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| **Network Infrastructure**  Diploma in CSF/IT  Year 2 (2022/23) Semester 3 | Week **13** |
| **1** hour |
| **Windows Server 2016 : Domain, domain controller and clients** | |

## A. Objective:

At the end of this practical, students should be able to setup a Windows Server 2016

domain, a domain controller and configure client computers to join the domain

**B. Resource**

Microsoft Windows Server 2016 OS running in Vmware Virtual Machines (**VM**)

### C. This week’s tasks

In this practical, a Windows Server 2016 OS has already been installed for you and it is housed in a VMware virtual machine. You have to carry out the following tasks:

Task 1 - setup the date and time

Task 2 - assign IP address to the Server (TCP/IP properties)

Task 3 - create a new domain in a new forest

Task 4 - configure a server as a domain controller

Task 5 - configuring a client PC to join the domain

### D. Lab Settings

In this practical, the following settings would be used:

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| --- | --- |
| **Server Name** | WinSvr2016\_01 |
| **Client computer name** | NIclient**Y** where **Y** is from 101 to 102 |
| **IP Address /**  **Subnet Mask** | **For the vmware Server (Windows Server 2016):** 172.16.**T**.1, where **T** is Team 2 to 9.  **For the vmware Client (Windows 10):**  172.16.**T**.**Y,** where **Y** is from 101 to 102 |
| **Administrator password** | Pa$$w0rd – when prompted later to change password, use p@ssw0rd |

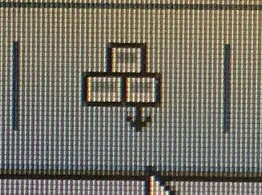
**Task 1: Setup date and time**

Start the VMware application program on your laptop or desktop.

1. After the launch of VMware application, click Home | Open a Virtual Machine. Locate the VM at the following location: **C:\Users\xxxxx\Documents\Virtual Machines\**

You should select the VM, **WinSvr2016\_01** inyour directory that you had tested during **week 12.**

1. The home page of the selected **VM** is shown in the right frame.
2. Click on the green arrow to “Power on this virtual machine”.
3. Wait for the server OS to boot up. Click the “Send Ctrl+Alt+Del to this **VM**” icon on the VMware Workstation tool bar.



1. Type in the Administrator password (**Pa$$w0rd**) to login and wait for the Windows Server Manager to appear.
2. In the Server Manager page, click on Local Server.
3. In the Local Server page, click the field on the right of the Time zone item to change the date and time.
4. In the Date and Time page, change the time zone to (UTC+08:00) Kuala Lumpur, Singapore if necessary.
5. Change the time to the current time if necessary.
6. Press OK and OK to exit the Date and Time page.

**Task 2: configure IP address**

1. In the Server Manager console, at Local Server/Properties pane, next to Ethernet, click “IPv4 address assigned by DHCP, IPv6 Enabled”.
2. In the Network Connections dialog box, right-click Ethernet, and then click Properties.
3. In the Ethernet Properties dialog box, click Internet Protocol Version 4 (TCP/IPv4), and then click Properties.
4. In the Internet Protocol Version 4 (TCP/IPv4) Properties dialog box, click “Use the following IP address”, enter the following IP address information, and then click OK:

* IP address: **172.16.T.1** (where **T** is Team **2 to 9**)
* Subnet Mask: 255.255.255.0
* Preferred DNS Server: 127.0.0.1

1. Leave Default Gateway and Alternate DNS server as blanks.
2. Click OK and then close the Ethernet Properties dialog box. Close the Network Connections dialog box. The **WINSVR2016** has been deployed.
3. Click on Refresh icon to view the IP address configured.



**Task 3: Create a new domain**

1. In the Server Manager console, click All Servers on the left frame.
2. In the Servers console, select the server WINSVR2016.
3. In Server Manager, in the Servers pane, right-click WINSVR2016, and then select Add Roles and Features.
4. In the Add Roles and Features Wizard, click Next.
5. On the Select installation type page, ensure that Role-based or feature-based installation is selected, and then click Next.
6. On the Select destination server page, ensure that Select a server from the server pool is selected.
7. Under Server Pool, verify that WINSVR2016 is highlighted, and then click Next.
8. On the Select server roles page, select the **Active Directory Domain Services** check box as shown in Figure 8, click Add Features, and then click Next.



Figure 8

1. On the Select features page, click Next.
2. On the Active Directory Domain Services page, click Next.
3. On the Confirm installation selections page, tick the check box “Restart the destination server automatically if required”, and then click Install.

Installation will take several minutes.

1. When the installation completes, click Close to close the Add Roles and Features Wizard.

**Task 4: Configure a server as a domain controller**

1. **On WINSVR2016, in Server Manager, on the command bar, click the Notifications icon (it looks like a flag**).



1. Under Post-deployment Configuration, click Promote this server to a domain controller.
2. The Active Directory Domain Services Configuration Wizard opens.
3. In the Active Directory Domain Services Configuration Wizard, on the Deployment Configuration page, ensure that “Add a new forest” is selected, and then, type the Root domain name NI**T**.com into the Root domain name box, where **T** is your Team number. Click Next.
4. In the Type the Directory Services Restore Mode (DSRM) password section, type **Pa$$w0rd** in both text boxes, and then click Next.
5. On the DNS Options page, click Next.
6. Wait for the NetBIOS domain name “NI**T**” to appear then click Next.
7. On the Paths page, accept the default folders, and then click Next.
8. On the Review Options page, click Next.
9. On the Prerequisites Check page, read any warning messages, and then click Install.
10. When the task completes successfully, click Close.
11. Wait for WINSVR2016 to restart which may take a while.
12. Re-log in after the restart. Change to the new password **p@ssw0rd** if prompted.

**Task 5 Configuring Client PC to Join Domain**

The next step is to configure the Windows 10 clients to join the created windows domain.

Before joining the new domain, we need to configure the Windows 10 client’s DNS settings to point to the configured DNS Server.

Active Directory requires DNS, which is on the Windows Server 2016 Server. DNS will tell the **Windows client** where to find the domain controller.

1. Go to the Windows Client TCP/IP properties setting:

* IP address: **172.16.T.101** (where **T** is Team **2 to 9**)
* Subnet Mask: 255.255.255.0
* Preferred DNS Server: **172.16.T.1**

**IMPORTANT:** **The DNS Server setting should be set to the IP address of your Windows Server 2016 server which is** **172.16.T.1.**

2. We will now configure the Win 10 client to join the domain.

On the Windows 10, go to **Settings > System > About**> **System Info**

Click **Change Settings.**

1. At System Properties page, click on “Computer Name” Tab and click on the “Change….” Button
2. We will change the computer name of this Win 10 client to NIclient**Y** (where **Y** is **101** or **102**) and join the domain “NI**T**.com” (**T** is your Team number). Select “Domain” radio button and enter the domain name as “NI**T**.com”. Alternatively, you can enter NI**T**.com. Click OK
3. Enter the username and password of a user that has the right to create computer accounts in a domain (i.e. a Domain Admin group member). Enter username as “NI**T**\administrator” and password as “**p@ssw0rd**”. Click OK.

Note: If a computer account was already established in the domain then you can enter any username and password of any valid user (for example - your own domain username and password).

1. After a minute or two you will receive a message welcoming you to the domain. Click "OK" when you are prompted to reboot.
2. Next step is to test whether the client can login to the Windows domain. After the Windows 10 client computer boots, you will see the logon screen. We need to change it from logging onto itself to logging onto the domain. To do this, click on the “Switch User” button, then click on “Other User” button on the log-on screen.
3. Enter the administrator’s credentials (NI**T**\administrator and **p@ssw0rd**) to log in.

Are you able to successfully log into the Windows domain?

This completes the practical.

\*\*\*\*\*\*\*\*\* End of Practical \*\*\*\*\*\*\*\*\*\*