

**CAK3EAB3 KOMPUTASI AWAN DAN TERDISTRIBUSI**

**Tugas-14**

**Keamanan**

**Kelompok: 11**

**KELAS IF-47-GAB-04**

**Dosen: KHALIS SOFI**



**PROGRAM STUDI S1 INFORMATIKA  
FAKULTAS INFORMATIKA  
UNIVERSITAS TELKOM  
BANDUNG  
2025**

**Ketentuan:**

1. Dikerjakan secara kelompok.
2. Dikerjakan langsung pada lembar soal.
3. Untuk soal perhitungan, maka cara atau langkah penggerjaan **wajib** dituliskan.
4. Setiap anggota kelompok wajib mengerjakan soal (ikut berkontribusi).
5. **Anggota kelompok yang tidak ikut mengerjakan maka nilainya nol, nama mahasiswa tersebut tidak perlu ditulis di tabel.**
6. Unggah jawaban ke LMS diwakili oleh salah satu anggota kelompok.
7. Lengkapi tabel pernyataan di bawah ini sebagai syarat nilai diinput.

**PERNYATAAN**

Saya menyatakan bahwa saya:

- (a) benar-benar ikut mengerjakan soal
- (b) telah menjelaskan jawaban saya ke teman anggota kelompok
- (c) telah memahami penjelasan dari teman anggota kelompok
- (d) **tidak mencontek jawaban dari kelompok lain**
- (e) **tidak memberikan jawaban PR ini ke kelompok lain**

Nama	NIM	Kontribusi Tugas	Tanda Tangan
Siti Inaya Shavarina	103012300030	25%	
Zaskia Khairani Salsabila	103012300411	25%	
Muhammad Furqan Maulidi	103012330213	25%	
Muhammad Alivio Putra	103012300098	25%	

## TUGAS 14

### 1. Lakukan setting keamanan pada aplikasi cloud Anda

- a. Firewall
- b. SSH
- c. Identity management
- d. Enkripsi
- e. DLL

#### FIREWALL + SSH

The screenshot shows a configuration interface for a firewall rule. The fields are as follows:

- Source:** My IP address
- Source IP addresses/CIDR ranges:** 182.253.228.74
- Source port ranges:** \*
- Destination:** Any
- Service:** Custom



## Add inbound security rule

X

myVM-nsg

Destination port ranges \* ⓘ

22



Protocol

- Any
- TCP
- UDP
- ICMPv4
- ICMPv6

Action

- Allow
- Deny

Priority \* ⓘ

Priority \* ⓘ

1000



Name \*

Allow-SSH



Description

**LOGIN SSH**

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Home > CreateVm-canonical.ubuntu-24\_04-lts-server-20251225194607 | Overview >

**myVM** Virtual machine Help me copy this VM in any region Manage this VM with Azure CLI X

**Overview** Help me copy this VM in any region

Search << Connect ▾ Start Restart Stop Hibernate ...

**Activity log**

**Access control (IAM)**

**Tags**

**Diagnose and solve problems**

**Resource visualizer**

> **Connect**

Networking

Network settings

Load balancing

Add or remove favorites by pressing **Ctrl+Shift+F**

**Essentials** JSON View

Resource group ( <a href="#">move</a> )	:	<a href="#">AWAN11</a>
Status	:	Running
Location	:	Central India (Zone 1)
Subscription ( <a href="#">move</a> )	:	<a href="#">Azure for Students</a>
Subscription ID	:	176e3b92-2f0d-4a61-8ca6...
Availability zone	:	1
Operating system	:	Linux (ubuntu 24.04)
Size	:	Standard B2ats v2 (2 vcpus,...)
Primary NIC public IP	:	<a href="#">20.193.145.248</a>

1 associated public IP

**Networking**

Public IP address ⓘ	20.193.145.248 ( Network interface <a href="#">myvm466_z1</a> )
1 associated public IPs	
Public IP address	-
(IPv6)	
Private IP address	10.0.0.4
Private IP address	-
(IPv6)	
Virtual network/subnet	<a href="#">myVM-vnet/default</a>
DNS name	<a href="#">Configure</a>

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DNS name	<a href="#">Configure</a>

```
C:\Users\ASUS\Downloads>ssh -i azurekey.pem azureuser@20.193.145.248
The authenticity of host '20.193.145.248 (20.193.145.248)' can't be established.
ED25519 key fingerprint is SHA256:CTDy8Tg497DogXpHqXPW8EDxBYQvr/e5wvPxVUZkBL0.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '20.193.145.248' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1017-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

System information as of Thu Dec 25 13:27:10 UTC 2025

System load: 0.0          Processes:           117
Usage of /:   5.6% of 28.02GB  Users logged in:    0
Memory usage: 31%          IPv4 address for eth0: 10.0.0.4
Swap usage:  0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@myVM:~$ |
```

Akses ke Azure Virtual Machine berhasil dilakukan menggunakan protokol SSH dengan autentikasi berbasis key pair. Konfigurasi ini memastikan akses server yang aman tanpa menggunakan password.

## Identitiy Management

Identity Management di Azure dilakukan menggunakan Azure Active Directory (Azure AD) dan Role-Based Access Control (RBAC) untuk mengatur siapa dapat mengakses resource cloud dan dengan hak akses apa.

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## myVM | Access control (IAM)

Virtual machine

Added Role assignment  
ZASKIA KHAIRANI SALSABILA was added as Reader for myVM.

Search Add Download role assignments Edit columns

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Connect Networking Network settings Load balancing

Check access Role assignments Roles

**My access**  
View my level of access to this resource. [View my access](#)

**Check access**  
Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#) [Check access](#)

**Grant access to this resource**

Add or remove favorites by pressing **Ctrl + Shift + F**

**Owner (1)**

<input type="checkbox"/> SI	SITI INAYA SHA...	User	Owner	
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**Reader (1)**

<input type="checkbox"/> ZK	ZASKIA KHAIR...	User	Reader	
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**User Access Administrator (3)**

<input type="checkbox"/> hs 365	hilfan@365.tel...	User	User Access Administr...	
<input type="checkbox"/> MUHAMMAD ...	hidayanto@tel...	User	User Access Administr...	
<input type="checkbox"/> NISWA NAFIA...	niswanfh@telk...	User	User Access Administr...	

### ENCRYPTION

Enkripsi data at rest pada Virtual Machine telah diterapkan secara default menggunakan Server-Side Encryption (SSE) dengan platform-managed key (PMK). Mekanisme ini memastikan seluruh data yang tersimpan pada disk terenkripsi dan terlindungi dari akses tidak sah.

The screenshot shows the 'myVM | Disks' blade in the Azure portal. On the left, a navigation menu includes 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Resource visualizer', 'Connect', 'Networking' (with 'Network settings' and 'Load balancing' sub-options), and a note about adding favorites. The main area is titled 'OS disk' and shows settings for 'Max throughput' (25), 'Encryption' (SSE with PMK), and 'Host caching' (Read/write). Below this is a section for 'Data disks' with a 'Create and attach a new disk' button. At the bottom are 'Apply' and 'Discard changes' buttons.

## MONITORING

Monitoring sistem dilakukan menggunakan Azure Monitor untuk memantau performa Virtual Machine secara real-time, seperti penggunaan CPU dan jaringan, sehingga potensi gangguan dapat terdeteksi lebih awal.

The screenshot shows the 'myVM | Metrics' blade in the Azure portal. The left sidebar has 'Monitoring' selected under 'Metrics'. The main area displays a line chart for the 'CPU Credits Consumed' metric over the last 24 hours. The chart shows a sharp spike at approximately 7:00 UTC+07:00. The top of the blade includes a search bar ('metri'), refresh button, share options, and a note about local time. The bottom has a 'Give Feedback' link.