Assignment of OSP&A (ITP4509)

(2020-2021)

Deadline: 12 April 2021 (Mon) 11:55pm.
Archive and Submit (1) Written Report, (2) Scripts in separate files and (3) MD5 checksum, *i.e.* checksum.txt.
The configured VMs (the Windows server together with the windows clients) will be demonstrated in the lab session.

Objectives:
Through this assignment, you should demonstrate your ability in:

- *setup a Domain Controlled computer system,*
- *managing AD Users and Group permission*
- *Domain Policy configuration,*
- *registry configuration,*
- *regular expressions,*
- *automate the administrative tasks using PowerShell scripts.*

Pre-requisite:

	Domain controller WinServer 2012R2	Trainee Computers Windows 7/8.1/10	Trainer Computers Windows 7/8.1/10
Domain	EndGame*αββ*.com*	EndGame*αββ*.com*	EndGame*αββ*.com*
Computer Name	CentralServer	EG-A01…EG-A20 EG-B01…EG-B20	EG-T01 EG-T02
IP Address	192.168.10.1	192.168.10.11 to 192.168.10.50	192.168.10.6 and 192.168.10.7
Subnet Mask	255.255.255.0	255.255.255.0	255.255.255.0
Default Gateway	192.168.10.254	192.168.10.254	192.168.10.254
Preferred DNS	192.168.10.1	192.168.10.1	192.168.10.1

* In the domain name "EndGame*αββ*.com", *αββ* represents your group and sequence inside the group. E.g. If you are the fourth student in group Z, you should set the domain name to "EndGameZ04.hk". *If your campus has provided a Domain.xlsx file, please follow the domain assigned in that*

file.

Scenario

You are the IT administrator of an education center named "EndGame". And you have received the request from your center manager about some accounts, server and desktops setup in order to facilitate the learning of trainee.

The following are the requirements of the configurations:

1. All the computers in the center will be managed by a domain controller. Windows Server 2012 R2 is employed to set this domain controller (DC).
2. There are 2 computer laboratories in the center, namely Lab A and Lab B. Each laboratory has 21 computers in total, 20 for the trainees and 1 for trainer. The operating system of the computers in the laboratories are Windows 7/8/10. The names of the computers are assigned in the format of "**EG-*€ψψ***" where, and ***€*** is from A to B representing the lab and ***ψψ*** is from 01 to 20 representing the seat number. The name of the trainer machine is "EG***€***-T01". You will **manually** join the desktop computer to the domain managed by the DC. *(Yet, you are required to **generate** the rest of computer accounts in the DC because you will not really setup all 40 Windows workstation VM in this assignment.)*
3. AD account will be created for each trainee/trainer according to information of the trainees and trainers that is provided. Two files of the users are provided for initial setting of the users. **StudentList2021.csv** is the information of the trainees in comma-separated-values format, while the **Trainers.txt** is the information of the trainers in text format.
   a. All the trainees can login to all computers in the laboratories except trainer's computer. I.e. For security reason, trainees are NOT allowed to login to any trainer's computer. Yet, trainers can login to any computer in the laboratories.
   b. Roaming profile is required for all the users.
   c. Creating Trainee's accounts from the **StudentList2021.csv**:
      i. The login ID has already been provided in csv and that will be used as the Logon Name of the Domain account.
      ii. The first name, last name, email address and phone number should be filled in the corresponding field of the account. The password need to follow the policy of minimum 8 characters with at least 1 numeric and 1 special character.
      iii. For easier management, a group called "**Trainees**" will be created for the trainees.
   d. Creating Trainer's accounts from the **Trainers.txt**.
      i. Regarding the trainer accounts, the login name is already provided in the text

file.

ii. The last name and HKID number of the trainer should be used to form the initial password, e.g. in the first record, the tutor is Chan Tai Man and his HKID is B657474(3), the default Password will be "chan$B657474" without the quote. Note that the first alphabet of the HKID number is in uppercase, the check digit together with the brackets are neglected, and the last name is in lowercase.

iii. Other information such as Last Name, First Name, Telephone Number will also be extracted and filled in the corresponding field of the AD User accounts

iv. For easier management, a group called "**OnlineTrainer**" will be created for the trainers.

4. The DC should provide a network share so that each user has his/her home folder to store his/her personal files.

a. All trainees and trainers will be assigned an individual share folder in \\CentralServer\personal\%username%\ where only the corresponding user has the full access rights and all other users (except those in Administrators group) will NOT have any access permission. The shared folder is automatically mapped as F: drive after the user login and each user will have a quota of 8GB at a warning level of 6GB.

b. All trainers will have an additional network share folder for collecting files at \\CentralServer\DropAndPick\%username%\ where ALL users will be able to put files in it but they cannot not read files uploaded by the other users. Only the corresponding owner of the DropAndPicker folder will have the permission to read and write as well as delete files in it. The network share \\CentralServer\DropAndPick will be automatically mapped as G: drive for ALL the users (including the trainees). Each trainer will have a quota of 40GB usage.

5. Regarding the workstation security,
   a. the following security policy/registry tweaks will be applied on the "trainee accounts".
      i. *Prevent Windows Update from Forcibly Rebooting Your Computer.*
      ii. *Registry editor" should NOT be accessible.*
      iii. *"Task manager" should NOT be accessible.*
      iv. *"Command prompt" should NOT be accessible.*
   b. the following security policy/registry tweaks are applied on ALL accounts.
      i. *Add Encrypt / Decrypt Options to Windows Right-Click Menu*
      ii. *Accounts will be suspended for 30minutes after 3 times wrong password entry.*

Deliverables

I. An archive (*.zip or .7z*) is submitted to Moodle on or before the deadline containing the following:

i) **A written configuration report (*.doc or .docx*)** on the overall setup plan of the system, especially the manual setup of the DC & desktop computers, and NTFS & share permissions setup of the directories should be provided.

You should have at least 1 DC, 1 Trainee's computer and 1 Trainer's computer for testing.

To provide evidence of your work, screen captures with descriptions should be provided in the report for ALL the critical setup of server and client computers. *Hints: In some of the appropriate steps, we expect you will mention the usages of the scripts that you are required to submit in point ii) below.*

ii) The parts highlighted above in **red** *(i.e. from last part of point 2 to point 4)* would normally be automated using PowerShell script. **Script files (*.ps1)*** for all the automation tasks need to be submitted. For easier identification of your scripts, the name of the script should be named properly with the task you are working with. (e.g. *the script file of the Task 3c should be named "3c_SetupTraineeAccount.ps1".*) ***(Note: You may use more than one script to accomplish a task. Besides, sufficient inline documentation is a good practice.)***

iii) **MD5 checksum**(s) of your VMs.
You should have created and configured at least 1 DC, 1 Trainer's computer and 1 Trainee's VMs in this assignment *(Note: You can prepare more VMs if necessary.)*. In some cases, we may require you to provide the VMs for further checking. To ensure you have not changed the VMs after the submission deadline, you are required to make MD5 checksums of your VMs. Before calculating the MD5 checksum, you should compress all VM files into one file (or one file for each VM). Then, PC users can use MD5checker (http://getmd5checker.com/download) for calculating the checksum. MacOS users can use the built-in command "md5" for the same purpose. **Please put the MD5 checksums of your VMs in a separate file named *Checksum.txt***.

II. A demonstration of your AD network (in VMs) and scripts is required in class. NO modification of your VMs is allowed after your submission to Moodle. Before the demonstration, you need to run the MD5 checksum software again in class to prove the VMs are identical to the submission in Moodle. (Marks will be deduced if discrepancy was found.) The MD5checker can be downloaded from http://getmd5checker.com/download. You should have at least 1 DC, 1 Trainer's computer and 1 Trainee's computer in different preconfigured for your demonstration. ***(Note: You can prepare more VMs if necessary.)***

III. You will need to keep the VMs of your work after submission, at least for two months and NO modification of your VMs is allowed after your submission to Moodle. Your lecturer may contact you later for these VMs to do further detail checking. (Marks will be deduced if VMs are not available or modified after submission.)

IV. Any kind of plagiarism are not allowed and you are liable to any consequence that caused. Besides, you will be possibly get ZERO mark in this module.