T Level Technical Qualification in Digital Support Services

Occupational specialism assessment (OSA)

Digital Infrastructure

All assignments

Provider guide

v1.1: Additional sample material
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SAM

T Level Technical Qualification in Digital Support Services
Occupational specialism assessment (OSA)

Digital Infrastructure

Provider guide

All assignments

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SAMPLE

Controls for this assessment

Assessment delivery

The Digital Infrastructure occupational specialism consists of 3 separate assignments.

The assignments are set by NCFE and administered by you, the provider.

The assignments will be released to providers for planning and preparation in advance of the windows:

- assignment 1 will be delivered on set times and dates across all providers
- assignment 2 will be delivered within a set 1 week window specified by NCFE after the set dates for assignment 1
- assignment 3 will be delivered on set dates and times across all providers after the window for assignment 2

Specific information for each assignment can be found below.

Electronic workbooks for each assignment to record all evidence against each task are included in the assignment materials. Providers must ensure that students are given the relevant workbook at the beginning of each assignment.

Students must complete the assignments independently and under supervised conditions, as per the specific guidance for each assignment provided below.

Students and tutors are required to sign a declaration of authenticity for each assignment to confirm that the work is their/the student's own. A single declaration form is sufficient for all tasks within one assignment. The declaration forms can be found on the NCFE website. This is to ensure authenticity and to prevent potential malpractice and maladministration. Students must be made aware of the importance of this declaration and the impact this could have on their overall grade if the evidence was found not to be the student's own work. Tutors must be aware that by signing the declaration, they are validating it is the student's own work.

At the end of each supervised session, the tutor must collect all evidence and any other materials before students leave the room, to ensure that no student takes any external assessment material or assessment evidence out of the room. This also includes sufficient monitoring and checks to ensure that students have not made materials available to themselves or anyone else electronically via the intranet or internet.

External assessment materials should be securely stored between supervised sessions. Students must not have access to this area between the supervised sessions, including electronic files and physical hardware.

SAMPLE

Assignment 1

Controls

The tasks for this assignment will be delivered over 3 days, on the dates and times specified by NCFE.

Students have 13 hours to complete all tasks within this assignment.

Task 1 = 3 hours (this will be completed in 1 session on day 1)

Task 2 = 5 hours (this will be provided after completion of task 1 and be completed in 2 sessions on day 2)

Task 3 = 5 hours (this will be provided after completion of task 2 and be completed in 2 sessions on day 3)

Students must work independently and under supervised conditions.

Students must be given a separate user account that is locked at the end of each assessment session.

Internet access is allowed for task 2 and task 3.

Students must use the electronic workbook to record all evidence against each task; the workbook is included in the assignment 1 materials provided by NCFE.

All print screens must be numbered and linked to the task as stated in electronic workbook.

Evidence must be returned to NCFE by the date specified and will be marked by NCFE.

Resources

Providers need to ensure that students have access to the following resources:

- internet (task 2 and task 3 only – privacy mode must be disabled, and policies applied to prevent deletion of browsing history)
- word processing software
- Visio, Packet Tracer or another diagramming tool
- project planning tool that can produce a project plan and Gantt chart, for example Microsoft Project

SAMPLE

Assignment 2

Controls

The assignment will be delivered within a set 1-week window, specified by NCFE.

Students have 6 hours to complete all tasks within this assignment.

Providers must schedule 2 sessions, each lasting for 3 hours, to ensure that all students complete all tasks by the end of the window.

Students must work independently and under supervised conditions.

Students must be given a separate user account that is locked at the end of each assessment session.

Internet access is **not** allowed.

Students must use the electronic workbook to record all evidence against each task; the workbook is included in the assignment 2 materials provided by NCFE.

All print screens and photographs must be numbered and linked to the task as stated in electronic workbooks.

Students must take all photographs on a digital camera provided by the provider. Students are **not** allowed to use their mobile phones.

Evidence must be returned to NCFE by the date specified and will be marked by NCFE.

Resources

Providers need to ensure that students have access to the following resources:

- digital camera (if working using physical machines)
- word processing software
- virtual machine (VM) test environment or physical environment (see further details below)
- server operating system installation media – iso, memory stick or optical disk
- desktop operating system installation media – iso, memory stick or optical disk
- server and desktop operating systems
- desktop virtualisation software (for example, Hyper-V, VirtualBox and VM Workstation)

Test environment

The task can be carried out using either virtualisation software or physical computers. The following information will help when creating and managing the test environment. Whichever approach is used, it is the provider's responsibility to test and configure the equipment prior to the assessment.

Minimum system requirements

If you decide to run the assessment using virtualisation, then the following system requirements should serve as a guide:

- processor (Quad Core CPU, minimum specification i5 3GHz, i7 recommended or equivalent)
- memory (minimum 16GB DDR3 memory)
- storage (dedicated hard disk or SSD for the storage of the VMs)

SAMPLE

- operating system: Windows 10, Windows Server 2016, Windows Server 2016 (Hyper-V must be installed and available)

For the physical installation:

- a 4 port network switch
- four physical PCs:
  - processor (Dual Core CPU, minimum specification i3 2.5GHz)
  - memory (minimum 2GB DDR3 memory)
  - storage (60GB minimum)
- Server02 should have 2 physical hard disks
- PC02 should be pre-installed and configured with an operating system

Virtualisation approach

The use of the virtualisation software is not assessed; this means that if a student has any questions or issues regarding the VM application, guidance can be given by the provider. Any assistance regarding the guest operating system, for example Server01, is **not** permitted.

A sample sets of VMs have been provided using VirtualBox.

Virtual Machines Server01, Server02 and PC01 are empty starter VMs with no operating system installed.

Virtual Machine PC02 **will** require the installation and configuration of the guest operating system before distribution to students. This is to facilitate the provider's own software used for the assessment, for example Windows 10 or Ubuntu.

If you decide to use an alternative product, this must be set up in accordance with the following guidance:

- Server01 – 2 CPU cores, 2gb memory, with minimum 60GB disk
- Server02 – 2 CPU cores, 2gb memory, 2 hard disks with minimum 60GB per disk
- PC01 – 2 CPU cores, 1gb memory, one hard disk with minimum 60GB per disk
- PC02 – 2 CPU cores, 1gb memory, one hard disk with minimum 60GB per disk
- all machines set for host-only network

SAMPLE

Assignment 3

Controls

The tasks for this assignment will be delivered over 2 days, on the dates and times specified by NCFE.

Tasks 1, 2 and 3 will be administered on day 1. Internet access is **not** allowed.

Task 4 will be administered on day 2. Internet access is allowed.

Students have 5 hours 30 minutes to complete all tasks within this assignment.

Task 1 = 2 hours (this will be completed in one session on day 1).

Task 2 = 45 minutes (this will be provided after completion of task 1 and be completed in one session on day 1).

Task 3 = 45 minutes (this will be provided after completion of task 2 and be completed in one session on day 1).

Task 4 = 2 hours (this will be provided after completion of task 3 and be completed in one session on day 2).

Students must work independently and under supervised conditions.

Students must be given a separate user account that is locked at the end of each assessment session.

Students must use the electronic workbook to record all evidence against each task; the workbook is included in the assignment 3 materials provided by NCFE.

All print screens must be numbered and linked to the task as stated in electronic workbook.

Evidence must be returned to NCFE by the date specified and will be marked by NCFE.

Resources

Providers need to ensure that students have access to the following resources:

- a computer capable of running virtual machines via a hypervisor
- processor (Quad Core CPU, minimum specification i5 3GHz, i7 recommended or equivalent)
- memory (minimum 8GB DDR3 memory)
- storage (dedicated hard disk or SSD for the storage of the VMs)
- specimen virtual machines set up on each student PC prior to the assessment commencing (see appendix 1 below)

Task 1

- office floor plan
- risk assessment template
- virtual server, client and network configuration files (the virtual network files must be copied and tested as working prior to the start of the assessment)
- word processing software

Task 2

- word processing software

SAMPLE

Task 3

- word processing software

Task 4

- students will need access to the same virtual servers and PCs that were used in task 1
- internet access (privacy mode must be disabled and policies applied to prevent deletion of browsing history)
- word processing software

SAMPLE

Appendix 1

Virtual computer setup

To complete assignment 3 task 1 and task 4, students require access to a computer and a server machine. These should be virtualised computers downloaded from NCFE. The following steps should be run on all student PCs.

Setup the virtual switch

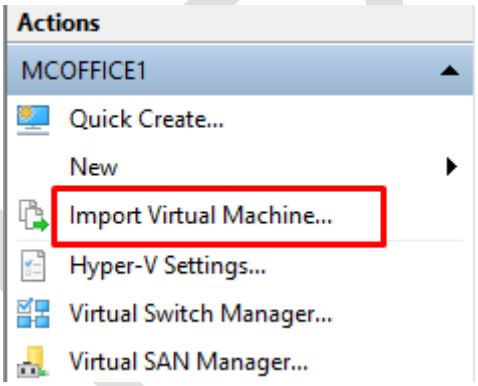
To allow virtual machines to communicate with each other, they must be placed on the same virtual switch. To create the virtual switch, complete the following actions on each computer to be used by students for the assignment.

1. Open PowerShell as an administrator
2. Run the following PowerShell command: **New-VMSwitch -name InternalSwitch -SwitchType Internal**
3. Close the PowerShell window

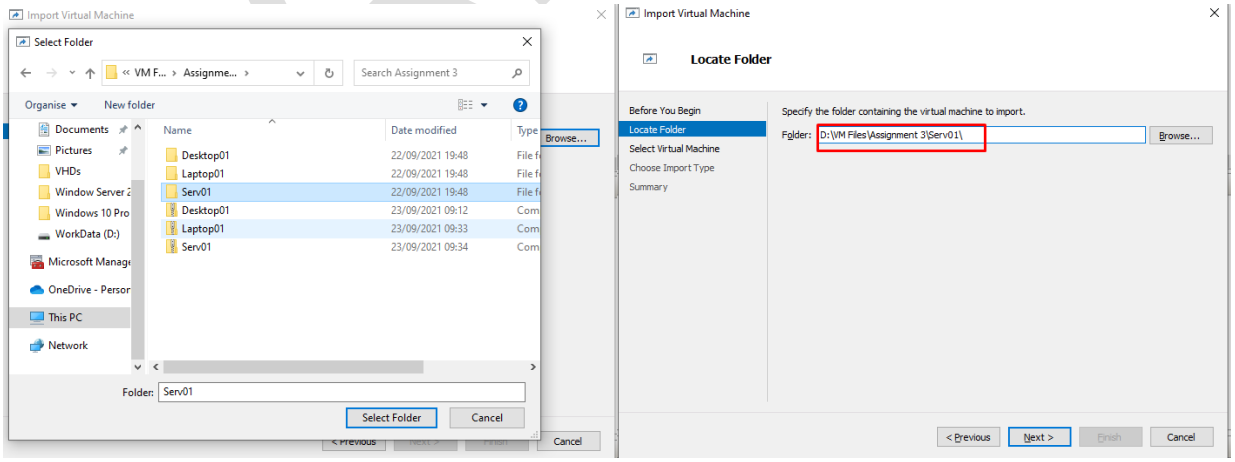
Extracting the Virtual PCs

Once downloaded and extracted the VMs should be imported into Hyper-V on each of the student's PCs.

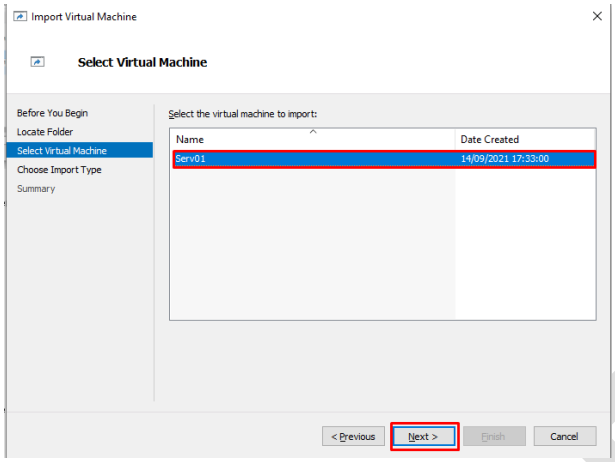
1. In Hyper-V select 'Import Virtual Machine'



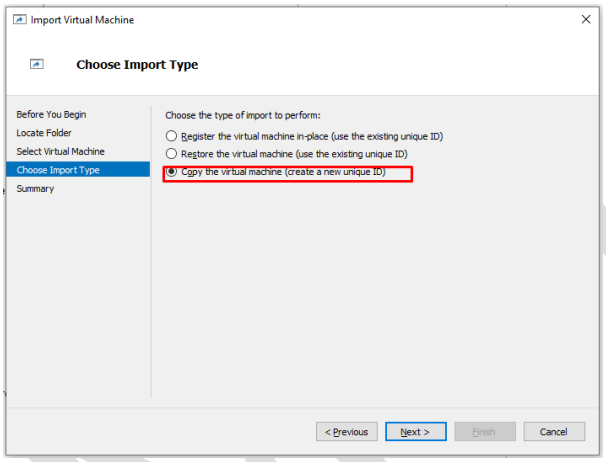
2. Browse to locate your extracted server



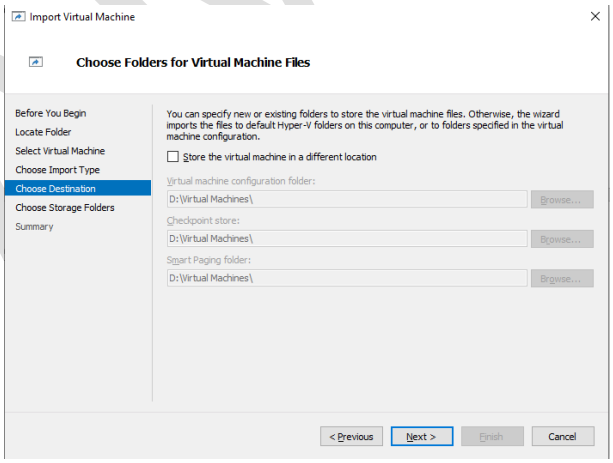
3. Select the server to import it



4. Select 'copy the Virtual Machine' when prompted

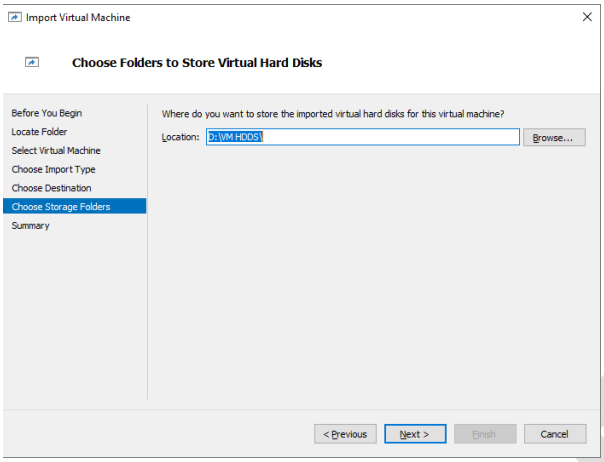


5. Choose an appropriate save location or choose the default

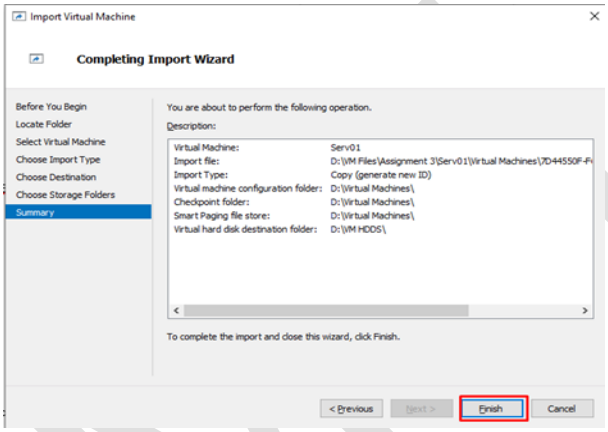


SAMPLE

6. Choose an appropriate location to save the virtual hard drive or select the default location

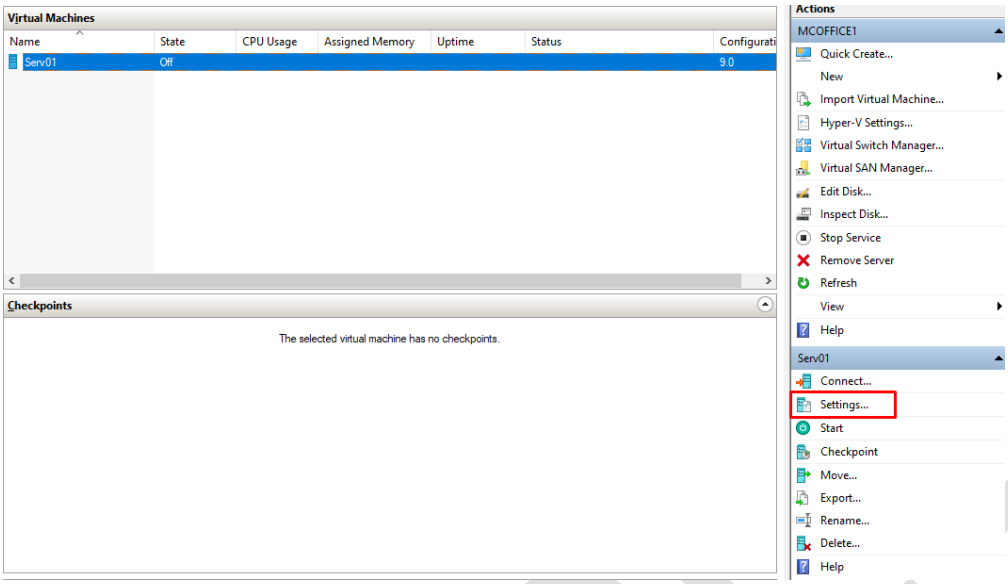


7. Select finish to complete the import

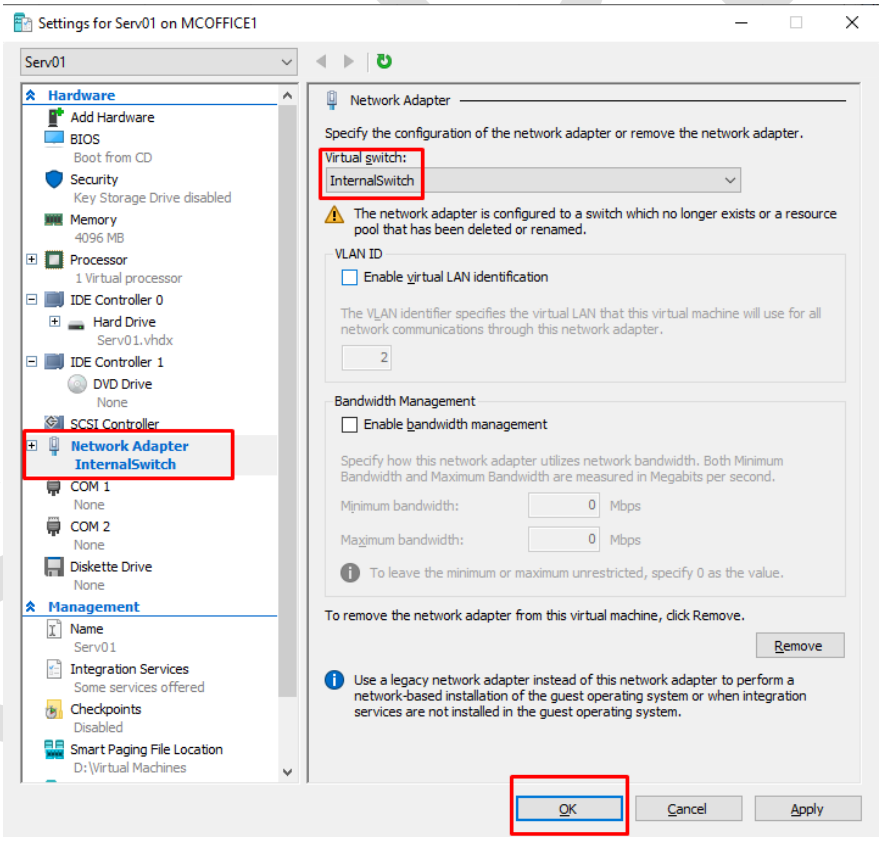


SAMPLE

8. Virtual machines must be connected to the InternalSwitch. Right click on each virtual machine and select **Settings**



9. In the Settings menu select the Network Adapter setting and then select the InternalSwitch in the drop-down menu and click OK.



You should repeat the process for importing the client Desktop PC and Laptop PC.

You should test to ensure you are satisfied the Virtual PCs are running correctly.

If one of the VMs is showing as out of grace period for licensing, the grace period can be reset at the command prompt with the command: **slmgr/rearm**

The VMs have been configured as follows:

Virtual Machine Login Details/Configuration Issues

==========

Server

Computer Name: **Serv01**

Local Administrator: **administrator / Pa$$w0rd**

Users	Account	Password	Role
Charlie Mears	CharlieM	1Password	Domain Admins
Jessica Smith	JessicaS	1Password	Accountants
Marco Shelvey	MarcoS	1Password	Partners
Natalia Remy	NataliaR	1Password	Reception
Isaac Ashton	IsaacA	1Password	Juniors
Noah Wilson	NoahW	1Password	Juniors

Groups:

Current documented Active Directory group membership:

Group	Members
IT	Charlie Mears
Accountants	Jessica Smith
Partners	Charlie Mears, Marco Shelvey
Reception	Natalie Remy
Juniors	Isaac Ashton, Noah Wilson

Desktop PC01

Computer Name: **PC01**

Local Administrator: **administrator / Pa$$word**

Desktop PC02

Computer Name: **PC02**

Local Administrator: **NoahW / 1Password**

SAMPLE

Network Drives

Shared drive – all users can access all files.

Junior user account is promoted to Admin without good reason.

Issues

=======

No Anti-virus

No Anti-malware

Windows Defender definitions outdated

Windows updates not run

Disk encryption would be beneficial

Manual configuration

In the event that the VMs cannot be downloaded, use the following to build the VMs. It is not important what Hypervisor is used.

Server

Sample VMs have been created with Windows Server 2016 Standard Edition.

If required, an evaluation ISO can be downloaded from:

www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2016

Minimum Specification

Memory: 2048 MB RAM to be allocated (4096+ recommended).

Storage: 20GB (120GB recommended)

Network adapter: An internal network adapter should be connected to the internal switch.

In a production environment it would be expected that the server would be specified far higher than this but this minimum specification will allow the scenario to run without overloading the host computer.

Server configuration

On installation of Server 2016 Standard Edition the hard drive should be partitioned as follows:

C:\ - 20GB Partition (minimum)

Windows should be installed into the C:\ partition.

For ease of use, all passwords are to be set according to the specifications in the previous section.

Once installed, the server should be configured using the following settings.

Server Name: Serv01

Network IP Address: 192.168.1.7

SAMPLE

The server should be promoted to hold the following roles:

DHCP

Configure to use the 255.255.0.0 Subnet

Address Pool – 192.168.0.0 to 192.168.0.254

DNS – local DNS server for forward lookup (192.168.1.2)

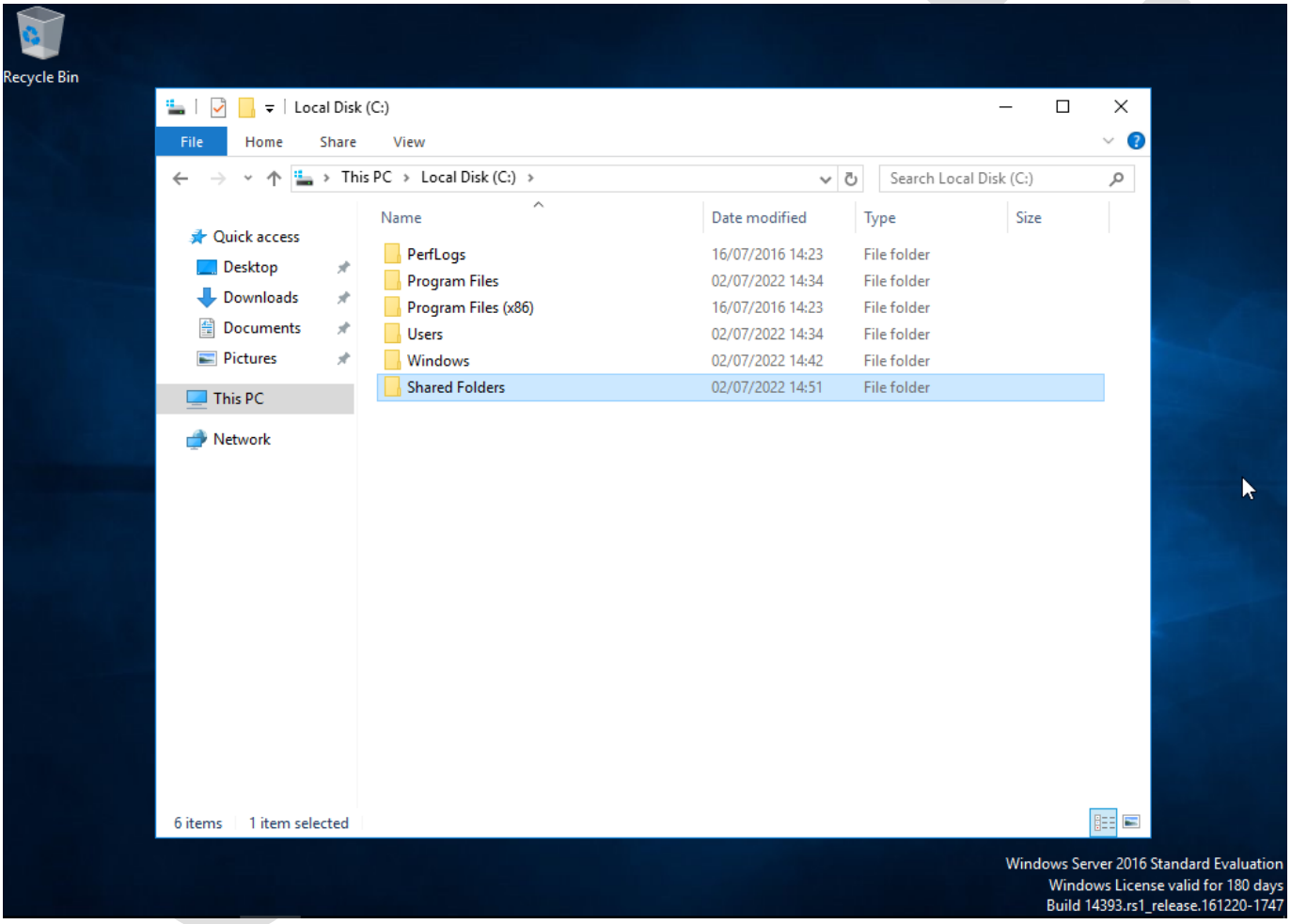
Active Directory Domain Controller

Domain name: doubleupbookkeeping.co.uk

All passwords should be set as the configuration guide in the previous section.

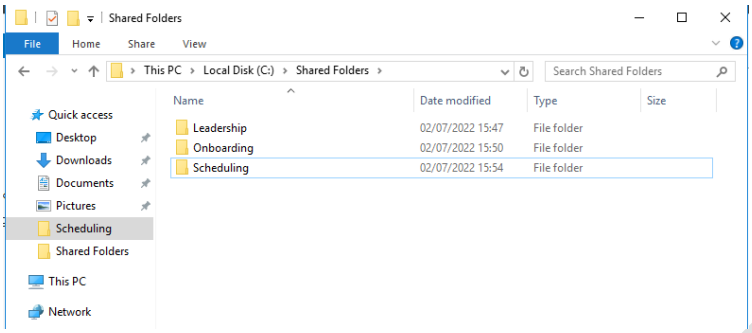
Server

On the server create a shared folder on the C:\ drive

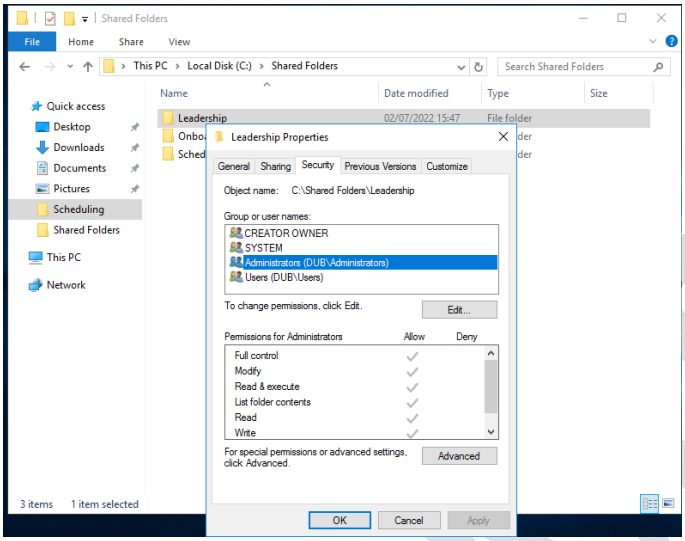


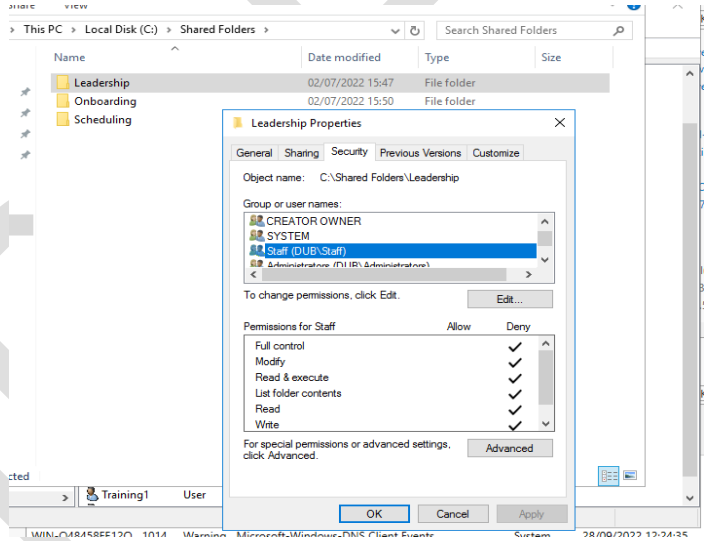
In the shared folder create the following folders:

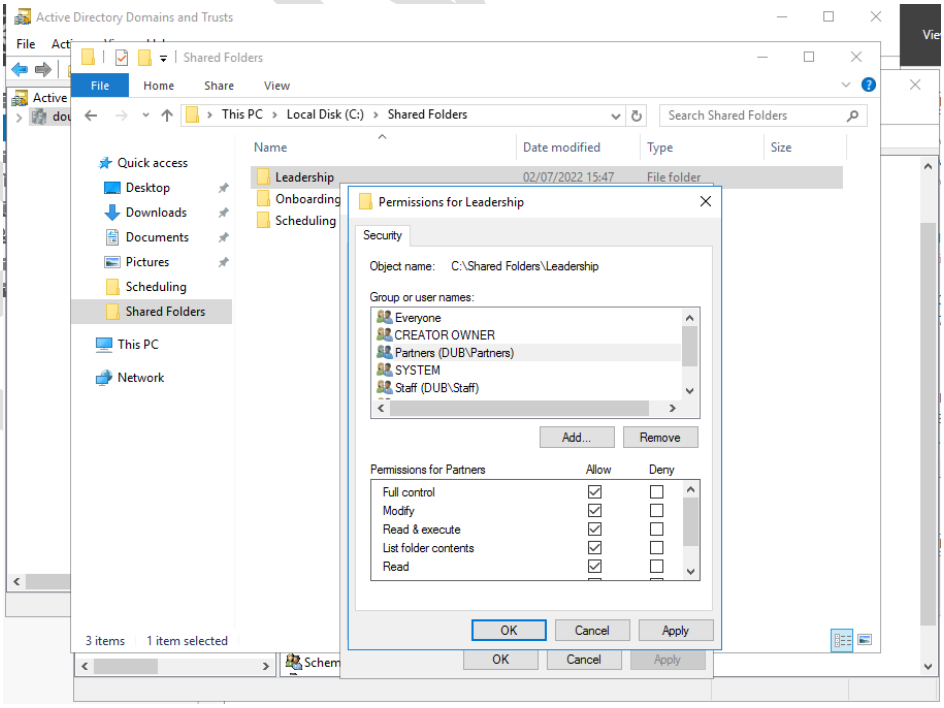
- Leadership
- Onboarding
- Scheduling



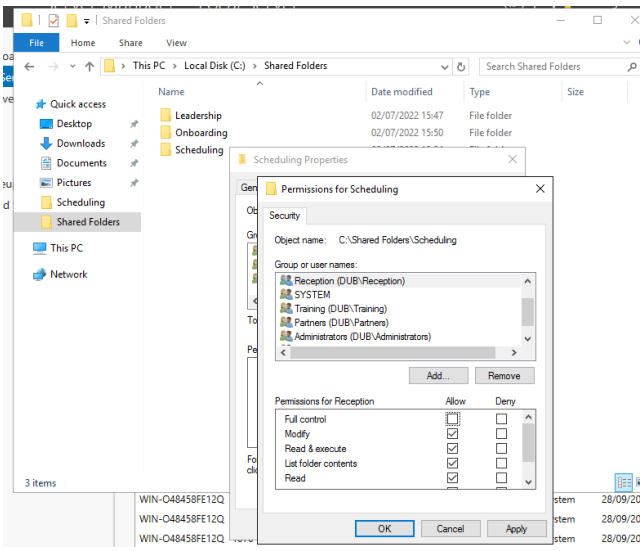
Share permissions for the Leadership folder are as follows:

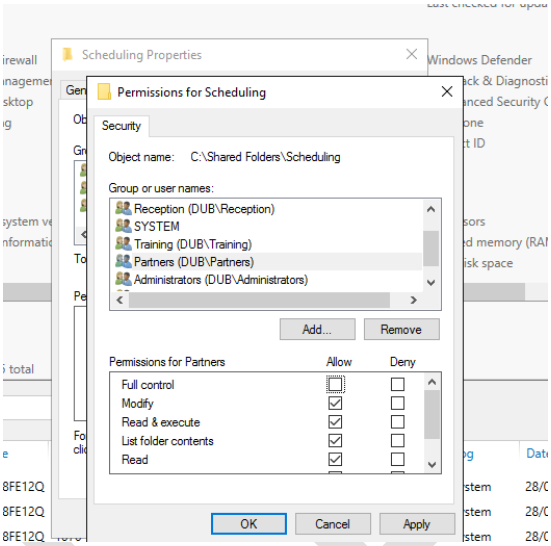


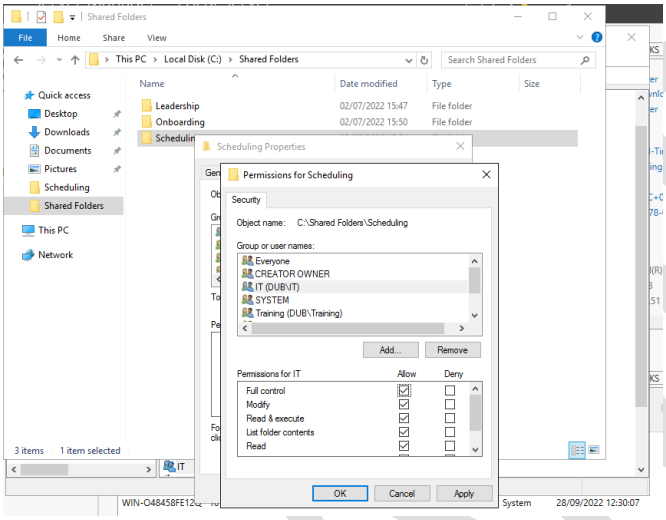


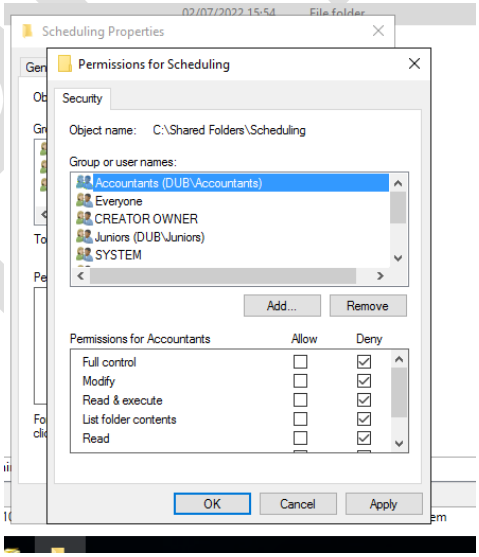


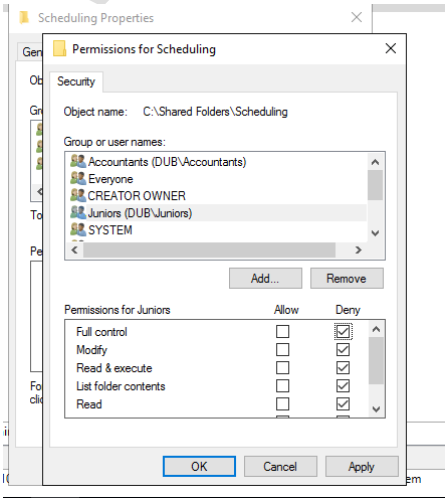
Share permissions for the Scheduling folder are as below, with Administrators having Full control.



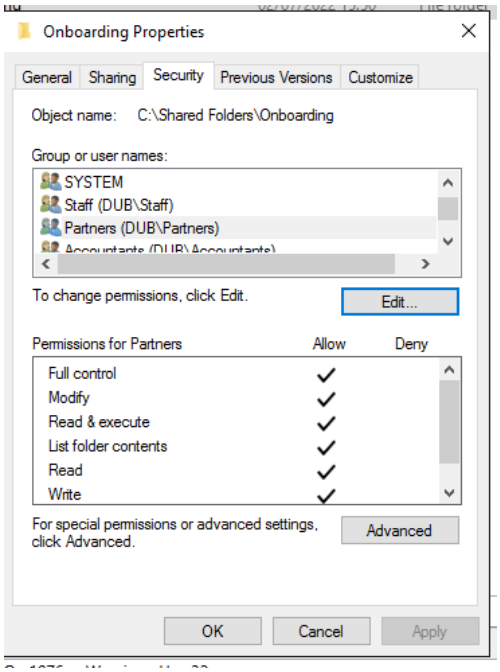


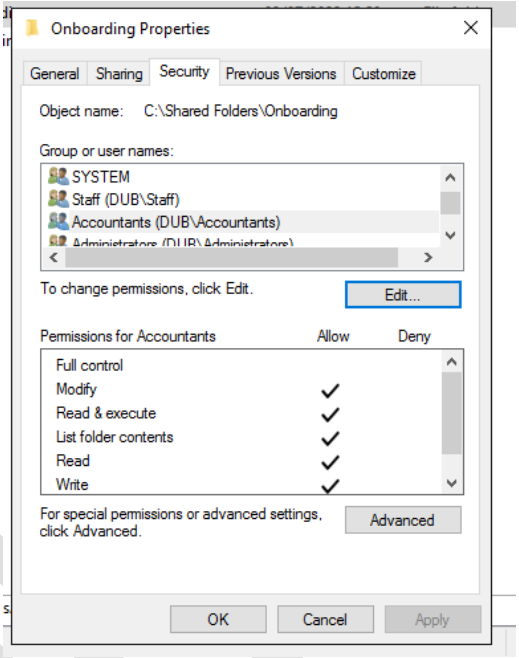


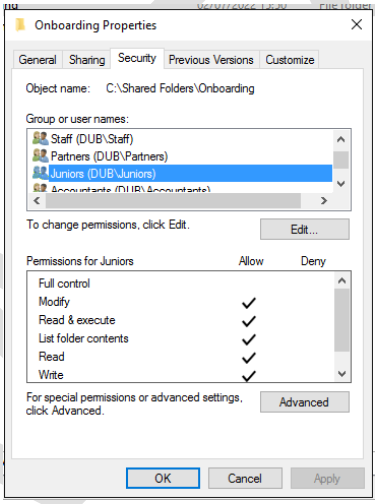




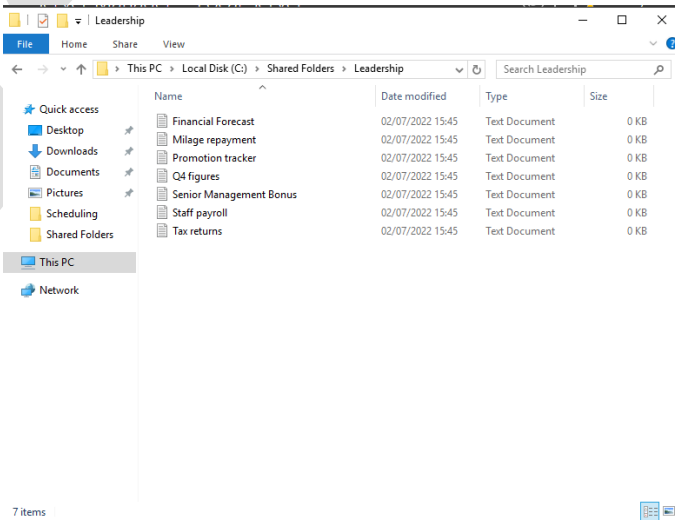
The Onboarding folder is assigned the following permissions:



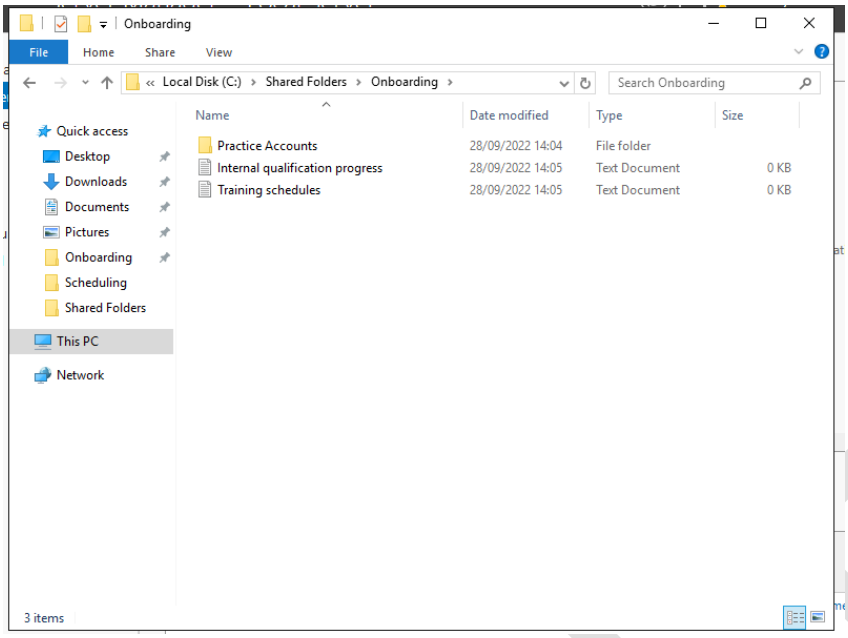




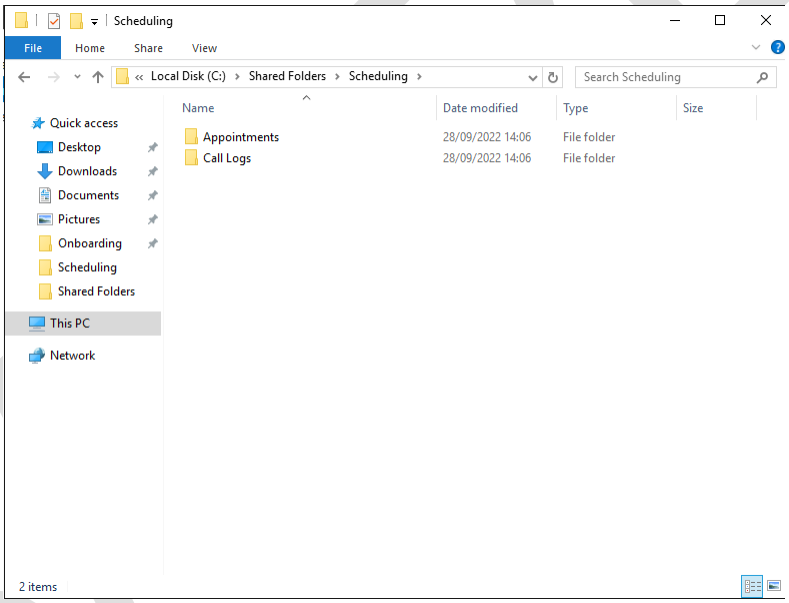
The Leadership folder should contain documents that look private:



The Onboarding folder should contain relevant documents:

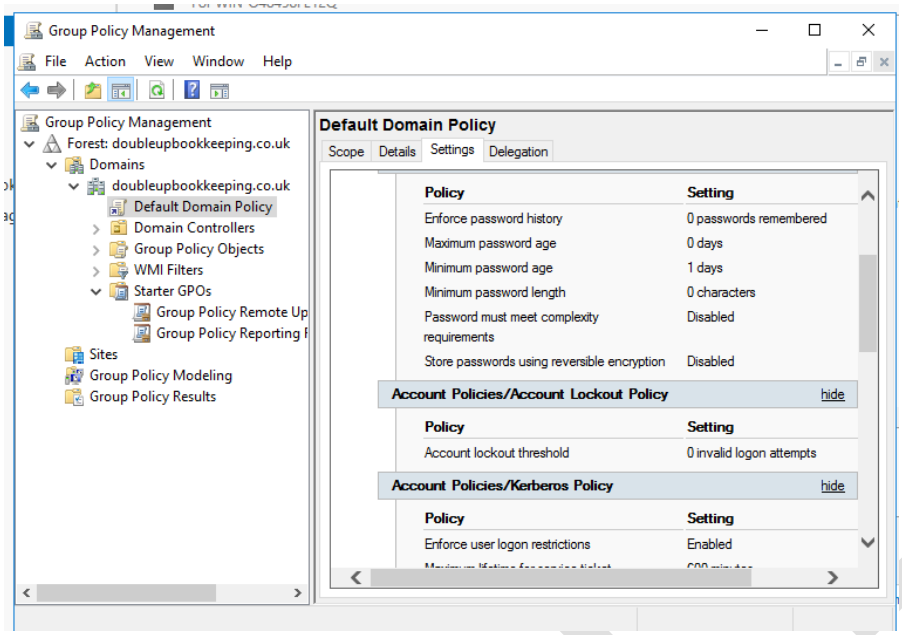


The Scheduling folder should contain the following folders:



#

Insufficient security policies have been configured on the server:



SAMPLE

Desktop PC01 configuration

Sample VMs have been created with Windows 10 Professional Edition.

If required, an ISO can be downloaded from:

www.microsoft.com/en-gb/software-download/windows10

Minimum specification

Memory: 2048 MB RAM to be allocated (4096+ recommended)

Storage: 20GB

Computer Name: Desktop01

Join the PC to the **Doubleupbookkeeping** Domain

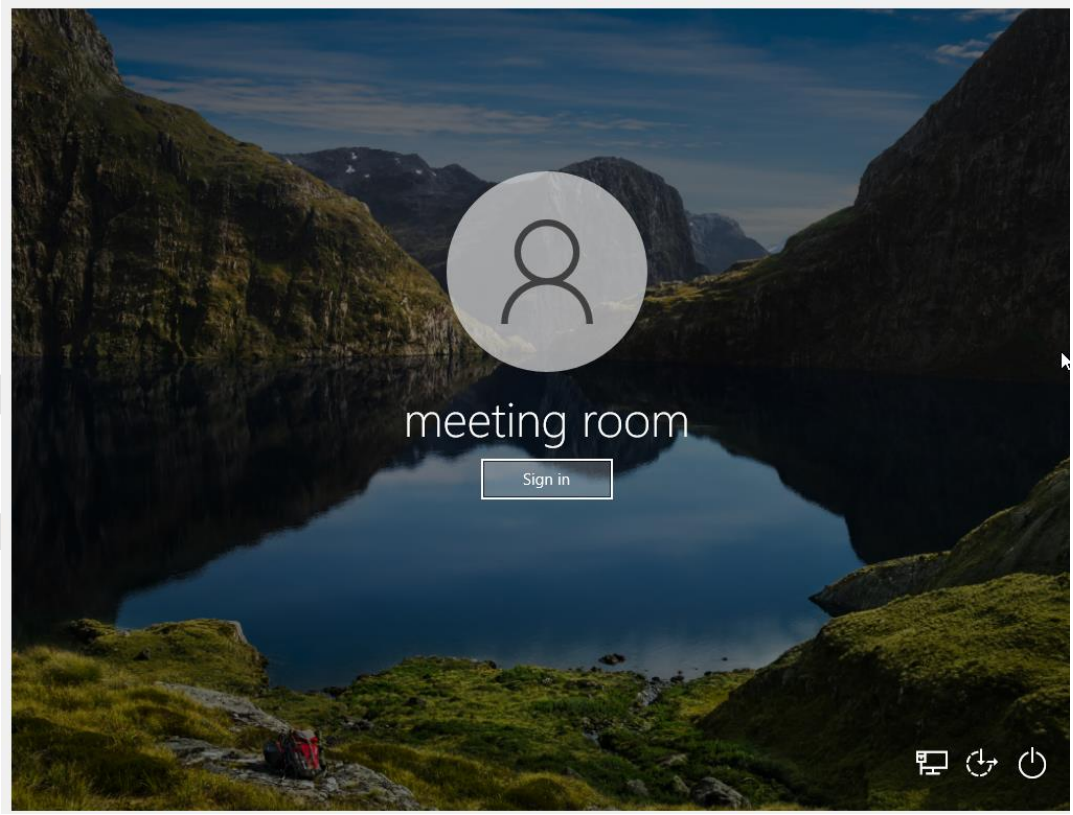
Local administrator details should be set according to the settings in the previous section.

Configure the following:

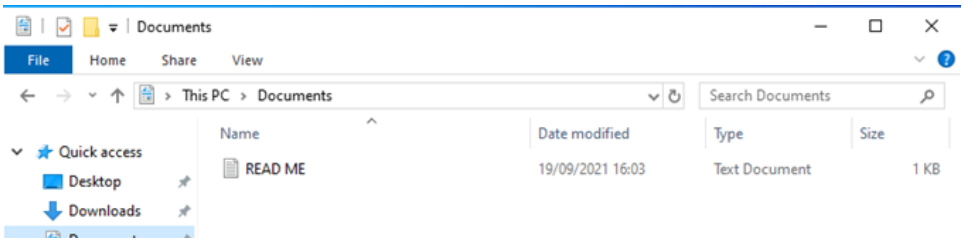
- shared drives should be mapped
- read me file in the documents folder instructing students about security issues (permission to view all shares and files on network, leaked administrator password)

PC01

Default login should be meeting room:



A read me file should be available in the documents folder:



SAMPLE

Desktop PC02 configuration

Sample VMs have been created with Windows 10 Professional Edition.

If required, an ISO can be downloaded from:

www.microsoft.com/en-gb/software-download/windows10

Minimum specification

Memory: 2048 MB RAM to be allocated (4096+ recommended)

Storage: 20GB

Computer Name: PC02

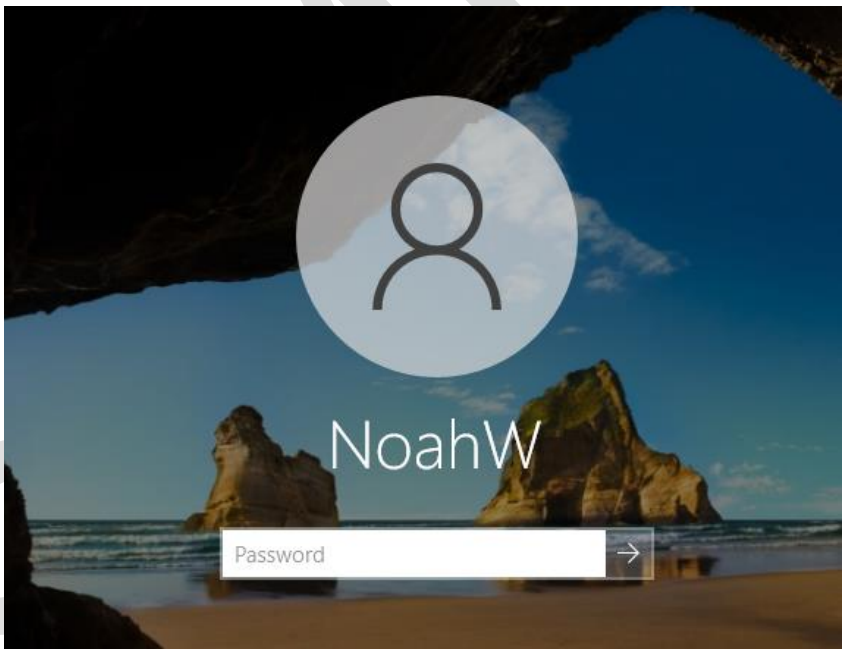
The desktop **is not** joined to the domain.

Local administrator details should be set according to the settings in the previous section.

Configure the following:

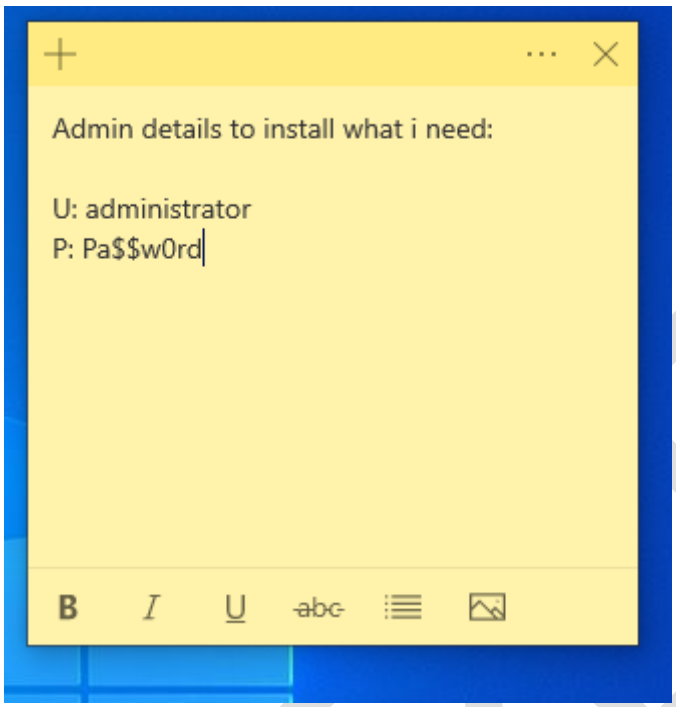
- shortcut to inappropriate website on desktop (http://www.torrentzworld.com)
- sticky note with administrative username and password on
- Noah's password is '1Password'

Default login should be Noah:

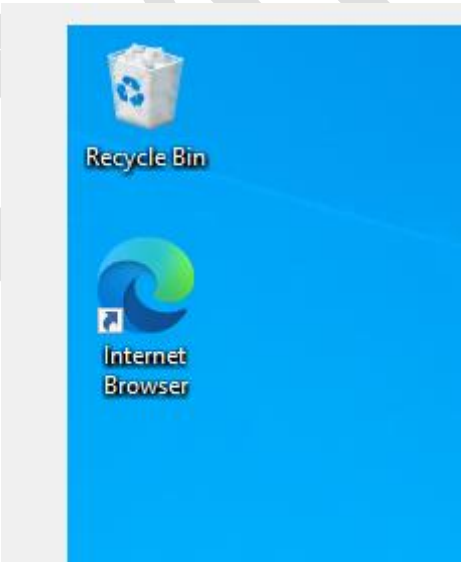


SAMPLE

A Sticky Note should be visible on the desktop:

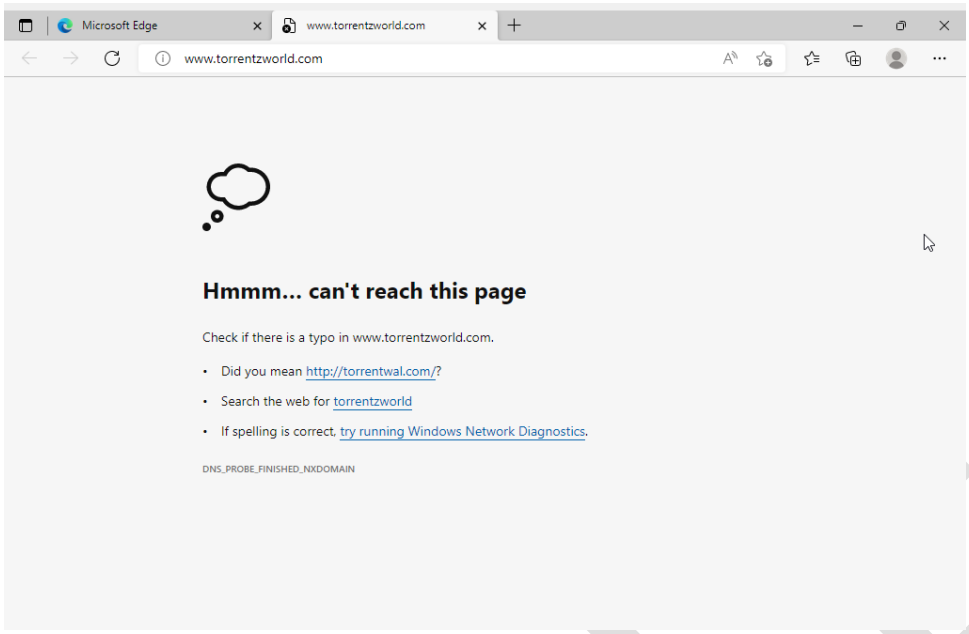


A shortcut to the Internet Browser should be available on the desktop:



When clicked it takes the user to an inappropriate website:

SAMPLE


Microsoft Edge
www.torrentzworld.com
www.torrentzworld.com
Hmmm... can't reach this page
Check if there is a typo in www.torrentzworld.com.
Did you mean http://torrentwal.com/?
Search the web for torrentzworld
If spelling is correct, try running Windows Network Diagnostics.
DNS_PROBE_FINISHED_NXDOMAIN

SAMPLE

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Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Additional sample material		01 September 2023
v1.1	Sample added as a watermark	November 2023	17 November 2023

SAMPLE