

WAS3 Project

****Complete the tasks and questions from this project in the attached workbook and submit document in PDF ****

Your company has received a new contract to plan and configure their new office structure, and you have been tasked to setup a Sandbox environment with servers and a workstation to begin testing Proof of Design network infrastructure. You will be creating Several virtual machines to run in the Sandbox.

Part 1: IP Structure

1. You will be subnetting 10.0.0.0/24 for the Sandbox network.
2. The first usable IP address of the "Servers and Workstations" subnet will be used as the gateway IP address for the Servers and Workstations
3. You will need to subnet your network with the following information, please create a VLSM structure for your Sandbox:

Infrastructure:	9
Servers and Workstations:	120
Printers:	15
Wireless Aps:	32

Task 1. Enter your VLSM in the table provided in the workbook attached

Question 1: If the population of the network doubles, what will the Network ID and CIDR be? (Enter your answer in the workbook attached)

Part 2: Virtualization

4. Create a switch labelled WAS3-Proj-**YOURFIRSTNAME**-SW, on the Windows 10 Host machine (Please be sure to change "**YOURFIRSTNAME**" to your first name

5. Run the PowerShell cmdlets

```
function global:prompt {[Environment]::MachineName+"  
"+[Environment]::UserName+" PS> "}
```

then

```
Get-VMSwitch -Name "WAS3-Proj*"
```

3. Take a screenshot and paste it in the workbook attached

Task 2. Provide the screenshot in the workbook attached

4. Create 3 virtual machines connected to the WAS3-Proj-**YOURFIRSTNAME**-SW switch with 2048 MB RAM on each, and labelled as follows, replacing "**YOURFIRSTNAME**" with your first name:

WAS3 Project DC1.**YOURFIRSTNAME**.com
WAS3 Project SVR1.**YOURFIRSTNAME**.com
WAS3 Project WS1.**YOURFIRSTNAME**.com

5. On your host machine, run the PowerShell cmdlets

```
function global:prompt {[Environment]::MachineName+" "+[Environment]::UserName+" PS> "}
then
Get-VM -Name "*Project*"
```

6. Take a screenshot and paste it in the workbook attached

Task 3. Provide the screenshot in the workbook attached

Question 2: What full Powershell command will create the virtual switch in this section? (Enter your answer in the workbook attached)

Question 3: When should you use the .vhdx format instead of .vhd format? (Enter your answer in the workbook attached)

Part 3: Installation and Configuration

1. Install the operating systems with the following common configurations:

6. **Subnet Mask:** of the Servers and Workstations Subnet
7. **DNS:** Second IP of the Servers and Workstations subnet
8. **Gateway:** First IP of the Servers and Workstations subnet
9. **Enable:** Remote desktop without network level authentication
10. **Change:** the time zone and time settings so the time is correct
11. **Local Administrator account:** "Local**YOURFIRSTNAME**" replace "**YOURFIRSTNAME**" with your first name *** Make sure it has the same privileges as the Default Administrator Account, and so the password never expires.

2. Setup the **VIRTUAL MACHINE:** WAS3 Project DC1.**YOURFIRSTNAME**.com with the following information:

-
-
- **OPERATING SYSTEM:** Server 2016 Datacenter with GUI
- **IP:** Second IP of the Servers and Workstations subnet
- **Change:** The hostname of the server to DC1

- **As a security measure log into the Local Administrator account you created in step 1**

a. In Server Manager take a screenshot of the properties area of the local server and paste it in the workbook attached

Task 4. Provide the screenshot in the workbook attached

b. Open an administrative PowerShell prompt and type the following PowerShell cmdlets:

```
function global:prompt {[Environment]::MachineName+"  
"+[Environment]::UserName+" PS> "}
```

Then

```
Get-NetIPConfiguration
```

Then

```
Get-NetIPAddress | Format-Table
```

c. Take a screenshot and paste it in the workbook attached

Task 5. Provide the screenshot in the workbook attached

3. Setup the **VIRTUAL MACHINE:** WAS3 Project SVR1.**YOURFIRSTNAME**.com with the following information:

-
-
- **OPERATING SYSTEM:** Server 2016 Datacenter with GUI
- **IP:** Third IP of the Servers and Workstations subnet
- **Change:** The hostname of the server to SVR1
- **As a security measure log into the Local Administrator account you created in step 1**

a. In Server Manager take a screenshot of the properties area of the local server and paste it in the workbook attached

Task 6. Provide the screenshot in the workbook attached

b. Open an administrative PowerShell prompt and type the following PowerShell cmdlets:

```
function global:prompt {[Environment]::MachineName+"  
"+[Environment]::UserName+" PS> "}
```

then

```
Get-NetIPConfiguration
```

then

```
Get-NetIPAddress | Format-Table
```

c. Take a screenshot and paste it in the workbook attached

Task 7. Provide the screenshot in the workbook attached

4. Setup the **VIRTUAL MACHINE**: WAS3 Project WS1.**YOURFIRSTNAME**.com with the following information:

-
-
- **OPERATING SYSTEM:** Windows 10 Pro
- **IP:** Fourth IP of the Servers and Workstations subnet
- **Change:** The hostname of the server to WS1
- **As a security measure log into the Local Administrator account you created in step 1**

a. In System Properties take a screenshot showing that Remote desktop is enabled, and paste it in the workbook attached

Task 8. Provide the screenshot in the workbook attached

5. Open an administrative PowerShell prompt and type the following PowerShell cmdlets:

```
function global:prompt {[Environment]::MachineName+"  
"+[Environment]::UserName+" PS> "}
```

Then

```
Hostname
```

Then

```
Get-timezone
```

Then

```
Get-NetIPConfiguration
```

Then

```
Get-NetIPAddress | Format-Table
```

c. Take a screenshot of all three commands and paste it in the workbook attached

Task 9. Provide the screenshot in the workbook attached

Question 4: A user returning from holidays has attempted to login 6 times, the account is locked out. Which Powershell command will you need to execute to allow the user to log into the domain again? (Enter your answer in the workbook attached)

Question 5: What Powershell cmdlet would you use to start an interactive session with a remote computer by the name of WS1? (Enter your answer in the workbook attached)

Part 4: DNS

12. Install the DNS role on DC1
13. Create the Domain called **YOURFIRSTNAME.com** replacing "**YOURFIRSTNAME**" with your first name
14. Make sure that you allow both secure and nonsecure dynamic updates
15. Enable Reverse lookup zone for your domain
16. Make sure that you allow both secure and nonsecure dynamic updates
17. Create zone records:

An A record for DNS1 pointing to the IP of DC1

An A record for RTR1 which points to the first IP address of the Servers and Workstations subnet

7. Open an administrative PowerShell prompt

a. Type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"  
"+[Environment]::UserName+" PS> " }
```

Then

```
Get-DnsServerResourceRecord -ZoneName YOURFIRSTNAME.com
```

Then

```
Get-DnsServerResourceRecord -ComputerName DC1 -ZoneName "0.0.10.in-  
addr.arpa"
```

b. Take a screenshot and paste it in the workbook attached

Task 10. Provide the screenshot in the workbook attached

Question 6: List 2 record types that are found on an AD DS integrated DNS that you wouldn't find on a public DNS server (Enter your answer in the workbook attached)

Part 5: AD DS

- a. Install the AD DS role on DC1

- a. Log into the DC1 as the local administrator account
- b. Promote to be a domain controller
- c. Create a Domain in a new forest called YOURFIRSTNAME.com replacing "YOURFIRSTNAME" with your first name using integrated DNS
- d. Use the Administrator account for Delegation
- e. Login as YOURFIRSTNAME\Administrator (replacing "YOURFIRSTNAME" with your first name)
- f. Open an administrative PowerShell prompt, and type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"
"+[Environment]::UserName+" PS> "}
```

Then

```
Get-WindowsFeature | Where-Object {$_. name -eq "DNS"} | Format-List
Name,Installstate
```

Then

```
Get-WindowsFeature | Where-Object {$_. name -eq "AD-Domain-Services"}
| Format-List Name,Installstate
```

- g. Take a screenshot in the workbook attached

Task 11. Provide the screenshot in the workbook attached

2. Create an OU called IT

- a. Create your own Administrative account in the IT OU called YOURFIRSTNAME-IT replacing "YOURFIRSTNAME" with your first name, with the same memberships as the administrator account
- b. Log into the domain controller with your YOURFIRSTNAME-IT account you created
- c. You must only use this account for the remainder of the project
- d. Create the OUs in the root of the domain: Administration, Shipping, Finance, and Sales
- e. Open an administrative PowerShell prompt, and type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"
"+[Environment]::UserName+" PS> "}
```

Then

```
Get-ADOrganizationalUnit -Filter 'Name -like "*" ' | Format-Table Name,
DistinguishedName
```

- f. Take a screenshot in the workbook attached

Task 12. Provide the screenshot in the workbook attached

3. Create a Global Security group for each OU

- a. Use the name of the OU and add "Group" to the end of the group name (IT Group)
- b. Open an administrative PowerShell prompt, and type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"
"+[Environment]::UserName+" PS> "}
```

Then

```
Get-ADGroup -Filter 'Name -like "*Group"' | Format-Table Name,
Distinguishedname
```

- c. Take a screenshot in the workbook attached

Task 13. Provide the screenshot in the workbook attached

4. Create a template account for each of the OU's you have created starting with the unique characters: --

- a. Each must be labelled **--OU NAME-Template** (Replace **OU NAME** with the name of the OU)
- b. Each must be added as a member of the OU's group
- c. The template accounts must be disabled
- d. Open an administrative PowerShell prompt, and type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"
"+[Environment]::UserName+" PS> "}
```

Then

```
Get-ADUser -Filter 'Name -like "--*"' | Format-Table Name,
Distinguishedname,Enabled
```

- e. Take a screenshot in the workbook attached

Task 14. Provide the screenshot in the workbook attached

Question 7: When is a user's access token created? (Enter your answer in the workbook attached)

Question 8: What is the interface within Active Directory Administrative Center that simplifies the delegation of permissions for domains, OUs, or containers? (Enter your answer in the workbook attached)

Question 9: Which term is described as the process of configuring one or more groups as members of another group? (Enter your answer in the workbook attached)

Part 6: Join Computers to the domain

18. Create an OU called Servers, and one called Workstations
19. Join SVR1 and WS1 to the Domain

20. Move SVR1 to the Servers OU

21. Move WS1 to the Workstations OU

22. Log into DC1 with your **YOURFIRSTNAME-IT** account you created

23. Open an administrative PowerShell prompt, and type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"
"+[Environment]::UserName+" PS> " }
```

Then

```
get-adcomputer -filter 'Name -like "*" | FT
DNSHostName,Enabled,DistinguishedName,SID
```

Take a screenshot in the workbook attached

Task 15. Provide the screenshot in the workbook attached

Question 10 What is the syntax command-line utility for joining a domain using Netdom.exe? (Enter your answer in the workbook attached)

Question 11 List an example of two graphical tool in Windows Server 2016 that can create user objects. (Enter your answer in the workbook attached)

Part 7: Group Policy

24. Create a Group Policy Object called "Workstations":

a. Folder Redirection

i. Redirect all users' Documents folder to their own folder on a hidden share called Staff on SVR1's C:\ drive

2. Modify the Default Domain Policy with the following settings:

a. Password Policy:

i. Enforce Password History: 12 passwords remembered

ii. Max Password Age: 32 Days

iii. Minimum Password Age: 10 Days

iv. Minimum Password Length: 10 Characters

v. Complexity requirements: Enabled

b. Account Lockout policy

i. Threshold: 5 Attempts

ii. User will be locked out until manually reset

3. Log into WS1 as your **YOURFIRSTNAME-IT** account you created
4. Take a screenshot of:
 - a. The Default Domain Policy GPO displaying the Password Policy, and Account Lockout Policy
 - b. The Workstations GPO displaying the Folder Redirection Policy

Task 16. Provide the screenshot in the workbook attached

Part 8: AD CS

25. Install the AD CS Certification Authority Role on SVR1
 - a. Key Length 4096
 - b. SHA256 Hash Algorithm
 - c. Leave the default for the Common Name for this CA
2. Open an administrative PowerShell prompt, and type the following Powershell cmdlets:

```
function global:prompt {[Environment]::MachineName+"
"+[Environment]::UserName" PS> "}
```

Then

```
Get-CACrldistributionPoint
```

3. Take a screenshot in the workbook attached

Task 17. Provide the screenshot in the workbook attached

Part 9: IPv6 Subnetting

26. The Sandbox network will also require the use of IPv6 for future use when the company transitions to it. Using the standard IPv6 addressing and its built in subnets, create a subnetting scheme for future use with the Sandbox. Use ULA addresses for this IP architecture.
27. fc00:db8:2:1a:20:ab00::

Task 18. Enter your subnets in the table provided in the workbook attached