

Occupational specialism assessment (OSA)

# **Digital Infrastructure**

Assignment 2 - Distinction

Guide standard exemplification materials

v2.0: Specimen assessment materials 19 June 2023 603/6901/2

Internal reference: DSS-GSEM-02



T Level Technical Qualification in Digital Support Services Occupational specialism assessment

# Guide standard exemplification materials

### **Digital Infrastructure**

Assignment 2

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# Introduction

The material within this document relates to the Digital Infrastructure occupational specialism sample assessment. These exemplification materials are designed to give providers and students an indication of what would be expected for the lowest level of attainment required to achieve a pass or distinction grade.

The examiner commentary is provided to detail the judgements examiners will undertake when examining the student work. This is not intended to replace the information within the qualification specification and providers must refer to this for the content.

In assignment 2, the student must first consider a list of job requests and prioritise them, before actioning the requests. The second task requires them to produce an instructional document and video that can be used by new employees to the company.

After each live assessment series, authentic student evidence will be published with examiner commentary across the range of achievement.

# Assignment 2

# Scenario

Willow Technology is planning an upgrade on the backend servers. As part of this upgrade, a small test system needs to be developed that can be used to test the compatibility with the existing backend systems and explore the features of the latest server operating system.

During this assignment you will be required to undertake 2 practical tasks covering cable creation, and the installation and configuration for the new test system that will be used to simulate the new network.

# Task 1

It is recommended that you spend 20 minutes on this task.

(4 marks)

### Instructions for students

Before you create the test system, a custom length network cable needs to be created to enable the test system to connect to a network port.

You have been provided with a length of Cat5e ethernet cable, 4 x RJ45 ends and suitable cable creation tools.

You need to:

- create a straight through network cable
- provide annotated evidence that the cable has been created correctly
- test that the cable works and provide suitable evidence of the process of validating your cable
   You will have access to the following equipment:
- a 1m length of Cat5e ethernet cable
- four RJ45 connectors
- cable creation tools crimping tool, cable cutter
- network cable tester
- digital camera
- word processing software

### **Evidence required for submission to NCFE**

Annotated photographic evidence of the following stages of cable creation should be provided:

- both RJ45 ends have the strands of cable in the correct order and forming a good connection
- an image of each cable strand being tested on the cable tester to verify connection

Note: this will require 8 or 9 images depending on the cable testing device used.

### **Student evidence**

### Task 1

**RJ45 connected** 

All the copper connectors connect with the cable < Covered in the single photograph below > All the ends of the cable are arranged correctly

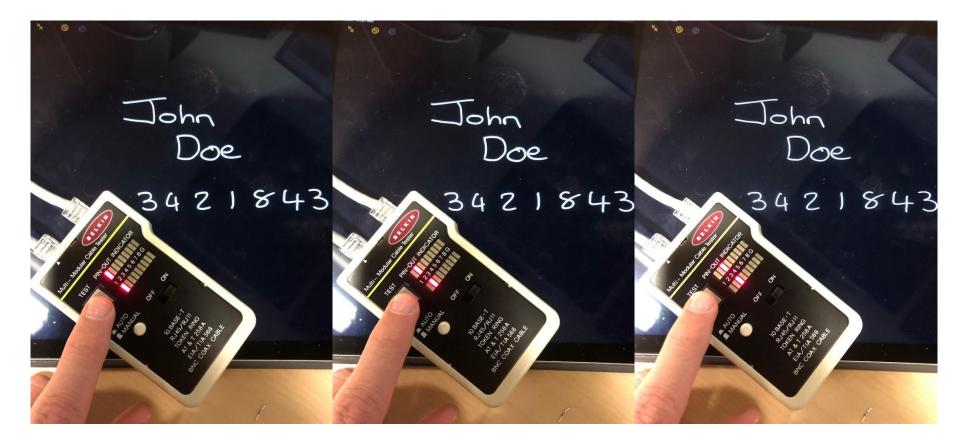


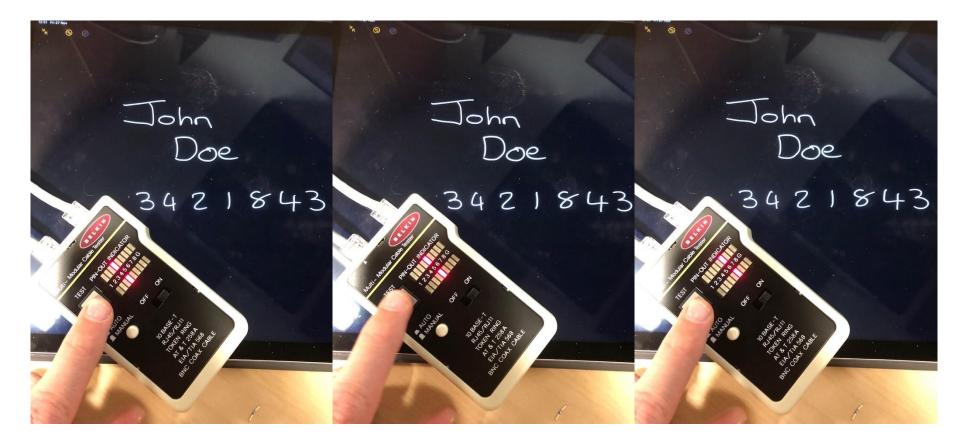
The plastic cover is at the right depth to catch under the fixing in the RJ45 end.

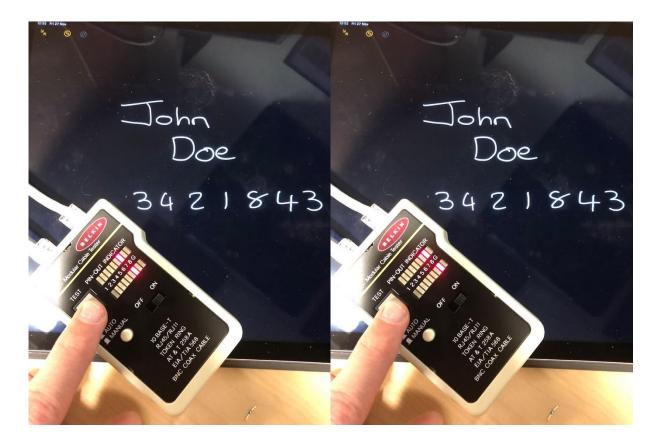


#### **Cable testing**

The cable tester lights show that each strand is working correctly.







These photos show that the cable is made correctly and tested as working. Each photo shows one of the pins and confirms a signal can be carried on each wire in the cable.

## Task 2

## **Essential information**

It is recommended that you spend 5 hours 40 minutes on this task.

### Equipment

You have been provided with 4 computers. These might be 4 physical machines, or 1 machine with 4 virtual machines. You are required to develop the test system based on the specification outlined by your line manager.

The following information regarding the implementation of the network has been provided:

- Server01 this will be the domain controller, DNS and DHCP server, no operating system installed
- Server02 secondary server, file server and another role server, no operating system installed
- PC01 desktop machine, no operating system installed
- PC02 desktop machine, operating system pre-installed
- one wireless device, for example, wireless printer, media sender or IP camera recommended
- one optional access point/wireless router/wireless print server
- In addition, you will have access to:
- digital camera
- word processing software
- sample files for step C

### **Network information**

The following information outlines the settings you will need to use when configuring the network:

- Subnet 255.0.0.0

- Server02 IP address 10.1.1.3
- DHCP scope 10.1.1.5-10.1.1.10
- default gateway 10.1.1.254 (no internet access provided)

### **Evidence required for submission to NCFE**

you must take print screens and/or photographs of the processes you have carried out

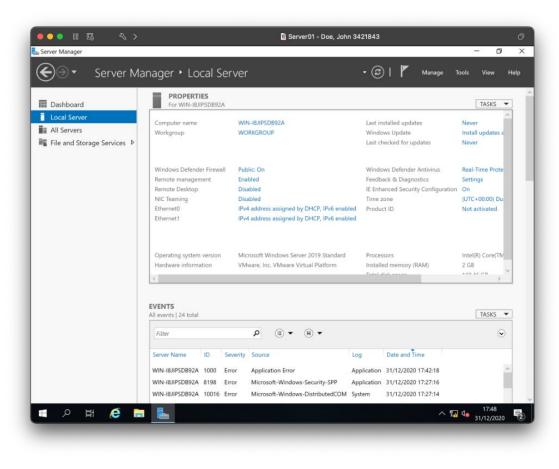
• use the tick box in the evidence required column to ensure that all the required print screens and/or photographs have been provided

## **Student evidence**

Step A

Server01 installation and configuration

This image demonstrated that the operating system has been installed



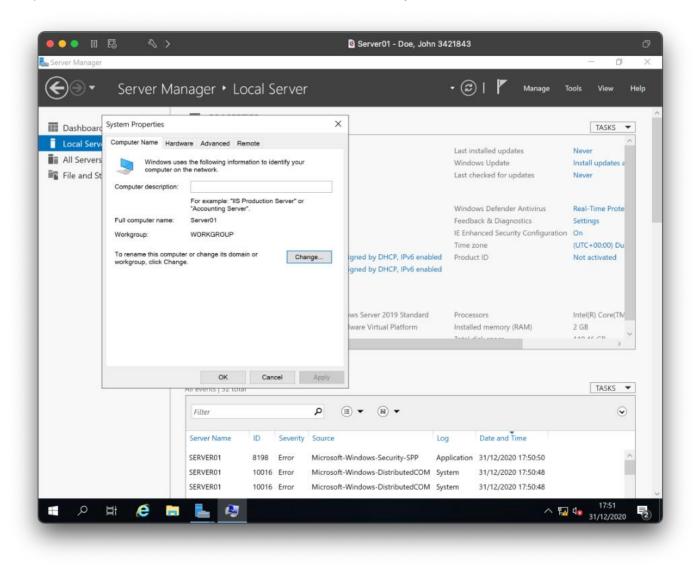
This photo demonstrates that I have selected the suitable region and language settings.

••• •• •• •• ••	Server01 - Doe, John 3421843	To release your mouse press: Control-#
4	Windows Setup	
	Windows Server <sup>*</sup> 2019	
	Language to install: English (United States)	
	Time and currency format English (United Kingdom)	
	Keyboard or input method: United Kingdom	
	Enter your language and other preferences and click "Next" to continue.	
	@ 2018 Microsoft Corporation. All rights reserved.	Next
L		
	<b>\</b>	
_		

This image demonstrates that I have configured the disk partitions.

Servers	DISKS All disks   2 total	TASKS 🔻
Volumes Disks	Filter P (ii) • (ii) •	$\odot$
Storage Pools	Number         Virtual Disk         Status         Capacity         Unallocated         Partition         Read Only         Clustered         Subsystem <ul></ul>	Bus Type
		NVMe NVMe
	<	3
	C Last refreshed on 31/12/2020 17:28:11  VOLUMES Related Volumes   1 total  TASKS VMware Virtual NVMe Disk on WIN-I8JIPSDB92A	TASKS -
	Last refreshed on 31/12/2020 17:28:11 VOLUMES STORAGE POOL	TASKS ¥
	Last refreshed on 31/12/2020 17:28:11 VOLUMES Related Volumes   1 total TASKS VMware Virtual NVMe Disk on WIN-I8JIPSDB92A	TASKS •

This photo demonstrates that the machine has been named correctly.



This photo demonstrates the fixed IP addressing set on the virtual machines.

erver Manager		Server01 - Doe, John	n 3421843	- 0
> -	nager • Local Ser	rver	• 🕲   🖡 Manage	Tools View
Dashboard	For Server01			TASKS 🔻
Local Server All Servers File and Storage Services ▷	Computer name Workgroup	Server01 WORKGROUP	Last installed updates Windows Update Last checked for updates	Never Install updates autor Never
	Windows Defender Firewall Remote management Remote Desktop NIC Teaming Ethernet0 Ethernet1	Public: On Enabled Disabled Disabled 10.1.1.1, IPv6 enabled 10.1.1.2, IPv6 enabled	Windows Defender Antivirus Feedback & Diagnostics IE Enhanced Security Configuration Time zone Product ID	Real-Time Protection Settings On (UTC+00:00) Dublin, Not activated
	Operating system version Hardware information	Microsoft Windows Server 2019 Standard VMware, Inc. VMware Virtual Platform	Processors Installed memory (RAM)	Intel(R) Core(TM) i9- 2 GB
	EVENTS All events   36 total			TASKS 🔻
	Filter	• (ii) • (ii)		۲
	SERVER01 134 Wa	verity Source arning Microsoft-Windows-Time-Service arning Microsoft-Windows-Time-Service	Log         Date and Time           System         31/12/2020 17:52:39           System         31/12/2020 17:52:36	2
	SERVER01 134 Wa	arning Microsoft-Windows-Time-Service	System 31/12/2020 17:52:24	

Server02 installation and configuration

This photo demonstrates that the operating system has been installed.

erver Manager		🗟 Server02 - Doe, Joh	n 3421843	- 0
€ • Server Ma	anager • Local Ser	ver	• 🕄   🚩 Manage	Tools View He
Dashboard	For WIN-3KAJS5B3403			TASKS 👻
Local Server All Servers File and Storage Services	Computer name Workgroup	WIN-3KAJS5B3403 WORKGROUP	Last installed updates Windows Update Last checked for updates	Never Install updates automat Never
	Windows Defender Firewall Remote management Remote Desktop NIC Teaming	Unknown Enabled Unknown	Windows Defender Antivirus Feedback & Diagnostics IE Enhanced Security Configuration Time zone Product ID	Unknown Settings Unknown (UTC+00:00) Dublin, Ed Unknown
	Operating system version Hardware information	Microsoft Windows Server 2019 Standard Unknown	Processors Installed memory (RAM) Total disk space	Unknown Unknown Unknown
	EVENTS All events ] 14 total	ب (≣ • (≅) •		TASKS V
	WIN-3KAJS583403 1000 Em WIN-3KAJS583403 8198 Em	F F	Log         Date and Time           Application         31/12/2020 17:           Application         31/12/2020 17:           System         31/12/2020 17:	27:49
· 오 바 🙋 🖬	<b>B</b> .			17:50

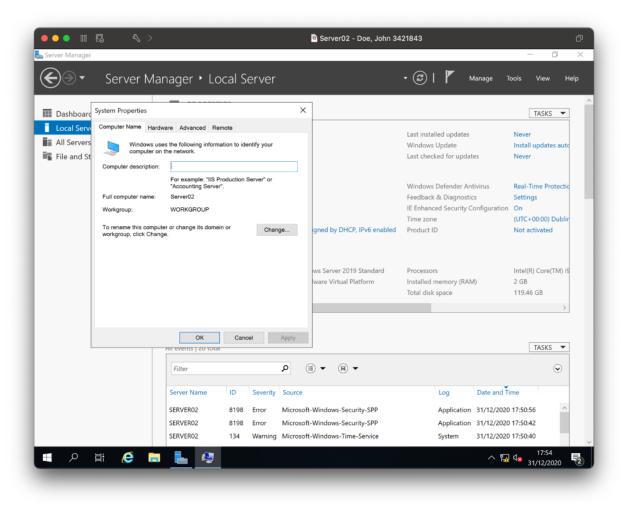
This photo demonstrates that I have selected the suitable region and language settings.

🔍 🔍 🔍 🔍	> 🖸 Server02 - Doe, John 3421843	To release your mouse press: Control-#
	1 Windows Setup	
	Windows Server* 2019	
	Language to install: English (United States) Iime and currency format: English (United Kingdom)	
	Enter your language and other preferences and click "Next" to continue.	
	@ 2018 Microsoft Corporation. All rights reserved.	Next

This demonstrates that I have configured the relevant disk partitions.

)) 🗧 🔹 📢 File ar	d Storage Services 🕨 Volu	mes • Disks •	🕄   🚩 Manage Too	ols View
Servers	All disks   2 total			TASKS
Volumes	Filter	(ii) • (ii) •		(
Storage Pools	Number Virtual Disk Status Cap	acity Unallocated Partition Rea	d Only Clustered Subsystem	Bus Type
	<ul> <li>WIN-3KAJS5B3403 (2)</li> </ul>			1510000000-
	0 Online 60.0 1 Online 60.0	entre contraction contraction		NVMe NVMe
	< Last refreshed on 31/12/2020 17:49:59			
	State of the second sec	TASKS VMware Vi	E POOL rtual NVMe Disk on WIN-3KAJS58340	13 TASKS
	Last refreshed on 31/12/2020 17:49:59 VOLUMES			
	Last refreshed on 31/12/2020 17:49:59 VOLUMES Related Volumes   2 total Filter	TASKS VMware Vii	rtual NVMe Disk on WIN-3KAJS5B340	
	Last refreshed on 31/12/2020 17:49:59 VOLUMES Related Volumes   2 total Filter	TASKS  VMware Vi	rtual NVMe Disk on WIN-3KAJS5B340	
	Last refreshed on 31/12/2020 17:49:59 VOLUMES Related Volumes   2 total Filter Volume Volume Status Provisionin	TASKS  VMware Vi	rtual NVMe Disk on WIN-3KAJS5B340	
	Last refreshed on 31/12/2020 17:49:59 VOLUMES Related Volumes   2 total Filter Volume Status Provisionir Volume Status 2 Provisionir Volume (V)	TASKS VMware Vi	rtual NVMe Disk on WIN-3KAJS5B340	

This photo demonstrates that the machine has been named correctly.



This photo demonstrates that I have used fixed IP addressing.

••• •• •• •• ••		জ Server02 - Doe, Johr	3421843	ð
Server Manager	nager • Local Ser	ver	• 🕄   🚩 Manage	− ⊡ × Tools View Help
Dashboard	For Server02			TASKS -
Local Server     All Servers     File and Storage Services	Computer name Workgroup	Server02 WORKGROUP	Last installed updates Windows Update Last checked for updates	Never Install updates automat Never
	Windows Defender Firewall Remote management Remote Desktop NIC Teaming Ethernet0	Public: On Enabled Disabled Disabled 10.1.1.3, IPv6 enabled	Windows Defender Antivirus Feedback & Diagnostics IE Enhanced Security Configuration Time zone Product ID	Real-Time Protection: C Settings On (UTC+00:00) Dublin, Ed Not activated
	Operating system version Hardware information	Microsoft Windows Server 2019 Standard VMware, Inc. VMware Virtual Platform	Processors Installed memory (RAM) Total disk space	Intel(R) Core(TM) i9-990 2 GB 119.46 GB
	EVENTS All events   20 total	<ul> <li>■ • ■</li> </ul>		TASKS V
	SERVER02 8198 Err SERVER02 8198 Err	verity Source ror Microsoft-Windows-Security-SPP Microsoft-Windows-Security-SPP arning Microsoft-Windows-Time-Service	Log Date ar Application 31/12/2 Application 31/12/2 System 31/12/2	020 17:50:56
= ク ji 🤅 🗎	<u>L</u>		^	17:54 17:54 31/12/2020

PC01 installation and configuration

This photo demonstrates that the operating system has been installed.



This photo demonstrates that I have configured the disk partitions.

🗢 🔿 🙇 🖬 🛛 🦻	= 🗙 🗹 🔓 🖾			
Computer Management (Loo	al) Volume		ile System Status ITFS Healthy (Boot, Page File, Crash Dump, Pr	Actions
<ul> <li>System Tools</li> <li>System Tools</li> <li>Task Scheduler</li> <li>Shared Folders</li> <li>Local Users and Groups</li> <li>Performance</li> <li>Device Manager</li> <li>Storage</li> <li>Disk Management</li> <li>Services and Applications</li> </ul>	System Reserve	N-GB_DV9 (D:) Simple Basic U	IDF Healthy (Primary Partition)	Disk Management
	60.00 GB Online CD-ROM 0 DVD 5.17 GB Online	579 MB NTFS Healthy (System, Active, Prima CPBA_X64FRE_EN-GB_DV9 (D 5.17 GB UDF Healthy (Primary Partition)	59.43 GB NTFS Healthy (Boot, Page File, Crash Dump, Primary Partit	ior
	Unallocated	Primary partition		

This photo demonstrates that the machine has been named correctly.

System Properties		×
Computer Name Hardy	vare Advanced System Protection Remote	×
Windows use computer on	es the following information to identify your the network.	v v Search Control Panel
Computer description:		
	For example: "Kitchen Computer" or "Mary's Computer".	formation about your computer
Full computer name: Workgroup:	PC01 WORKGROUP	
		soft Corporation, All rights reserved. Windows 10
To use a wizard to join Network ID.	a domain or workgroup, click Network ID	soft Corporation. All rights reserved.
To report this comput	er or change its domain or Change	
workgroup, click Chang		Intel(R) Core(TM) i9-9900K CPU @ 3.60GHz 3.60 GHz
		ory (RAM): 2.00 GB
		64-bit Operating System, x64-based processor
		n: No Pen or Touch Input is available for this Display
		domain and workgroup settings
		ne: PC01 Change settings
	OK Cancel Apply	name: PC01
		description:
	Workgroup	p: WORKGROUP
	Windows activ	
		vation is not activated. Read the Microsoft Software Licence Terms
5 S	ee also Product ID	0: 00329-00000-00003-AA958
S	ecurity and Maintenance	

This photo demonstrates that suitable region and language settings have been applied.

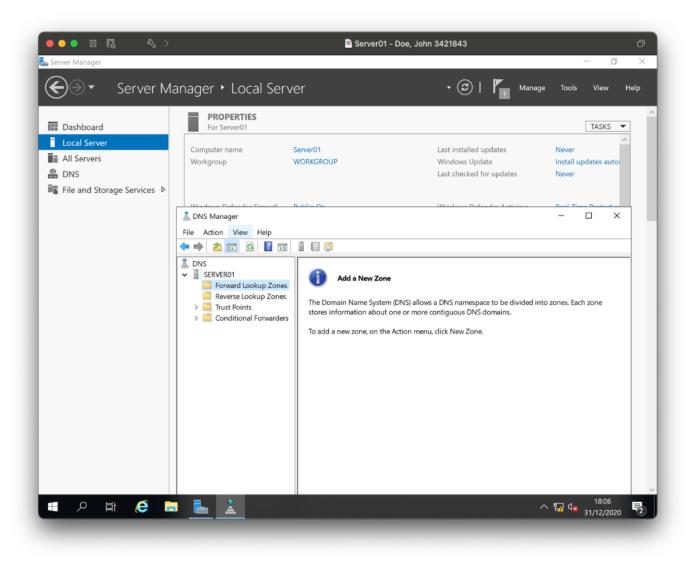
••• • • • • • •	🗟 PC01 - Doe, John 3421843	To release your mouse press: Control-X
	Windows Setup	
	-Windows <sup>*</sup>	
	Language to install: English (United Kingdom)	
	Keyboard or input method: United Kingdom	<b>-</b>
	Enter your language and other preferences and click "Next" to continue.	
		Next
	© 2019 Microsoft Corporation. All rights reserved.	

#### Step B

Version: v2.0 19 June 2023 | Specimen

This photo demonstrates that DNS has been configured so that my machines can access the internet.

This photo demonstrates that the Directory service has been configured to manage users.



o 🔹 🖬 🗗 🔧	,  >	Server0	1 - Doe, John 3421843		- 0
Ĵ⊙ - Server	Manager • AD DS		• ©	Manage Tools	View
Dashboard Local Server All Servers AD DS	SERVERS All servers   1 total Filter Server Name IPv4 Addres	₽ ⊞ ▼ (R s Manageability	) 🕶 Last Update	Windows Activation	
DHCP DNS File and Storage Services		.1.2 Online - Performance counte	rs not started 01/01/2021 11:10:	56 Not activated	
[	Active Directory Users and Comp File Action View Help	outers		- 0	×
	Active Directory Users and Comp     Saved Queries     JohnDoe.local     Single Computers     Domain Controllers     Domain Controllers     Managed Service Accoun     Single Users	Name Type JohnDoe.local Domain Saved Queries	Description Folder to store your favo		•

#### DHCP

This photo demonstrates that DHCP service has been installed to allow automatic IP addressing.

	Server01 - Doe, John 3421843		đ
Server Manager	nager • DHCP • 🗇   🚩 Manage Too	- 🗇	× Help
Dashboard Local Server All Servers AD DS DC DHCP DNS	SERVERS         All servers   1 total         Filter       P         Server Name       IPv4 Address         Manageability       Last Update         Windows Activation         SERVER01       10.1.1.1,10.1.1.2         Online - Performance counters not started       01/01/2021 11:18:12         Not activated		
I File and Storage Services ▷	EVENTS		
	All events   0 total       Filter     P     IE     IE       Server Name     ID     Severity     Source     Log   Date and Time		)
<b>4</b> 2 # <b>6</b>	<u>م الم الم الم الم الم الم الم الم الم ال</u>	11:21 01/01/2021	E Contraction de la contractio

I have configured the DHCP scope with the settings 10.1.1.5-10.1.1.10 for this network.

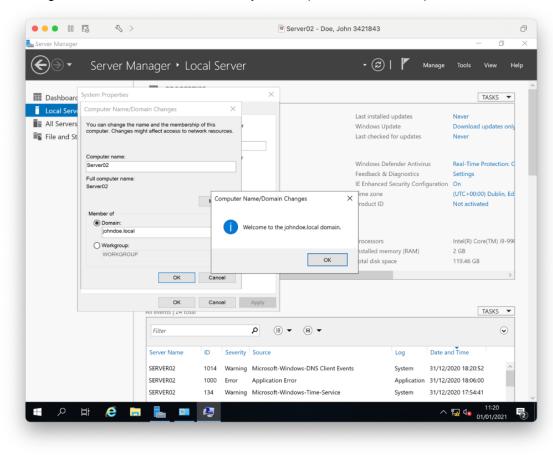
Dash	v Help	er • AD D	25		• 3	Manage	Tools View	He
Local All Se AD D DHCP Server01.john PV4 DHCF Policie Policie	C A A A A A A A A A A A A A A A A A A A			ntifying a set of consecutiv	e IP addresses.	More Actions	• •	>
L DNS → 📷 Filters	To Fo	Start IP address: End IP address:	for DHCP Server           Idresses that the scope           10         1         1         1           10         1         1         1         1           that propagate to DHC	5 0 Client			TASKS	•
«>				< Back !	lext > Cancel		9 4 3	>
	SER	VER01 6104 E	rror DFSR		DF	5 Replication 31/12/2020	18:07:32	

PC01 has been assigned a DHCP address and this has been confirmed using IPCONFIG/ALL.

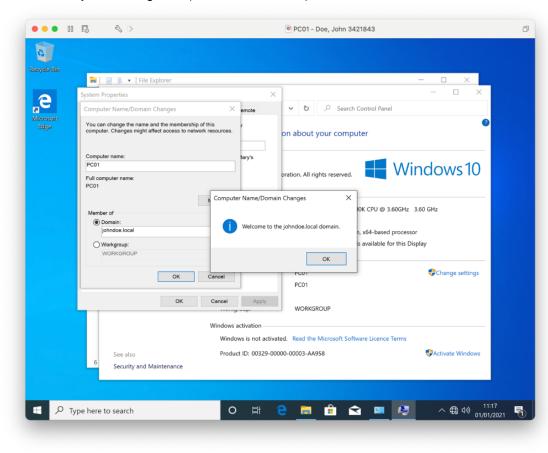
mmand Prompt ers\Tech>ipconfig /all vs IP Configuration			- 0	×
ers\Tech>ipconfig /all			- 0	×
vs IP Configuration				^
st Name	: PC01			
de Туре	: Hybrid			
5 Suffix Search List	: JohnDoe.local			
net adapter Ethernet0:				
nnection-specific DNS Suffix	. : JohnDoe.local			
		t Network Connection		
		c%5(Preferred)		
		50		
		29		
		0-00-0C-29-6D-E3-30		
5 Servers	: 10.1.1.2			
tBIOS over Tcpip	: Enabled			~
id ws n nsyctnybaafcccs	<pre>mary Dns Suffix</pre>	nection-specific DNS Suffix . : JohnDoe.local cription : Intel(R) 82574L Gigabi sical Address : 00-0C-29-GD-E3-30 P Enabled : Yes oconfiguration Enabled : Yes k-local TPv6 Address : fe80::45d:92d9:626:124 4 Address : fe80::45d:92d9:626:124 4 Address : 10:1.1.5(Preferred) net Mask : 255.0.0.0 se Obtained : 01 January 2021 11:15: se Expires : 09 January 2021 11:15: ault Gateway : P Server : 10:1.1.1 Pv6 IAID : 100666409	mary Dns Suffix       :         e Type       .         e Type       .         e Type       .         souting Enabled       .         et adapter Ethernet0:       .         nection-specific DNS Suffix       : JohnDoe.local         cription       .       .         sical Address       .       : 00-0C-29-6D-E3-30         P Enabled       .       : Yes         sconfiguration Enabled       .       : Yes         scloal DV6 Address       .       : Yes         oconfiguration Enabled       .       : Yes         scloal Note Address       .       : 10.1.15(Preferred)         net Mask       .       .       : 255.0.0.0         se Obtained       .       .       : 10.1.15(Spectred)         se Obtained       .       .       : 10.1.15(Spectred)         se Obtained       <	<pre>mary Dns Suffix : e Type : Hybrid Routing Enabled : No Suffix Search List : JohnDoe.local et adapter Ethernet0: nection-specific DNS Suffix . : JohnDoe.local cription : Intel(R) 82574L Gigabit Network Connection sical Address : 00-06-29-6D-E3-30 P Enabled : Yes configuration Enabled : Yes configuration Enabled : Yes k-local Tyv6 Address : fe80::45d:92d9:626:124c%5(Preferred) 4 Address : 01 Johnary 2021 11:15:59 se Obtained : 01 January 2021 11:15:59 se Expires : 01 January 2021 11:15:59 P Server : 10.1.1.1 Pv6 IATD : 100-0666409 Pv6 Client DUID : 00-00-01-27-7F-BD-30-00-0C-29-6D-E3-30</pre>

Domain joins

This image confirms that Server02 domain joined to (FirstnameSurname).local.

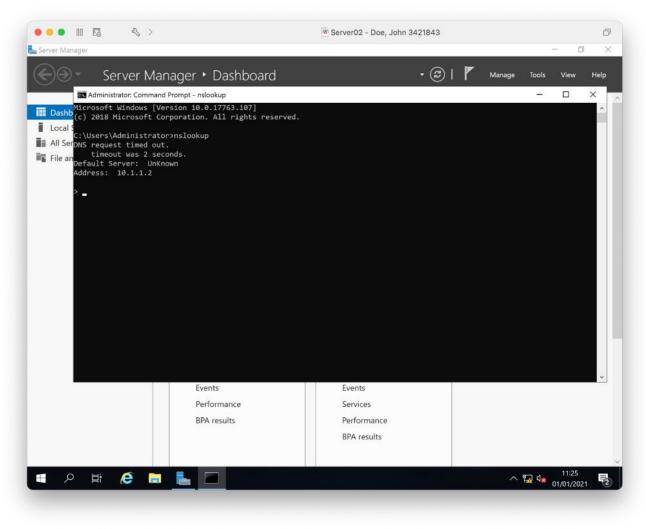


PC01 domain joined at logon to (FirstnameSurname).local.



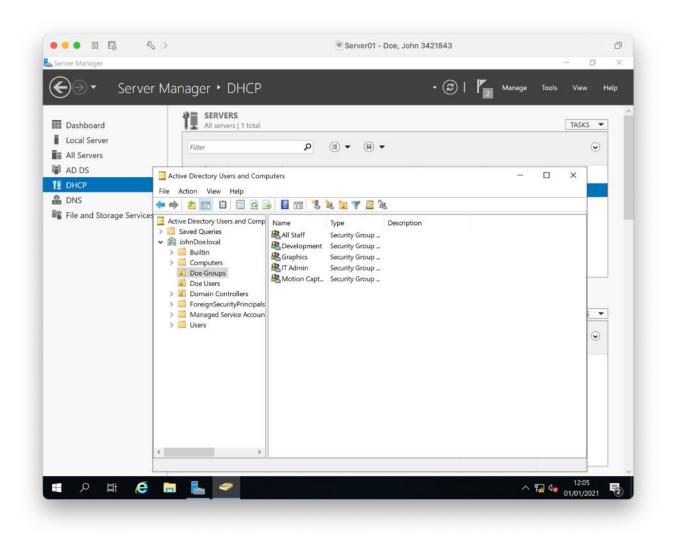
**Reverse lookup** 

Server02 successfully completed a reverse lookup using NSLOOKUP to Server01.



#### Step C

This image demonstrates a group creation within AD.

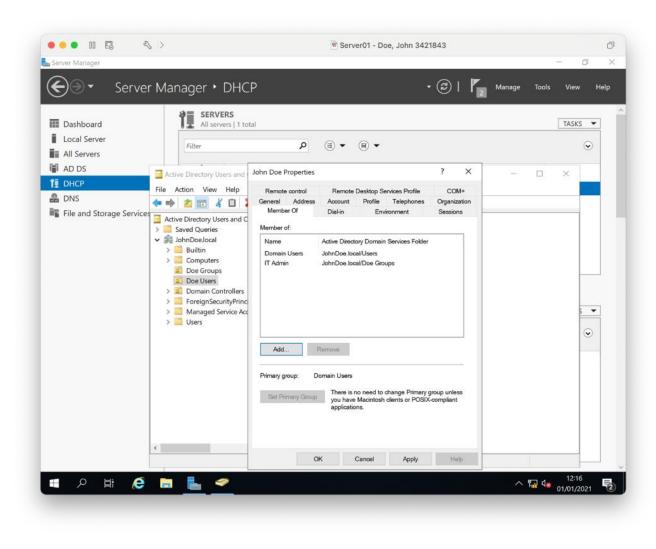


**User creation** 

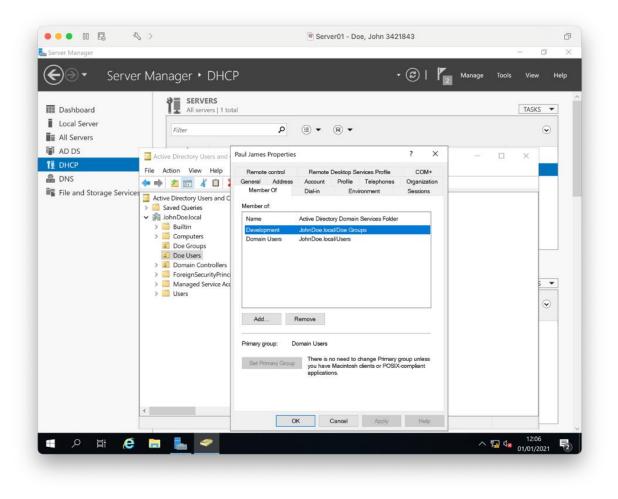
Users - Your first and surname, Paul James, Tamara Jacob and Yousif Sobbah has been created.

e evver Manager ک	د الآل الآل الآل الآل الآل الآل الآل الآ	ð a ×
	er Manager • DHCP • ②   🏴 Manage Tools	View Help
<ul> <li>Dashboard</li> <li>Local Server</li> <li>All Servers</li> </ul>	SERVERS       All servers   1 total       Filter       P       (ii) +       (iii) +       (iii) +	
AD DS  DHCP  DNS  NS	File Action View Help	×
File and Storage Service	<ul> <li>Active Directory Users and Comp</li> <li>Saved Queries</li> <li>Sultin</li> <li>Builtin</li> <li>Computers</li> <li>Doe Groups</li> <li>Doe Users</li> <li>Yousif Sobbah</li> <li>Users</li> </ul>	•
日 の 時 <i>€</i>		12:06
	은 📮 📥 🤦 ^ 뛅 🔩 <sub>01</sub>	1/01/2021

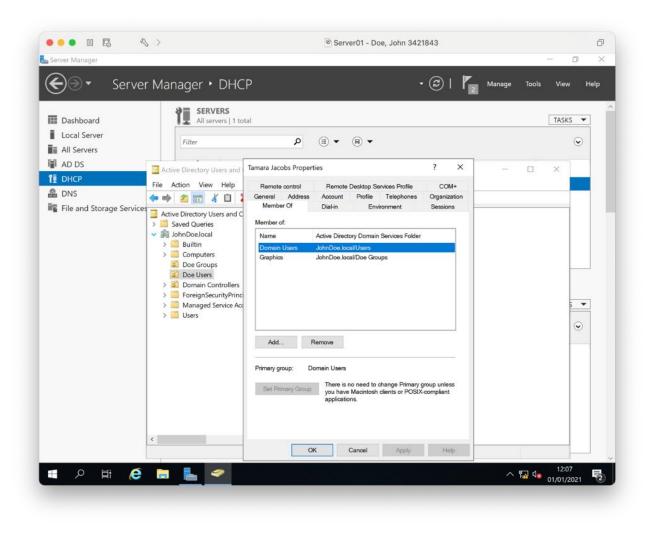
Your first and surname is now a member of the group IT admin.



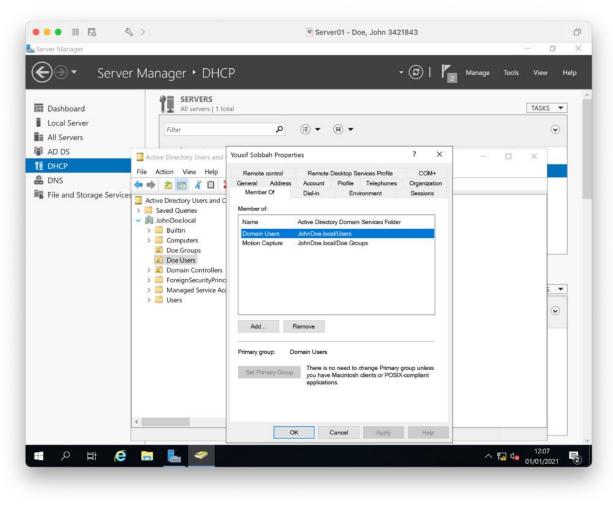
Paul James is now a member of the group Development.



Tamara Jacobs is now a member of the group Graphics



Yousif Sobbah is now a member of the group Motion Capture.



User your first and surname has the job description of IT admin.

Paul James has the job description of development

server Manager €⊙⊙ ▼ Server Manager	-
Active Directory Users and Computers File Action View Help Active Directory Users and Comp Active Directory Users and Comp Saved Queries Builtin Builtin Builtin Builtin Computers Doe Groups Doe Groups Doe Groups Doe Groups Doe Users Builtin Users Mame Paul Jame Paul Jame Paul Jame Paul Jame Paul Jame Users	Remote control         Remote Desktop Services Profile         COM+         ates         Never           General         Address         Account         Profile         Telephones         Organization         ates         Never           Job Title:         Development         Organization         Intrivirus         Real-Time Protection
SERVERC SERVERC SERVERC	1 1014 Warning Microsoft-Windows-DNS Client Events System 01/01/2021 11:15:53

Tamara Jacobs has the job description of graphics artist.

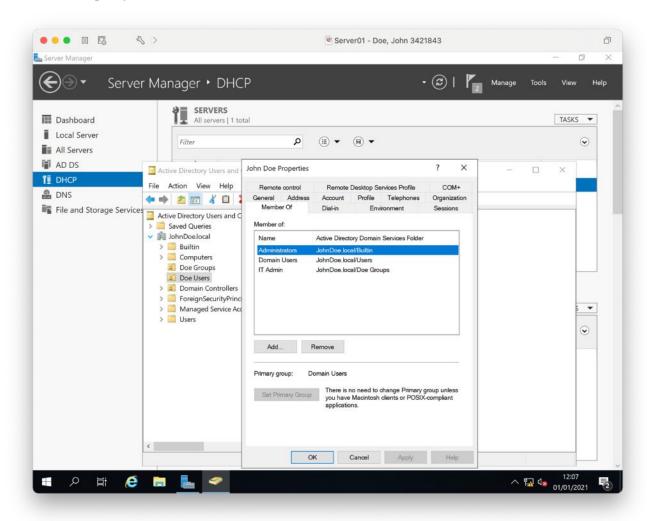
●●● II E	© Server01 - Doe, John 3421843 Local Server	Tools View Help
Active Directory Users and Computers File Action View Help Active Directory Users and Comp Active Directory Users and Comp Saved Queries Builtin Computers Doe Groups Doe Users Doe Users Doe Users Domain Controllers Doe Users Doe Users Domain Controllers Managed Service Accoun Users	PERTIES      X         Tamara Jacobs Properties       ?X         Member Of       Dial-in       Environment       Sessions         Remote control       Remote Desktop Services Profile       COM+       ates         General       Address       Account       Profile       COM+         Job Title:       Company:	TASKS   Never Download updates Never Real-Time Protection Settings On (UTC+00:00) Dublin, Not activated Intel(R) Core(TM) i9- 2 GB 110 4E CP 2 GB 110 4E CP 3 TASKS  TASKS
SERVERO1 SERVERO1 SERVERO1	OK         Cancel         Apply         Help         Ind Time           0130         crror         microsoft microsoft microsoft security or r         Apply         01/01/2021 11:17:03           1014         Warning         Microsoft-Windows-DNS Client Events         System         01/01/2021 11:15:53           27         Warning         eliexpress         System         01/01/2021 11:15:32	^ ₽ d <sub>s 01/01/2021</sub> ₹

Yousif Sobbah has the job description of motion capture specialist.

Server Manager € ③ ▼ Server Manager	-	Tools View Help
Active Directory Users and Computers File Action View Help Active Directory Users and Comp Saved Queries Saved Queries Sa	Department:     Configuration     Configuration     Manager     Name:     Change     Properties     Clear     Direct reports:     MM)	TASKS         Never         Download updates of         Never         Real-Time Protection         Settings         On         (UTC+00:00) Dublin,         Not activated         Intel(R) Core(TM) i9-         2 GB         100 46 CP         TASKS
SERVERO1 SERVERO1	OK         Cancel         Apply         Help         of Time           0130         Entor         Microsoft-Windows-Security-Siri         Apply         01/01/2021 11:17:03           1014         Warning         Microsoft-Windows-DNS Client Events         System         01/01/2021 11:15:53           27         Warning         e1iexpress         System         01/01/2021 11:15:32	- 🔜 d⊛ 12:19

Your first and surname has been made an administrator.

Staff added to groups

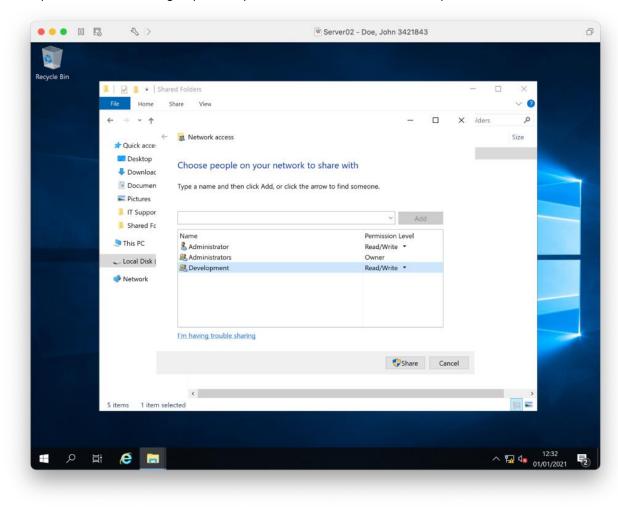


The groups development, graphics, motion capture, IT admin have been added to the all staff groups to allow for group permissions to be used. Version: v2.0 19 June 2023 | Specimen

Server Manager	→ Manager + DHCP	<ul> <li>Server01 - Doe, John 3421843</li> <li>▼ (€)</li> </ul>	_	e Tools	C I
Dashboard     Local Server     All Servers	SERVERS           All servers         1 total           Filter         p	(≣) ▼ (ℝ) ▼			TASKS
AD DS  DHCP  DNS  File and Storage Service		? Member Of Managed By Active Directory Domain Services Folder JohnDoe local/Doe Groups JohnDoe local/Doe Groups JohnDoe local/Doe Groups MohnDoe local/Doe Groups JohnDoe local/Doe Groups	Χ		

Folder permissions

Development folder has the group development added with read and write permission.



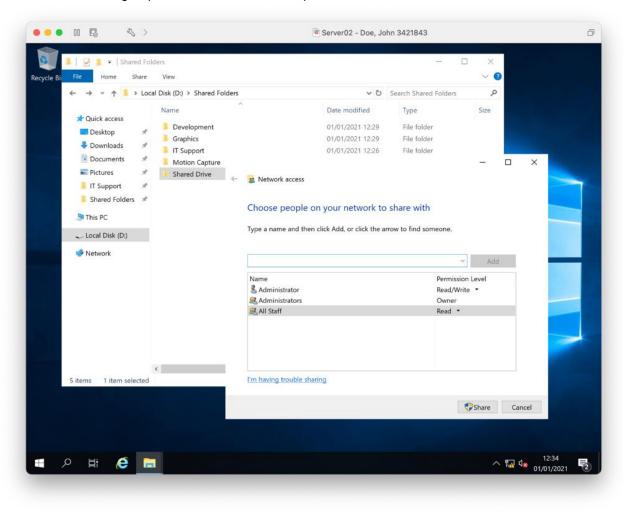
Graphics has the group graphics added with read and write permission.

				Server02 - Doe, John 3421		
ecycle Bin						
	📕   🕑 💈 💌   Shared	Folders			-	
	File Home Sha	ire Viev				<ul> <li>Ø</li> </ul>
	$\leftrightarrow \rightarrow \sim \uparrow \blacksquare$	Local Disk	(D:) > Shared Folders	~ č	Search Shared Folde	rs A
	10000000	Nan	ne	Date modified	Туре	Size
	A Quick access		Development	01/01/2021 12:29	File folder	
	Desktop	*	Graphics	01/01/2021 12:29		
	Downloads		T Support	01/01/2021 12:26	File folder	
	Documents	1			- 0	×
	Fictures	* +	a Network access			
	🧵 IT Support	*				
	Shared Folders	*	C1	1		
	🤙 This PC		Choose people on your	network to share with		
	a mis re		Type a name and then click Add,	or click the arrow to find someo	ne.	
	🚤 Local Disk (D:)					
	Network		-			
					✓ Add	
			Name	Pe	ermission Level	
			& Administrator	Re	ead/Write 🔻	
			& Administrators		wner	
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		<				>
	5 items 1 item selec		I'm having trouble sharing			
					Share C	Cancel
					Hardware and Annual	

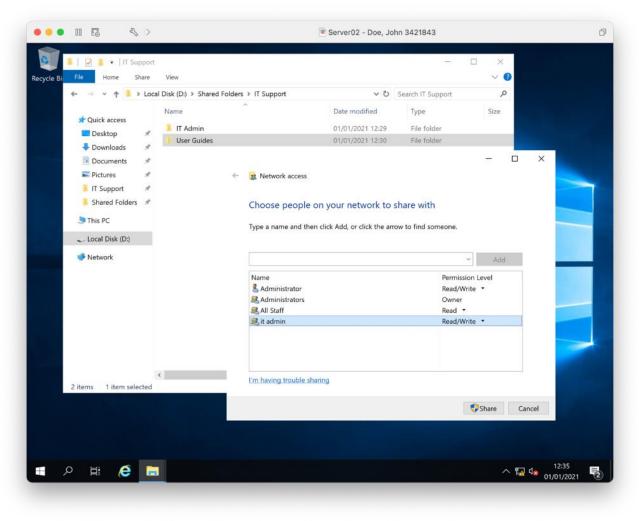
Motion capture has the group motion capture added with read and write permission.

File Home Share	ers View			-	
	Disk (D:) > Shared Fold	arc	~ 71	Search Shared Folders	P
		~			
📌 Quick access	Name		Date modified	Туре	Size
Desktop *	Development		01/01/2021 12:29	File folder	
Downloads *	Graphics		01/01/2021 12:29	File folder	
	IT Support		01/01/2021 12:26	File folder	
Documents 🖈	Motion Capture		01/01/2021 12:29	File folder	
Fictures 🖈	Shared Drive		01/01/2021 12:30	File folder	
📕 IT Support 🛛 🖈					– 🗆 🗙
📕 Shared Folders 🚿		2 Network access			
This PC		Metwork access			
Local Disk (D:)		Choose people on	your network to sl	hare with	
				Ŷ	Add
		Name		Permission	Level
		& Administrator		Read/Write	
		Administrators		Owner	
		Administrators Motion Capture		Owner Read/Write	•
		and the second se			•
		and the second se			•
5 items 1 item selected		and the second se			-
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And a second		and the second se	19		•
And a second		Kotion Capture	12		•
And a second		Kotion Capture	19	Read/Write	• PShare Cancel

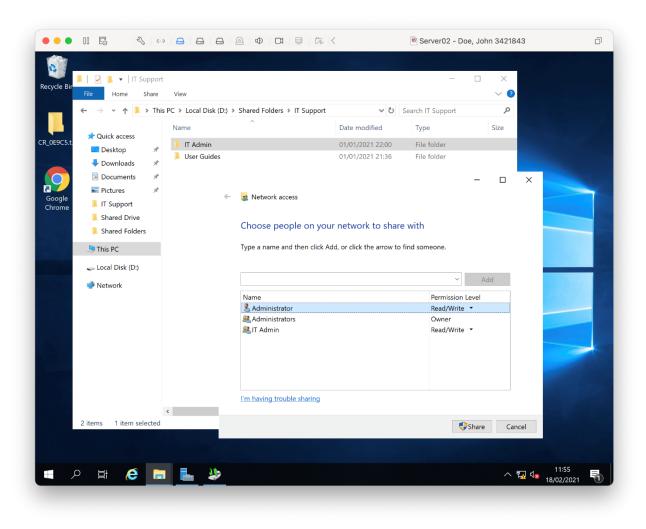
Shared drive has the group all staff added with read permission.



User guides has the group all staff added with read permission and IT admin added with read and write permission.



IT admin has the group IT admin added with read and write permission for IT admin.



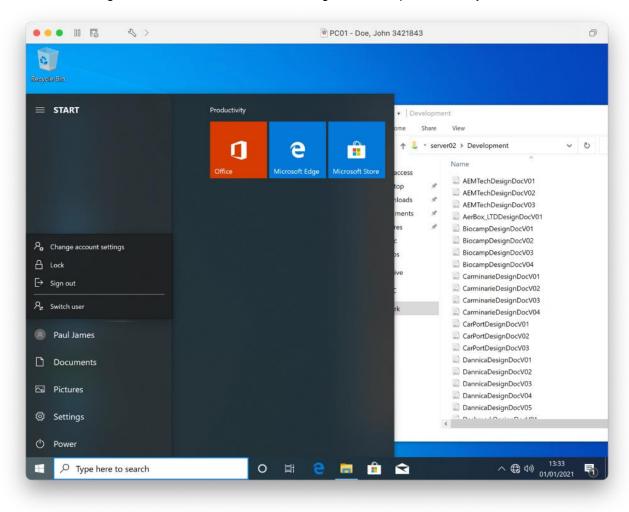
# Folder testing

Add more rows to the table as required

Test ID	Folder being tested	User account (Test data)	Test description and expected outcome	Actual outcome
1	Development	Paul James	Testing that a valid member of the development group as read access	The user was able to read files stored in the folder
2	Graphics	Tamara Jacobs	Tamara Testing that a valid member of Th	
3	Motion capture	Yousif Sobbah	Testing that a valid member of the motion capture group as rad access	The user was able to read files stored in the folder
4	Shared drive	Tamara Jacobs	Testing that a valid member of the all staff group as read access	The user was able to read files stored in the folder
5	User guides	Tamara Jacobs	Testing that a valid member of the all staff group as read access	The user was able to read files stored in the folder
6	User guides	guides Your first and Surname Testing that a valid member of the IT admin group as read access		The user was able to read files stored in the folder
7	IT admin	Your first and Surname	Testing that a valid member of the IT admin group as read access	The user was able to read files stored in the folder
8	Development	Paul James	Testing that a valid member of the development group has read and write access	The user was able to write to files stored in the folder
9	Graphics	Tamara Jacobs	Testing that a valid member of the graphics has read and write access	The user was able to write to files stored in the folder
10	Motion capture	Yousif Sobbah	Testing that a valid member of the motion capture group as read and write access	The user was able to write to files stored in the folder
11	User guides	Your first and Surname	Testing that a valid member of the IT admin group as read and write access	The user was able to write to files stored in the folder
12	IT admin	Your first and surname	Testing that a valid member of the IT admin group as read and write access	The user was able to write to files stored in the folder
13	Development	Tamara Jacobs	Testing to see if an invalid user has read access	The user was unable to write to files stored in the folder

14	Graphics	Yousif Sobbah	Testing to see if an invalid user has read access	The user was unable to read files stored in the folder
15	Motion capture	Paul James	Testing to see if an invalid user has read access	The user was unable to read files stored in the folder
16	User guides	Tamara Jacobs	Testing to see if an invalid user has read access	The user was unable to read files stored in the folder
17	IT admin	Tamara Jacobs	Testing to see if an invalid user has read access	The user was unable to read files stored in the folder

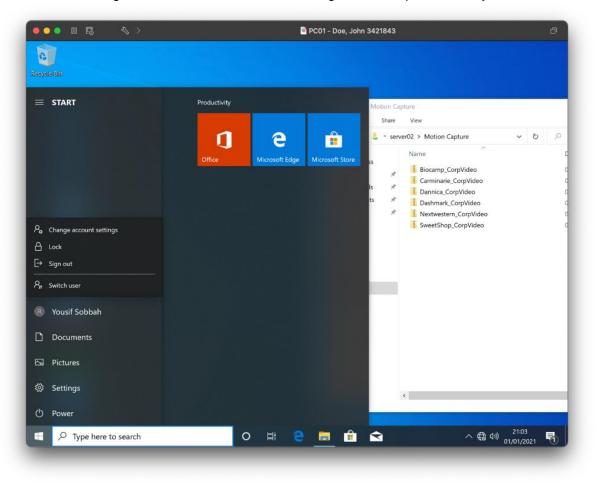
Print screen showing the result of test number 1, showing the folder opens correctly.



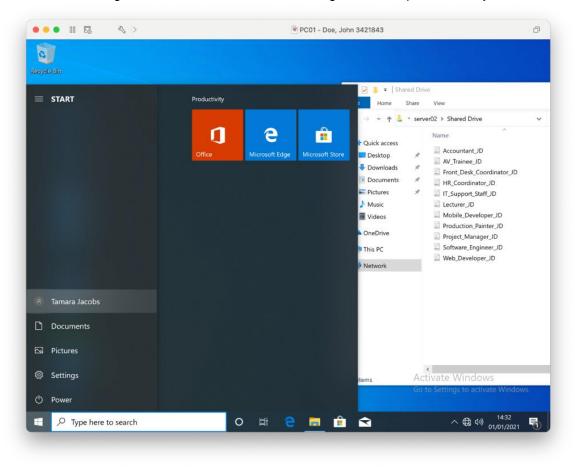
Print screen showing the result of test number 2, showing the folder opens correctly.

eyete Bin							
syster sin			Graphics	_			
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	n	e		^			Date modified
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				echMockupV03			03/09/2020 21:56
				x_LTDMockupV01			03/09/2020 21:56
				npMockupV01			03/09/2020 21:56
				npMockupV02			03/09/2020 21:56
				npMockupV03			03/09/2020 21:56
G Change account settings				npMockupV04			03/09/2020 21:56
h Lock				narieMockupV01			03/09/2020 21:56
				narieMockupV02			03/09/2020 21:56
→ Sign out				narieMockupV03			03/09/2020 21:56
				narieMockupV04			03/09/2020 21:56
🛓 Switch user				tMockupV01 tMockupV02			03/09/2020 21:56 03/09/2020 21:56
				tMockupV02			03/09/2020 21:56
Tamara Jacobs				caMockupV01			03/09/2020 21:56
				caMockupV01			03/09/2020 21:56
ት Documents				caMockupV02			03/09/2020 21:56
				caMockupV03			03/09/2020 21:56
S Pictures				caMockupV05			03/09/2020 21:56
S Pictures							02/00/2020 21 54
ම Settings					_	_	
b Power							

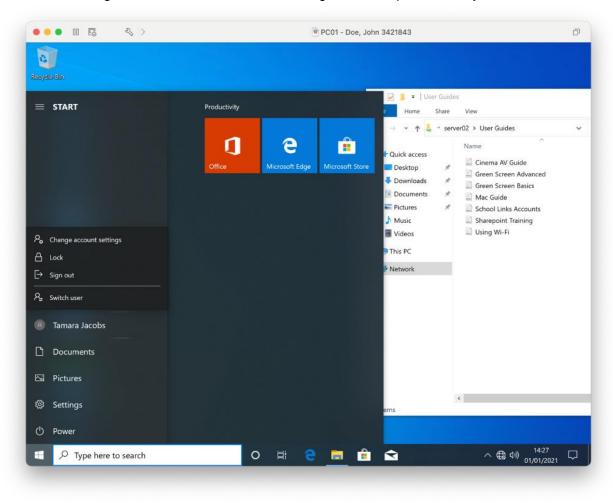
Print screen showing the result of test number 3, showing the folder opens correctly.



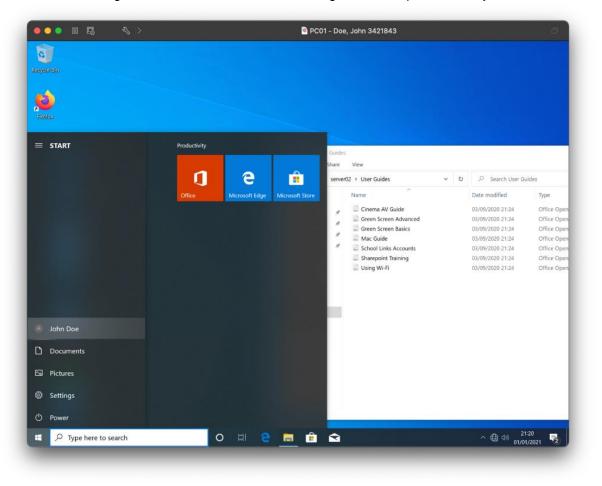
Print screen showing the result of test number 4, showing the folder opens correctly.



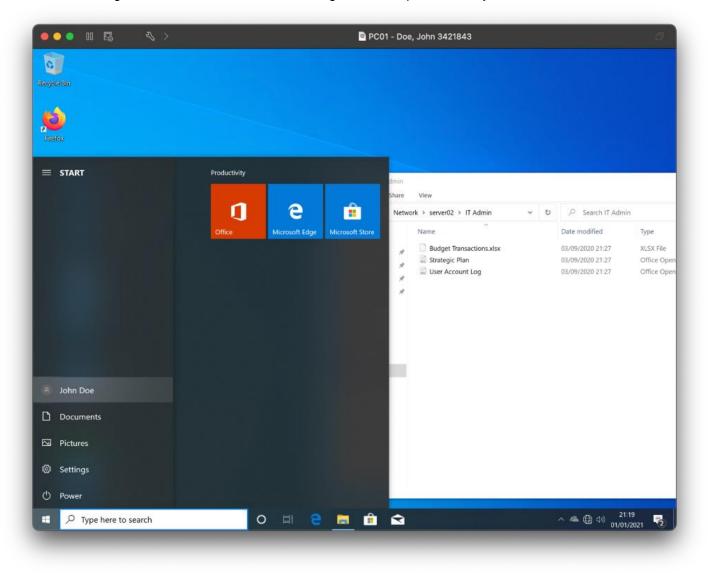
Print screen showing the result of test number 5, showing the folder opens correctly.



Print screen showing the result of test number 6, showing the folder opens correctly.



Print screen showing the result of test number 7, showing the folder opens correctly.



Print screen showing the result of test number 8, showing the file has been opened and saved back correctly.

••• •••			PC01 - Doe, Johr	1 3421843	ð
cyde Sin					
	Productivity			velopment	
3D Viewer				Share View	
A	n	e	<b>*</b>	" server02 > Development	v ð ,≏
Alarms & Clock	Office	Microsoft Edge	Microsoft Store	^	Date modified
				JesignDocV01	01/01/2021 14:12
				lesignDocV02	03/09/2020 21:37
Calculator				<sup>7</sup> lesignDocV03	03/09/2020 21:37
				* DDesignDocV01	03/09/2020 21:37
Calendar				* esignDocV01	03/09/2020 21:37
Change account settings				esignDocV02	03/09/2020 21:37
				esignDocV03	03/09/2020 21:37
} Lock				esignDocV04	03/09/2020 21:37
➤ Sign out				DesignDocV01	03/09/2020 21:37
				DesignDocV02	03/09/2020 21:37
🖕 Switch user				DesignDocV03	03/09/2020 21:37
				:DesignDocV04	03/09/2020 21:37
👔 🧮 Films & TV				signDocV01	03/09/2020 21:37
				signDocV02	03/09/2020 21:37
3 <u> </u>				signDocV03	03/09/2020 21:37
Game bar				HighDocV01	03/09/2020 21:37 03/09/2020 21:37
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🖾 🏠 Get Help				isignDocV04	03/09/2020 21:37
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3 Oroove Music				D-1D-1401	03/09/2020 21:37
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b <u> </u>				elected 1.91 KB	
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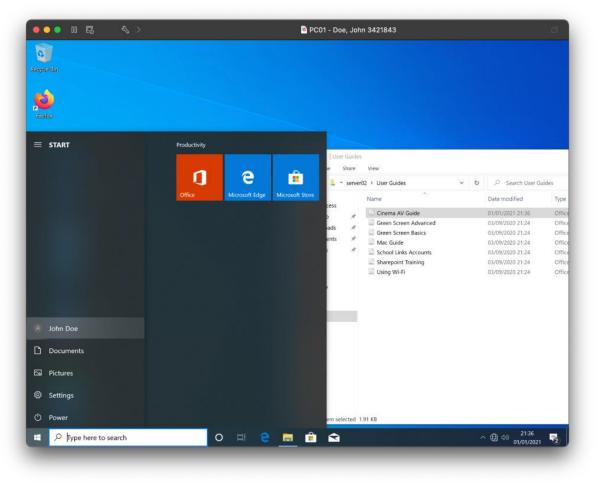
Print screen showing the result of test number 9, showing the file has been opened and saved back correctly.

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= start	Productivity			Manage Gra	phics	
				> server02 > Graphics	5 V	🔎 Search Graphi
	1	e	<b>•</b>	A	Date	e modified
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	Office	Microsoft Edge	Microsoft Store	MockupV02		9/2020 21:56
				MockupV03		9/2020 21:56
				DMockupV01		9/2020 21:56
				AockupV01	03/0	9/2020 21:56
				AockupV02	03/0	9/2020 21:56
				AockupV03	03/0	9/2020 21:56
$P_{\mathbf{g}}$ Change account settings				AockupV04	03/0	9/2020 21:56
A Lock				eMockupV01	03/0	9/2020 21:56
				eMockupV02	03/0	9/2020 21:56
E→ Sign out				eMockupV03	03/0	9/2020 21:56
				eMockupV04	03/0	9/2020 21:56
ဝို့ Switch user				pckupV01		9/2020 21:56
				ockupV02	03/0	9/2020 21:56
8 Tamara Jacobs				ockupV03	03/0	9/2020 21:56
				lockupV01		9/2020 21:56
				lockupV02	03/0	9/2020 21:56
				lockupV03	03/0	9/2020 21:56
				lockupV04	03/0	9/2020 21:56
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🕸 Settings				в мв Activ	vate Windo	WS
🕑 Power						
P Type here to search		0 Ħ (	e 💼 🏦	<b></b>	へ 🕀 🕬	14:33 01/01/2021

Print screen showing the result of test number 10, showing the file has been opened and saved back correctly.

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eeyele Bin										
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							Dannica_CorpVideo			03/09/2020 21:4
							Dashmark_CorpVideo			03/09/2020 21:4
							Vextwestern_CorpVideo			03/09/2020 21:4
							SweetShop_CorpVideo			03/09/2020 21:4
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<ul> <li>8 Yousif Sobbah</li> <li>Documents</li> </ul>										
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( <sup>1</sup> ) Power							s			
		0	<b>⊒</b> i	e			<b>İ</b>			) 21:33 ) 01/01/2021

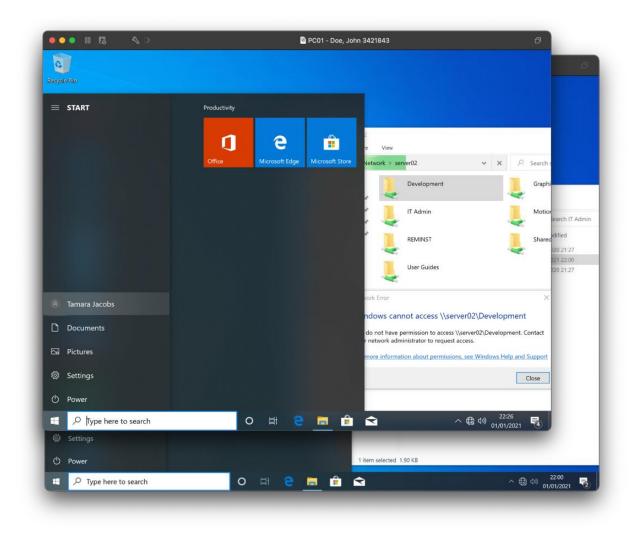
Print screen showing the result of test number 11, showing the file has been opened and saved back correctly.



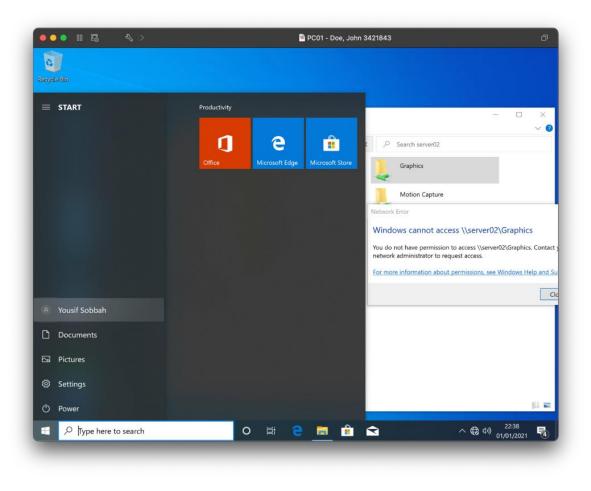
Print screen showing the result of test number 12, showing the file has been opened and saved back correctly.

•••		🖻 PC01 - Doe, John 3421843	
angele de			
= START	Productivity		
		Home Share View	
	Office Microsoft Edge		✓ U Search IT Admin
	Chice Microsoft Edge	ck access	Date modified 03/09/2020 21:27
		esktop * Dobger Hansactorid.stxx	01/01/2021 22:00 03/09/2020 21:27
		courrents # Gen Account Log chures # Jusic ideos eDrive s PC	03(07)2000 £ 1.27
R John Doe		twork	
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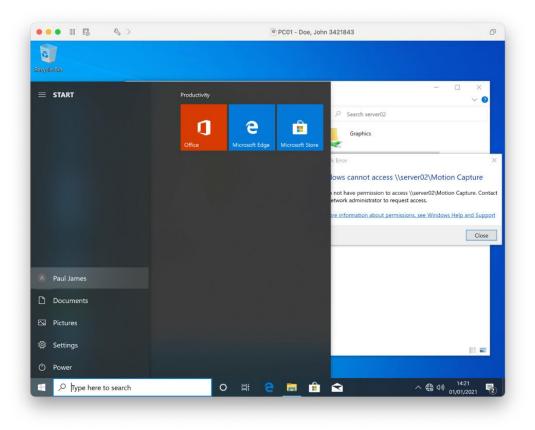
Print screen showing the result of test number 13, showing a user was unable to open the folder.



Print screen showing the result of test number 14, showing a user was unable to open the folder.



Print screen showing the result of test number 15, showing a user was unable to open the folder.



Print screen showing the result of test number 16, showing a user was unable to open the folder.

••••	PC01 - Doe, John 3421843	ð
Recycle Din		
≡ START	Network Error Windows can You do not have	
	For more information of the second seco	tion about permissions, see Windows Help and Su
R Yousif Sobbah	For more information	tion about permissions, see Windows Help and Su
	For more informa	tion about permissions, see Windows Help and Su
Documents	For more informa	tion about permissions, see Windows Help and Su
Documents	For more informa	tion about permissions, see Windows Help and Su
Documents	For more informed	tion about permissions, see Windows Help and Su

Print screen showing the result of test number 17, showing a user was unable to open the folder.

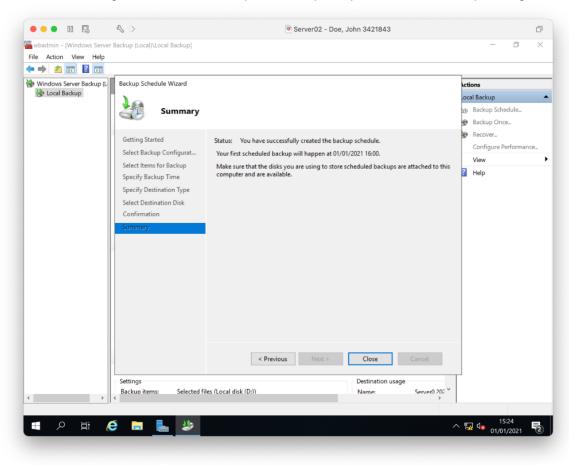
•••	PC01 - Doe, John 3421843
kacyala bin	
≡ START	Productivity
	ne 💼 erver02 v x 🔎 Search server02
	Office Microsoft Edge Microsoft Store Development Graphics
	IT Admin 🗸 Motion Capture
	REMINST Shared Drive
	vork Error ×
	ndows cannot access \\server02\IT Admin
	do not have permission to access \\server02\\T Admin. Contact your vork administrator to request access.
R Tamara Jacobs	more information about permissions, see Windows Help and Support
Documents	Close
S Pictures	
Settings	
් Power	
Figure 1 Type here to search	O 뷰 🙋 🔚 🏦 😪 🔨 수 🔀 대 22248
Type here to search	Ο 밝 @ 🚍 🔒 < ∧ €3 4୬) 2248 💀

Test closed

### Step D

### **Create backup**

Print screen showing the scheduled backup has been put in place from the backup manager dialogue box.



Print screen showing the scheduled backup has been completed from the backup manager dialogue box.

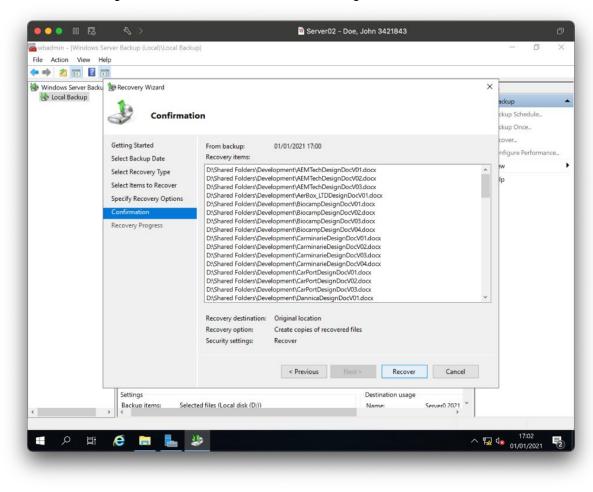
ile Action View Help				
Windows Server Backup (L	Windows Server Backup	(Local)	^	Actions
🐌 Local Backup	Backup your important data to a		_	Windows Server Backup (Lo
	Backup your important data to a			View
	Local Backup			👔 Help
	Last Backup Status:	Successful backup at 02/01/2021 12:07		
	Next Backup Time:	13/01/2021 18:00		
	Number of available backups:	9 copies		
	Online Backup			
		configured for this server. Secure this server from c	orruptions and other threats	
		configured for this server. Secure this server from c	orruptions and other threats	
		configured for this server. Secure this server from c	orruptions and other threats	
		configured for this server. Secure this server from c	orruptions and other threats	
		configured for this server. Secure this server from c	orruptions and other threats	
		configured for this server. Secure this server from c	orruptions and other threats	
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		configured for this server. Secure this server from c	orruptions and other threats	
		configured for this server. Secure this server from c	orruptions and other threats	

**Backup restoration** 

Showing that the folder development has been deleted.

••• II E 🕓	>	🖻 Server02 - Doe, Jo	hn 3421843		ð
wbadmin - [Windows Server Backup File Acti →   → ↓ → Shared	Folders		_	□ × ~ ?	- 0 ×
<ul> <li>Loc</li> <li>✓ Quick access</li> <li>■ Desktop</li> <li>✓ Downloads</li> <li>☑ Documents</li> </ul>	This PC > Local Disk (D:) > Shared Folders > Name Graphics IT Support Motion Capture Shared Drive	♥ 0           Date modified           01/01/2021 12:29           01/01/2021 12:29           01/01/2021 12:30	Search Shared Folde Type File folder File folder File folder File folder	Size	ctions ocal Backup Backup Schedule Backup Once Recover Configure Performance View Help
< >> < Set	duled Backup       uvlar scheduled backup is configured for this server       ings       kup items:     Selected files (Local disk (D:))		Destination usage Name:	Server() 705 V	17:01 ₩ de 11/01/2021

Print screen showing the file selected in the restoration dialogue box.



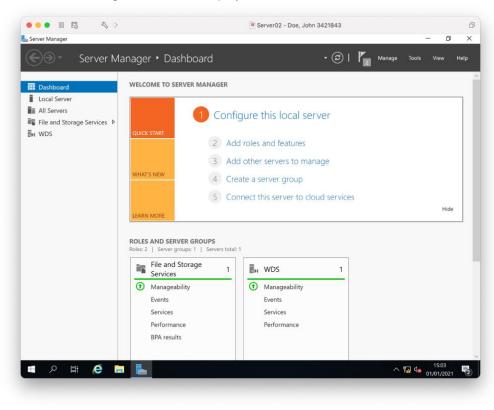
Print screen showing the successful restoration of the folder back to a suitable location.

Acti 📕 📝 📜 👻 Shari				□ × _	
	hare View			~ 🕖 _	
do' 🔶 -> 🕆 🖡 :	This PC > Local Disk (D:) > Shared Folders	v 0	Search Shared Folders	Q	×
↓ Quick access Desktop Downloads Documents Pictures IT Support Shared Folders	Name Development Graphics IT Support Motion Capture Shared Drive	Date modified 01/01/2021 17:02 01/01/2021 12:29 01/01/2021 12:26 01/01/2021 12:30	Type File folder File folder File folder File folder File folder	Size	sckup ckup Schedule ckup Once cover nfigure Perform w łp
This PC Local Disk (D:) Network					
🕳 Local Disk (D:)	<	< Previous Next >	Close	) Cancel	

# Step E

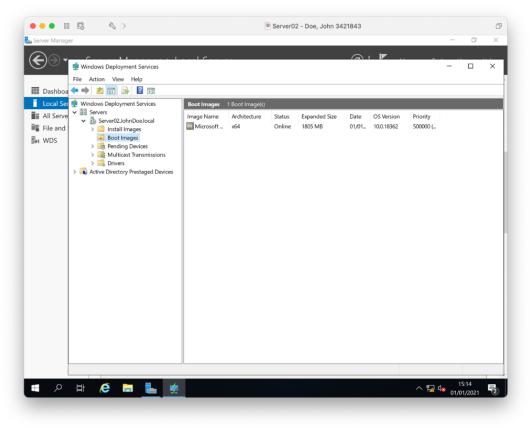
### **Role installation**

Print screen showing the Windows deployment role has been installed and shown in server manager dialogue box.



Configuration

Windows deployment role has been configured on server showing boot image added.



Windows deployment role has been configured on server showing install image added.

€⊚∙	Windows Deployment Services				· · · · · · · · · · · · · · · · · · ·		·			×
	File Action View Help									
Dashboa Local Ser	←	Windows 10 1 Ins	tall Image(s)	-		-	-		-	
III All Serve	<ul> <li>Servers</li> <li>Servers</li> <li>Install Images</li> <li>Windows 10</li> <li>Soot Images</li> <li>Pending Devices</li> <li>Multicast Transmissions</li> <li>Active Directory Prestaged Devices</li> </ul>	Image Name	Architecture x64	Status Online	Expanded Size 14275 MB	Date 01/01_	OS Version 10.0.18362	Priority 500000 (_		
م -	H 🙆 🖬 ⊾ 👳		1 1					^ 🖫 🔩 ,	15:02 1/01/2021	Ę

# Activation

Windows deployment role is running using server manage, task manager dialogue box.

€) <b>→</b>	erver Mana	aer • Loca	l Server	• 🗇	📕 ма	nage Tools	View	Help
	Server Name		Source	Log	Date and Time			
Dashboard	SERVER02	10154 Warning	Microsoft-Windows-Windows Remote Management	System	01/01/2021 11:2	6:36		^
Local Server	SERVER02		Microsoft-Windows-Windows Remote Management		01/01/2021 11:2			
All Servers	SERVER02	10154 Warning	Microsoft-Windows-Windows Remote Management	System	01/01/2021 11:2	20:50		
File and St ▷	SERVER02	10149 Warning	Microsoft-Windows-Windows Remote Management	System	31/12/2020 17:5	60:30		
WDS	SERVER02	63 Warning	Microsoft-Windows-WMI	Application	01/01/2021 14:5	7:46		
	SERVER02	63 Warning	Microsoft-Windows-WMI	Application	01/01/2021 14:5	7:46		
	SERVER02	63 Warning	Microsoft-Windows-WMI	Application	01/01/2021 14:5	7:46		$\sim$
	Display Nar Windows D	ne efender Firewall	*	Service Na	me		itatus Junning	St AL ^
	Windows D	eployment Services	Server	WDSServer	r		unning	_
		cryption Provider H		WEPHOST	SVC	S	topped	M
	Windows Er	ror Reporting Service	e	WerSvc		s	topped	M
	Windows Ev	ent Collector		Wecsvc		S	topped	M
	Windows Ev	rent Log		EventLog		R	unning	AL 🗸
	<							>
	BEST PRACTIC						TASKS	-
	Filter		Q (Ⅲ) ▼ (Ⅲ) ▼					$\odot$

# **Role testing**

PC01 network boots, it can make a connection with the Windows deployment server.

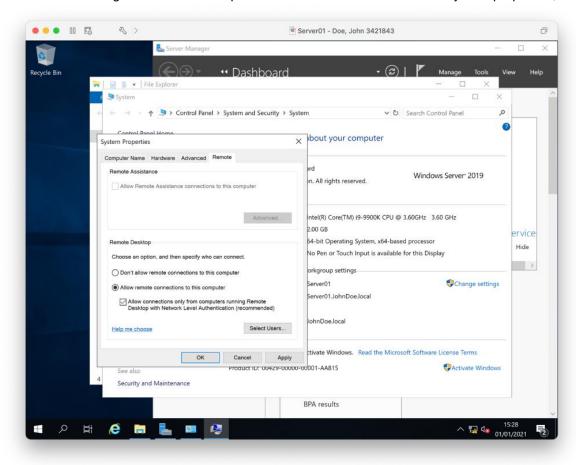
	। छ PC01 - Doe, John 3421843	đ
Network boot from Intel E Copyright (С) 2003-2018 Copyright (С) 1997-2000	VMware, Inc.	
	6D E3 30 GUID: 564DB6AD-16C2-0A5A-FF40-2 : 255.0.0.0 DHCP IP: 10.1.1.1	A63EF6DE330
Downloaded WDSNBP from 10	.1.1.3 Server02.JohnDoe.local	
Press F12 for network ser Architecture: x64 Contacting Server: 10.1.1 ГFTP Download: boot\x64\p; -	.3.	

	<u>জ</u> PC01 - Doe, John 3421843 ি	
		I
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Loading files		
IP: 10.1.1.3, Fil	e: \Boot\x64\Images\boot.wim	

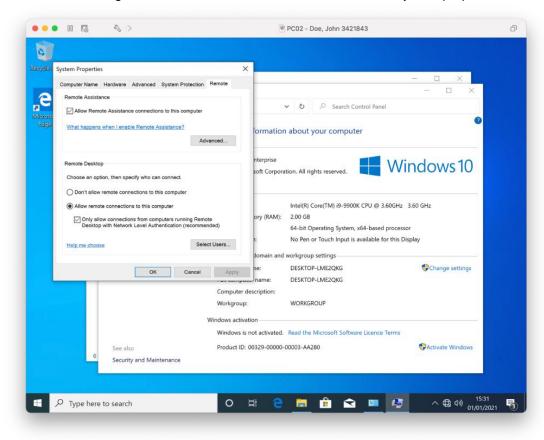
Step F

#### Configuration

Print screen showing the remote desktop has been enabled on the server in system properties, this will allow remote access to the server.

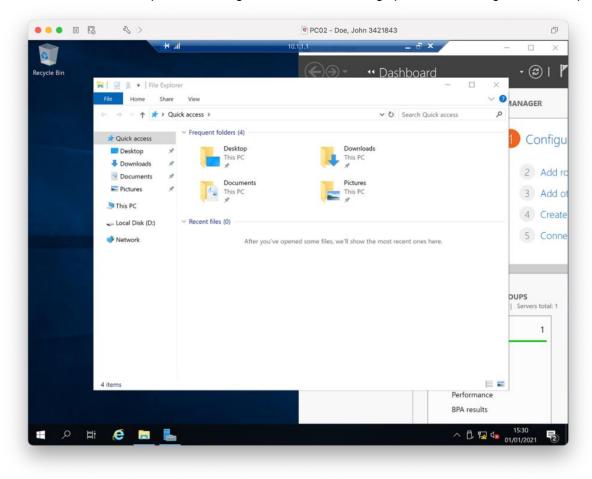


Print screen showing remote access has been enabled for PC02 in system properties.



## Accessing

Server in a remote desktop window being administered - allowing updates and configuration to be performed remotely from the server.



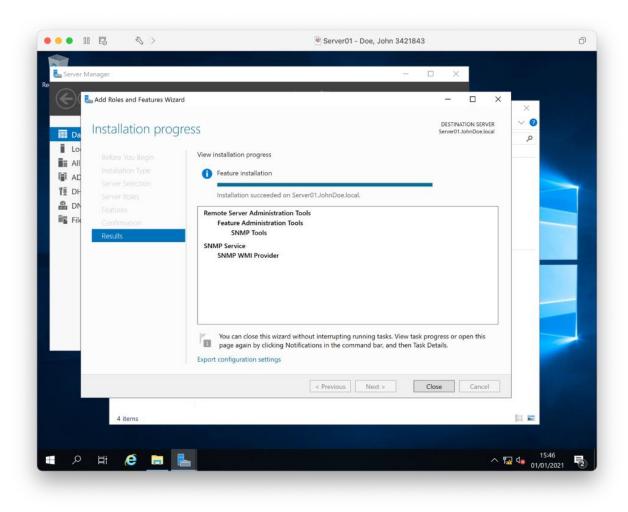
# Step G

## **SNMP** enabled

Print screen showing that SNMP has been added to PC01 using application and features.

🔗 Windows Defender Firewall with	Inbound Rules					Act	tions	
🖾 Inbound Rules	Name	Group	Profile	Enabled	Action	Int	ound Rules	
Outbound Rules	Remote Volume Management (RPC-EPMAP)	Remote Volume Management		No	Allow			~ ~
Connection Security Rules	Routing and Remote Access (GRE-In)	Routing and Remote Access		No	Allow		New Rule	
> 💺 Monitoring	Routing and Remote Access (GR2-In) Routing and Remote Access (L2TP-In)	Routing and Remote Access		No	Allow		Filter by Profile	
	Routing and Remote Access (PPTP-In)	Routing and Remote Access		No	Allow	V	Filter by State	
	Secure Socket Tunneling Protocol (SSTP-In)	Secure Socket Tunneling Pro		No	Allow		Filter by Group	
	Skype	Skype	Domai	Yes	Allow	1.1	a second a second a second	
	Skype	Skype		Yes	Allow		View	
	Ø Skype	Skype		Yes	Allow	Q	Refresh	
	SNMP Trap Service (UDP In)	SNMP Trap		Yes	Allow		Export List	
	SNMP Trap Service (UDP In)	SNMP Trap		Yes	Allow	?	Help	
	Start	Start		Yes	Allow		нер	
	🔮 Start	Start		Yes	Allow	Sel	lected Items	
	Start	Start	Domai	Yes	Allow		Disable Rule	
	Start	Start	Domai	Yes	Allow	4	<u></u>	
	TPM Virtual Smart Card Management (DC	TPM Virtual Smart Card Man	Private	No	Allow		Cut	
	TPM Virtual Smart Card Management (DC	TPM Virtual Smart Card Man	Domain	No	Allow	1	Сору	
	TPM Virtual Smart Card Management (TCP	TPM Virtual Smart Card Man	Private	No	Allow	×	Delete	
	TPM Virtual Smart Card Management (TCP		Domain	No	Allow	2	Help	
	Virtual Machine Monitoring (DCOM-In)	Virtual Machine Monitoring	All	No	Allow			
	Virtual Machine Monitoring (Echo Regues	Virtual Machine Monitoring	All	No	Allow			
	Virtual Machine Monitoring (Echo Regues	Virtual Machine Monitoring	All	No	Allow			
	Virtual Machine Monitoring (NB-Session	Virtual Machine Monitoring	All	No	Allow			
	Virtual Machine Monitoring (RPC)	Virtual Machine Monitoring	All	No	Allow			
	Wi-Fi Direct Network Discovery (In)	Wi-Fi Direct Network Discov	Public	Yes	Allow			
	🔇 Wi-Fi Direct Scan Service Use (In)	Wi-Fi Direct Network Discov	Public	Yes	Allow			
	🔮 Wi-Fi Direct Spooler Use (In)	Wi-Fi Direct Network Discov	Public	Yes	Allow			
	Windows Collaboration Computer Name	Windows Collaboration Com	All	No	Allow			
	Windows Collaboration Computer Name	Windows Collaboration Com	All	No	Allow			
c >	Windows Defender Firewall Remote Mana	Windows Defender Firewall	Domain	No	Allow	·		

Print screen showing that firewall allows SNMP both in and outbound on the firewall for Server01.



File Action View Help							
🕨 🕪 🛛 📑 🖬 👘	Inbound Rules						Actions
Inbound Rules	Name	Group	Profile	Enabled	Action	1.00	Inbound Rules
Cutbound Rules	Remote Desktop - (TCP-WSS-In)	Remote Desktop (WebSocket)	All	No	Allow		New Rule
Connection Security Rules Monitoring	Remote Event Log Management (NP-In)	Remote Event Log Managem	All	No	Allow		and the second
- See Monitoring	Remote Event Log Management (RPC)	Remote Event Log Managem	All	No	Allow		Filter by Profile
	Remote Event Log Management (RPC-EP	Remote Event Log Managem	All	No	Allow		Filter by State
	Remote Event Monitor (RPC)	Remote Event Monitor	All	No	Allow		Filter by Group
	Remote Event Monitor (RPC-EPMAP)	Remote Event Monitor	All	No	Allow		View
	Remote Scheduled Tasks Management (R.,	Remote Scheduled Tasks Ma	All	No	Allow		7
	Remote Scheduled Tasks Management (R.,	Remote Scheduled Tasks Ma	All	No	Allow		C Refresh
	Remote Service Management (NP-In)	Remote Service Management	All	No	Allow		Export List
	Remote Service Management (RPC)	Remote Service Management	All	No	Allow		Help
	Remote Service Management (RPC-EPMAP)	Remote Service Management	All	No	Allow		
	Inbound Rule for Remote Shutdown (RPC	Remote Shutdown	All	No	Allow		
	Inbound Rule for Remote Shutdown (TCP	Remote Shutdown	All	No	Allow		
	Remote Volume Management - Virtual Di	Remote Volume Management	All	No	Allow		
	Remote Volume Management - Virtual Di	Remote Volume Management	All	No	Allow		
	Remote Volume Management (RPC-EPMAP)	Remote Volume Management	All	No	Allow		
	Routing and Remote Access (GRE-In)	Routing and Remote Access	All	No	Allow		
	Routing and Remote Access (L2TP-In)	Routing and Remote Access	All	No	Allow		
	Routing and Remote Access (PPTP-In)	Routing and Remote Access	All	No	Allow	time (	
	Secure Socket Tunneling Protocol (SSTP-In)	Secure Socket Tunneling Pro	All	No	Allow		
	SNMP Service (UDP In)	SNMP Service	Private,	Yes	Allow		
	SNMP Service (UDP In)	SNMP Service	Domain	Yes	Allow		
	SNMP Trap Service (UDP In)	SNMP Trap	Domain	Yes	Allow		
	SNMP Trap Service (UDP In)	SNMP Trap	Private,	Yes	Allow		
	Software Load Balancer Multiplexer (TCP-In)	Software Load Balancer	All	No	Allow		
	TPM Virtual Smart Card Management (DC	TPM Virtual Smart Card Man	Private,	No	Allow		
	TPM Virtual Smart Card Management (DC	TPM Virtual Smart Card Man TPM Virtual Smart Card Man	Domain	No	Allow		
	TPM Virtual Smart Card Management (TCP TPM Virtual Smart Card Management (TCP		Domain Private	No	Allow	~	
· · · · · · · · · · · · · · · · · · ·	<	Televi virtual smart Caro Man.	FILVATE	190	Antiwa		

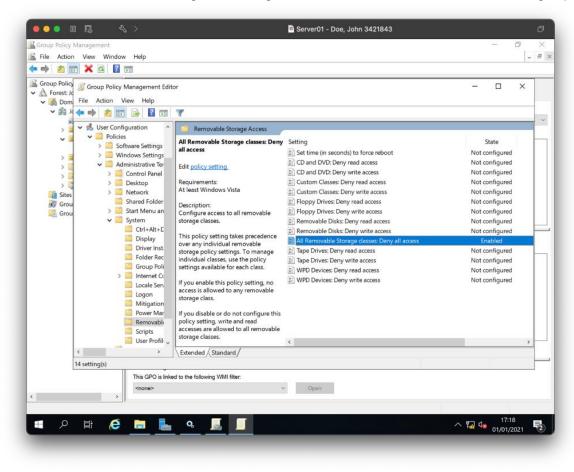
## SNMP data collection

		NMP Service Properties (	Local Computer)		×	- 0	×
Das     Services (Local)     Loca     All S     DAG     DNS     File	SNMP Servi	Seneral Log On Recove	P mes Ri Ri Edit	Security Dependencies	Status Running Running Running Running Running Running Running	Startup Type Manual (frigg_ Manual (frigg_ Automatic (fri. Disabled Automatic Manual (frigg_ Disabled Manual Automatic (De., Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual Manual	Loc  Loc  Loc  Loc  Loc  Loc  Loc  Loc
	Extended Stan	dard/	OK	Cancel App)	Running	Automatic Automatic (Tri	Loc Loc ~ >

#### Step H

Policy 1 – disable USB support

Print screen on Server01 showing the blocking of removable devices have been enabled in group policy, this will ensure that the machines are kept safer.

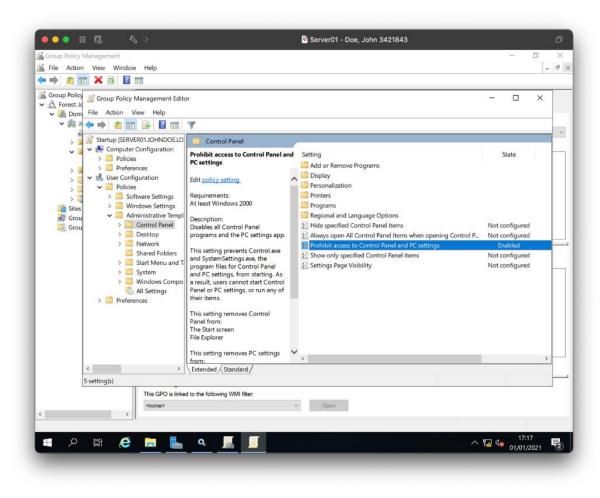


Print screen showing that when a USB is connected to PC01, an error message displays on the screen blocking access.

× ۱۵ 🔍 🔍	🖉 > 🖸 PC01 - Doe, John 3421843
ayale Bin	
	Image     Manage       File     Computer       View     Drive Tools
	← → ▼ ↑ >> This PC
Sege	Cuick access     Folders (7)     Desktop     JD Objects     Desktop
	Downloads     Docume     Location is not available     Downloads
	→ Music     D:\ is not accessible.       ■ Videos     Access is denied.
	Contraction Contractica Contra
	Vetwork CD Drive (2) Local Disk (C:) 41.3 GB free of 59.4 GB VD Drive (D:) 0 bytes free of 5.16 GB
	A 1.3 GD HEE OF 354 GD CO bytes hee of 3.10 GD
	9 items 1 item selected
	earch O H C II C III  C III  C III C III C III C III C III C IIII  C IIII C IIII C IIII C IIII C IIIII C I

Policy 2 – disable access to the control panel

Print screen on Server01 showing control panel access have been enabled in group policy.

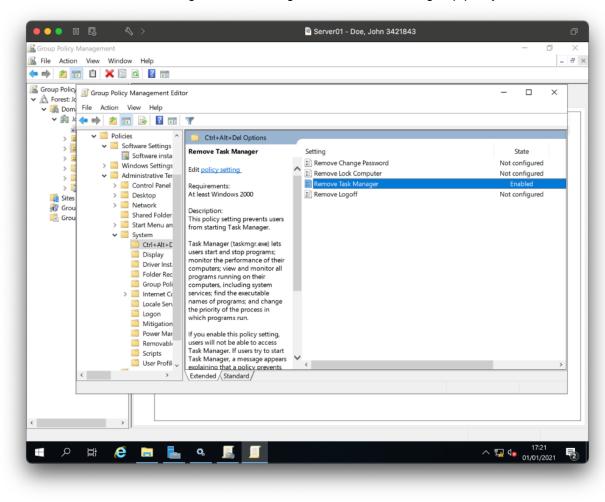


Print screen showing that control panel menu icons have been hidden on PC01.

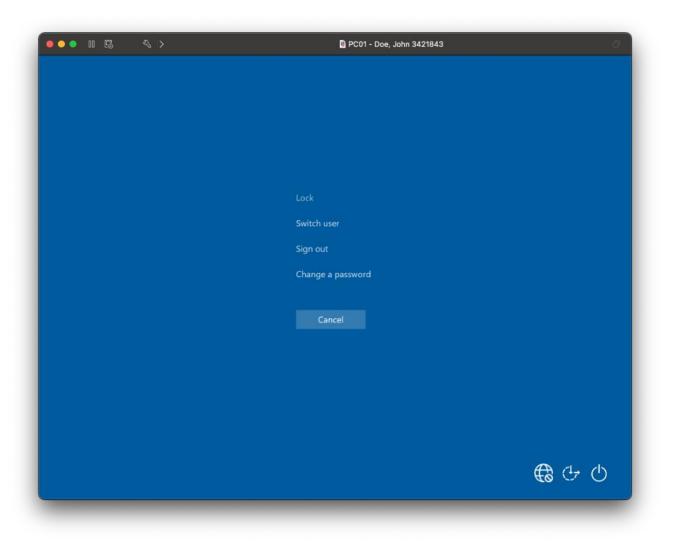
•••• II 🖪 🔍	S → B PC01 - Doe, John 3421843
0	
acycle Bin	
e	
//Herosoft	
Edga	
	S Restrictions X
	This operation has been cancelled due to restrictions in effect on this computer. Please contact your system administrator.
	contact your system administrator.
	ОК
Type here to se	earch O 🛱 🤮 🔚 🚖 < ^ 🛱 🖓

Policy 3 – disable task manager access

Print screen on Server01 showing that task manager access is denied in group policy, this will also increase security of the data.



Print screen showing that you cannot access task manager on PC01 as it is hidden from the CTRL+ALT+ Delete screen - minimising the chance of someone gaining access they shouldn't.



Policy 4 - prevent the installing of applications

Print screen on Server01 showing the prevention of installing applications in group policy - this will ensure that security is maintained due to people not being able to install new applications.

Forest: Jo				- 0	×
		Windows Installer			
> 🦉 > 🦉 > 🦉 Sites 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	RSS Feeds Search Security Center Shutdown Options Smart Card Software Protection Sotware Protection Store Store Sync your settings Store Tablet PC Tablet PC Task Scheduler Text Input Windows Calsome Windows Custome Windows Custome Windows Defender Windows Defender Windows Defender Windows Defender Windows Enefender Windows Error Re; Windows Ink Work Windows Installer	Edit policy setting.	Setting         Allow users to use media source while elevated         Always install with elevated privileges         Control maximum size of baseline file cache         Enforce upgrade component rules         Prevent embedded UI         Prevent internet Explorer security prompt for Windows Install         Prevent users from using Windows Installer to install updates         Prohibit non-administrators from applying vendor signed up         Prohibit rollback         Prohibit Use of Restart Manager         Prohibit Use of Itansform files in a secure location on worksta         Specity the types of events Windows Installer records in its tr         Turn off creation of System Restore checkpoints         Turn off and components	State Not configured Not configured	•
	Windows Installer     v				>

Print screen showing that when an .EXE is clicked, it will not execute and stops with an error message displays on the screen.

••• • • • • • •	S PC01 - Doe, John 3421843
Rosyalo Bin	
sage Finalou Sacop 3403 Finalou Finalou	Mozilla Firefox Setup  Completing the Mozilla Firefox Setup  Mozilla Firefox has been installed on your computer.  Cick Finish to close this witard.  Lunch Firefor now
€ P Type here to search	

Policy 5 - disable remote desktop]

Print screen on Server01 showing remote desktop has been disabled in group policy – preventing people being able to access this remotely and therefore increasing security.

Forest: Jo	Group Policy Management Edit le Action View Help Action Big			- 0 ×
> S > C > C > C > C > C > C > C > C > C > C	<ul> <li>Remote Desktop Sr ^</li> <li>Remote Deskto</li> <li>Remote Deskto</li> <li>Remote Deskto</li> <li>Remote Deskto</li> <li>Remote Deskto</li> <li>Connection</li> <li>Device and</li> <li>Ucensing</li> <li>Printer Redii</li> <li>Profiles</li> <li>Remote Deskto</li> <li>Security</li> <li>Session Tirr</li> <li>Temporary</li> <li>Sestrich</li> <li>Security</li> <l< td=""><td>Connections Allow users to connect remotely by using Remote Desktop Services Edit policy setting. Requirements: At least Windows Server 2003 operating systems or Windows XP Professional Description: This policy setting allows you to configure remote access to computers by using Remote Desktop Services. If you enable this policy setting, users who are members of the Remote Desktop Services. If you disable this policy setting, users cannot connect remotely to the target computer by using</td><td>Setting Allow renote start of unlisted programs Allow users to connect remotely by using Remote Desktop Se. Configure keep-alive connection interval Configure keep-alive connections interval Configure keep-alive connections Restrict Remote Desktop Services users to a single Remote De. Select relowark detection on the server Select RDP transport protocols Set rules for remote control of Remote Desktop Services user _ Suspend user sign-in to complete app registration Suspend user sign-in to complete app registration Turn off Fair Share CPU Scheduling</td><td>State Not configured Disabled Not configured Not configured Not configured Not configured Not configured Not configured Not configured Not configured</td></l<></ul>	Connections Allow users to connect remotely by using Remote Desktop Services Edit policy setting. Requirements: At least Windows Server 2003 operating systems or Windows XP Professional Description: This policy setting allows you to configure remote access to computers by using Remote Desktop Services. If you enable this policy setting, users who are members of the Remote Desktop Services. If you disable this policy setting, users cannot connect remotely to the target computer by using	Setting Allow renote start of unlisted programs Allow users to connect remotely by using Remote Desktop Se. Configure keep-alive connection interval Configure keep-alive connections interval Configure keep-alive connections Restrict Remote Desktop Services users to a single Remote De. Select relowark detection on the server Select RDP transport protocols Set rules for remote control of Remote Desktop Services user _ Suspend user sign-in to complete app registration Suspend user sign-in to complete app registration Turn off Fair Share CPU Scheduling	State Not configured Disabled Not configured Not configured Not configured Not configured Not configured Not configured Not configured Not configured
< 12 :	setting(s)	Remote Desktop Services. The Extended (Standard)		

Print screen showing when a remote desktop connection cannot be made to PC01 from Server01.

•••• • • • • • •	> Dee, John 3421843
e	
Recycle Bin	
	Image         Manage         This PC         —         X
e	File Connection - X
Receit	earch This PC
Selga	Remote Desktop
	Deskt Desktop
	Lowr Computer: 10.1.1.1 V
	Remote Desktop Connection X
	The connection was denied because the user account is not authorised for remote log-in.
	The connection was denied because the user account is not authorised for remote log-in.
	ОК Неір
	This PC
	Network     Vevices and drives (2)
	Local Disk (C:) CD Drive (D:) CPBA_X64FRE_EN-GB_DV9
	41.3 GB free of 59.4 GB 0 bytes free of 5.16 GB
	9 items 1 item selected
	9 items 1 item selected
E ア Type here to se	arch O 🛱 🤮 🚍 🔒 🔽 🌄 -> 🕄 40 17:32
y type here to se	

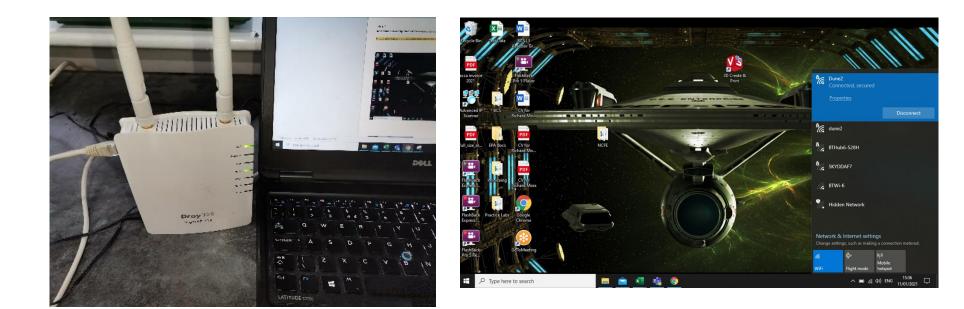
# Step I

Installation and configuration of the wireless device

Photograph showing the access point connected to the host machine via an ethernet cable – allowing wireless network access.







Printing the printers WiFi Settings to show it is connected to the WiFi.

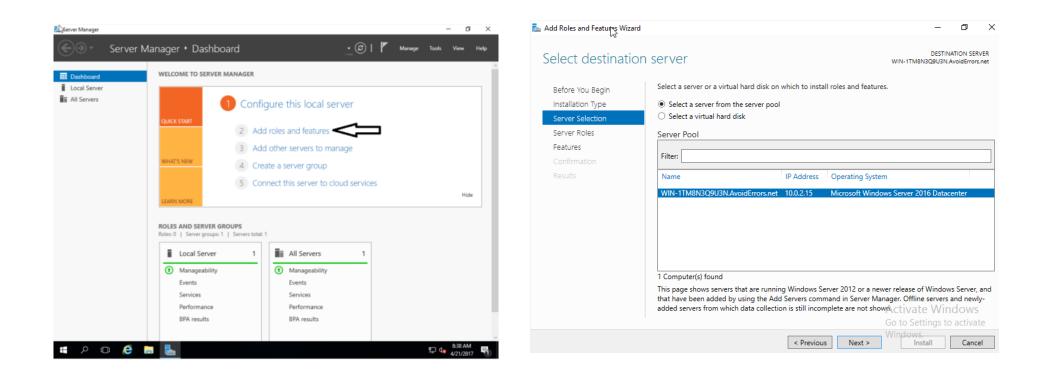


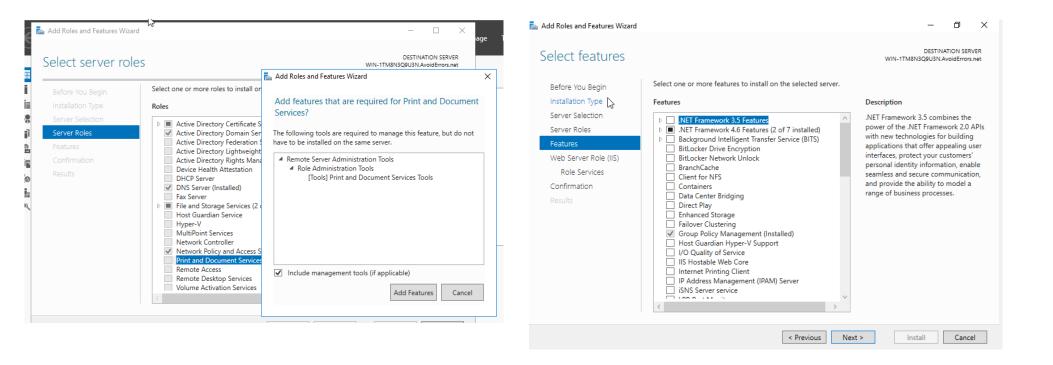


LegacyAuth	Enabled		ebBasedManagement I
Telnet	Disabled	8	NMP
LPD	Enabled		law Port
IPP	Enabled		WebServices
POP3/SMTP	Enabled		FTP
TFTP	Disabled		CIFS
mDNS	Enabled		LLMNR
SNTP	Enabled		Proxy
Brother Online Con.	Disabled		
<ip settings=""></ip>			
IP Address		192.168.0.100	(via DHCP)
Subnet Mask		255.255.255.0	
IP Gateway		192.168.0.1	
Boot Method		AUTO	
Boot Tries	3		
IP Filter		Disabled	
GW Timeout (sec)		21	
DNS Address Config		AUTO	
Primary DNS Server		192.168.0.1	
Secondary DNS Server		0.0.0.0	
<netbios name=""></netbios>		BrotherPrin	terC

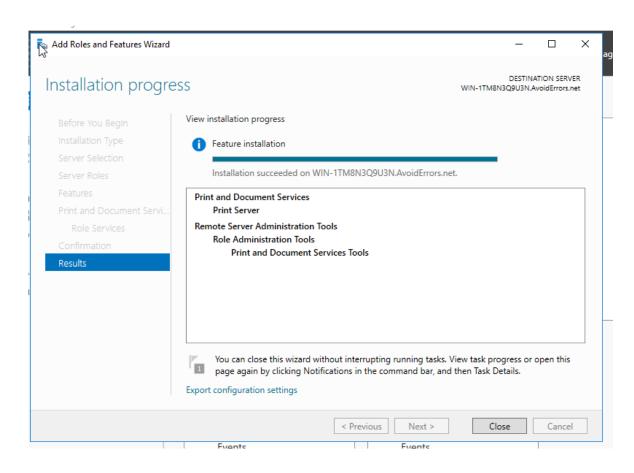
CONTRACTOR CONFIGURATIO	1000			
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clode Firmesrs Ver.>	71	CHARTE Ver. 1	w, INNE 802.11b/g	(n (Active)
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clicde names	Bre	otherPrinterC		
chotive servicess		RANSAD43290C		
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	P08	TRCKIPT_P1		
		P1	87	
Gratassias				
572/72	Enabled			
Sec.8108/19	Read Led	19	76	Disabled
Logacysuch	Enabled	A.9	TPA bBasedManagement NP	Enabled
Talaat	Dissiled	58	NP NP NP Port	Enabled
242	Enabled		w Port	Enabled
2077	Rnabled Enabled	¥e.	bServices	Enabled
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\$977	Staabled Enabled Enabled			Enabled
Brother Galine Con.	Disabled	22	oxy	Disabled
17 Settings>				
TP Address	193	168.0.100	for the second	
Subnet Kesk	255	255.255.0	(Via DHCP)	
IP Gateway	192.	168.0.1		
Boot Method	AUTO			
Boot fries DP Filter	3			
	Disa	bled		
W Timesut (sec)	21			
MN Address Config Primery DNS Server	AUTO			
Fridary DEE Server	192.	144 0 1		
lecondary DBS Server	0.0.	0.0		
ecalos sames	Brost	berPrinterC		
CRS Address Configs	1070	C		
Verdick Names CAS Address Configs Timery WCBS Servers	0.0.0	0.0		
econdary WINE Server>	0.0.0			
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RTP Fort>	25			
193 Server>	0.0.0	0.0		
SP3 Poet>	110			
WE Service Names	Broth	er EL-114000	series	
BServices Name>	Broth	er HL-3140CM	series [a86bad43]	190c1
Tificate>				
atas	Insta	lled		
mm. Hodes me(SEIS)s	Infra	structure		
thentication Modes	Dune2			
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	eeeeeee	SI Frances	Received OK Error	6893432
			BARDI .	5003737
centa Transmitted	265420	TX France	Transmitted OK	399358

The following images show the adding of the print services to the server and the adding of the WiFi printer.





눰 Add Roles and Features Wizard		– 🗆 X	20		
Confirm installatio	on selections WIN-1TMBN3C	DESTINATION SERVER Q9U3N.AvoidErrors.net	Add Roles and Features Wizar		DESTINATION SERVER WIN-1TM8N3Q9U3N.AvoidErrors.net
Before You Begin	To install the following roles, role services, or features on selected server, click Install	. –			
Installation Type	Restart the destination server automatically if required		Before You Begin	View installation progress	
Server Selection Server Roles Features	Optional features (such as administration tools) might be displayed on this page bee been selected automatically. If you do not want to install these optional features, cli- their check boxes.		Installation Type Server Selection Server Roles	Starting installation	
Print and Document Servi Role Services Confirmation Results	Print and Document Services Print Server Remote Server Administration Tools Role Administration Tools Print and Document Services Tools		Features Print and Document Servi Role Services Confirmation Results	Print and Document Services Print Server Remote Server Administration Tools Role Administration Tools Print and Document Services Tools	
	Export configuration settings Specify an alternate source path			Export configuration settings	
	< Previous Next > Instal	I Cancel		Fvonte	



Configure print server and network printer on Windows Server 2016

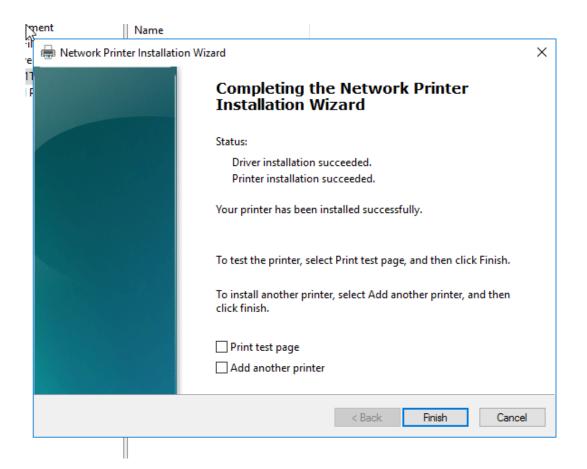
Screen prints showing the connection to the WiFi printer and the installation of the drivers.

•	🕄   🍢 Manage Tools View Help
	• •
	Active Directory Domains and Trusts
	Active Directory Module for Windows PowerShell
	Active Directory Sites and Services
	Active Directory Users and Computers
	ADSI Edit
	Certification Authority
	Component Services
	Computer Management
	Defragment and Optimize Drives
	DHCP
	Disk Cleanup
	DNS
	Event Viewer
	Group Policy Management
	Internet Information Services (IIS) Manager
	iSCSI Initiator
	Local Security Policy
	Microsoft Azure Services
	Network Policy Server
	ODBC Data Sources (32-bit)
	ODBC Data Sources (64-bit)
	Performance Monitor
	Print Management
	Resource Monitor
	Services
	System Configuration
	System Information

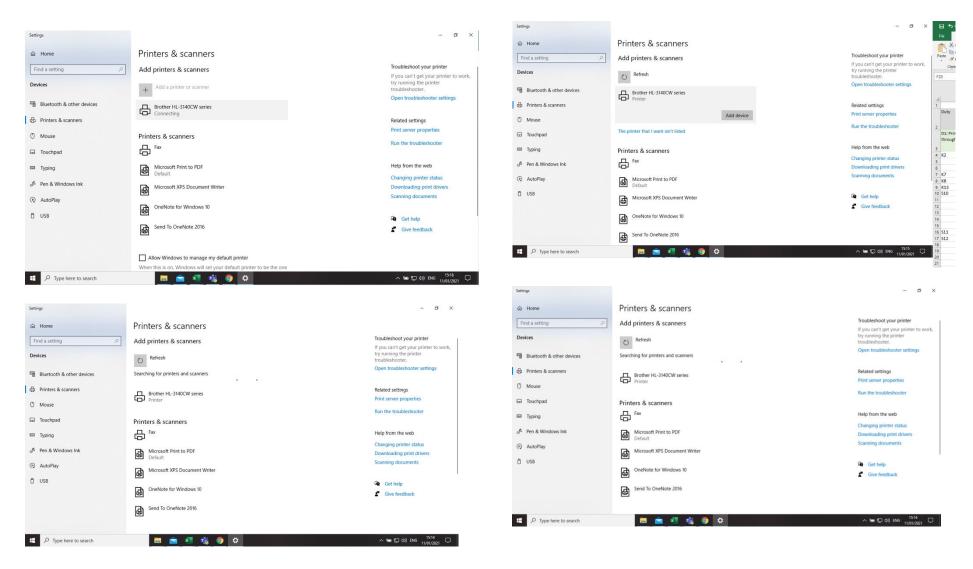
🔚 Print Managemen	ıt	– 🗆 X
File Action View	Help	
🗢 🔿   🚈 📊 🗟	¥   🛛 🖬	
🕞 Print Management		Actions
<ul> <li>Custom Filters</li> <li>Print Servers</li> </ul>	# Drivers	WIN-1TM8N3Q9U3N (local) 🔺
	N3O9U3N (loc: Forms	More Actions
💼 Deployed Print		
	Export printers to a file	
	Import printers from a file	
	Set Notifications	
	Properties	
	View >	
	Export List	
	Help	

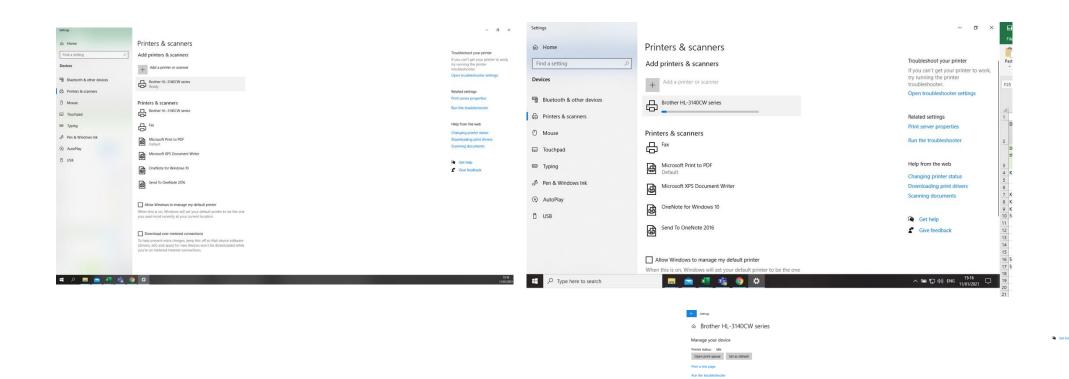
Printer Installation Wizard X Printer Installation Pick an installation method.	
<ul> <li>Search the network for printers</li> <li>Add a TCP/IP or Web Services Printer by IP address or hostname</li> <li>Add a new printer using an existing port: LPT1: (Printer Port) </li> <li>Create a new port and add a new printer: Local Port </li> </ul>	Type of Device:       TCP/IP Device         Host name or IP address:       192.168.0.100         Port name:       192.168.0.100         ☑ Auto detect the printer driver to use.
< Back Next > Cancel	< Back Next > Cancel

Retwork Printer Installation Wizard Printer Driver Pick a driver for the new printer.	×	Network Printer Ins Printer Name and S You can give the		use the printer.
O Use the printer driver that the wizard selected Compatible driver cannot be found.	d	Printer Name:	Brother HL 3140CW Series	
O Use an existing printer driver on the computer  Microsoft Print To PDF  Install a new driver		Share Name: Location:	AvoidErrors-Printer WWW.AvoidErrors.Net	
		Comment:	This tutorial is by AvoidErrors.Net	
< Back Cance	ł		< Back	Next > Cancel



The following images show the installation of the printer onto PC01 (Windows10)





Printer properties

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Evidence of testing from 2 machines that the wireless device can be accessed

Photograph showing that a test document on Server02 has started to print from the wireless printer



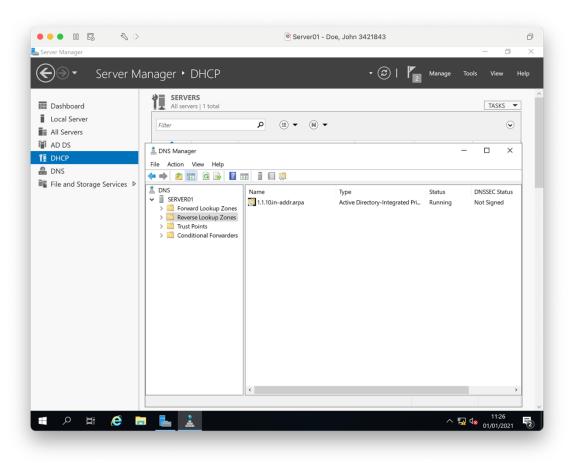
Photograph showing that a test document on PC01 has printed from the wireless printer



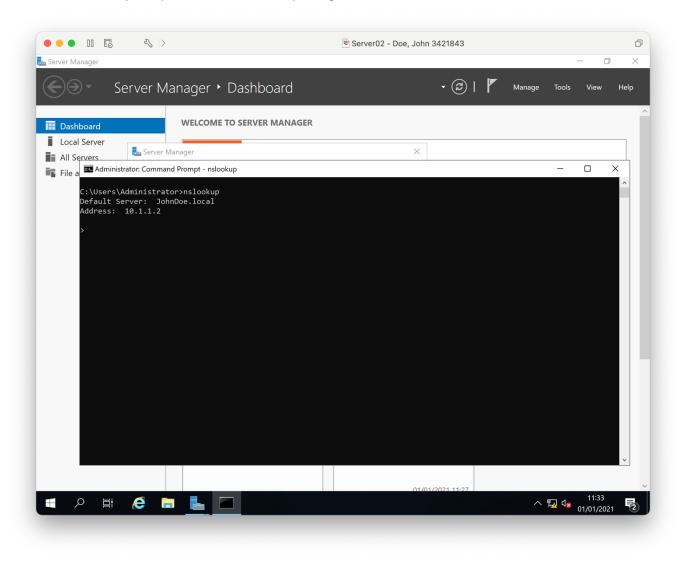


#### **Reverse lookup**

Server02 successfully completed a reverse lookup using NSLOOKUP to Server01 - zone added.



Server02 successfully completed a reverse lookup using NSLOOKUP to Server01 – default server listed.



## Step A

(3 marks)				
Processes	Settings	Marks	Evidence required	
Install the provided server operating system on Server01 and Server02 Use suitable configurations that match your current time zone and provide evidence of the successful installation of the server operating system on both Server01 and Server02	All hard disks should be partitioned to a single 100% partition, and the machines named Server01 and Server02 Server01 and Server02 should have fixed IP addresses	1	Provide print screen or photographic evidence of the following: Server01 disk partitions Server01 IP address (1) Set Server01 IP address (2) Set Server01 name set Server01 regional settings, date and time Server02 disk partitions Server02 IP address set Server02 name set Server02 regional settings, date and time	
Install the provided desktop operating system on PC01	All hard disks should be partitioned to a single 100% partition Use suitable region-specific settings, otherwise the defaults should be taken	1	Provide print screen or photographic evidence of the following: PC01 disk partitions PC01 name set PC01 regional settings, date and time	

## Step B

(8 marks)

(8 marks)			
Processes	Settings	Marks	Evidence required
Install and configure DNS		8	☑ print screen showing DNS has been installed
Install and configure a directory service	Install a directory service with the domain name set as (FirstnameSurname).local, for example: JohnSmith.local		print screen showing the directory service has been installed and configured
Install DHCP service on Server01		-	☑ print screen showing the DHCP service installed
Implement a DHCP scope using the IP range provided earlier			print screen showing the DHCP scope configured
Evidence PC01 is using DHCP to join the network			print screen showing PC01 has been assigned a DHCP address
Domain join Server02 and PC01 to Server01 forming the start of the network			print screen showing Server02 domain joined print screen showing PC01 domain joined

Install and confirm a reverse DNS		print screen showing Server02 successfully	
lookup works on Server02 using		completed a reverse lookup	
NSLOOKUP			

## Step C

(8 marks)

Processes	Settings	Marks	Evidence required
Requested groups have been created			
All user accounts have been created	Personal account has been added to admin group Paul James has been added to development group Tamara Jacobs has been added to graphics group Yousif Sobbah has been added to motion capture group	_	
Job titles have been added	Personal account has JD of IT admin Paul Jones has JD of development Tamara Jacobs has JD of graphics artist Yousif Sobbah has JD of motion capture specialist		

	Personal account has been added to administrators group	
Local admin role set	Development added to development folder with RW permission	
	Graphics group added to graphics folder with RW permission	
	Motion capture group added to motion capture folder with RW permission	
	All staff group added to shared drive with read permission	
	All staff added to user guides folder with read admin	
	IT Admin added to user guides folder with RW permission	
	IT admin added to IT admin folder with RW permission	

Create the following groups in your directory service	All staff, developer, graphics, motion capture, IT admin	1	print screen showing the 5 groups created in your directory service

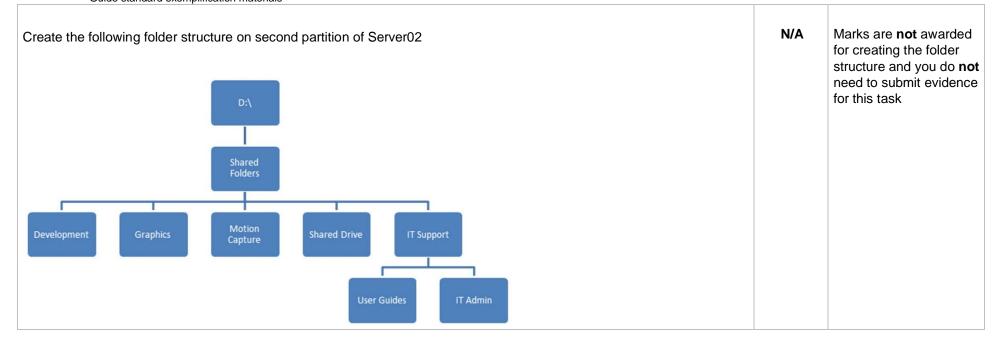
User account	Privileges	Job description	Group(s)
Your first and surname	Administrator	IT admin	IT admin
Paul James	Standard user	Developer	Development
Tamara Jacobs	Standard user	Graphics artist	Graphics
Yousif Sobbah	Standard user	Motion capture specialist	Motion capture

print screen evidence that each user has the correct name, privilege, job description and has been added to the correct group

1

Using the group called <b>all staff,</b> add the following groups to this group: development	1	print screen showing all 5 groups added to the all staff group
graphics		
motion capture		
IT admin		

Processes	Settings	Marks	Evidence required	
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Processes	Settings	Marks	Evidence required	
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Apply the following privileges to each of the	Folder	Group	Permission		1	print screer each folder correct priv
olders using the groups created	Development	IT admin	Read and write			
earlier	Graphics	Development	Read and write			
	Motion Capture	Motion capture	Read and write	-		
	Shared Drive	All staff	Read	-		
	User Guides	All staff	Read	-		
	L	IT admin	Read and write	-		
	IT admin	IT admin	Read and write			

## Step D

(3 marks)

Processes	Settings	Marks	Evidence required	

Using an external hard disk drive or an additional virtual disk to Server02, implement a scheduled backup of the shared folders to run every hour to the second physical hard or external storage device	3	print screen showing scheduled backup set
Confirm the backup has been taken successfully by restoring the contents of the backup <b>Note</b> : You might need to return to this step later to collect the required evidence		print screens showing a successful backup print screens showing a successful restoration

## Step E

(4 marks)

Processes	Settings	Marks	Evidence required
Using Server02, install <b>and</b> configure a <b>single</b> application service from the following list:	desktop deployment media server database server IT helpdesk web server print server	4	print screens showing the service being installed and configured

print screens showing the service is running print screens showing the service being tested

## Step F

			(2 marks)
Processes	Settings	Marks	Evidence required
Create a remote connection from PC02 to Server01 Note: You are <b>not</b> permitted to domain join the computer		2	print screens showing the remote connection process

## Step G

(4 ma				
Processes	Settings	Marks	Evidence required	
Implement a SNMP on all machines on the network		4	print screens from PC01 and Server02 showing that SNMP has been enabled	
Verify that SNMP data is being collected by the traps and can be viewed			a series of print screens showing the SNMP data is being collected centrally	

11 rks)

#### Step H

(	10	marks)
		manco

Processes	Settings	Marks	Evidence required
Using policies, implement 5 rules that will make the domain joined PC01 more secure		10	provide a short description of each policy and what it will achieve provide a print screen showing each of the policies created on Server01
Carry out testing to prove the policies have been applied correctly			provide evidence of each policy applied on PC01

### Step I

Processes	Settings	Marks	Evidence required	
Using the wireless device provided, integrate the device into your network		7	Provide print screen or photographic evidence of the following: set an IP address for the device connect to a wireless AP or other such device install the required drivers or management software configure the device with suitable settings evidence that SNMP data is being captured	
Test that the device works and is accessible from any 2 machines			a series of print screens and photographs showing connection and configuration of the wireless device	

(7 marks)

## **Examiner commentary**

The student has achieved the required standard for the following reasons:

- the cable has been well constructed, clearly presented and tested successfully
- the opening set of tasks have been clearly evidenced and show a full range of skills, with the student showing good skills throughout the process, the student has applied a good methodology and documented their tasks well
- the student was able to successful set up a DNS and DHCP services and working as expected
- the Active Directory has been configured appropriately and is being used
- the backup solution was working successfully as expected
- the work has been well structured and produced to a good level, the test plan was well constructed and clear

## **Grade descriptors**

The performance outcomes form the basis of the overall grading descriptors for pass and distinction grades.

These grading descriptors have been developed to reflect the appropriate level of demand for students of other level 3 qualifications, the threshold competence requirements of the role and have been validated with employers within the sector to describe achievement appropriate to the role.

Grade	Demonstration of attainment			
Pass	The evidence showing installations and configuration setup is logical and displays sufficient knowledge in response to the demands of the brief.			
	The student makes some use of relevant knowledge and understanding of implementing network infrastructure but demonstrates adequate understanding of perspectives or approaches associated with industry standards in digital infrastructure roles.			
	The student makes adequate use of facts/theories/approaches/concepts and attempts to demonstrate breadth and depth of knowledge and understanding in their implementations and configurations.			
	The student is able to identify some information from appropriate sources and apply the appropriate information/appraise relevancy of information and can combine information to make some decisions.			
	The student makes sufficient judgements/takes appropriate action/seeks clarification with guidance and is able to make adequate progress towards prioritising and solving non-routine problems in real life situations.			
	The student attempts to demonstrate skills and knowledge of the relevant concepts and techniques to plan, install, configure, deploy and populate network infrastructure and generally applies this across different contexts.			

	The student shows adequate understanding of unstructured problems that have not been seen before, using sufficient knowledge to attempt to prioritise and solve problems with some attempt at verifying their implementations.
Distinction	The evidence is precise, logical showing installations, configuration and deployment that provides a detailed and informative response to the demands of the brief.
	The student makes extensive use of relevant knowledge and has extensive understanding of the practices of the sector and demonstrates a depth of understanding a threshold competency of the different perspectives/approaches associated with installing, testing, monitoring and maintaining digital infrastructure.
	The student makes decisive use of facts/theories/approaches/concepts, demonstrating extensive breadth and depth of knowledge and understanding and selects highly appropriate skills/techniques/methods to apply network infrastructure practices.
	The student is able to comprehensively identify information from a range of suitable sources and makes exceptional use of appropriate information/appraises relevancy of information and can combine information to make coherent decisions.
	The student makes well-founded judgements/takes appropriate action/seeks clarification and guidance and is able to use that to reflect on real life situations in a digital infrastructure role; being able to apply implementation and configuration of the network.
	The student demonstrates extensive knowledge of relevant concepts and techniques reflected in a digital infrastructure role and precisely applies this across a variety of contexts and tackles unstructured problems that have not been seen before, using their knowledge to analyse and find suitable solutions to the problems.
	The student can thoroughly examine data/information in context and apply appropriate analysis in confirming or refuting conclusions and carrying out further work to justify and evaluate strategies for solving problems, giving concise explanations for their reasoning.

- \* "Threshold competence" refers to a level of competence that:
- signifies that a student is well placed to develop full occupational competence, with further support and development, once in employment
- is as close to full occupational competence as can be reasonably expected of a student studying the TQ in a classroom-based setting (for example, in the classroom, workshops, simulated working and (where appropriate) supervised working environments)
- signifies that a student has achieved the level for a pass in relation to the relevant occupational specialism component

## U grades

If a student is not successful in reaching the minimum threshold for the core and/or occupational specialism component, they will be issued with a U grade.

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Owner: Head of Assessment Design

## Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Published final version.		May 2021
v1.1	NCFE rebrand.		September 2021
v2.0	Annual review 2023: Amends to grade descriptors to ensure clarty	June 2023	June 2023