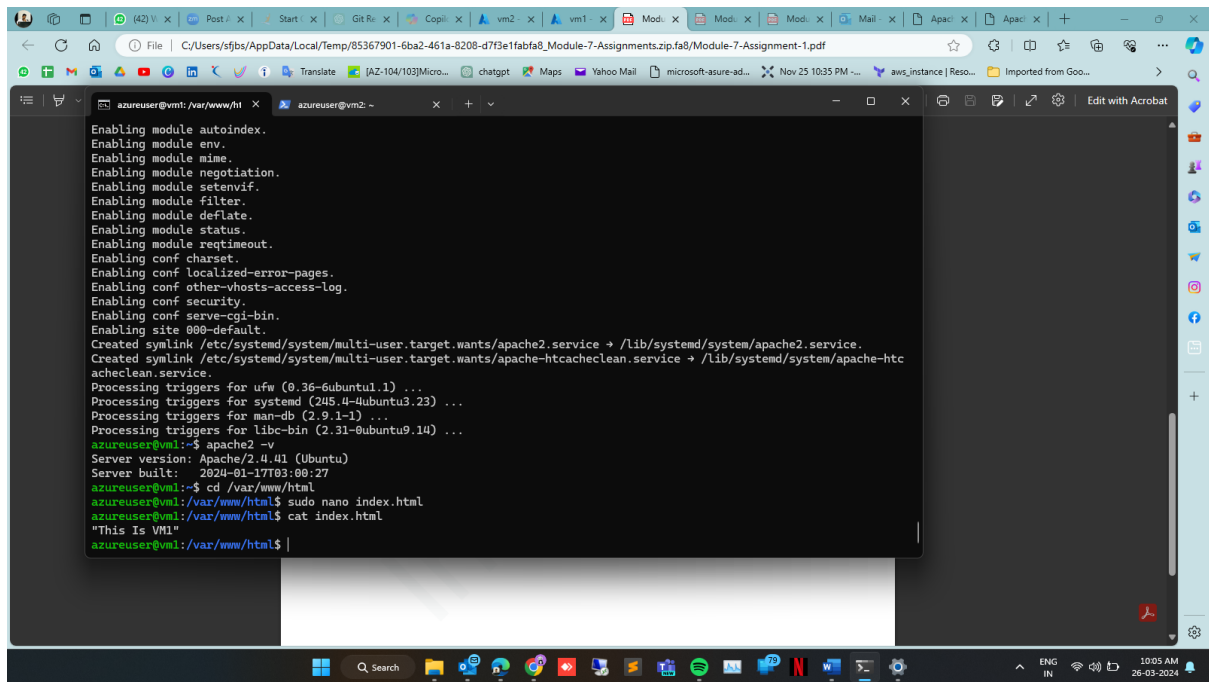
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

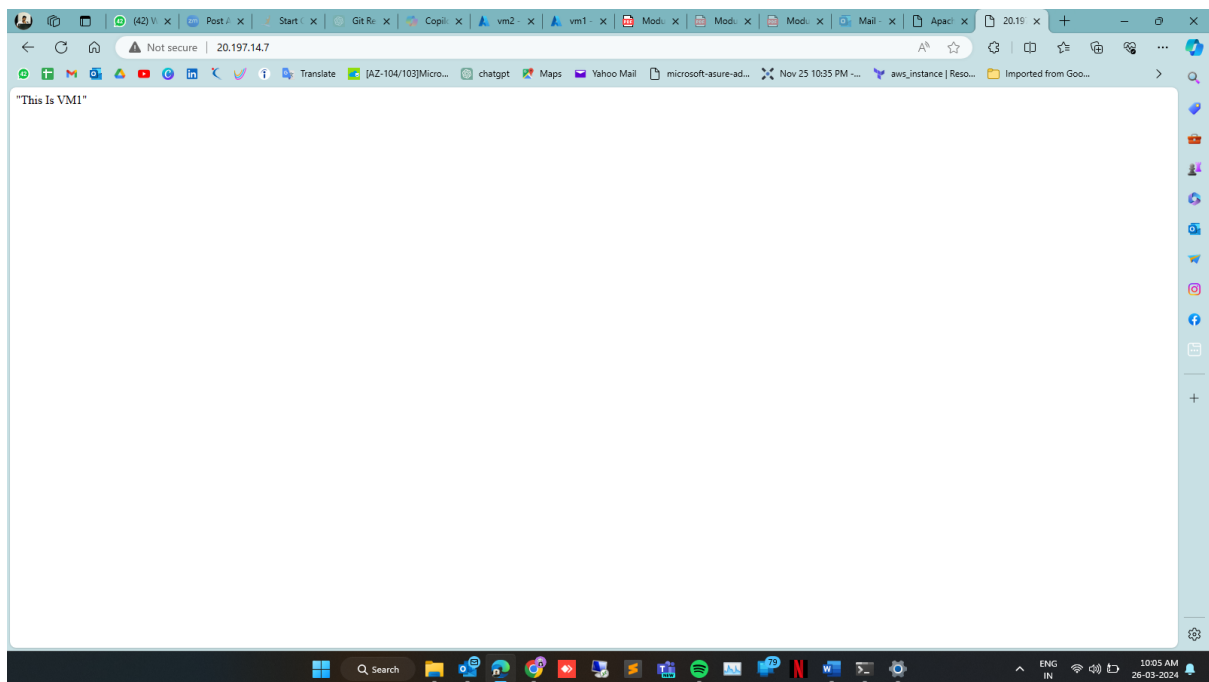
```
/etc/apache2/
|-- apache2.conf
|   |-- ports.conf
|-- mods-enabled
|   |-- *.load
|   |-- *.conf
|-- conf-enabled
|   |-- *.conf
|-- sites-enabled
|   |-- *.conf
```

- `apache2.conf` is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- `ports.conf` is always included from the main configuration file. It is used to determine the

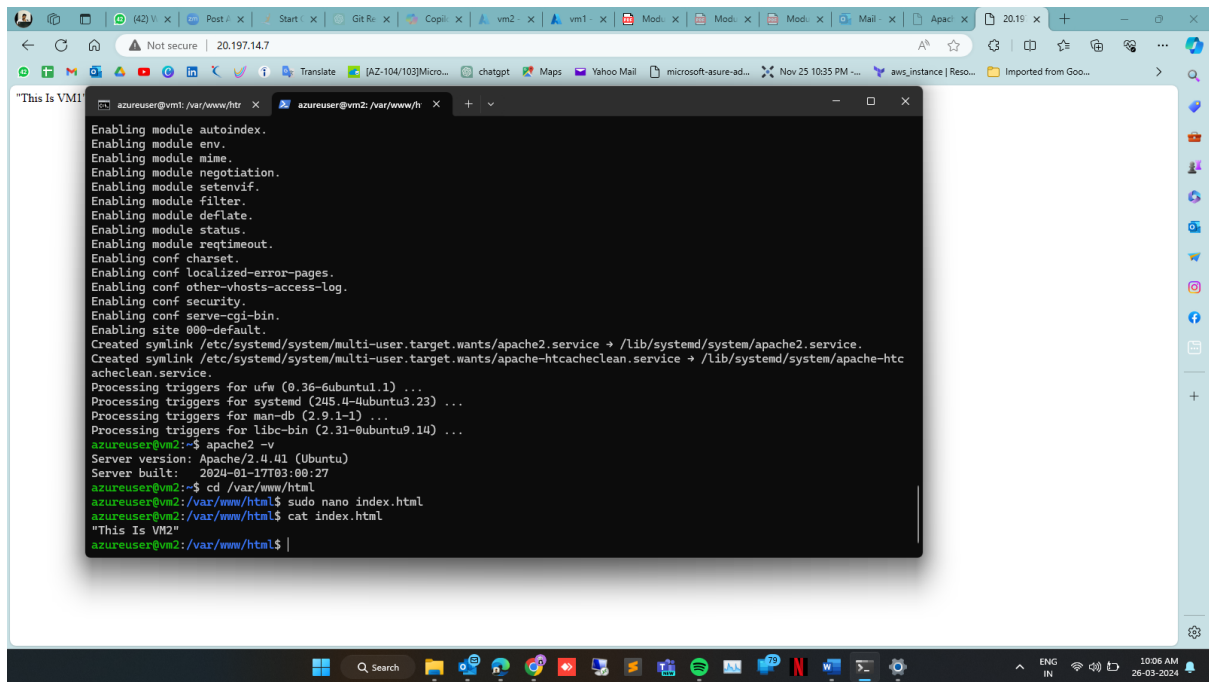
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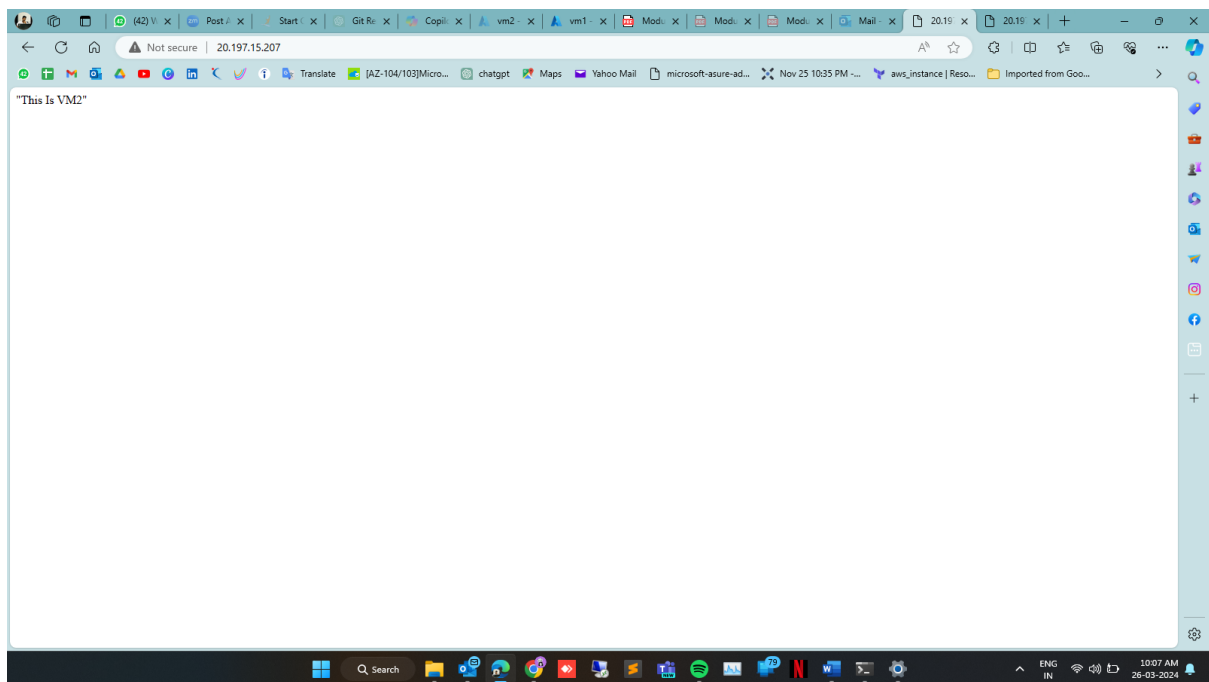
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Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
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Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.14) ...
azureuser@vm1:~$ apache2 -v
Server version: Apache/2.4.41 (Ubuntu)
Server built: 2024-01-17T03:00:27
azureuser@vm1:~$ cd /var/www/html
azureuser@vm1:/var/www/html$ sudo nano index.html
azureuser@vm1:/var/www/html$ cat index.html
"This Is VM1"
azureuser@vm1:/var/www/html$ |
```



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Enabling module env.
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azureuser@vm1:~$ apache2 -v
Server version: Apache/2.4.41 (Ubuntu)
Server built: 2024-01-17T03:00:27
azureuser@vm1:~$ cd /var/www/html
azureuser@vm1:/var/www/html$ sudo nano index.html
azureuser@vm1:/var/www/html$ cat index.html
"This Is VM1"
azureuser@vm1:/var/www/html$
```



```
"This Is VM2"
```

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The screenshot displays the Microsoft Azure portal interface for an Azure Load Balancer resource named 'vm1vm2lb'. The browser address bar shows the URL: <https://portal.azure.com/#@azudesk2outlook.onmicrosoft.com/resource/subscriptions/0fc3aee4-3e1b-4217-9077-976b1fb6cddc/resourcegroups/vm1vm2lb>.

Overview

Essentials

Property	Value
Resource group	Project-Resource
Location	Central India
Subscription	Free Trial
Subscription ID	0fc3aee4-3e1b-4217-9077-976b1fb6cddc
SKU	Standard
Tags	Add tags

Backend pool : vm1vm2lbbackend (2 virtual machines)

Load balancing rule : lbr (Tcp/81 to Tcp/80)

Health probe : health (Tcp/80)

NAT rules : 0 inbound

Tier : Regional

Private IP address : 10.0.0.6

Configure high availability and scalability for your applications

Create highly-available and scalable applications in minutes by using built-in load balancing for cloud services and virtual machines. Azure Load Balancer supports TCP/UDP-based protocols and protocols used for real-time voice and video messaging applications. [Learn more](#)

Balance IPv4 and IPv6 addresses

Native dual-stack endpoints help meet regulatory requirements and address the fast-growing number of devices in mobile and IoT. [Learn more](#)

[View frontend IP configuration](#)

[View backend pools](#)

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Load Balancer improves application uptime by routing traffic to healthy nodes. [Learn more](#)

[View health probes](#)

[View load balancing rules](#)

Secure your networks

Control network traffic and protect private networks using built-in network address translation (NAT). [Learn more](#)

[View inbound NAT rules](#)

The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Frontend IP configuration, Backend pools, Health probes, Load balancing rules, Inbound NAT rules, Properties, Locks), Monitoring (Insights, Diagnostic settings, Logs, Alerts, Metrics), and Automation (CLI / PS, Tasks (preview), Export template).