**Assignment 1: Individual Assignment -** Research and design an install and testing plan based on the supplied server requirements noted below. Use the created install plan to install and configure two Windows Server virtual machines, install a client and complete your testing plan.

**Required Resources**

* Server 2019 and 2022 Standard ISOs from Azure for Education
* Windows 22H2 ISO from Azure for Education
* KMS Key for Windows 10, Server 2019 and 2022 standard
* Course Resources documentation as found on Brightspace

**Professional Documentation**

All documentation must be done in a **professional style**. It must include:

* Title page
* **Updateable** Table of Contents
* Document introduction
* Section introductions or description, each section must be clearly identified
* Graphics or screenshots MUST include a title with a short description
* Any direct or copied quotes or graphics MUST be properly credited in a footnote
* ALL sources MUST be properly cited (APA format) and placed at the end of your document in a bibliography.
* **NO** embedded, zipped or compressed files. \*\* All scripts must be converted to text before including them in your documentation. \*\*
* **1 Professional Word Document ONLY.**

**Research and documentation sections** -Please complete all research and question responses in your own words. Research sections not completed in your own words may result in a mark of 0 for the section.

**NOTE:** Please do NOT copy and paste responses from internet, **even with a citation**. I expect each section or response to be in your own words. Be prepared to explain your responses and demonstrate your comprehension.

**No marks** will be given for cited or credited information included in document.

***\*\* I recommend completing any research section before completing any required task listed below as you will have a much better understanding of the material and data.***

**Evaluation:** This assignment is markedas per the attached Rubric (marks will be deducted for deviating from Requirements). \*\*You may be asked to demonstrate some of your assignment to show your comprehension of the material.

**Marking and Assignment Notes:**

* ScreenshotsMUST include user or device identifying information.
* Screenshots MUST be added to your document in the order of creation.
* Documentation must meet Professionalism requirements.
* **Automatic mark of 0 - Assignment not submitted or work not original.**

<http://www.nscc.ca/docs/about-nscc/policies-procedures/policy-studentcodeofconduct.pdf>

<https://www.nscc.ca/docs/about-nscc/policies-procedures/policy-academicintegrity.pdf>

**NOTE: This assignment may require some adaption, research and troubleshooting.**

**Task 1 - Required Documentation**

*\*\* This task is a research and documentation task ONLY,* ***do not*** *start any installations until your design and planning documentation has been previewed and approved by your instructor.*

Documentation is a vital part of any server deployment. Server deployment must be planned out for any possible issues and the impact to your existing network must be taken into consideration.

Complete all professional documentation required for **each** node (\*not required for workstations).

**Technical Documentation requirements:**

|  |  |
| --- | --- |
| Install Plan and Change Management Log | * Node base information * Activity ID * Reference/Requirement information * Hardware information * Virtual Machine Information * Networking Information * Node details * Additional information as required (as identified below) * Attachments if required |
| Testing Plan | * Node information * Testing members * What is being testing (must include at least 4 tests directly related to planning document) * Testing description * **Acceptable results** (benchmarks) * Location for notes (to be completed during testing) |

**Node Information – Server deployments setup and requirements for documentation**

* Complete two (2) Install Plans and two (2) Testing Plans, one for each of your servers required to setup your new network.
  + Each Install plan should adhere to the requirements stated in this document for each server node.
  + Use [Appendix A](#AppendixA) for reference if required.
* Upload a DRAFT (by **draft** due date) of each install and testing plan document to Brightspace for review.
  + You may submit a single *draft* document that contains an activity and testing plan for each server but please separate by server.
  + **Example.** *Server 1 Install plan and testing plan. Server 2 Install plan and testing plan.*
  + **ATTENTION** - Drafts submitted after the due date may not be reviewed before final document submission is required.

**Server 1 Requirements**

* Windows Server 2022 Standard (**CORE**)
* Memory = 4G
* 2 Processors / 1 core
* Two (2) NICs both set to NAT
* Drive partition information (1x 150g / 1x 60g)
* Use KMS key as identified on page one to license your new server
  + KMS Server = 10.82.40.52
* Language Preferences:
  + Language to install = English (United States)
  + Time and Currency format = English Canada
  + Keyboard = US
* Administrator password = Passw0rd
  + Password does not expire
* 150 GB NTFS hard drive and assign drive letter C:
* 60 GB NTFS hard drive and assign drive letter E:
* Set correct Time Zone
* Server mounted in Data Centre A Rack 1C Unit 20
* Server name (Hostname) as per Naming Convention for Domain Controller
* Server IP Info:
  + NIC 1 = 192.168.208.10 /24
  + NIC 2 = 192.168.208.11 /24
  + Gateway = 192.168.208.2
  + DNS:
    - Primary = NIC 1
    - Secondary = NIC 2
* Add the Domain Controller role using the DCPROMO.exe (See Appendix A) to promote your new server to a Primary Domain Controller and configure DNS
  + **DSRM Password** = Passw0rd
  + **Domain =** YourInitials(3).netw2500.ca (eg. mad.netw2500.ca)
* Confirm/install VMWare Tools (may install automatically)
* Perform all critical Windows Updates to date
* \*Confirm your administrative password is set to not expire
* Create new administrative OU group
  + OU = SystemOperators
  + Group Name = **Sysops\_gp**
  + Description = System Operators Group
  + Member Of = Domain Admins, Enterprise Administrators and Group Policy Creator Owners
* Create new administrative user in your Sysops OU
  + First Name = Your Name
  + Middle Initial = Your Name
  + Last Name = Your Name
  + Full Name = Your First and Last Name (**ex**. *Marie Dutka*)
  + Login Name = SysOp.YourInitials (**ex**. *SysOp.mad*)
  + Password = Passw0rd
  + Description = System Operator – Your First and Last Name
  + Groups = domain user, system operators group

\*\*See Appendix for example.

* Add required lines to \*.vmx file
* Update your VMWare VM description to include required information.
  + Operating System:
  + Creation Date:
  + Hostname:
  + Administrator Password:
* Create a VMWare snapshot
* Create a Gold copy

**Server 2 Requirements**

* Windows Server 2019 Standard (Desktop Experience)
* Memory = 8G
* 2 Processors / 1 core
* Drive partition information (1x 150g / 1x 60g per node)
* Language Preferences:
  + Language to install = English (United States)
  + Time and Currency format = English Canada
  + Keyboard = US
* Use KMS key as identified on page one to license your new server
* Administrator password = MSPassw0rd
  + Password does not expire
* 150 GB NTFS hard drive and assign drive letter C:
* 60 GB NTFS hard drive and assign drive letter F:
* Server mounted in Data Centre A Rack 1C Unit 22
* Do **NOT** turn on network discovery
* Set correct Time Zone
* Server name (Hostname) as per Naming Convention for **Member Server**
* Server IP Info
  + Server IP = 192.168.208.12 /24
  + Gateway = 192.168.208.2
  + DNS = DNS Server IP
* Confirm/install VMWare Tools (may install automatically)
* Add required lines to \*.vmx file
* View all hidden items and file extensions
* Turn Off IE Enhanced Security **for Administrators ONLY**
* Install 7-zip and Notepad ++
* Perform all critical Windows Updates to date
* Add your Member server to your domain
* Pin PowerShell Console and Server Manager to the **System Operators** Taskbar
* Add your Domain Controller to Server Manager on your Member Server (Server 2)
* Update your VMWare VM description to include required information.
* Create a VMWare snapshot
* Create a Gold copy

**Task 2 – Server installs and configuration**

*\*\*Do NOT proceed with this task until your planning document DRAFT has been reviewed and commented by your faculty.*

* Confirm your two (2) Install Plan and Testing Plan documents have been reviewed and make any corrections and modification identified during the review.
* Save your **updated** Install Plan and Testing Plans documents as version **\_A2** and add them to your assignment documentation.

Follow your modified Install Plan for your **Server 1** install to:

* Install Windows Server 2022 Standard CORE into a VMWare virtual machine, stored on your external hard disk drive. \*\* You may NOT modify an existing Server 2022 from a previous course, you MUST do a clean install.
* Activate your server with the KMS key and confirm activation.

*\*\* Remember, you MUST be on the college network in order to connect to the college KMS, wifi will not allow access to KMS.*

* Configure your server as required to create a primary Domain Controller with all the correct settings and configurations.

**\*\* ATTENTION**: You may/will need to reset some or all of your NIC details after installing the DC role.

* Complete the following PowerShell commands to test your successful installation. *Troubleshoot* any failures or incorrect results and rerun your commands if required until each command produces successful results.
* Hostname
* Net user Administrator
* Get-Service adws,kdc,netlogon,dns
* Get-ADDomainController
* Get-ADDomain *YourDomainNameHere*
* Get-SMBShare SYSVOL
* Dcdiag /test:dns
* Get-NetIPConfiguration
* **Stop**. Rerun each command above and output the results to a single file C:\Reports\S1ConfigReport.txt. Add a copy of your report to your documentation.
* **Stop**. Complete your testing plan and record your results. Add your completed testing plan to your documentation.
* **Stop**. Be prepared to demo your server 1 installation and configuration.
* **Stop**. Take a screenshot of your gold copy properties, including creation date and location, content size, etc. and add it to your documentation.

Follow your modified Activity Plan for your **Server 2** install to:

* Install Windows Server 2019 Standard with GUI into a VMWare virtual machine, stored on your external hard disk drive. \*\* You may NOT modify an existing Server 2019 from a previous course, you MUST do a clean install.
* Activate your server with the KMS key and confirm activation.
* Configure your server as required to create a general-purpose member server and add it to your domain.
* Complete the following PowerShell commands to test your successful installation. *Troubleshoot* any failures or incorrect results and rerun your commands if required until each command produces successful results.
* Hostname
* Net user Administrator
* Get-NetIPConfiguration
* **Stop**. Rerun each command above and output the results to a single file C:\Reports\S2ConfigReport.txt. Add a copy of your report to your documentation.
* **Stop**. Complete your testing plan and record your results. Add your completed testing plan to your documentation.
* **Stop**. Be prepared to demo your server 2 installation and configuration.
* **Stop**. Take a screenshot of your gold copy properties, including creation date and location, content size, etc. and add it to your documentation.

**Task 3 – Setup Windows Workstation client**

***ATTENTION****: As this is only a client, planning, testing and change management documents are not required.*

* Using the Windows 10 22H2 ISO to install a **Windows 10 “client”** with the following configuration:

***(NOTE****:* \*\* You may NOT modify an existing Windows 10 virtual machine from a previous course, you MUST do a clean install.*)*

* Follow your **Naming Convention** for Virtual Machines and Clients.
* Customize your hardware to meet these specifications.
  + Disk Size 100G
  + Maximum of 4 gig of RAM
  + Number of processors/cores: Default
  + 2 x NIC - NAT
  + Do NOT assign an IP for your client we will use DHCP.
* Modify the Virtual Machine Description to list (*you may need to read ahead for some of the information required*):
  + Operating System:
  + Creation Date:
  + Hostname:
  + Default Username:
  + Default User Password:
* Use the Windows 10 KMS Key to activate your client.
* Set up for an organization, do **not** use your Microsoft account.
* Create a default account
  + Follow the **Naming Convention** to create your Username (**Default User**) based on your name.
  + Set or modify the password for your default user to “**Student@2024**”
  + Select the first three security questions and set all answers to “nscc”
* Adjust Date and Time to the set the Time zone (if required).
* Activate Windows 10 if required.
* Do a typical install of VMWare Tools (if required).
* Update your new workstation with all critical updates.
* Do **NOT** add your workstation to your Domain (we will add it in a later in a future assignment).
* Modify your File Explorer settings to:
  + “Show hidden files, folders or drives”
  + Uncheck “Hide extensions for known file types”
* Add lines to the end of your VMX (See Course Resources).
* Install Notepad++ and 7zip on your client.
* Take a Snapshot of your client in the OFF state.
* **Create a “Gold” copy of your workstation.**
* REMINDER: You do not need an install plan or documentation for your client.

Now that we have setup a Windows 10 client you can turn it off for now as we will not require it until later***.***

* **Stop**. Be prepared to demo your client install, activation, snapshots etc.
* **Stop**. Take a screenshot of your gold copy properties, including creation date and location, content size, etc.

**Task 4 – Documentation and Backups**

It is important to keep a professional and reliable documentation and backups of your server.

* **As we did not do any unplanned modifications to our servers so we do not yet require entries in a change management log.**
* **Stop**. Confirm you have added a screenshot of your Gold copies **properties** for both of your Server and client to your professional documentation. Make sure they include all required details including Type, location, size, contains and creation date.
* **Uploaded your documentation to Brightspace**.

Marking Rubrics:

*\*\*Remember. All documentation will be evaluated for accuracy, content and professionalism.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task 1 Rubric** | **Unsatisfactory** | **Developing** | **Good** | **Professional** |
| **0** | **1** | **2** | **3** |
| **Document Professionalism** | No attempt made to document project. | Documentation missing sections or meets **most** professionalism requirements. Document has not been correctly versioned. **Research missing or not cited.** | Documentation meets **some** professionalism requirements. Most sources are cited in the correct format. Documentation is correctly versioned. | Documentation **meets** professionalism requirements. All sources are cited in the correct format. Documentation is correctly versioned. |
| **Server 1 Install Planning Document** | No attempt made to research, plan or document project. | Install plan contains some research required for node. Plan content is *somewhat* complete and concise but missing key requirements. **Install Plan has not been reviewed.** | Install plan contains most research and information required for node.  Plan content is *mostly* complete and concise. Plan has been reviewed and **some** corrections have been completed. | Install plan contains all research and information required for node.  Plan content is complete and concise. Plan has been reviewed and **all** corrections have been completed. |
| **Server 2 Install Planning Document** | No attempt made to research, plan or document project. | Install plan contains some research required for node. Plan content is *somewhat* complete and concise but missing key requirements. **Install Plan has not been reviewed.** | Install plan contains most research and information required for node.  Plan content is *mostly* complete and concise. Plan has been reviewed and **some** corrections have been completed. | Install plan contains all research and information required for node.  Plan content is complete and concise. Plan has been reviewed and **all** corrections have been completed. |
| **Server 1 Testing Plan** | No attempt made to research, plan or complete testing plan. | Testing plan contains some requirements for plan. Plan content is *somewhat* complete and concise but contains only 1-2 required tests or does not test for node usage. **Testing Plan has not been reviewed.** | Testing plan contains most requirements for plan.  Plan content is *mostly* complete and concise but contains only 3 required tests or does not completely test for node usage. Plan has been reviewed and **some** corrections have been completed. | Install plan contains all research and tests required for plan.  Plan content is complete and concise and includes all tests for node usage. Document has been reviewed and **all** corrections have been completed. |
| **Server 2 Testing Plan** | No attempt made to research, plan or testing plan. | Testing plan contains some required for plan. Plan content is *somewhat* complete and concise but missing 2-4 required tests or does not test for node usage. **Testing Plan has not been reviewed.** | Testing plan contains most requirements for plan.  Plan content is *mostly* complete and concise but contains only 3 required tests or does not completely test for node usage. Plan has been reviewed and **some** corrections have been completed. | Install plan contains all research and tests required for plan.  Plan content is complete and concise and includes all tests for node usage. Document has been reviewed and **all** corrections have been completed. |

|  |  |
| --- | --- |
|  | **Task 2 – Server 1 Install (Domain Controller)** |
| 4 | Virtual Machine has correct system settings.   * 2 Disks (150g, 40G) * 4G RAM * 1 core /2 Processor * 2 NICs * VM Name = NETW2500-DC01 * **Completed VM Description** |
| 8 | Server 1 has correct settings and software.   * Correct version = Server 2019 CORE * Hostname = DC01A2U26 * Domain = Initials.netw2500.ca * IP Settings =   + NIC 1 = 192.168.208.10 /24   + NIC 2 = 192.168.208.11 /24   + Gateway = 192.168.208.2   + DNS:     - Primary = NIC 1     - Secondary = NIC 2 * Correct time zone |
| 15 | Server Demo as per comprehensive marking, including new users and groups and install information such as DCPromo script. (System operators)  Run the following commands to capture PowerShell history and be prepared to open DCPromo.txt  notepad (Get-PSReadlineOption).HistorySavePath | Out-File c:\HistoryLog.txt |
|  | **Task 2–Server 2 Install** |
| 4 | Virtual Machine has correct system settings.   * 2 Disks (150g, 60G) * 8G RAM * 1 core /2 Processor * 2 NICs * VM Name = NETW2500-MS01 * **Completed VM Description** |
| 8 | Server 2 has correct settings and software.   * Correct version = Server 2019 CORE * Hostname = DC01A2U24 * Domain = Initials.netw2500.ca * IP Settings =   + NIC 1 = 192.168.208.12 /24   + Gateway = 192.168.208.2   + DNS:     - Primary = DC NIC 1     - Secondary = DC NIC 2 * Correct time zone * Turn Off IE Enhanced Security **for Administrators ONLY** * Install 7-zip and Notepad ++ * Pin PowerShell Console to your Taskbar |
| 10 | Server Demo as per comprehensive marking. |
|  | **Task 3 – Workstation Install** |
| 4 | Virtual Machine has correct system settings for **workstation**.   * 1 Disks (60G-150G) * 4G RAM * 1 core /2 Processor * 2x NICs = NAT * VM Name = naming convention * **Completed VM Description** |
| 5 | **Demo** of Client created and configured correctly (NOT in the Domain) |
| 3 | VMX lines added for each server and client. |
| 3 | Snapshots captured and named correctly for all 3 nodes (Domain Controller, Member Server and client) |
|  | **Documentation** |
| 12 | Captures commands and results in **S1ConfigReport.txt.** Results reflect the correct information: (marks for command and correct results)   * Hostname (1 mark) * Net user Administrator (1 mark) * Get-Service adws,kdc,netlogon,dns (2 marks) * Get-ADDomainController (1 marks) * Get-Domain *YourDomainNameHere* (2 marks) * Get-SMBShare SYSVOL (1 marks) * Dcdiag /test:dns (2 marks) * Get-NetIPConfiguration (2 marks) |
| 4 | Captures commands and results in **S2ConfigReport.txt.** Results reflect the correct information: (marks for command and correct results)   * Hostname (1 mark) * Net user Administrator (1 mark) * Get-NetIPConfiguration (2 marks) |
| 3 | Gold copy properties included for each server and client created and named and located correctly. |
| 2 | Document meets all professionalism requirements as per page 1 |
| **85** | **Total Marks for Rubric 2** |
| **15** | **Total Marks for Rubric 1 (Recommendation, design and testing documents)** |
| **100** | **Total Assignment Marks.** |

*\*Remember. All screenshots must be meet professionalism requirements and all responses and documentation will be evaluated for professionalism, content and accuracy.* ***Please present ALL screenshots in the order with which they are requested in the Task.***

## APPENDIX A

## Create a Domain Controller Checklist

* Determine Node requirements
* Create a design and planning document
* Create a testing plan
* Install required OS
* Install all recommended updates
* Assign Static IP(s)
* Install AD DS Role (with DNS if required)
* Promote and add to Forest (new or existing)
* Configure as required in planning documentation
* Complete testing as identified in testing plan
* Troubleshoot any issues
* Complete testing plan again to confirm all troubleshooting is completed

## DCPROMO.exe

The following command and script file will install a new forest and domain and promote the domain to a PDC.

It will show you all the steps completed during the domain creation and promotion process.

Command

dcpromo.exe /unattend:C:\DcPromoScipt.txt

Unattended Script. (called DCPromoScript.txt)

[DCInstall]

ReplicaOrNewDomain=Domain

NewDomain=Forest

NewDomainDNSName=YourInitials.netw2500.ca

ForestLevel=7

DomainNetbiosName= YourInitials

DomainLevel=7

InstallDNS=Yes

ConfirmGc=Yes

CreateDNSDelegation=No

DatabasePath="C:\Windows\NTDS"

LogPath="C:\Windows\NTDS"

SYSVOLPath="C:\Windows\SYSVOL"

SafeModeAdminPassword=Passw0rd

RebootOnCompletion=Yes

## Remove DC role from Domain Server

“Uninstall-ADDSDomainController -DemoteOperationMasterRole -LastDomainControllerInDomain -RemoveApplicationPartition”

Remove-WindowsFeature DNS -Restart

Uninstall-ADDSDomainController

Now you can add your server to a work group.

A screenshot of a computer

Description automatically generated with medium confidence

Image 1: New User Creation

A screenshot of a computer

Description automatically generated with medium confidence

Image 2: User Description