

LAPORAN TUGAS MATA KULIAH
BIG DATA
PERTEMUAN 3



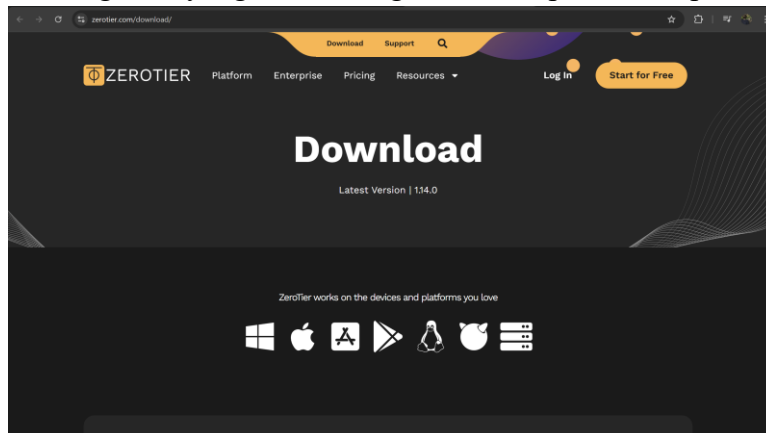
NAMA : MUHAMMAD IQBAL MUHTARAM
NIM : 2241720265
KELAS : TI 3D

PROGRAM STUDI D-IV TEKNIK INFORMATIKA
JURUSAN TEKNOLOGI INFORMASI
POLITEKNIK NEGERI MALANG

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Konfigurasi VPN Client

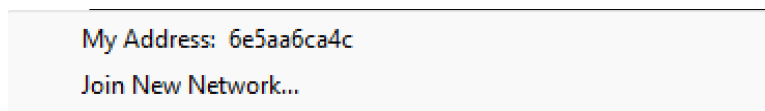
- Unduh VPN Client dengan membuka situs ZeroTier di <https://www.zerotier.com/download/>.
- Klik logo OS yang sesuai dengan sistem operasi komputer Anda.



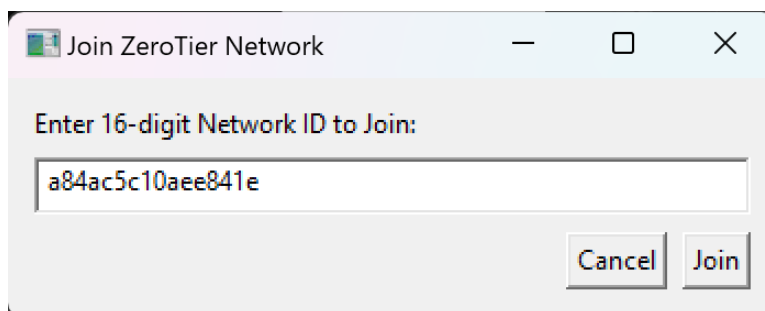
- Instal software yang telah diunduh, cukup klik dua kali, lalu klik Next hingga proses selesai.
- Setelah instalasi selesai, klik kanan ikon ZeroTier pada system tray.



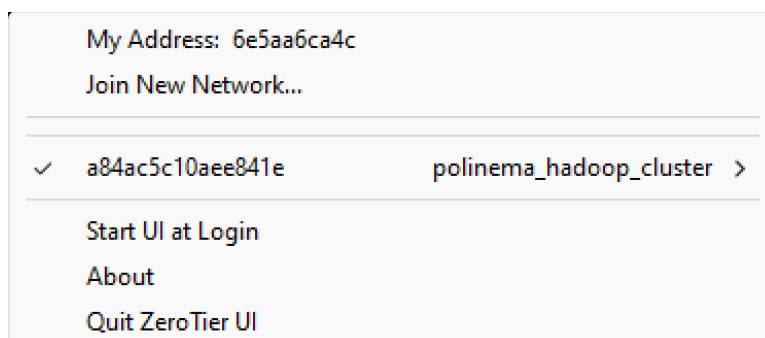
- Pilih Join New Network.



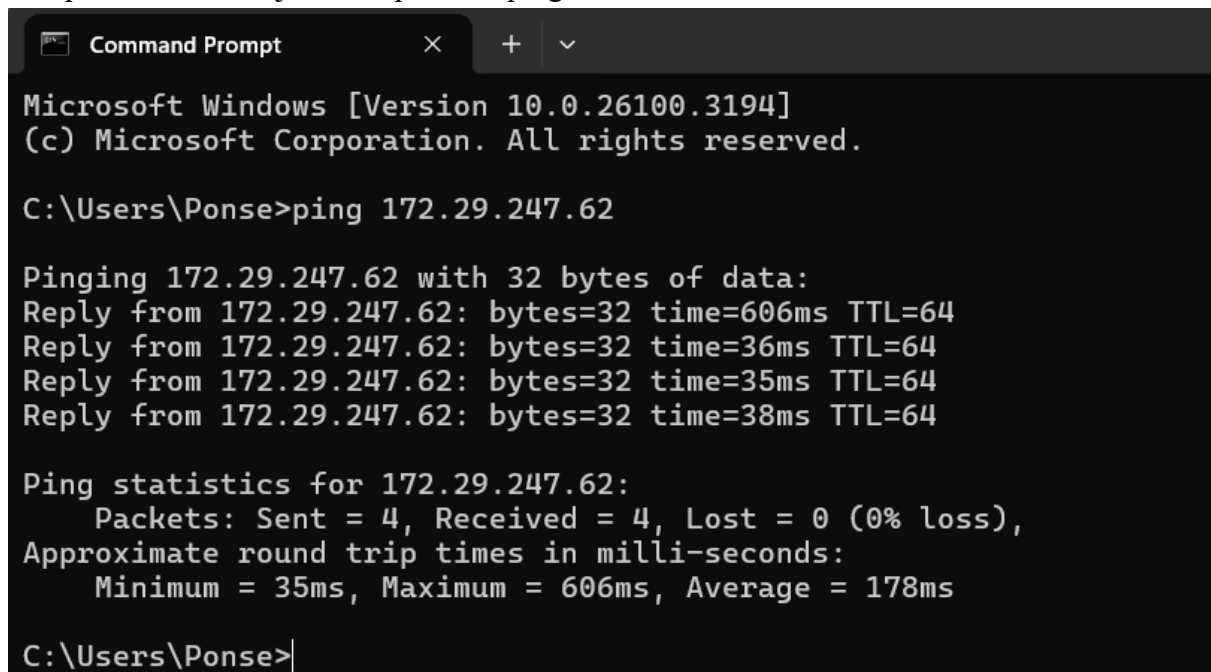
- Masukkan Network ID berikut: a84ac5c10ace841e.



- Klik Join Network.



- Untuk menguji koneksi ke jaringan VPN cluster Hadoop, buka CMD atau terminal di komputer Anda, lalu jalankan perintah ping ke IP berikut: 172.29.247.62



```

Microsoft Windows [Version 10.0.26100.3194]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Ponse>ping 172.29.247.62

Pinging 172.29.247.62 with 32 bytes of data:
Reply from 172.29.247.62: bytes=32 time=606ms TTL=64
Reply from 172.29.247.62: bytes=32 time=36ms TTL=64
Reply from 172.29.247.62: bytes=32 time=35ms TTL=64
Reply from 172.29.247.62: bytes=32 time=38ms TTL=64

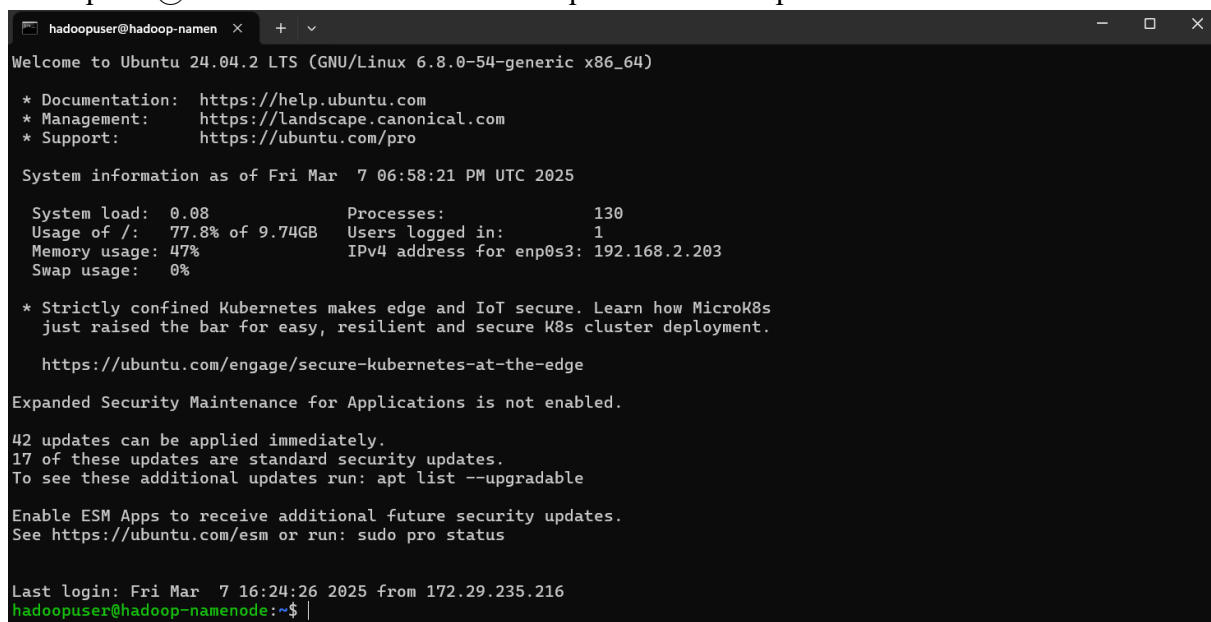
Ping statistics for 172.29.247.62:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 35ms, Maximum = 606ms, Average = 178ms

C:\Users\Ponse>

```

Mengakses Cluster Hadoop

- Untuk mengakses suatu cluster Hadoop, Anda hanya perlu terhubung dengan name nodenya.
- Jika Anda menggunakan Windows, buka PowerShell, lalu ketik perintah `ssh hadoopuser@172.29.247.62` dan masukkan password hadoop.



```

hadoopuser@hadoop-namen  x  +  v
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-54-generic x86_64)

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

System information as of Fri Mar  7 06:58:21 PM UTC 2025

System load:  0.08               Processes:            130
Usage of /:   77.8% of 9.74GB     Users logged in:     1
Memory usage: 47%               IPv4 address for enp0s3: 192.168.2.203
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.

42 updates can be applied immediately.
17 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

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

Last login: Fri Mar  7 16:24:26 2025 from 172.29.235.216
hadoopuser@hadoop-namenode:~$

```

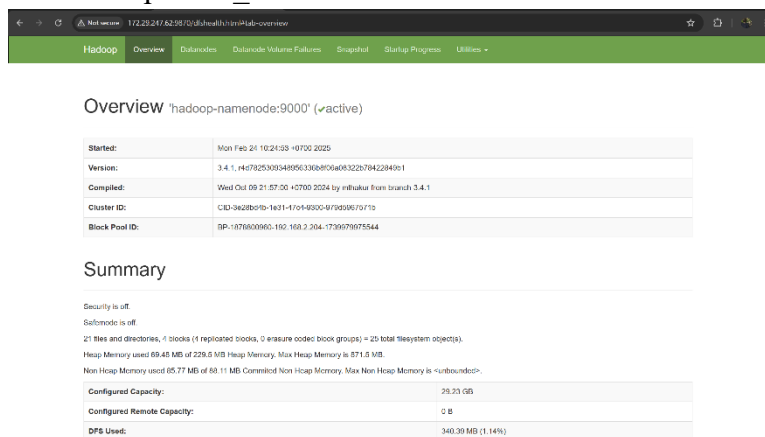
- Jika Anda berhasil terhubung, maka prompt di terminal akan berubah menjadi `hadoopuser@hadoopnamenode`.
- Ketikkan perintah `jps`, maka akan ditampilkan status mesin saat ini yang bertugas sebagai name node.

```

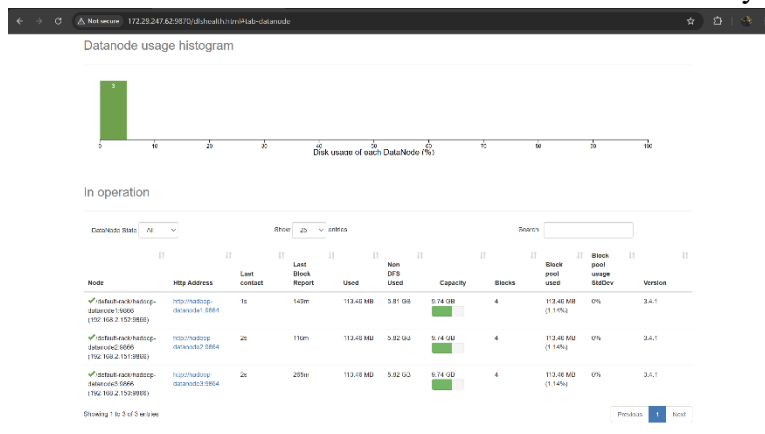
Last login: Fri Mar  7 16:24:26 2025 from 172.29.235.216
hadoopuser@hadoop-namenode:~$ jps
1699 SecondaryNameNode
1878 ResourceManager
7644 Jps
1455 NameNode
hadoopuser@hadoop-namenode:~$ |

```

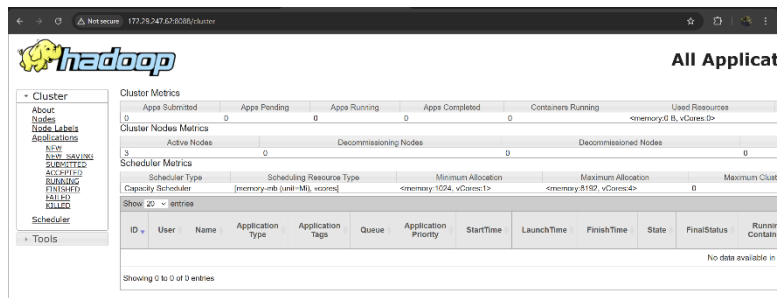
- Anda dapat melihat status data nodes saat ini melalui GUI web yang dapat diakses di alamat: http://<IP_NameNode>:9870/dfshealth.html.



- Klik menu Datanodes untuk melihat informasi data node yang ada pada cluster.



- Situs yang sebelumnya terkait dengan penyimpanan data (HDFS) untuk pemrosesan memiliki GUI Web lain yang dapat diakses melalui browser dengan mengetikkan alamat: http://<IP_NameNode>:8088/cluster.



The screenshot shows the Hadoop Web UI. On the left is a navigation menu with links like 'Cluster', 'Nodes', 'Node Labels', 'Applications', 'Scheduler', and 'Tools'. The main area is titled 'All Applications' and displays 'Cluster Metrics' and 'Scheduler Metrics'. The 'Cluster Metrics' table shows 0 Apps Submitted, 0 Apps Pending, 0 Apps Running, 0 Apps Completed, 0 Containers Running, and Used Resources. The 'Scheduler Metrics' table shows Scheduler Type as Capacity Scheduler, Scheduling Resource Type as memory-mb (unit-MB), vcores, Minimum Allocation as 1024, Maximum Allocation as 8192, and Maximum Clusters as 0. Below these is a table for applications with columns: ID, User, Name, Application Type, Application Tags, Queue, Application Priority, StartTime, LaunchTime, FinishTime, State, FinalStatus, and RunDir. The table is currently empty, showing 'No data available in table'.

Perintah Dasar

- Untuk melihat versi Hadoop, ketikkan perintah `hadoop version`.

```
hadoopuser@hadoop-namenode:~$ hadoop version
hadoop 3.4.1
Source code repository https://github.com/apache/hadoop.git -r 4d7825309348956336b8f06a08322b78422849b1
Compiled by mthakur on 2024-10-09T14:57Z
Compiled on platform linux-x86_64
Compiled with protoc 3.23.4
From source with checksum 7292fe9dba5e2e44e3a9f763fce3e680
This command was run using /usr/local/hadoop/share/hadoop/common/hadoop-common-3.4.1.jar
hadoopuser@hadoop-namenode:~$
```

- Untuk membuat folder, ketikkan perintah `hadoop fs -mkdir /<NamaFolder>`, pastikan nama folder tanpa spasi, disarankan menggunakan CamelCase, dan semua folder harus berada di bawah root directory `/`.

```
hadoopuser@hadoop-namenode:~$ hadoop fs -mkdir /15_RhanilhamFadlillatulRamadhan
```

- Untuk melihat folder-folder yang ada, ketikkan perintah `hadoop dfs -ls /`.

```
this command was run using /usr/local/hadoop/share/hadoop/common/hadoop-common-3.4.1.jar
hadoopuser@hadoop-namenode:~$ hadoop fs -mkdir /11_muhammadiqbalmuhtaram
hadoopuser@hadoop-namenode:~$ hadoop dfs -ls /
ARNING: Use of this script to execute dfs is deprecated.
ARNING: Attempting to execute replacement "hdfs dfs" instead.

Found 29 items
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 07:33 /05_FebbyMathelda
drwxr-xr-x - hadoopuser supergroup 0 2025-03-07 16:30 /07_HafizhMuhammadRabbani
drwxr-xr-x - hadoopuser supergroup 0 2025-02-28 10:25 /09_MayaMelanesia
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 08:04 /10_MochammadZakaroAlFajri
drwxr-xr-x - hadoopuser supergroup 0 2025-03-07 19:10 /11_muhammadiqbalmuhtaram
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 08:58 /12_MuhammadIrsyadDany
drwxr-xr-x - hadoopuser supergroup 0 2025-02-27 01:59 /13_Fifi
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 03:32 /13_Hanief
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 03:33 /13_HaniefMochsin
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 08:58 /14NurhalizaAnindyaPutri
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 08:56 /15_RhanilhamFadlillatulRamadhan
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 08:05 /18_MulkiHakim
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 07:53 /18_ShasiaSasaSalsabyLa
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 07:44 /19_Rendy
drwxr-xr-x - hadoopuser supergroup 0 2025-03-01 09:04 /20_SukmaBagusWahasdwika
drwxr-xr-x - hadoopuser supergroup 0 2025-02-25 07:40 /21_TriyanaDewiFatmawati
drwxr-xr-x - hadoopuser supergroup 0 2025-03-02 20:30 /EntFladda
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 07:41 /RifkiFakhrudin
drwxr-xr-x - hadoopuser supergroup 0 2025-02-28 15:08 /SIB-3D
drwxr-xr-x - hadoopuser supergroup 0 2025-02-28 06:30 /TI-3A
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 03:15 /TI-3B
drwxr-xr-x - hadoopuser supergroup 0 2025-02-24 04:08 /TI-3E
drwxr-xr-x - hadoopuser supergroup 0 2025-02-26 03:36 /TI_3C
```

