
# CONFIGURING CMUNIVERSITY ACTIVE DIRECTORY SERVER ENVIRONMENT

Group 2:

**Kheyral Sutan Dumas**

**Charisma Bayu Majestyno**

**Naufal Fauzan Wildani**

Faculty:

**Mr. Ivan Firdaus, ST.**

Class:

**2CS1**

**CEP CCIT FACULTY OF ENGINEERING**

**UNIVERSITY OF INDONESIA**

**2024**

## PROJECT INFORMATION

**Project Title** **:** Configuring CMUniversity Active Directory Server Environment

**Batch Code** **:** 2CS1

**Start Date** **:** June 28, 2024

**End Date** **:** July 04, 2024

**Name of Faculty** **:** Mr. Ivan Firdaus, ST.

**Names of Administrator :**

1. Kheyral Sutan Dumas
2. Charisma Bayu Majestyno
3. Naufal Fauzan Wildani

## CERTIFICATE OF ORIGINALITY

This is to certify that the project report titled "Configuring CMUniversity Active Directory Server Environment" is an original work completed by Kheyral Sutan Dumas, Naufal Fauzan Wildani and Charisma Bayu Majestyno. This project has been submitted in partial fulfillment of their course requirement at the National Institute of Information Technology (NIIT).

The project report has been prepared under our guidance and supervision, and it is ensured that the work presented in this report is the result of the individual efforts of the aforementioned students. The contents of this report have not been submitted to any other institution or organization for the award of any degree, diploma, or other similar recognition.

Author acknowledge that the ideas, designs, and implementations presented in this project report are the intellectual properties of the students mentioned above. Any use or reproduction of this work must give proper credit to the original authors.

Author hereby endorse the authenticity and originality of the work presented in this project report and confirm that it meets the academic standards and requirements set forth by the National Institute of Information Technology (NIIT).

## ACKNOWLEDGEMENT

The author would like to acknowledge the completion of the insightful paper entitled "Configuring CMUniversity Active Directory Server Environment." This paper comprehensively discusses the configuration of domain controller, organizational unit, group policy, file sharing and web server applications within the Windows Server operating system.

The contents of this paper provide a detailed overview of configuring simple active directory environment on the Windows Server. The authors have meticulously examined various aspects of configuration.

Depok, 28 June 2024

Authors

## SYSTEM ANALYSIS

This paper "Configuring CMUniversity Active Directory Server Environment" delves into the integration of many configuration. The study aims to research, configuring the server architecture and resources within this particular environment.

The concept of this authors is simulating as a system administrator to do a configuration for developing a fully functional demo active directory environment utilizing ADDS, OU, GPO, IIS, and File Sharing services. Users can share or transfer file within the environment but with registered account trough Organizational Unit services. Additionally, Users is also limited to open some features on the computer and unable to access them for security reason.

To establish all the configurations, the adapters must be configured first. We'll primarily use is Internal Network for both server and client.

Ultimately, the objective of this configuration is to construct a fully operational demo environment leveraging Active Directory services and Features such as IIS, Domain Controller, OU, and etc.

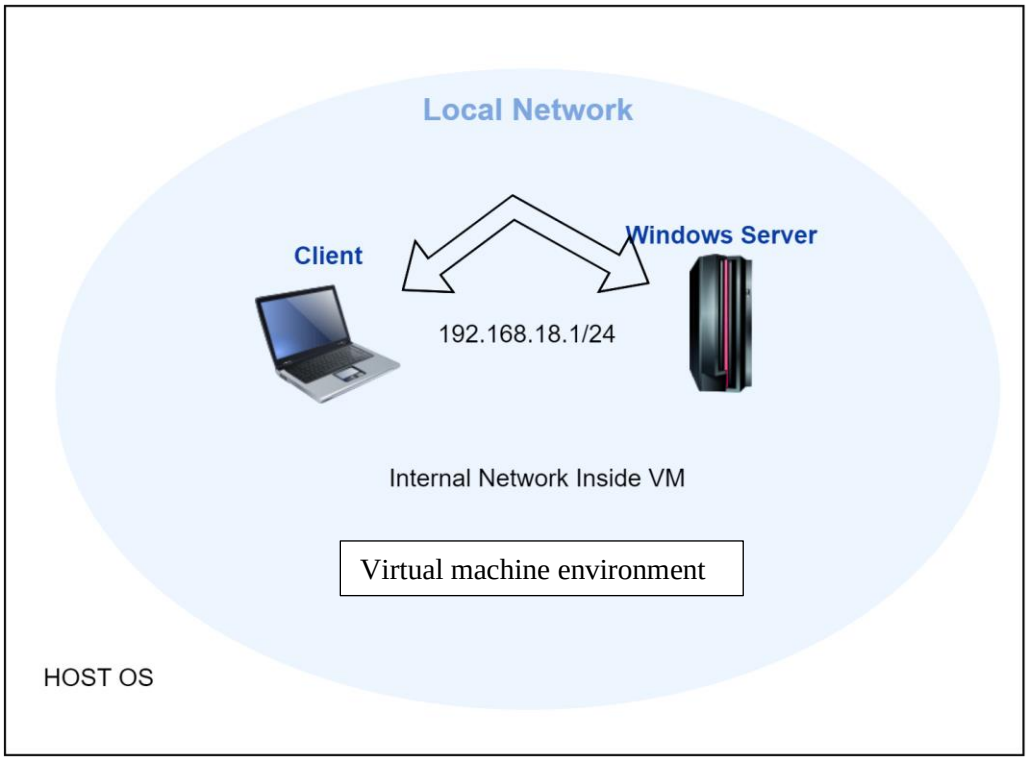
## IP TABLE

| Device | IP Address | Subnet Mask | Default Gateway | DNS Server | Role |
|---|---|---|---|---|---|
| Domain Controller | 192.168.18.1 | 255.255.255.0 | None (Directly connected) | 192.168.18.1 | Active Directory, DNS |
| DHCP Server (DC) | 192.168.18.2 | 255.255.255.0 | 192.168.18.1 | 192.168.18.1 | DHCP Server |
| DHCP Clients | 192.168.18.3-100 (Range) | 255.255.255.0 | 192.168.18.1 | 192.168.18.1 | DHCP Clients |

Operating system virtual machine specification:

1. Windows Server 2022
   - 2GB RAM
   - 40GB Storages
   - 1 CPU
   - 1 Internal Network Adapters
2. Windows 10 Pro Client
   - 2GB RAM
   - 15GB Storages
   - 1 CPU
   - 1 Internal Network Adapters

# NETWORK TOPOLOGY



## SERVICES

1. **Active Directory Domain Services**

   A Microsoft service that centralizes user and computer management on a network, allowing for centralized access control and security.

2. **Organizational Unit**

   An organizational unit (OU) is a folder within your Active Directory, managing group, users, computers, and other resources based on department, location, or other criteria.

3. **DHCP Server**

   DHCP server is like a network receptionist, automatically assigning IP addresses (room numbers) to devices joining the network

4. **Group Policy Object**

   Set of rules in your network domain that define settings for users and computers. Imagine it as a company policy.

5. **File Share**

   It's a directory on a server that allows authorized users on the network to access/share specific files and folders.

6. **Internet Information Service (IIS)**

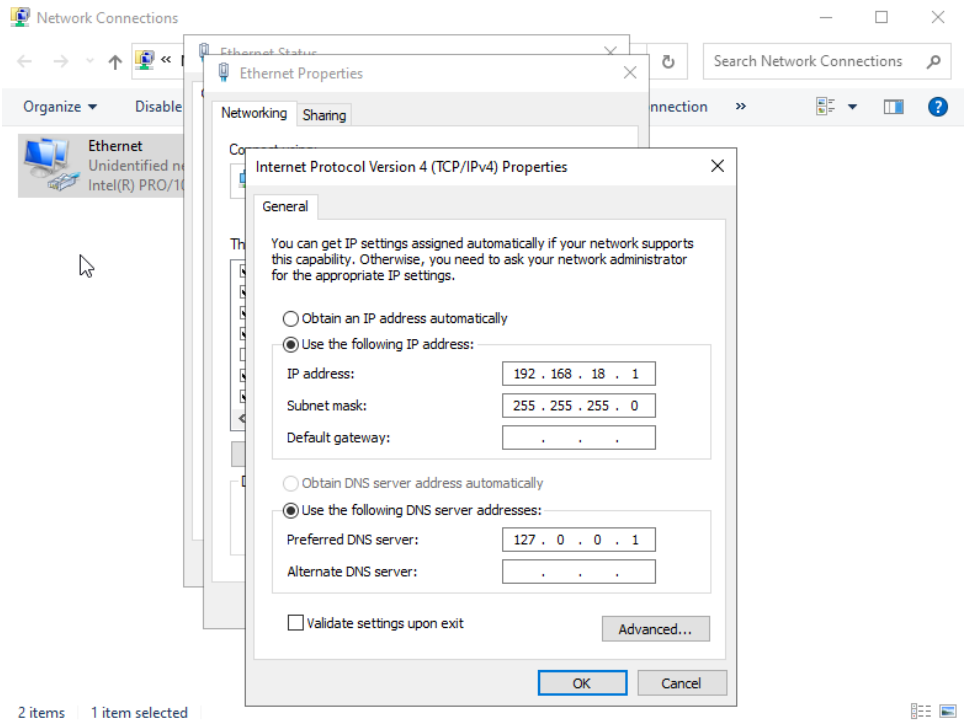
   It's a Microsoft web server software that delivers web content (files, applications) to users

# CONFIGURATION

## 1. Preparation

First, setup 2 virtual machine 1 for server and other for client with both Internal Network Adapter.

After both vm installed go to server vm and type **windows + r** and then type **ncpa.cpl**




Config the IP address to static and adjust it like the picture above.

Do the same with client but setup the IP into "**Obtain an IP address automatically**".

# CONFIGURATION

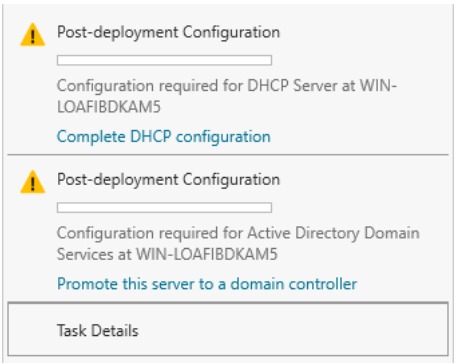
## 2. Installing Services

Go to server > open server manager and press **Add roles & features > next until server roles** and check the services bellow.

| Server Roles | Features |
|---|---|
| Active Directory Domain Services | Group Policy Management |
| DHCP Server | |
| Web Server (IIS) | IIS Hostable Web Core |
| DNS Server | |

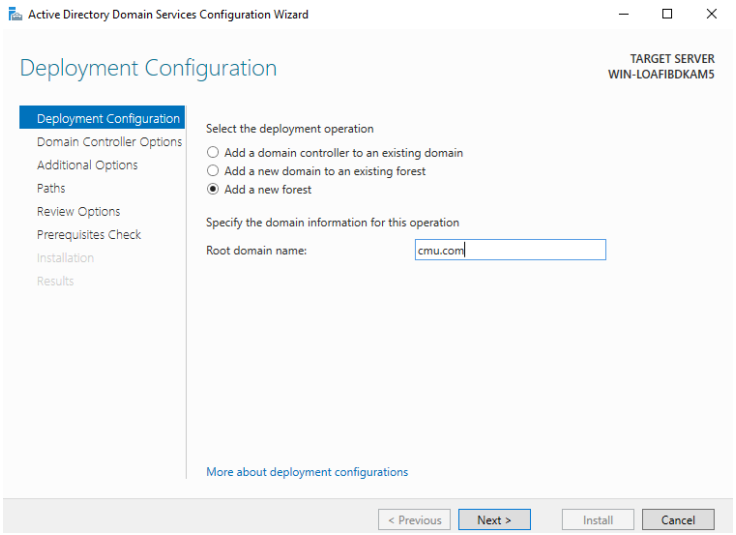
If there is some server roles or features already check, don't uncheck it, it's a default settings just click next until install then click install.

After installing go to server dashboard and click the icon flag, there should be notification like this

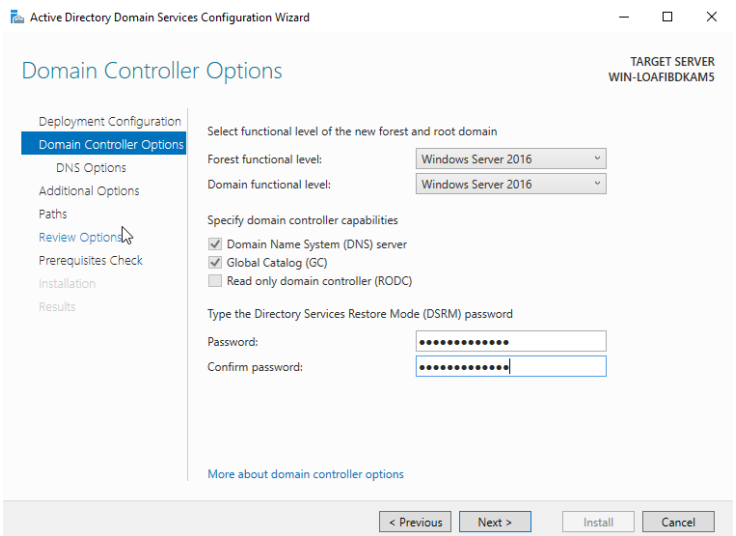



First of all complete initialization for domain controller by clicking "**promote this server to a domain controller"**

# CONFIGURATION



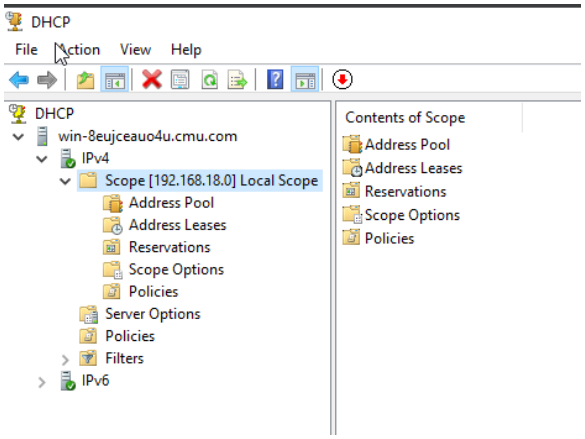

Enter new domain name in "**Add new forest"** and click next then enter DSRM Password for restore mode, and click next again and again then click install, after that complete the rest initialization for other services just by clicking next until finish and it will automatically initialize.



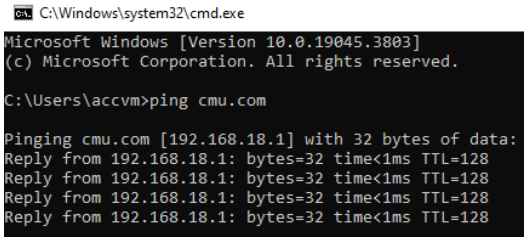
## CONFIGURATION

### 3. Configuring Services

The first thing to configure is dhcp server for our client, we don't need to configure DNS because it's automatically configured when we initializing domain controller above, now go to **tools > dhcp > right click ipv4 > new scope > enter scope name > enter IP ranges in IP Tables > next > next > next > enter gateway IP in IP Tables then add > enter domain name in server name then add > next for the rest until finish,** and here is the result.

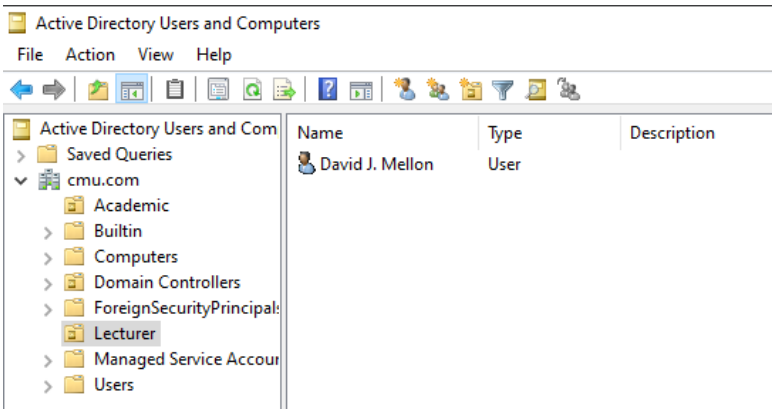



And then go to client type **windows + r** type **ipconfig /release, ipconfig /renew, ipconfig /flushdns,** type it one per one after that you can see the dhcp is working by pinging domain name in cmd like image bellow.



## CONFIGURATION

Now, creating Organizational Unit also with users for client, go to dashboard > **tools > Active Directory Users and Computers > right click on domain name > new > Organizational Unit > enter OU name > right click on new OU > new > users > enter new user credentials and password (note: windows use strong policy for creating password) > next until finish,** and here is the result.

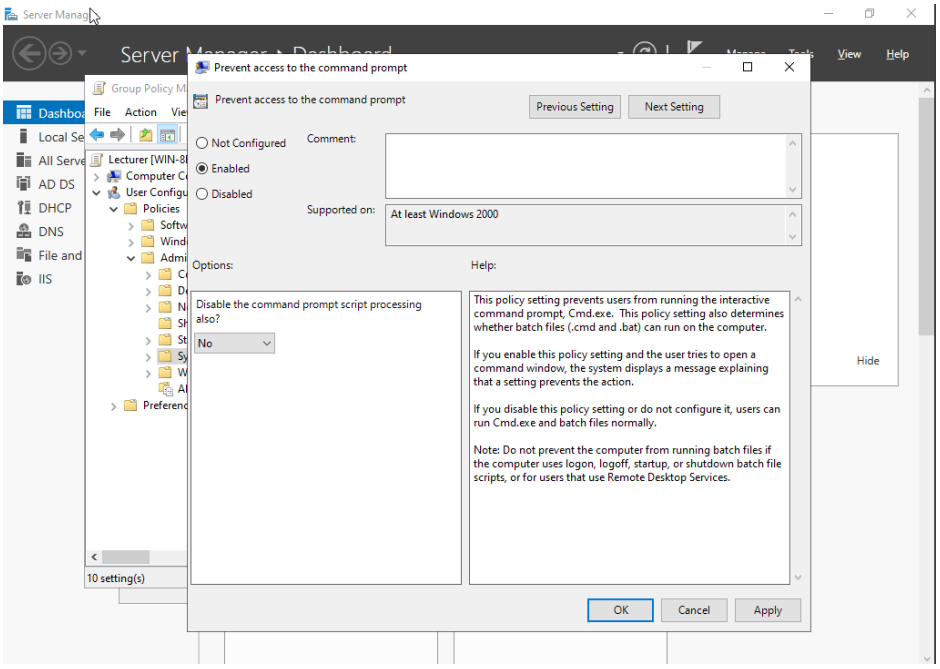



After creating OU and Users the next step is to give a Group Policy Objects, let's say this institution has this policy below.

| Section | Details |
|---|---|
| **Title** | Users Limited Priviledges |
| **Purpose** | Security reason |
| **Scope** | Applies to all employees except for IT Support |
| **Policy Statements** | Employees is restricted to access command prompt, changing password, and viewing task manager. |

## CONFIGURATION

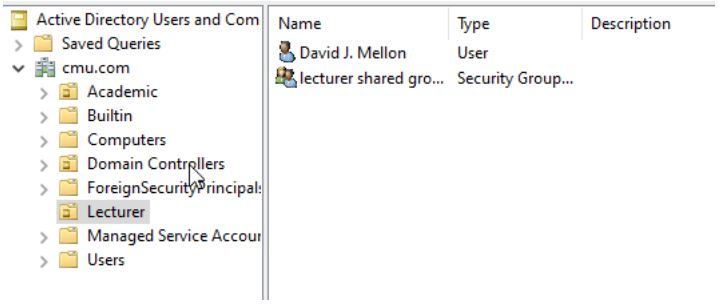
Now we know the policy let's create it by going to dashboard > **tools > Group Policy Management > click on forest domain > click on domains > click domain name > select OU folder that need to setup GPO > right click on the OU > click Create GPO in this domain and link it here > enter GPO name > right click on new GPO and click edit > user configuration > policies > administrative templates > system > click on prevent access to command prompt and enable it and apply.**



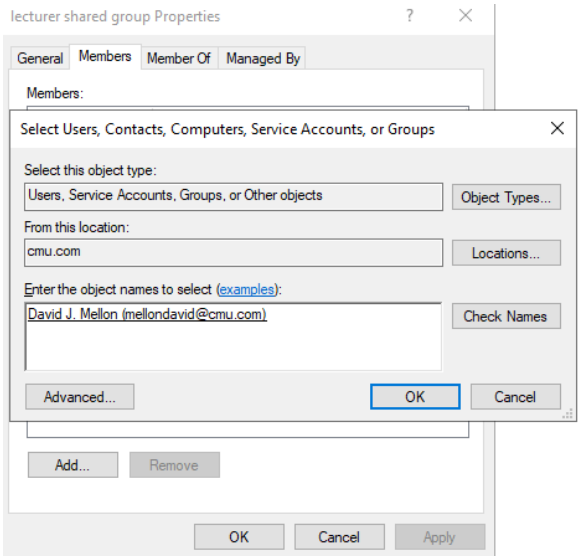

In the same system click on **CTRL+ALT+DEL Options > enable remove change password and remove task manager.**

## CONFIGURATION

Next configuration is to configure file sharing on the server so different user can exchange information easily, before to do that, create a security group specified for sharing, just go to OU folder like you create new OU but right now click **group > enter group name,** and it will be like this

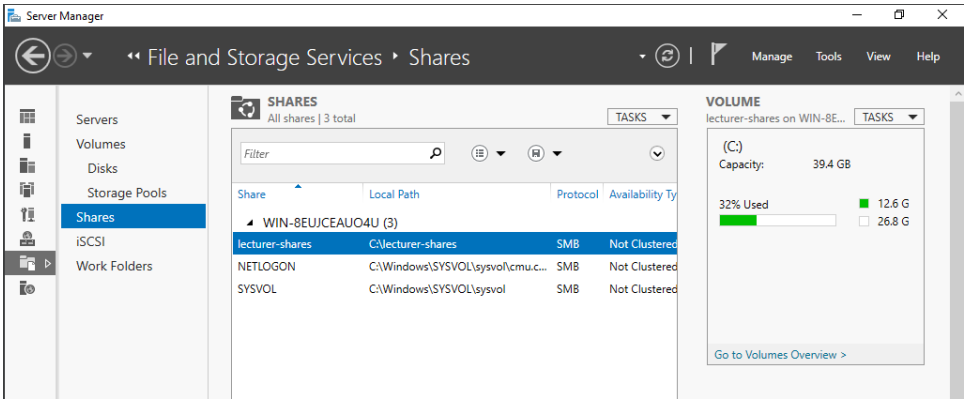



Now add user to group by click on new security group > **members > add > enter username**, to add and it will be like this



## CONFIGURATION

Finally to create new share folder go to > **files & storage services > shares > right click and click new share > next > choose custom path > create new folder > enter folder name > click new folder and select > next > check for enable access-based enumeration > customize permission > disable inheritance > convert inherited > remove all principal except system and admin > add > principal > enter security group name > check on full control > apply > confirmation > create,** and this is the result.

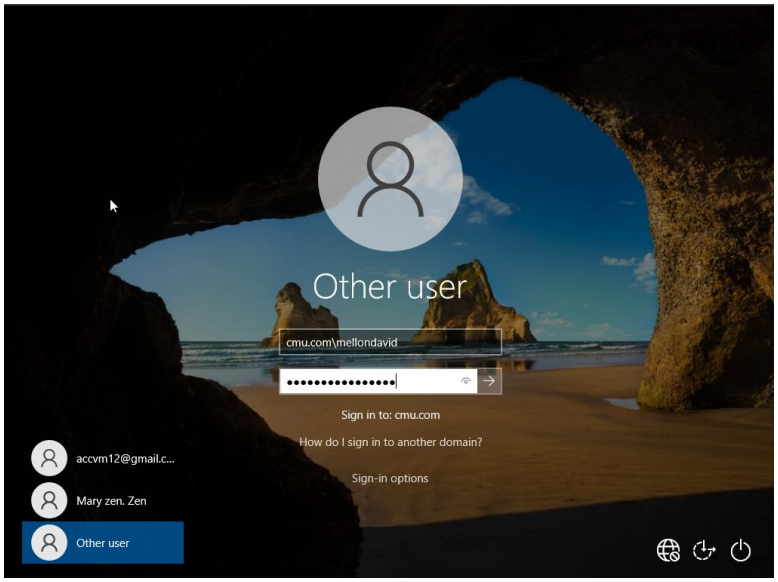



Last configuration is to setup web server for the institution, let's say the institution want's a web app profile to show, before doing that search web template on google by searching html web page template or accessing this site templatemo.com and download it, and then let's go to > **tools > Internet Information Services (IIS) Manager > click on server name > sites > default website > action tabs click on explorer > extract the template file in wwwroot,** you can also modify the template as you want.

# CONFIGURATION

## 4. Demonstration

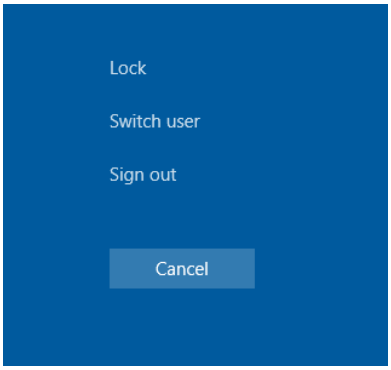
Now let's do some testing for each configuration starting from the domain controller, to see if the domain controller is working or not go to client machine > **file explorer > right click on this pc > properties > advance system settings > computer name > click change on change it's domain or workgroup > change member of to domain and enter domain name > login with user credentials > restart computer > login as other users > login format like this image below.**



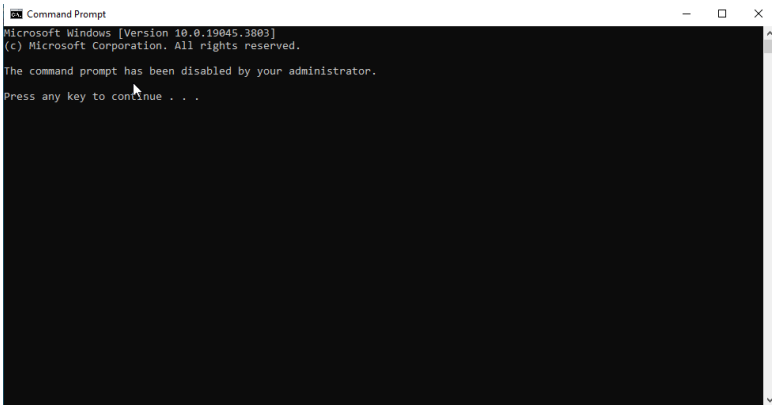

If success login that mean domain controller is working fine and ready to use.

## CONFIGURATION

Next is testing GPO by accessing command prompt and seeing change password/task manager by typing **windows + r** and type **cmd** and for changing password & task manager is press **CTRL + ALT + DEL** in users that log on to, to see the result.



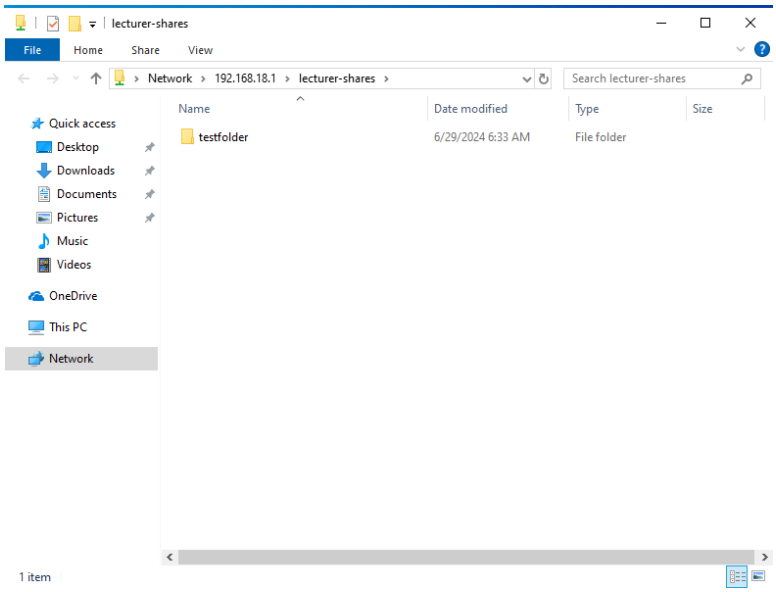

No change password or task manager options



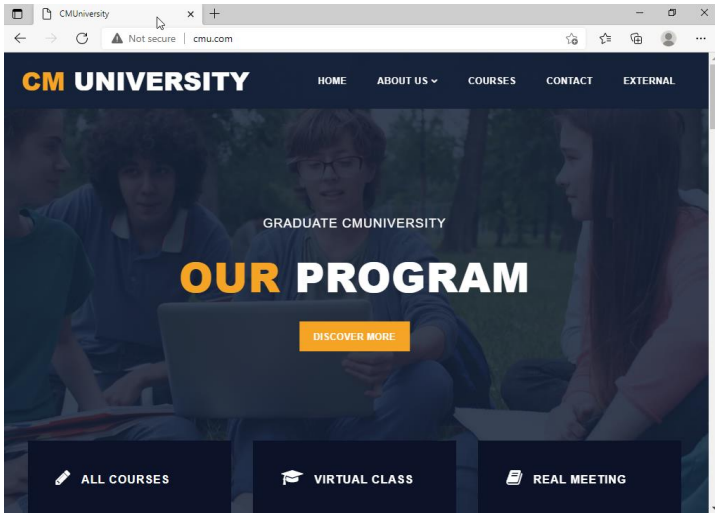

There is notification the command prompt is disabled

## CONFIGURATION

Next testing file sharing by typing **windows + r** on client and enter shared folder with this format \\domainIP\shared-folders-name, in this case \\192.168.18.1\lecturer-shares




Now all users from the same OU can exchange information. Next is testing the web profile page by accessing the DNS in browser.



## REQUIREMENTS

**Hardware** :

1. Lenovo V14 G2

**Operating System** :

1. Windows 10 Home 64-bit
2. Windows 10 Pro 64-bit
3. Windows Server 2022 64-bit

**Software** :

1. Virtual Box VMs
2. Ms. Word
3. Google Chrome

## PROJECT FILE DETAILS

| No | Filename | Remarks |
|---|---|---|
| 1 | 2CS1 Project 3.pdf | Microsoft Words contain research paper about the project |
| 2 | winservers.vdi | Server file contains the webapp configuration |
| 3 | Project 3 Presentation.pptx | Presentation file |