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Declaration: I understand that I am required to submit my coursework through My Secondary Teacher under the appropriate module page prior to the specified deadline, in order for it to be considered for marking. I acknowledge that any coursework submitted after the deadline will be deemed as a non-submission and will not be marked, resulting in a score of zero.

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1. Introduction

This report log focuses on setting up and configuring Windows Server 2022 (Desktop Experience). Windows Server, developed by Microsoft, is a server operating system designed to manage network resources, host applications, and provide enterprise-grade services.

This report includes the detail practical application of virtualization and the use of Server Manager for streamlined server management. Server Manager is a centralized administrative tool that allows users to configure essential server settings with ease. Tasks performed in this lab, such as changing the server's name, enabling Remote Desktop, setting up a static IP address, adjusting time zones, and turning off IE Enhanced Security Configuration, were all facilitated through the Server Manager interface.

Additionally, PowerShell's command-line interface allows administrators to automate repetitive tasks, securely handle sensitive data, and execute complex operations efficiently (Holmes, 2021). Tasks such as adding users, managing user accounts, and securely storing passwords using variables as secure strings were implemented using PowerShell. And, VirtualBox was used to simulate the virtualized environment due to its cost-effective and flexible nature, ideal for organizations and IT professionals to test server configurations without requiring additional hardware.

2. Objective

The objective of this log report is to perform key server management tasks like:

- Changing the server's name to establish an identity on the network.
- Enabling Remote Desktop to allow secure remote access.
- Setting up a static IP address.
- Configuring the time zone to ensure accurate time.
- Turning off IE Enhanced Security Configuration.

- Checking for and applying updates to keep the server secure and up to date.
- Adding and managing users using both GUI and PowerShell.
- Storing passwords using variables as secure strings via PowerShell.

3. Required Tools and Concepts

a. Oracle VirtualBox: It is virtualization software that is used to create and manage virtual environments.
b. Windows Server 2022 (Desktop Experience) installed in Oracle VirtualBox.
c. Understanding of terms and techniques like:
    - IP addressing, subnets, and static IP configuration.
    - Updating a server, managing users, and modifying system settings using both GUI and PowerShell.
    - Basic commands for adding/removing users and securely managing passwords.
    - Configuring server time zones

4. Steps to replicate

i. Changing the Servers name

Open the Server manager.

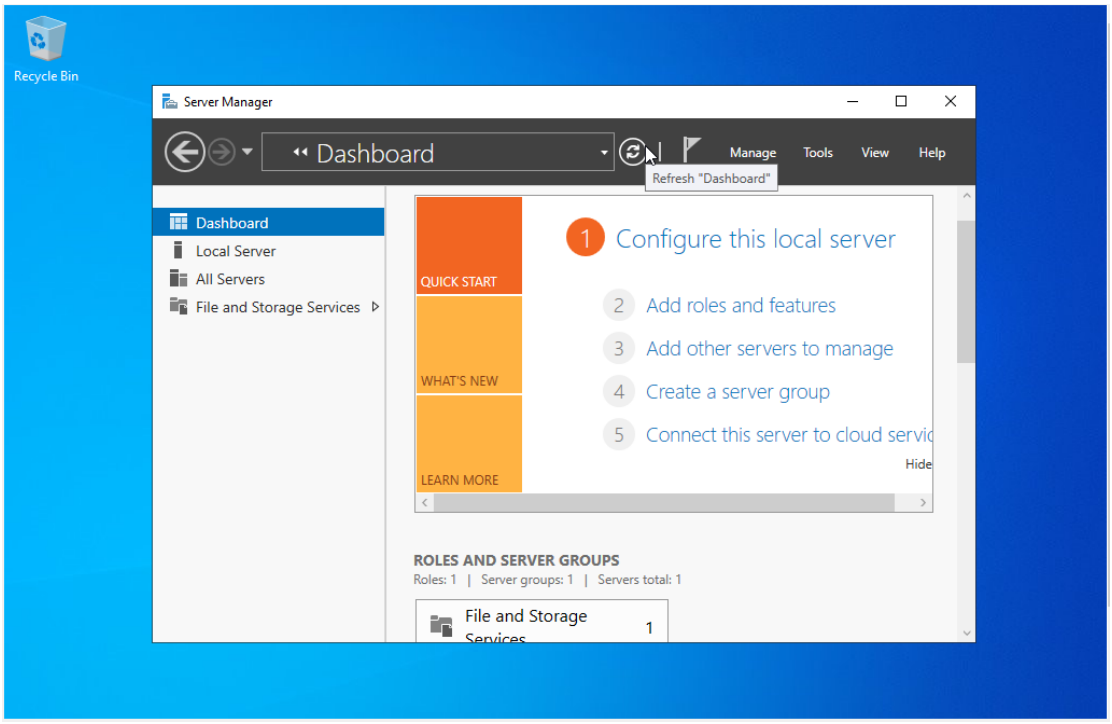

Figure 1: Server Manager

Click on Local Server

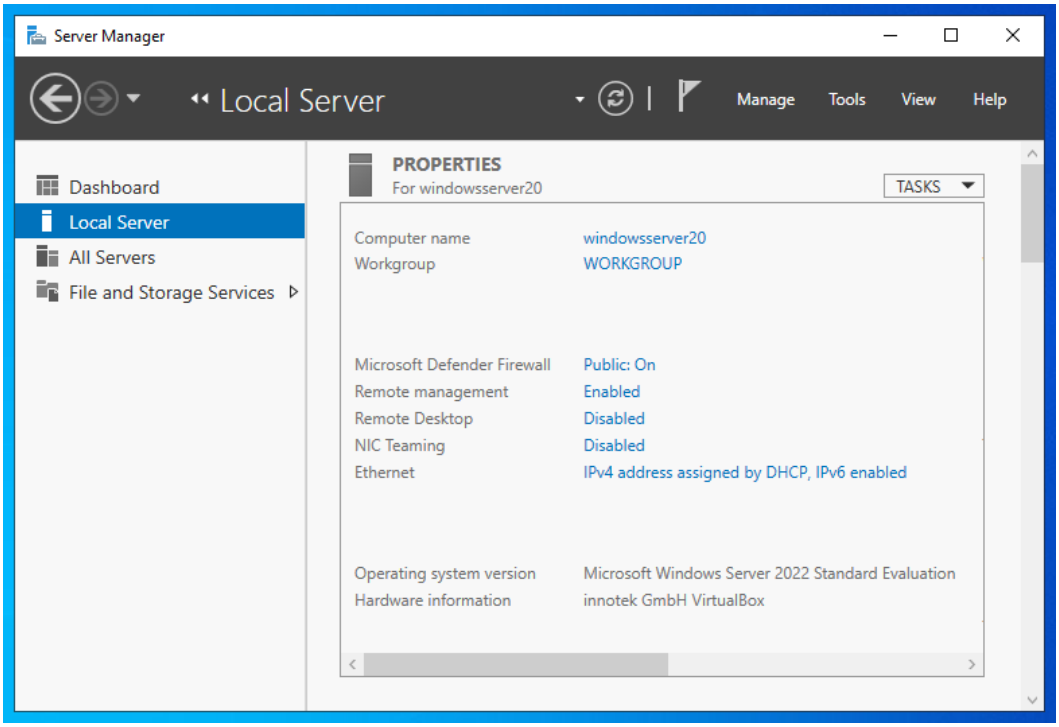

Figure 2: Local Server

Then click on the computer name, a new window will open to configure the Server name.

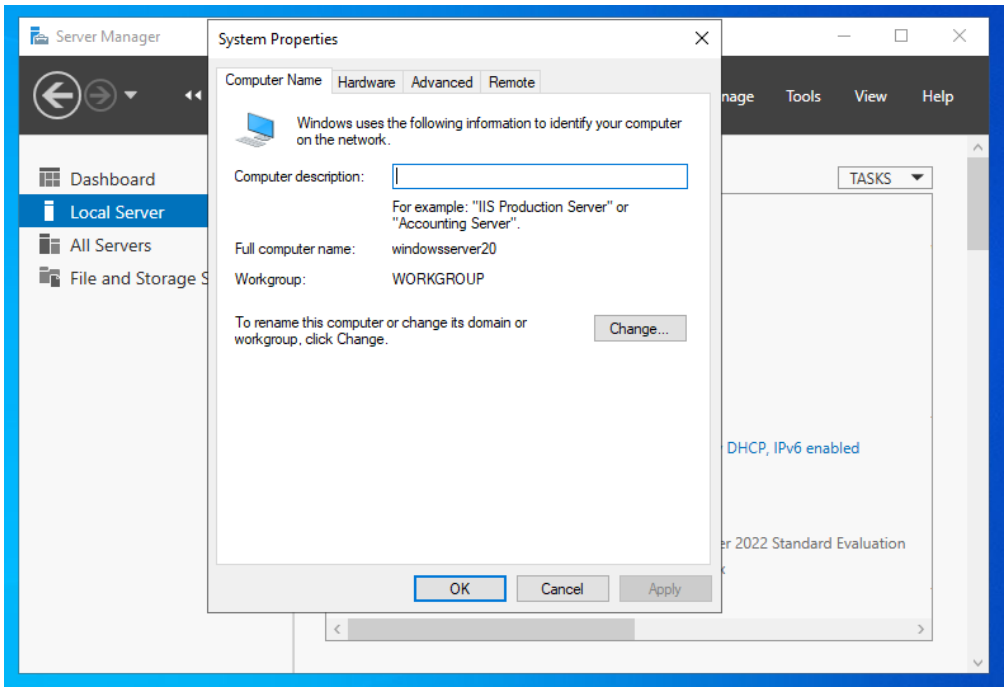

Figure 3: System Properties

Enter the new name of the server and press “OK” button as shown in picture below:

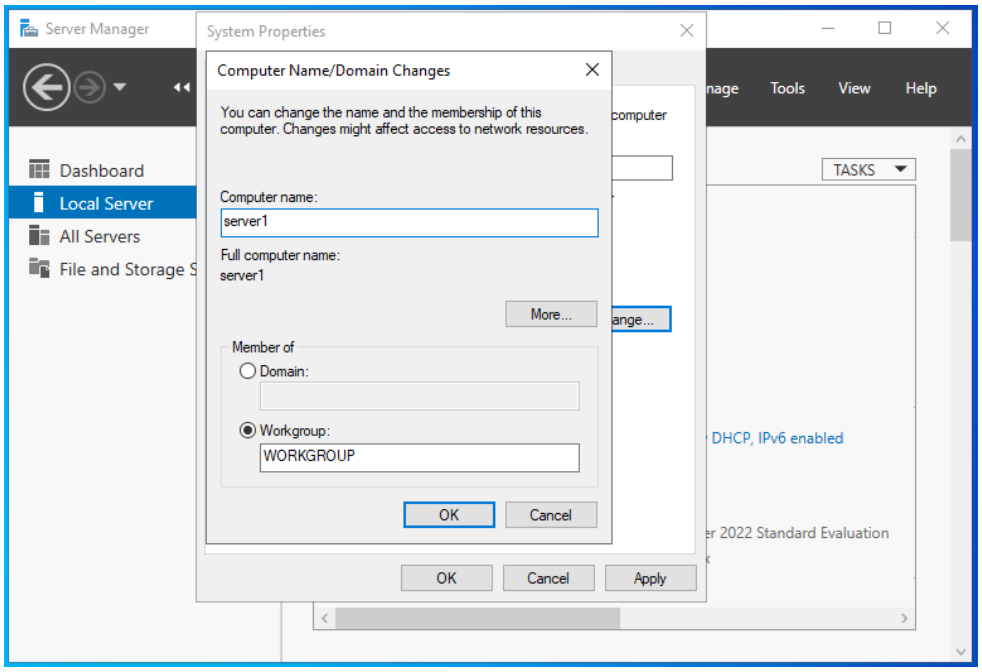

Figure 4: Setting server name

A new window will appear as a request to restart the computer to apply the changes made.

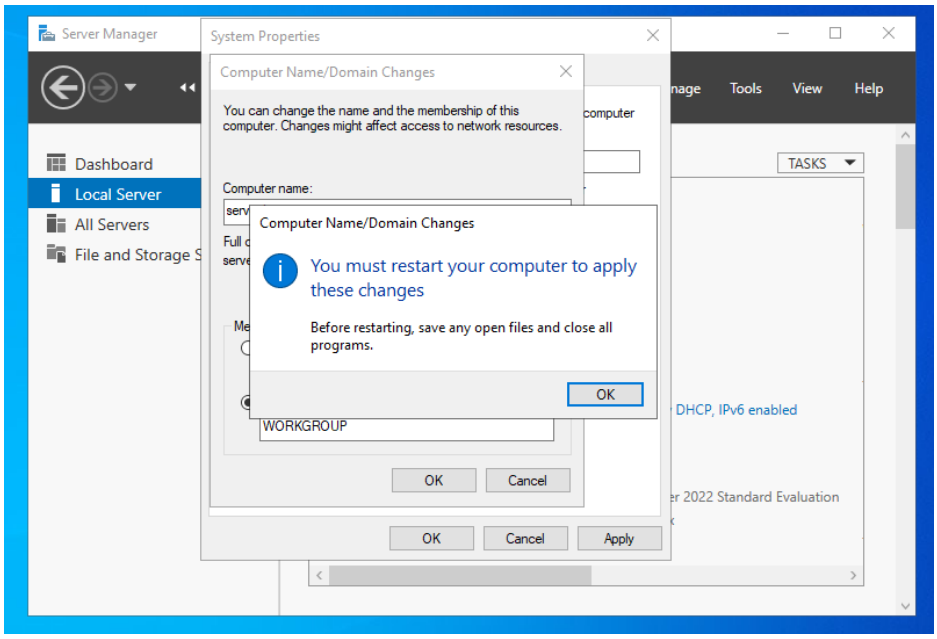

Figure 5: Request for restarting

ii. Enabling Remote Desktop

Remote Desktop Service allows a remote connection to server to access its GUI and features. To enable this, From the server manager, click Local server.

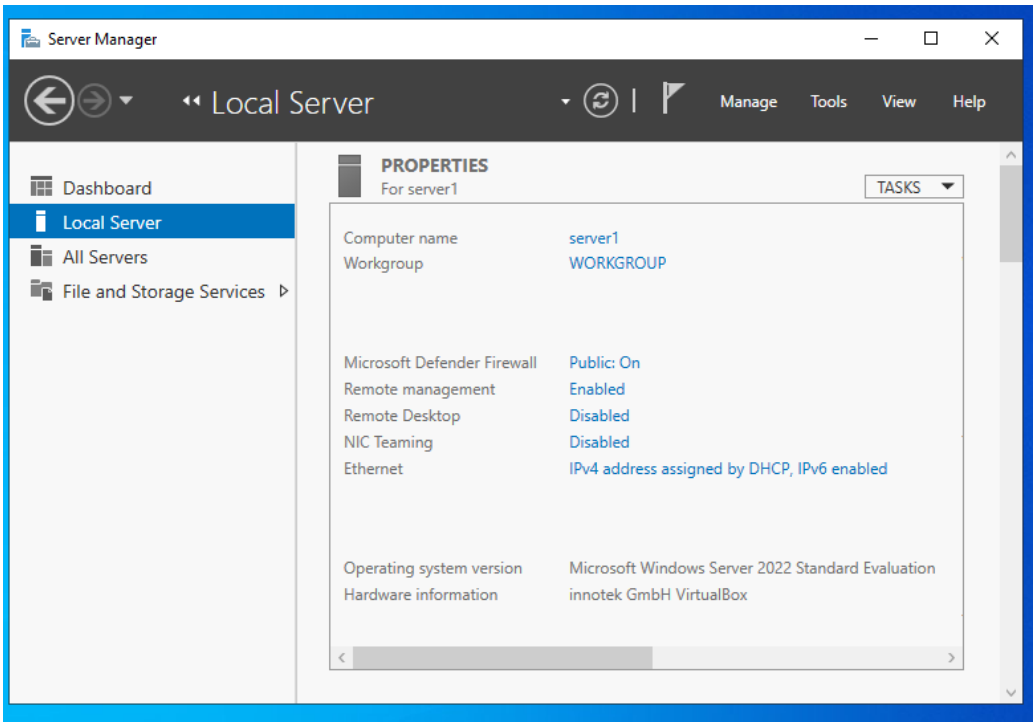

Figure 6: Local server server1

Navigate and click on Remote desktop, then a new dialog box will appear.

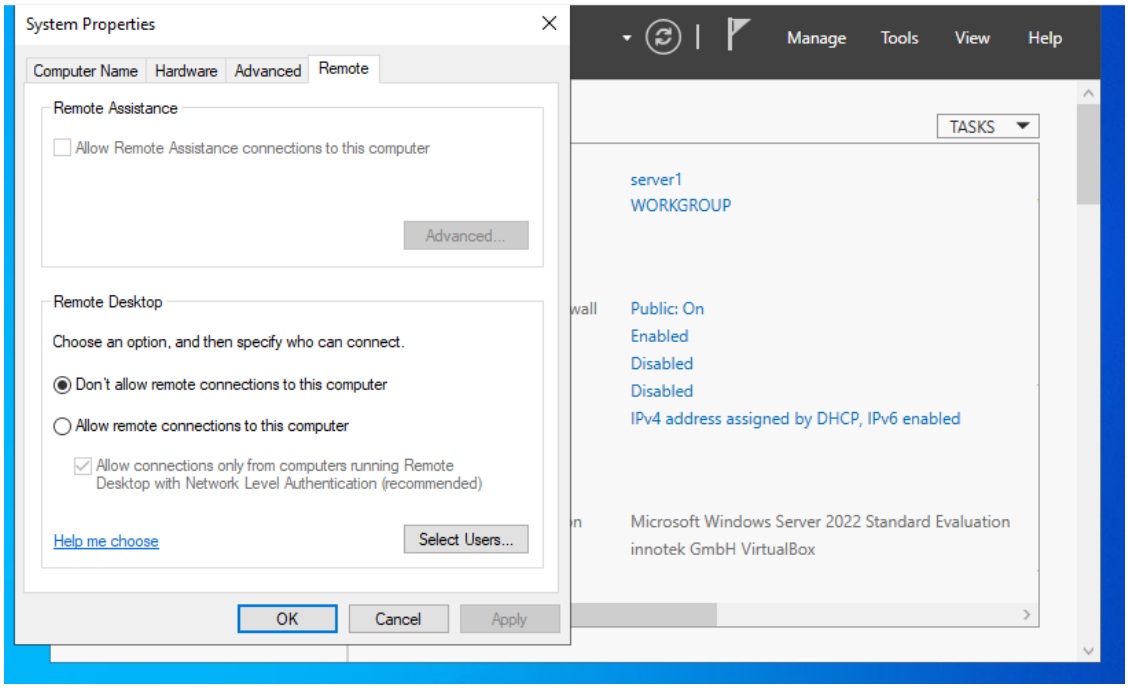

Figure 7: Allowing remote connection

Select allow button and click on ok.

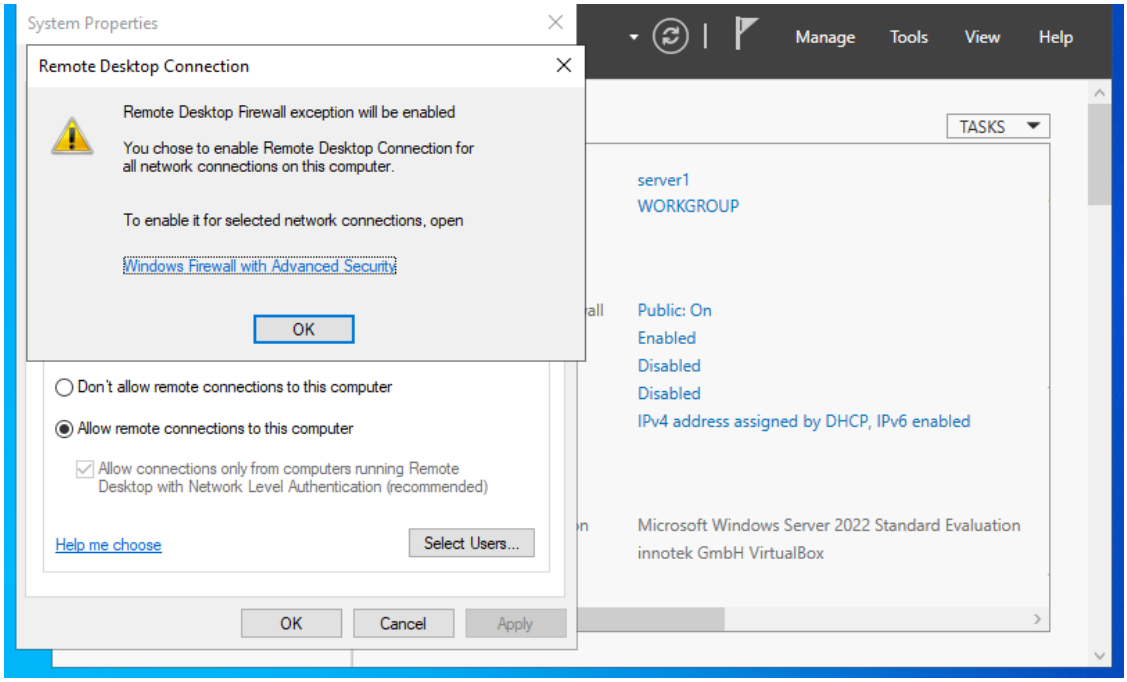

Figure 8: Remote connection allowed

Click Apply and click on OK button.

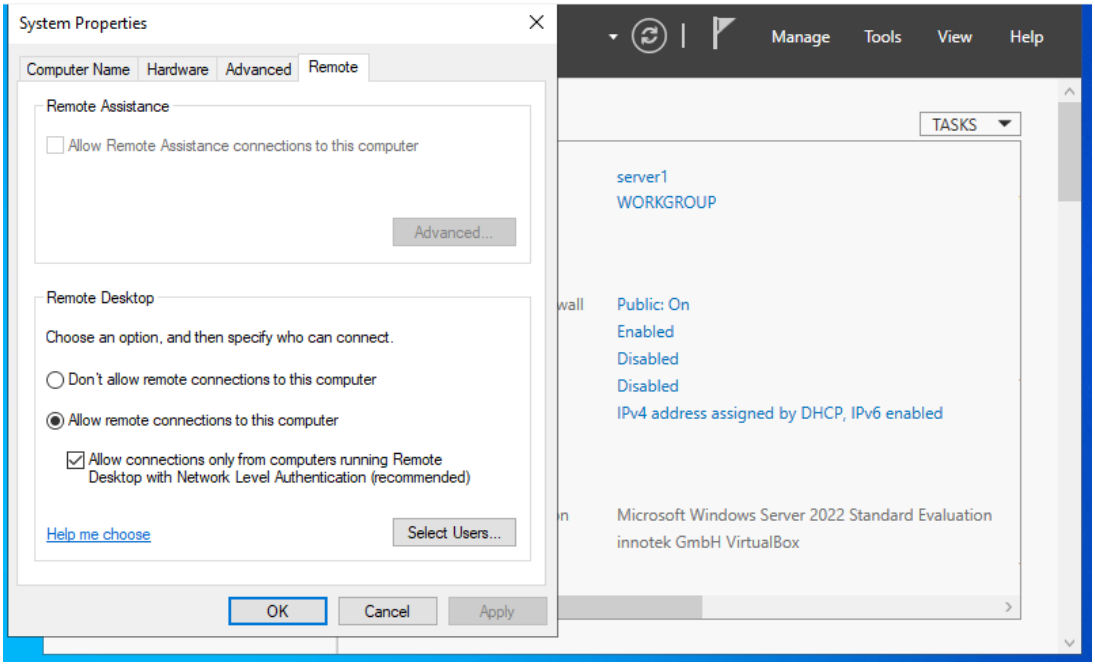

Figure 9: Remote connection enabled

iii. Setting up Static IP address

To set an IP address, navigate to Local server and press the Ethernet button.

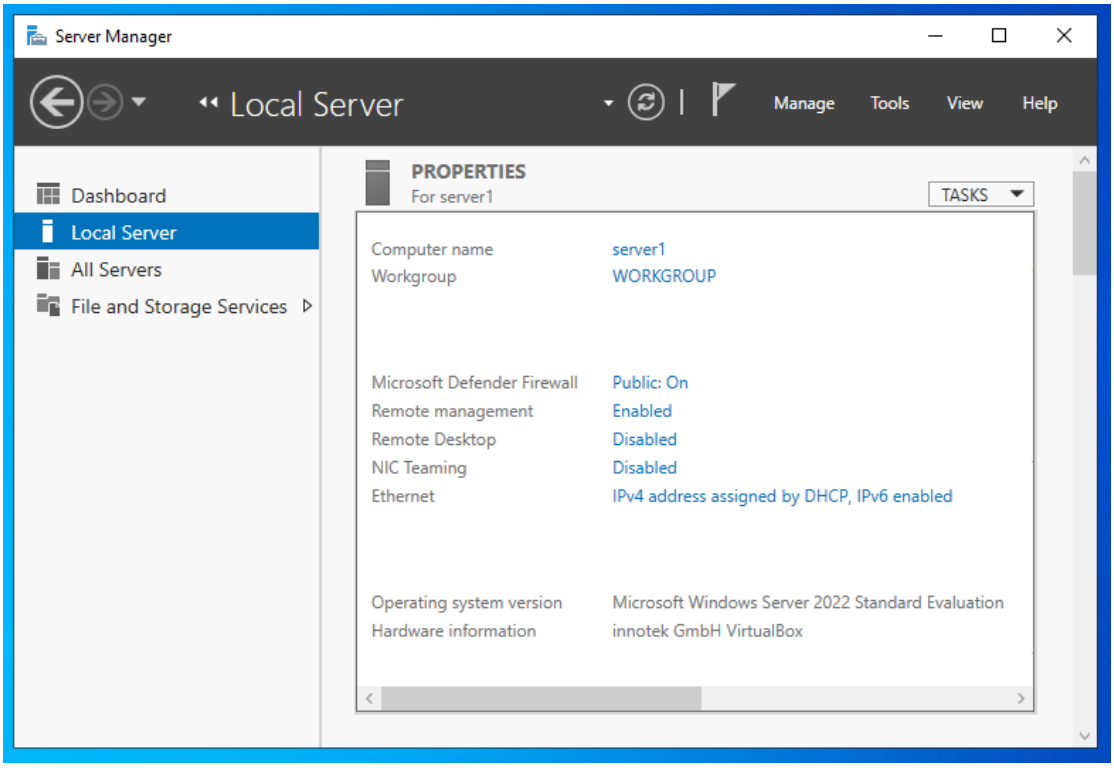

Figure 10: Navigating ethernet button on local server

A list of network adapters connected to the server will appear.

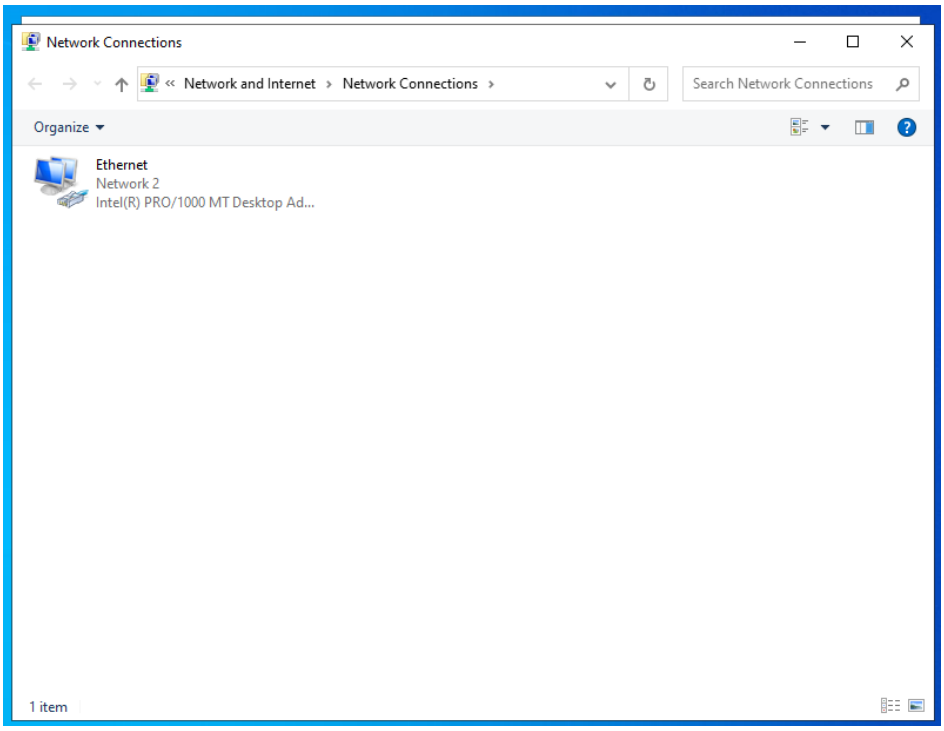

Figure 11: Network connections

Right click and then select properties.

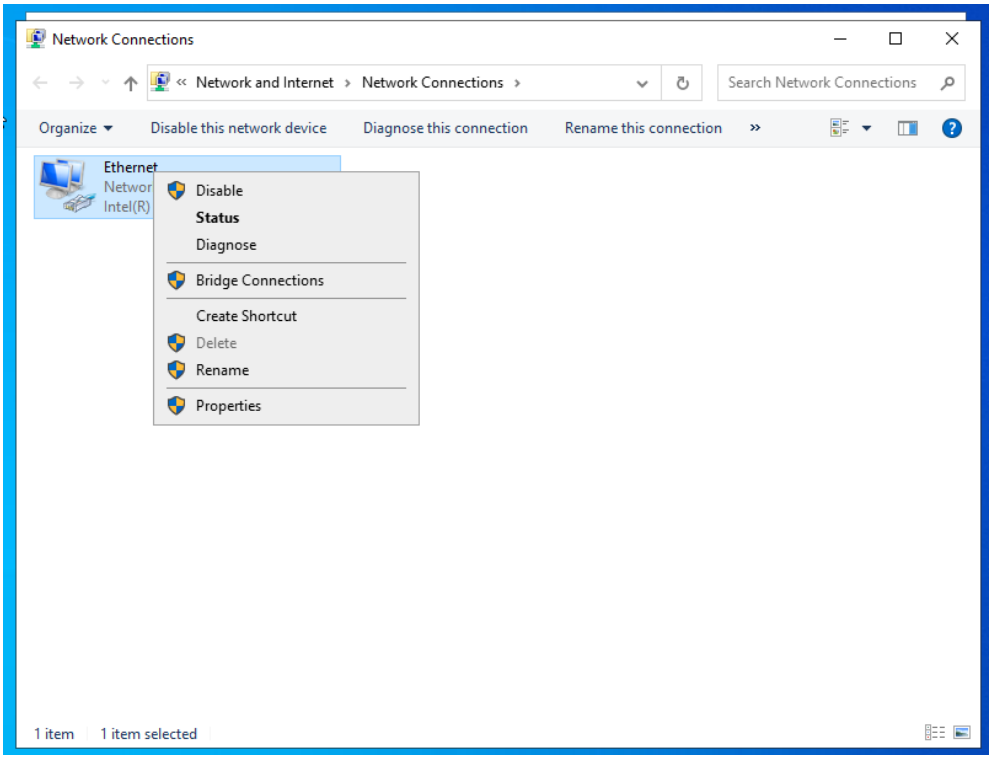

Figure 12: Navigating properties of network connections

From the properties, double click on IPv4 from the list. This will open a new window to enter the IP.

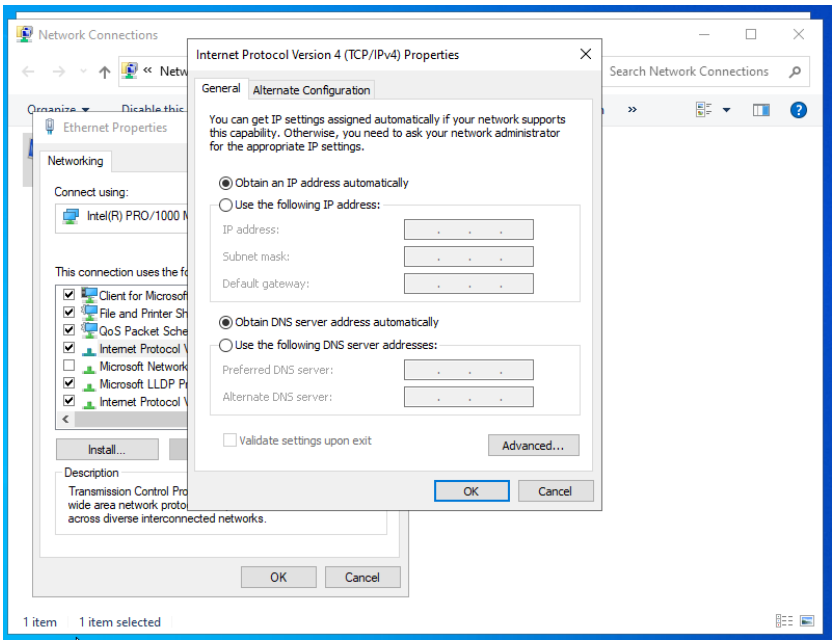

Figure 13: IP settings

In the new window, enter the IP, Subnet mask, Gateway for the device and Primary and Secondary DNS server address also as per the requirement. And then, click OK button.

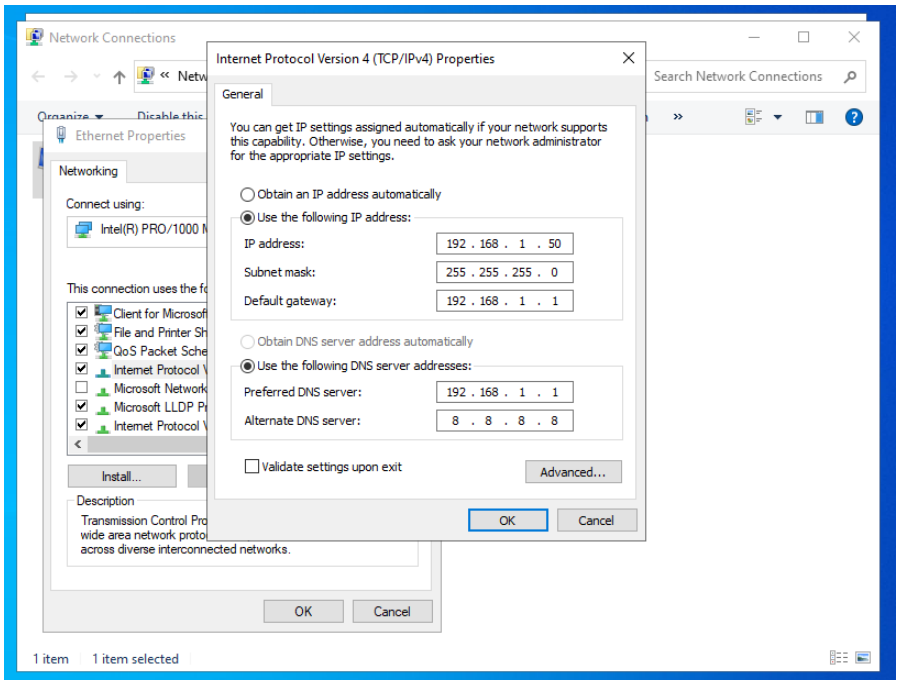

Figure 14: Assigning IP address, subnet mask, default gateway and DNS server address

iv. Changing the time zone

From the server manager, click on Local server.

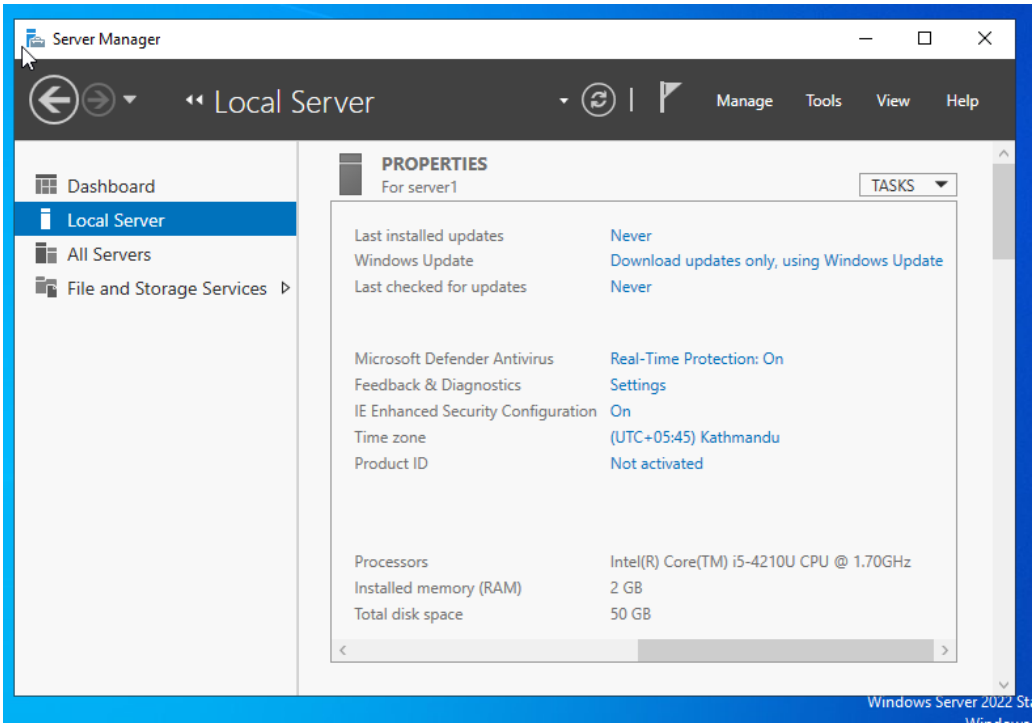

Figure 15: Navigating time zone on local server

Click on Time zone, then a new dialog box will appear.

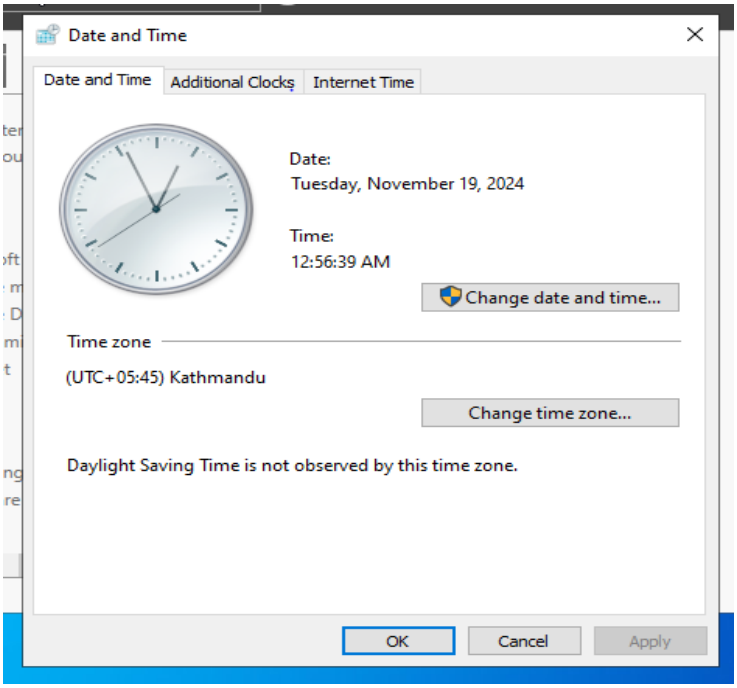

Figure 16: Previous date and time

Press the Change time zone button.

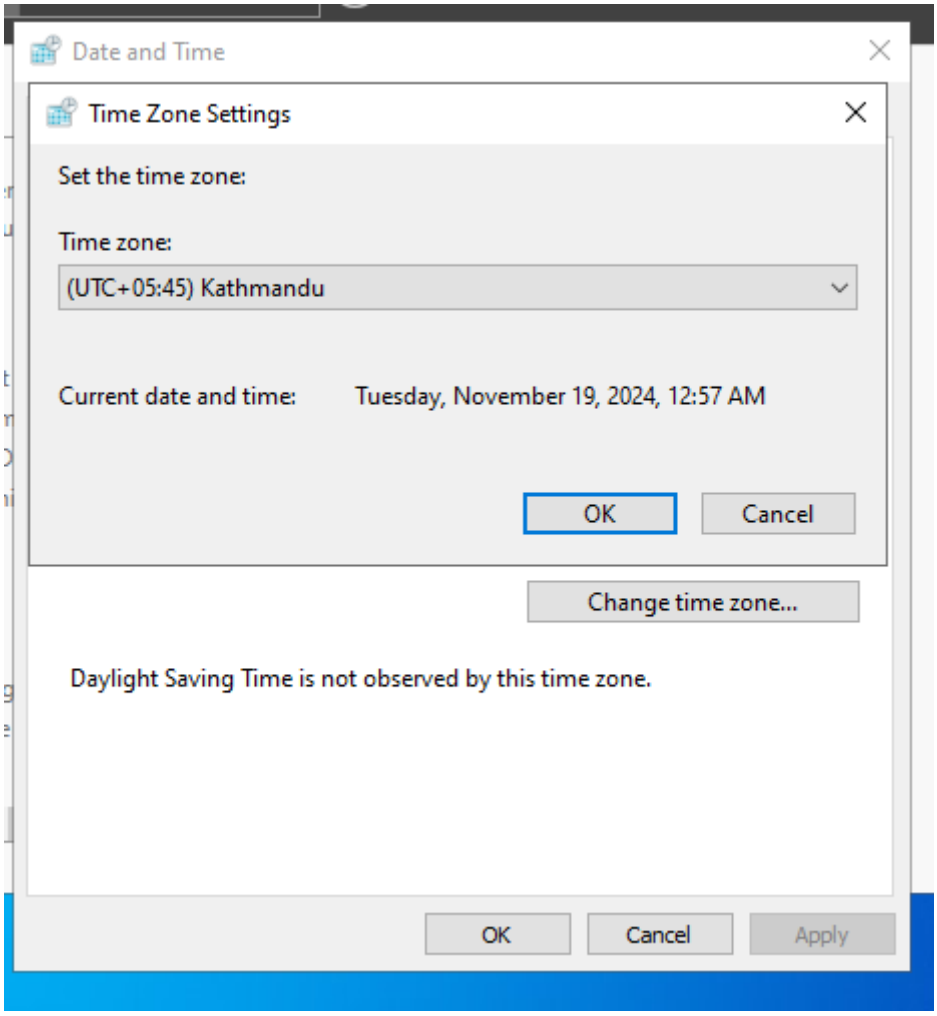

Figure 17: Setting new time zone as per the need

From the drop-down list, select the correct time zone for the Server, here Kathmandu is selected.

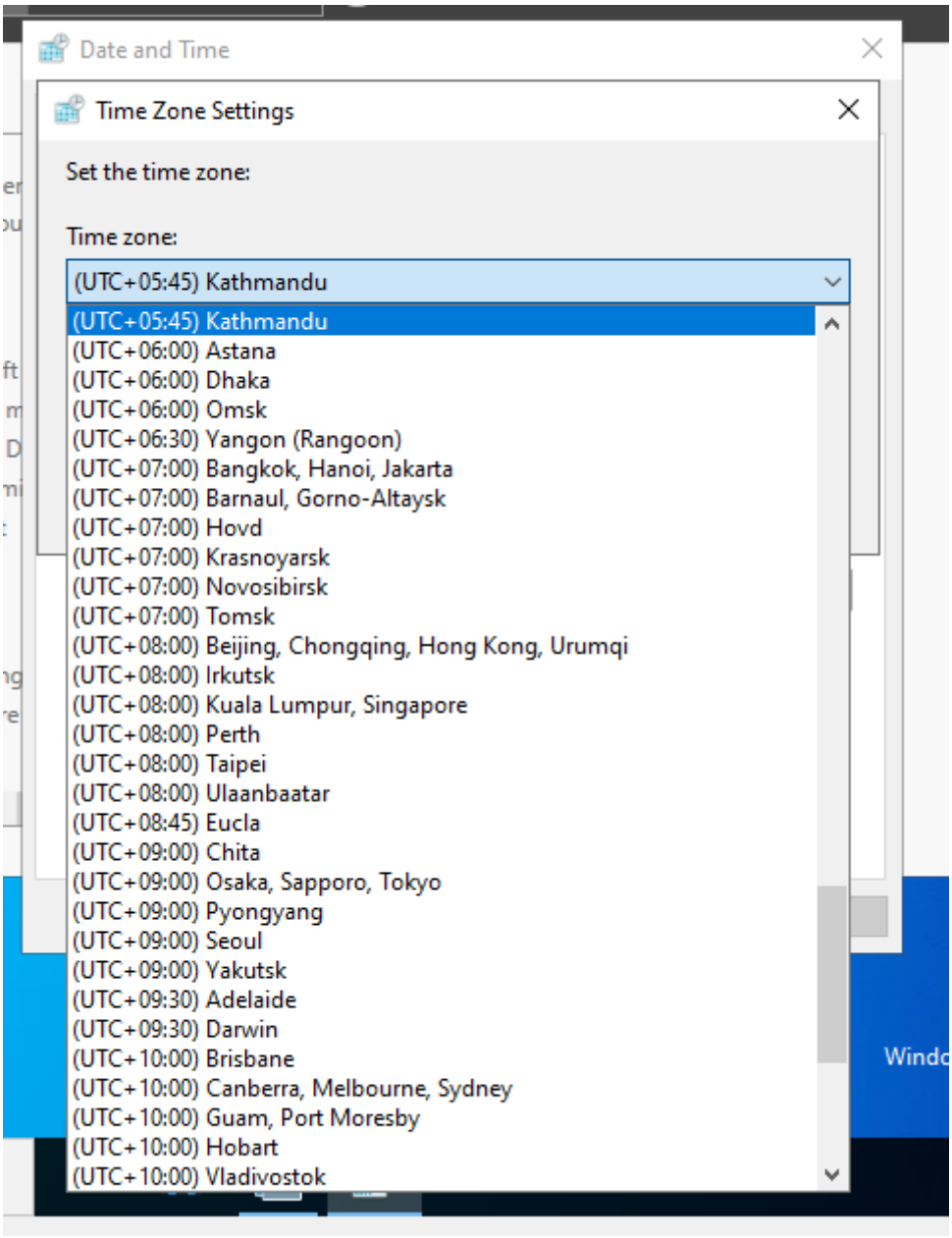

Figure 18: Setting time zone (UTC +05:45) Kathmandu

Then, Press OK button.

v. Turning off IE enhanced security and checking for updates

From the server manager, click on Local server and navigate to IE Enhanced Security.

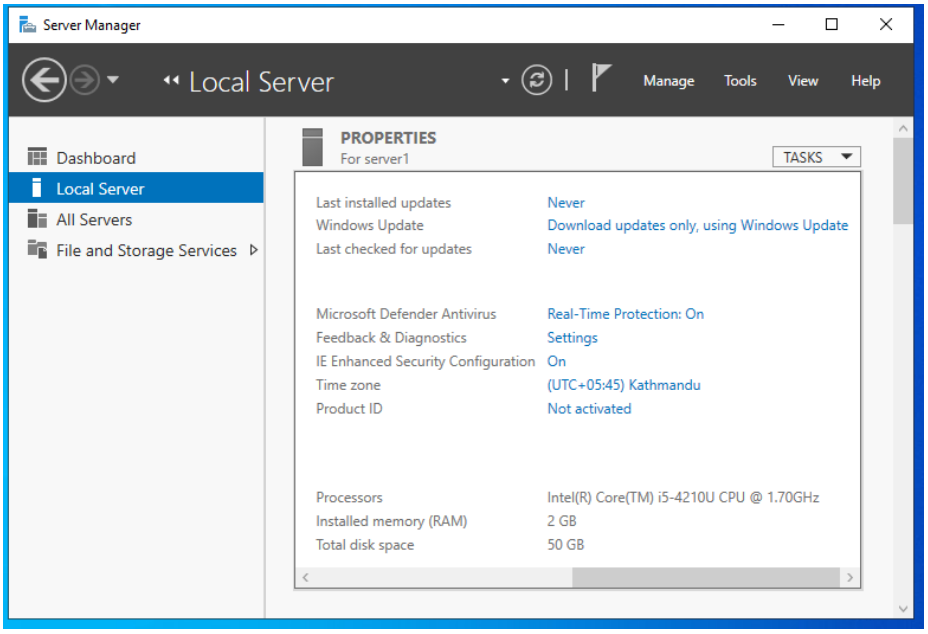

Figure 19: Navigating IE enhanced security

After clicking on IE Enhanced Security, the following box will appear.

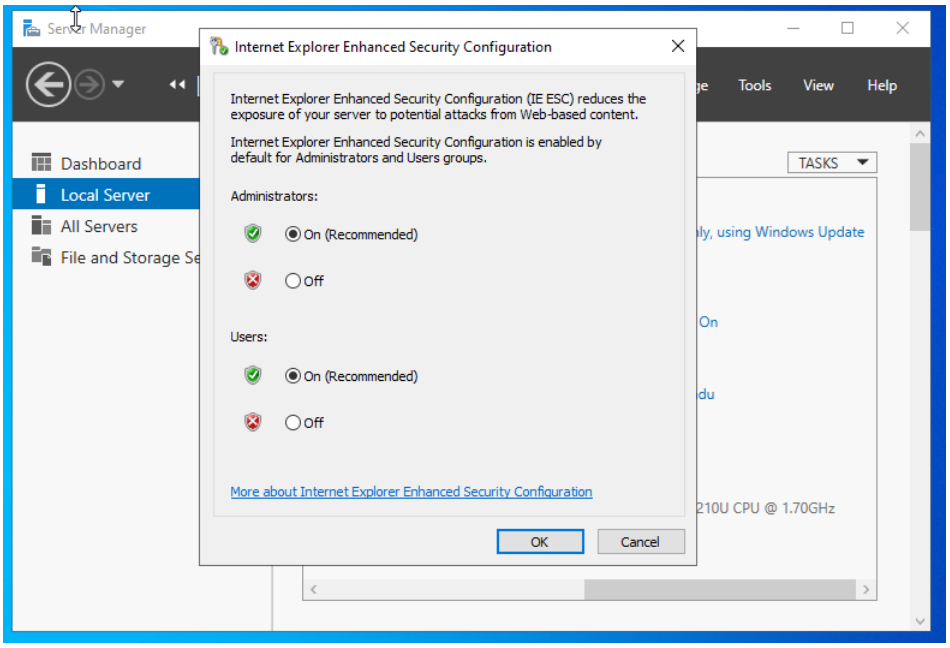

Figure 20: Configuring IE Enhanced Security Configuration

By default, the Security Configuration is turned on. Select off for both Admin and Users. Then click on “OK” button.

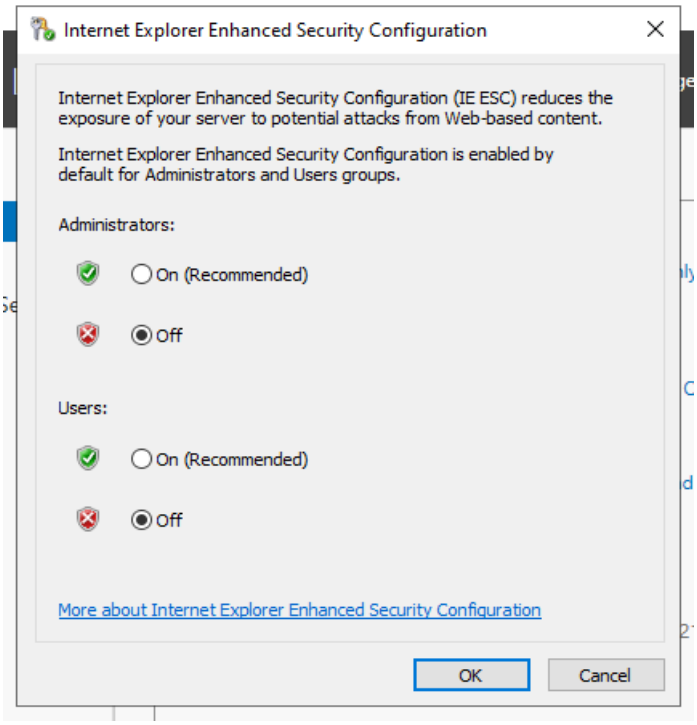

Figure 21: Turning off the IE Enhanced Security

The IE Enhanced Security Configuration will be turned off.

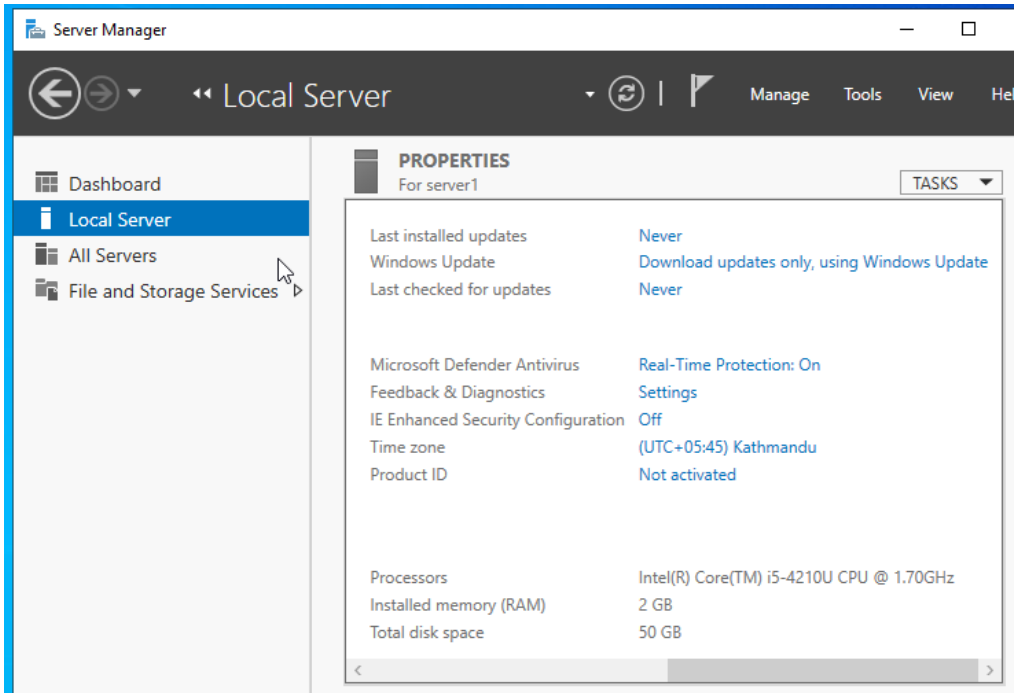

Figure 22: IE enhanced security turned off

Now, for Windows Update, press the Update button and click on Check for Updates.

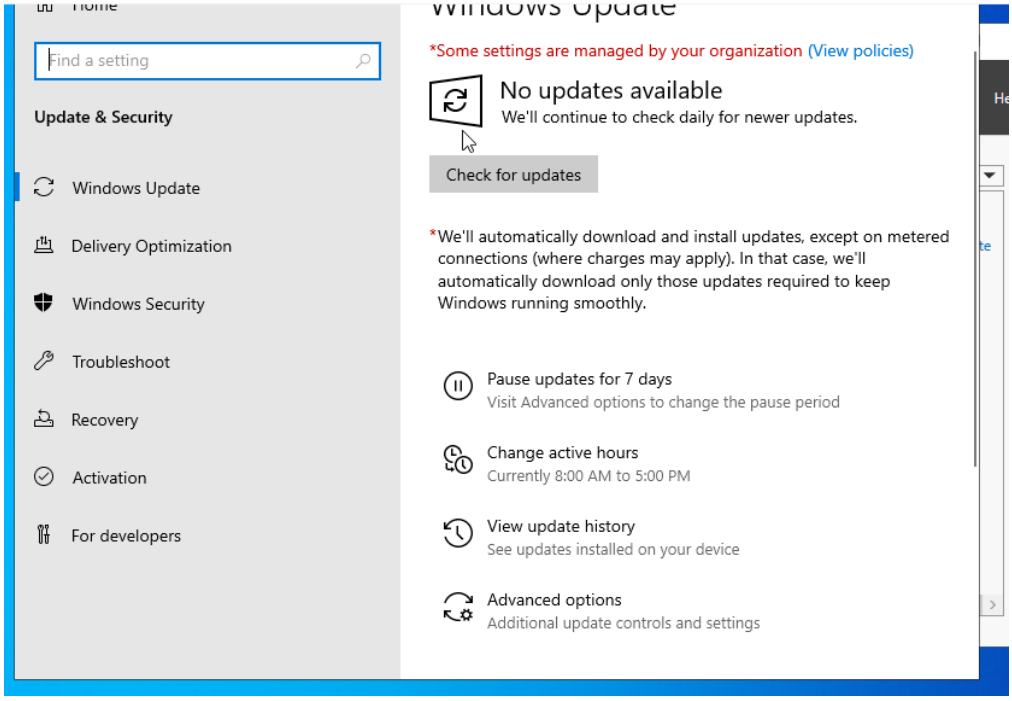

Figure 23: Navigating windows update

New updates will be downloaded and installed automatically.

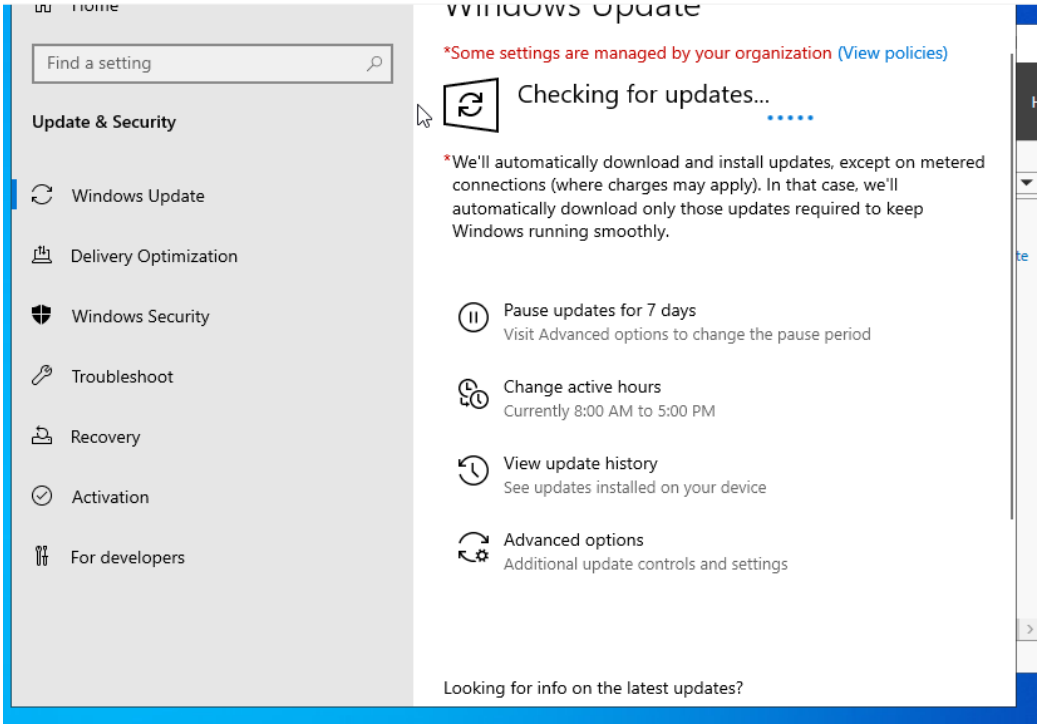

Figure 24: Checking for windows update

vi. Adding new user using GUI

From the toolbar at the top right of Server Manager, press Tools and from the list select Computer Management.

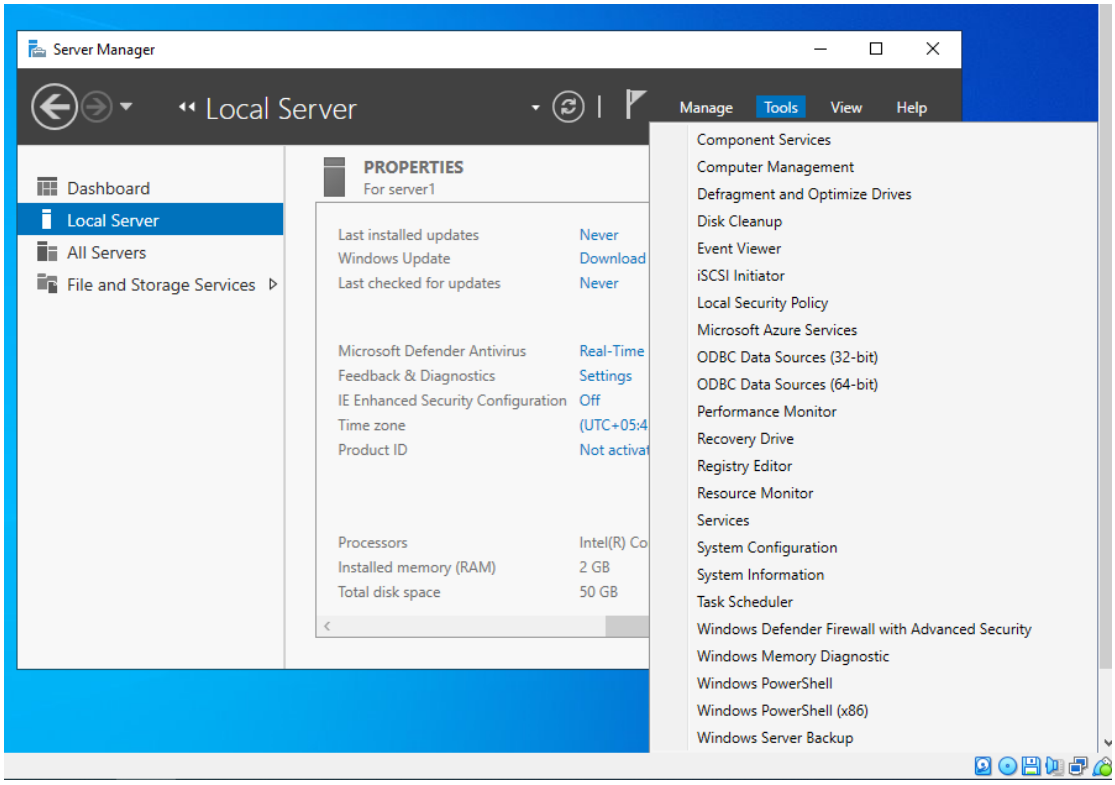

Figure 25: Navigating tools on local server

Select Local Users and Groups form the list at the left.

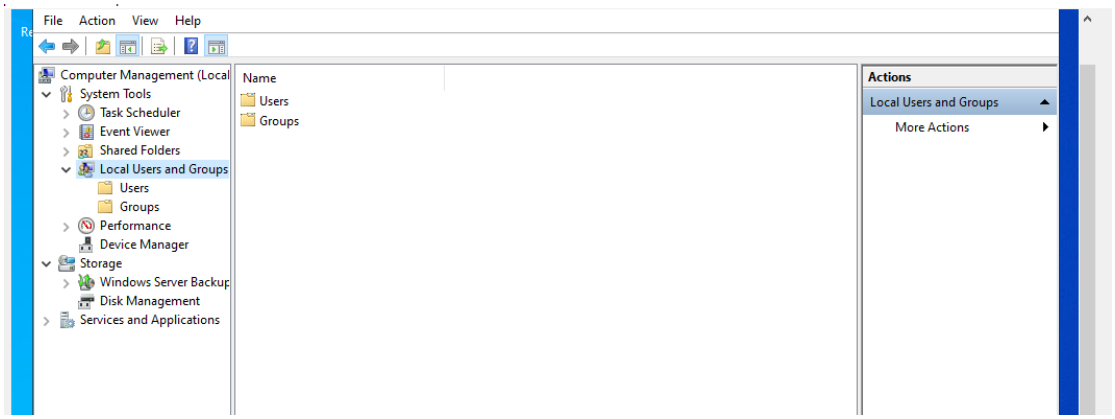

Figure 26: Local users and groups

Right click on Users and press New User.

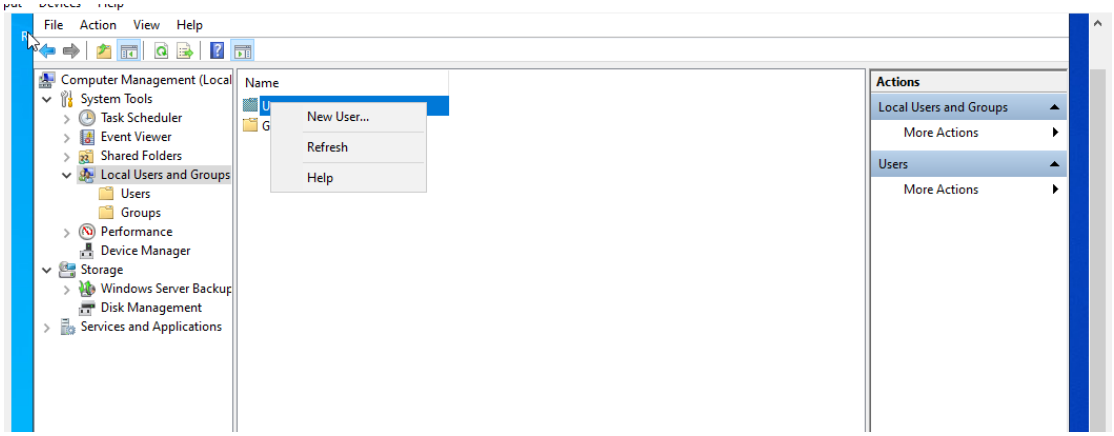

Figure 27: Creating new local user

On the new window, enter details (suppose: New user 2, New user and New user new) and press Create.

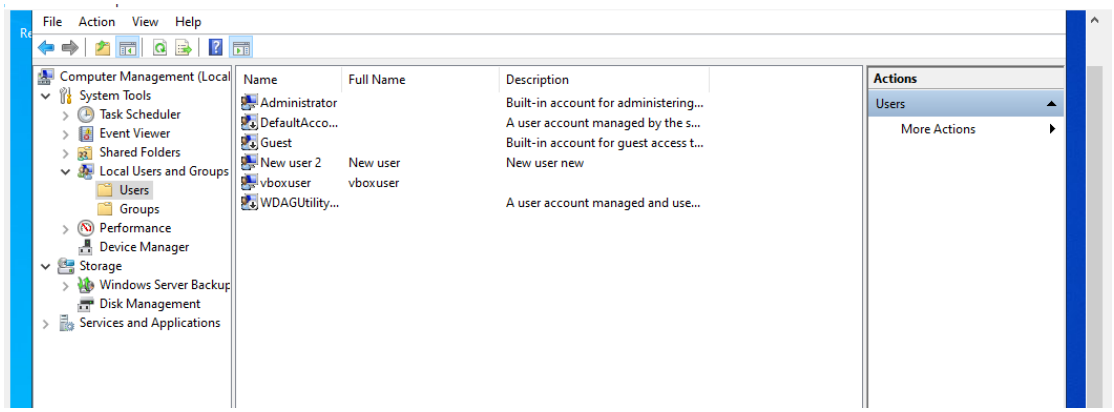

Figure 28: New user 2 added

The new user is created successfully.

vii. Adding new user using Shell

Open Windows PowerShell as an administrator

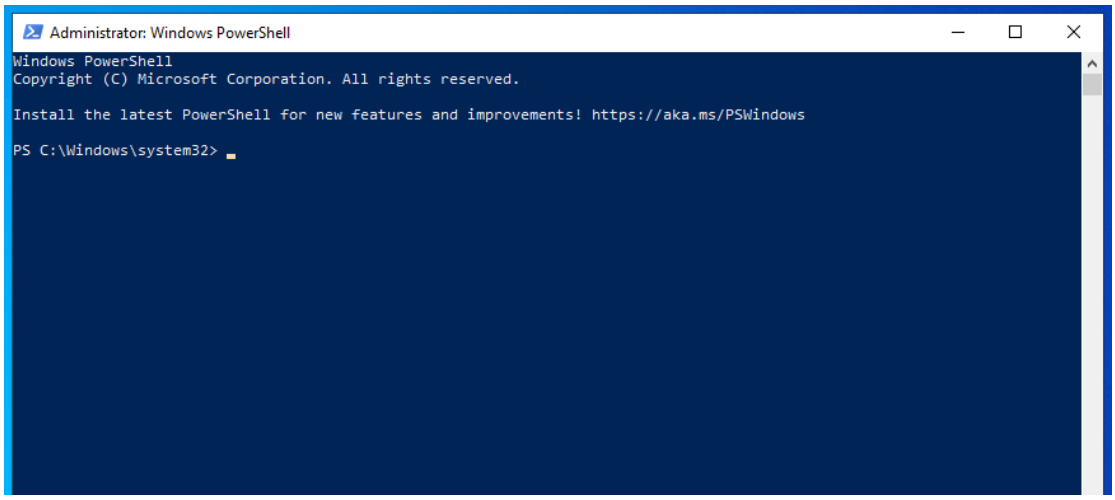

Figure 29: Opened PowerShell as an administrater

We can enter the command “get-localuser” to view all the users.

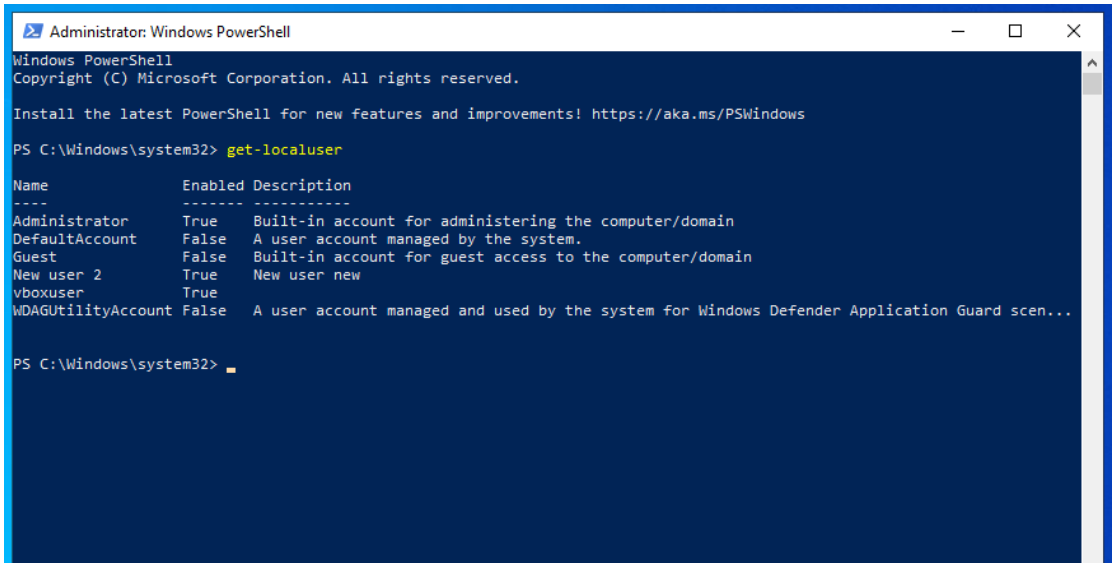

Figure 30: List of local users

Enter the command “new-localuser -name ‘username’ -description ‘description’ -password ‘password’ ” to create new user. In this case, nopassword is given to skip the password.

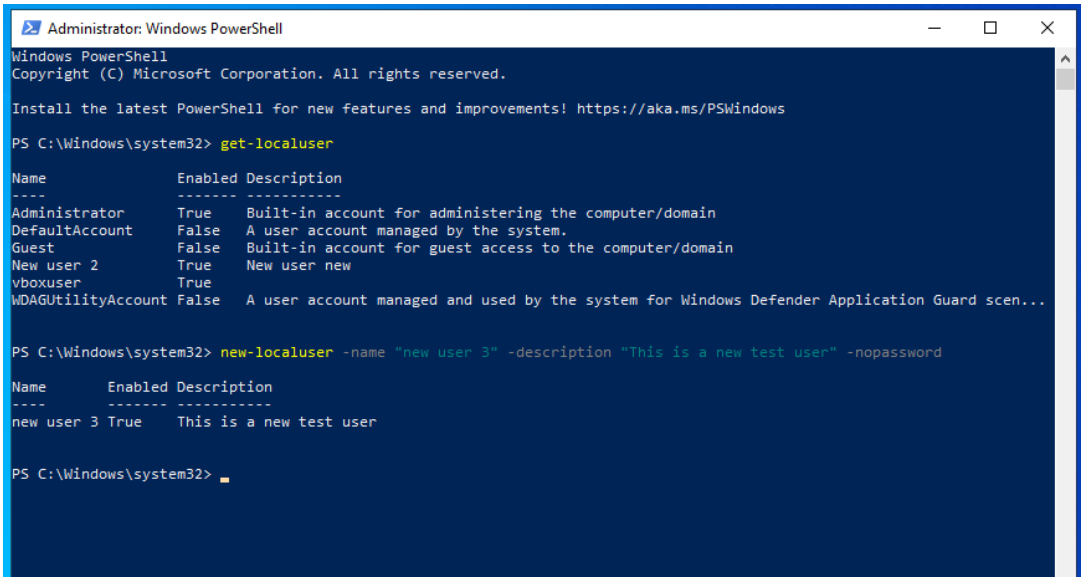

Figure 31: Creating new user 3

Here, new user 3 is added successfully. Also, we need to enter command “add-localgroupmember -group ‘groupname’ -member ‘username’ ” to add the user to the group.

Figure 32: Adding ‘new user 3’ to the group

viii. Removing a user

The command to remove a user using Shell is “remove-localuser -name ‘username’ ”. Here, we are trying to remove “new user 3”.

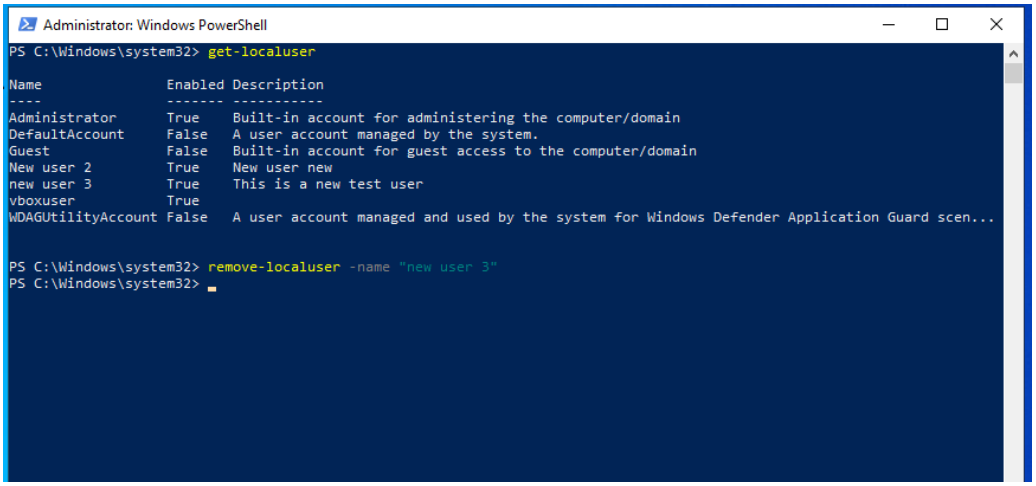

Figure 33: Removing 'new user 3'

We can check if the selected user is removed from the list of localuser.

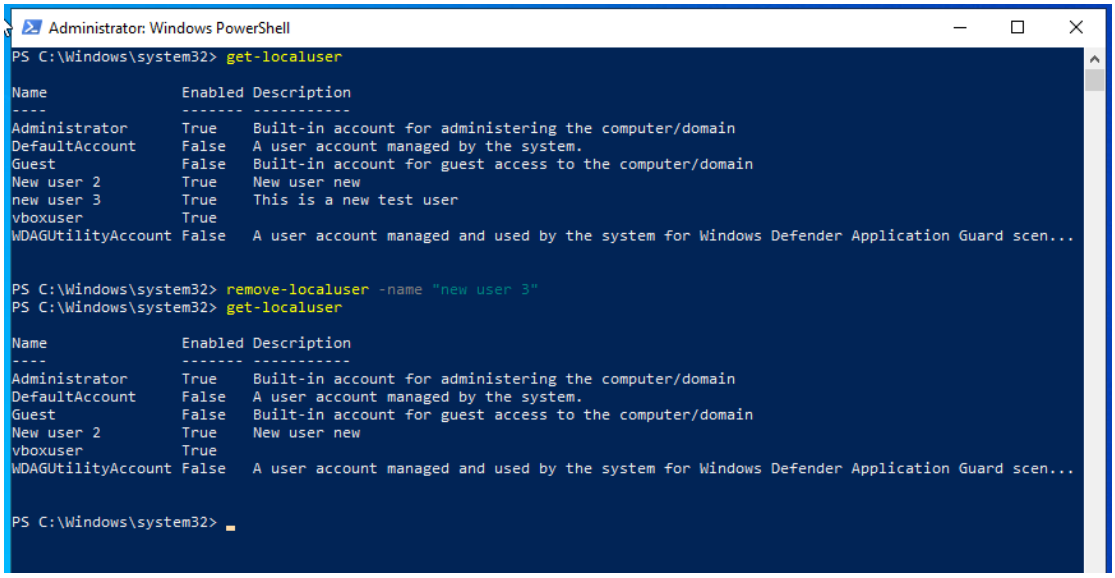

Figure 34: List of local users

The user “new user 3” has been removed from the list.

ix. Storing passwords using variables as Secure Strings

To store strings as secure string a new variable is created using the command $variable -read-host -assecurestring

```
PS C:\Windows\system32> remove-localuser -name "new user 3"
PS C:\Windows\system32> get-localuser

Name               Enabled Description
----               ------- -----------
Administrator      True    Built-in account for administering the computer/domain
DefaultAccount     False   A user account managed by the system.
Guest              False   Built-in account for guest access to the computer/domain
New user 2         True    New user new
vboxuser           True
WDAGUtilityAccount False   A user account managed and used by the system for Windows Defender Application Guard scen...


PS C:\Windows\system32> $password = read-host -assecurestring
************
```

Figure 35: Creating variable for storing password

Password string is given and is stored by the variable. Passwords must be alpha numeric and symbolic.

```
PS C:\Windows\system32> $password = read-host -assecurestring
************
PS C:\Windows\system32> new-localuser -name "new user 4" -password $password -description "This is new user 4"
new-localuser : Unable to update the password. The value provided for the new password does not meet the length, complexity, or
history requirements of the domain.
At line:1 char:1
+ new-localuser -name "new user 4" -password $password -description "Th ...
+ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    + CategoryInfo          : InvalidArgument: (:) [New-LocalUser], InvalidPasswordException
    + FullyQualifiedErrorId : InvalidPassword,Microsoft.PowerShell.Commands.NewLocalUserCommand

PS C:\Windows\system32> $password = read-host -assecurestring
************
PS C:\Windows\system32> new-localuser -name "new user 4" -password $password -description "This is new user 4"

Name       Enabled Description
----       ------- -----------
new user 4 True    This is new user 4


PS C:\Windows\system32>
```

Figure 36: Creating 'new user 4'

New user 4 has been created by using variable as password.

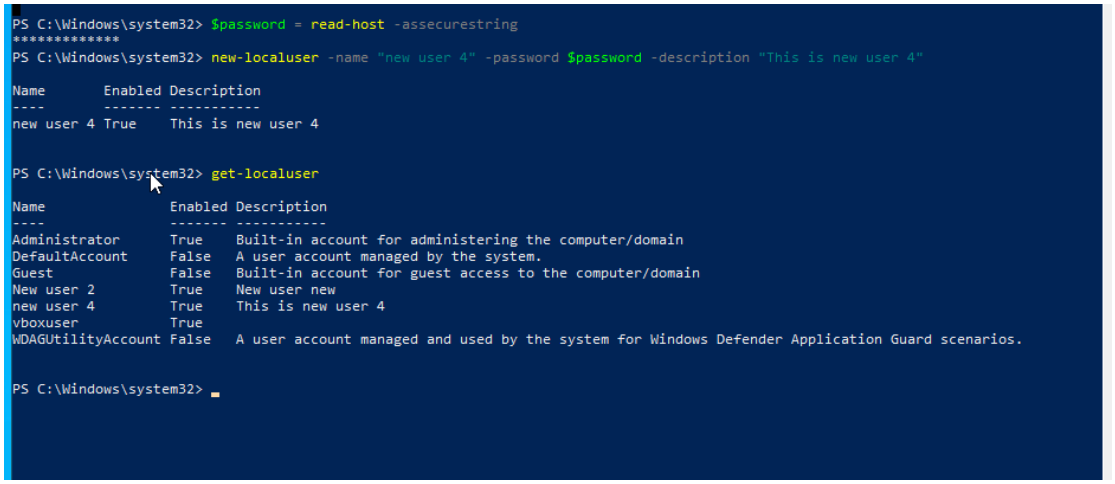

Figure 37: List of local users

5. Conclusion

This log report demonstrates the step-by-step configuration of Windows Server 2022 (Desktop Experience) using Oracle VirtualBox. Through this process, we explored the effective use of Server Manager and PowerShell to manage and configure essential server settings. Key tasks included changing the server name, enabling remote desktop, configuring a static IP address, adjusting time zones, and turning off IE Enhanced Security Configuration.

Additionally, user management was addressed through both GUI and PowerShell, highlighting the flexibility of Windows Server in providing to different administrative preferences. PowerShell's advanced capabilities for secure password handling showcased its importance in enhancing operational security.

The use of VirtualBox provided a cost-effective and practical environment for deploying and testing server configurations, demonstrating the value of virtualization in modern IT practices. This lab emphasized the importance of centralized management tools like Server Manager and command-line utilities like PowerShell in maintaining efficient, secure, and scalable server infrastructures.

Overall, the exercise provided valuable insights into configuring and managing a Windows Server in a virtualized environment, laying a strong foundation for advanced server administration tasks.

6. References

Holmes, A., 2021. *PowerShell in Depth: Understanding Automation.* New York: Manning Publication.