Windows Server Assignment

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| Course Code: | IT1C (WinSrvr) |
| Course Name: | Windows Server and Active Directory Administration |
| Assignment: | Windows Server Project |

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| Textbook: | Eckert, Jason. (2025). Hands-On Windows Server 2022 (4e). Cengage. |
| Software: | Windows 11 (Pro/Enterprise/Education), Windows Server 2022 |

Materials and Resources

Assignment Description

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| In this project, you will create the following setup: |

Assignment Steps

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| Perform the following tasks: |
| 1. Install a new VM called server1 that is connected to the External virtual switch. Add a second NIC to server1 that is connected to the Private virtual switch and assign it a static IP of 192.168.255.1. Configure an Active Directory domain on server1 that hosts a new domain in a new forest called *yourname*.com. Ensure that server1 is a global catalog and that your domain and forest use the highest functional levels. **(4 marks)** |
| 1. Configure server1 as a DHCP server that provides addresses to clients on the 192.168.255.0 network (192.168.255.100-200) and the DNS server 192.168.255.1. Next, configure server1 as a WDS server that hosts the install.wim from the Windows Server 2022 DVD. The WDS server should not join computers to the domain after installation. **(4 marks)** |
| 1. Install server2 from your WDS server and set its static IP address and name afterwards. Next, join it to your domain. **(2 marks)**          1. Configure the DHCP service on server1: **(10 marks, one for each task)** 2. Modify the 192.168.255.0 scope you created earlier so that it is called “Sales LAN” and uses a lease period of 4 days. Ensure that the scope sets the default gateway and DNS server on the client to 192.168.255.1.        1. Add an exclusion to the scope for 192.168.255.188 (used by a UNIX server that has a static IP address) as well as the static IPs used by server1 and server2.      1. Add a reservation called “Ricoh8320Printer” that assigns 192.168.255.191 to the MAC address 00-01-03-E1-0F-B7.      1. Convert your exclusion for server2 to a reservation.      1. Create a scope called “Mfg LAN” that assigned addresses from the range 172.16.5.1-172.16.5.254 for a lease period of unlimited. Ensure that the scope sets the default gateway and DNS server on the client to 172.16.0.200. Since your DHCP server does not have a network interface on the 172.16.0.0 network, we will assume that a DHCP relay agent will be configured on a router to forward requests for this network to your DHCP server.        1. Add a server option that sets the WINS server for all clients in the company to 192.168.255.1.      1. Ensure that Windows 98 clients that receive an IP address from the “Sales LAN” scope instead receive a gateway of 192.168.255.253, a DNS server of 10.0.1.2, and a WINS server of 10.0.2.2).      1. Ensure that your VoIP phone model (SmartPoint 331) will receive a default gateway of 192.168.255.222 on that Sales LAN.      1. Ensure that your DHCP server always updates A and PTR records for all clients.      1. Configure server2 as a DHCP server in a failover relationship with server1. |
| 1. Configure server1 and server2 as WINS servers in a push/pull relationship and ensure that NetBIOS name records for both your computers are automatically created in the WINS database (remember the bug in Server 2022). Next, add a static mapping to the WINS database for 192.168.255.188 (which is used by a UNIX server named SCIBORG that has a static IP address).  **(3 marks)** |
| 1. Configure the DNS service on server1: **(7 marks, one for each task)**    1. Create a standard forward lookup zone called *yourname*.net that accepts secure and unsecure dynamic updates.        * 1. Add the following A records to your zone:   webserver.yourname.net = 192.168.255.222  webserver.yourname.net = 192.168.255.223  webserver.yourname.net = 192.168.255.224  fileserver.yourname.net = 192.168.255.225  mailserver.yourname.net = 192.168.255.226     * 1. Add a CNAME record that maps www.yourname.net to webserver.yourname.net.     Tested from server 2 :       * 1. Add an MX record (priority = 20) for mailserver.yourname.net for the yourname.net zone.        * 1. Ensure that your DNS server can also use the WINS servers you created earlier for name resolution if FQDN name resolution fails.      * 1. Ensure that any FQDN name resolution requests for the acme.com domain are forwarded to 192.168.255.226.        * 1. Add a standard primary reverse lookup zone for the 192.168.255.0 network that does not allow dynamic updates and create the appropriate PTR records for webserver.yourname.net. |
| 1. Configure the DNS service on server2 to host a secondary copy of the yourname.net forward lookup zone and 192.168.255.0 reverse lookup zone from the previous steps. Ensure that the secondary zones query the primary zones every 5 minutes for new records. Test that both servers can be queried for the records and that round robin functionality is working. **(3 marks)**   **Server 1 config:**      Server 2 config:          Round-Robin : |
| 1. Convert the yourname.net and 192.168.255.0 zones on server1 to be Active Directory integrated and accept secure dynamic updates only. **(2 marks)** |
| 1. Configure server1 as a VPN server. The VPN network should use IP addresses on the 172.16.0.0 network. Moreover, the VPN server should use a RADIUS server configured on server1 for authentication and logging, as well as use an NPS policy that disconnects idle sessions after 2 minutes. Test your configuration from server2 using split tunneling. **(6 marks)** |
| 1. Configure a domain-based DFS namespace for your domain called **warehouse** and add three shared folders (called share1 through share3) to this namespace that meet the following criteria. **(4 marks)**      * 1. Share1 and share2 reside on server1.      * 1. Share3 resides on both server1 and server2, with the contents synchronized using DFS replication. |
| 1. Create the following OU structure underneath your domain: **(6 marks)** |
| 1. Create a nested group structure that allows permissions to be easily assigned to: **(3 marks, 1 mark for each task)**    1. Members of the Sales, Mfg, Engrg, and IT groups (in your domain)      * 1. Mfg members in No.Amer, So.Amer, and Canada (in your domain)      * 1. Members of the Sales, Mfg, Engrg, and IT groups (in your entire forest) |
| 1. Create a local group called Project-Printer within the File/Print OU. Next, create a fictitious printer on your host OS that grants Print permission only to members of the Mfg (forest-wide) while using this local group. **(3 marks)** |
| 1. Create 3 user accounts (of your choice) within the 6 OUs that “should” contain user accounts. Each user account should be a member of the appropriate groups from the previous step.  **(6 marks)** |
| 1. Develop a workstation naming convention, and pre-stage computer accounts for 2 workstations within the Workstations OU (for general-purpose workstations) as well as pre-stage computer accounts for 2 workstations within the same 6 OUs that contain user accounts from the previous step. **(6 marks)** |
| 1. Create and link a new GPO called GPO-Mfg to the Mfg OU that: **(9 marks, one for each task)**    1. Locks out users for 2 hours if they log in 3 times unsuccessfully within 1 minute.        * 1. Removes Control Panel access.      * 1. Ensures that the Print Spooler service is always started.      * 1. Specifies that the system event log should be 40MB in size maximum and that old events will be cleared automatically as necessary.      * 1. Sets the background wallpaper (your choice).      * 1. Gives Bob the right to log on locally and shut down the computer.      * 1. Assigns a software package (of your choice) to all computers.      * 1. Redirects the Desktop and Documents folders for users to a shared folder on server1.      * 1. Prevents the Windows Calculator program from executing. |
| 1. Test your GPO by temporarily moving your server2 computer account into the Mfg OU, and by logging on to it using a user account within the Mfg OU. Next, ensure that GPO-Mfg does not apply to users or computers within the So.Amer OU. **(1 mark)** |
| 1. Create a conditional forwarder in DNS to world.com (IP = 192.168.255.188). **(1 mark)** Next, create a 2-way transitive Realm trust relationship between your forest and world.com. **(1 mark)** |
| 1. Configure your domain with 3 sites (Kitchener, London, Toronto). **(1 mark)** Ensure that your DC account resides within the closest site to your physical classroom location. **(1 mark)** Ensure that intersite replication occurs every 90 minutes between all locations. **(1 mark)** |
| 1. Configure server1 as a CA that auto-enrolls all users and computers within the domain for generic user and computer certificates and test your results by restarting server2 and logging in as Administrator in the domain. In the Certification Authority console on server1, right-click **Issued Certificates**, click **Export List** and save the list as **C:\project\certificates.txt**. **(4 marks)** |
| 1. Configure server1 as an iSCSI SAN that shares a 50GB iSCSI virtual disk to server2. Format this virtual disk with NTFS and ensure that server2 can access it using X:\. Also ensure that data deduplication is enabled for X:\. **(6 marks)** \ |
| 1. Take a sample performance baseline for server1 and server2. Take a screenshot of each baseline and save them as **server1baseline.png** and **server2baseline.png** in the **C:\project** folder on server1. **(2 marks)** |
| 1. Configure server1 as a WSUS server that provides updates to the computers within the domain (do not download the updates – only download the Windows Update Catalog). **(4 marks)** |
| 1. Obtain the **projectscript.ps1** PowerShell script from your instructor and replace any instances of yourname.com with the actual name of your domain. Also replace any instances of DC=yourname,DC=com with the actual name of your domain. Next, execute it on server1 as Administrator to generate 11 text files (file1.txt to file11.txt) in the C:\project folder. Next, compress the **C:\project** folder to a file called ***yourname*.zip** and send it to your instructor. |
| BONUS: Optional **(1 mark each)**   * 1. Install a Server 2022 Standard Core virtual machine called server3 (IP = 192.168.255.11, DNS/gateway = 192.168.255.1), join it to your domain, and configure it to host an IIS container. Send a screenshot of the output of **docker ps** while your container is running for this bonus mark.       Cannot install docker , gave error in installation   * 1. Install two additional Server 2022 Datacenter virtual machines (server4 and server5) with an appropriate IP configuration, joined to your domain. Next, configure server4 and server5 as a Failover Cluster file server (you will need to add a 1GB Q:\ volume to your iSCSI Target for the quorum). Send screenshots of both the **Roles** and **Nodes** sections within Failover Cluster Manager to your instructor for this bonus mark. |

Rubric

See the marks assigned to each question as outlined in the assignment steps/instructions. This assignment is out of 100 total marks.