CompTIA.

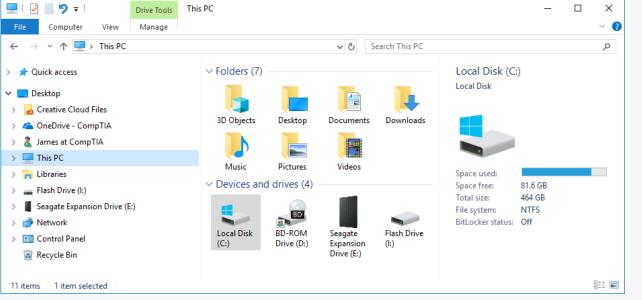
CompTIA IT Fundamentals+ (Exam FCO-U61) Module 4 / Unit 4 / Using Shared Storage

Copyright © 2018 CompTIA, Inc. All rights reserved. Screenshots used for illustrative purposes are the property of the software proprietor. Except as permitted under the Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission CompTIA, 3500 Lacey Road, Suite 100, Downers Grove, IL 60515-5439. CompTIA logo are registered trademarks of CompTIA, Inc., in the U.S. and other countries. All other product and service names used may be common law or registered trademarks of their respective proprietors.

Objectives

- List ways to share files and storage on a local network
- Describe means of sharing files and services on the Internet
- Explain the importance of backups and configure simple backup options

File Server (Direct Attached Storage)



- Any drive or folder attached to the computer can be shared on the network
- Fixed disks and removable drives can be shared
- The host computer must be turned on and the drive remain attached for the share to work

Network Attached Storage (NAS)

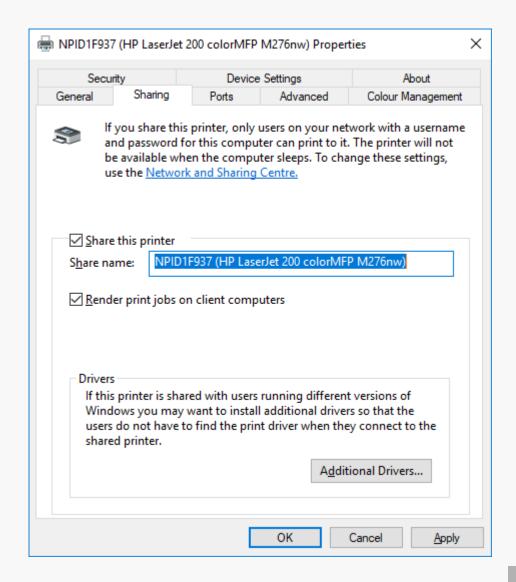


- Server appliance dedicated to file sharing
- Can be configured with multiple disks
- Supports multiple file sharing protocols
- Connected to the network and allocated an IP address (and possibly a hostname)

Network Printer Sharing

• Share the printer via Windows

- $_{\odot}$ Share any locally installed printer
- Printer can be connected to Windows host by USB, Bluetooth, Ethernet, or Wi-Fi
- Windows host must be switched on for share to be accessible
- Use a hardware print server
 - Network-enabled printers support direct connections to clients
 - Could also connect printer to NAS server or Internet router/modem



Joining a Workgroup or Domain

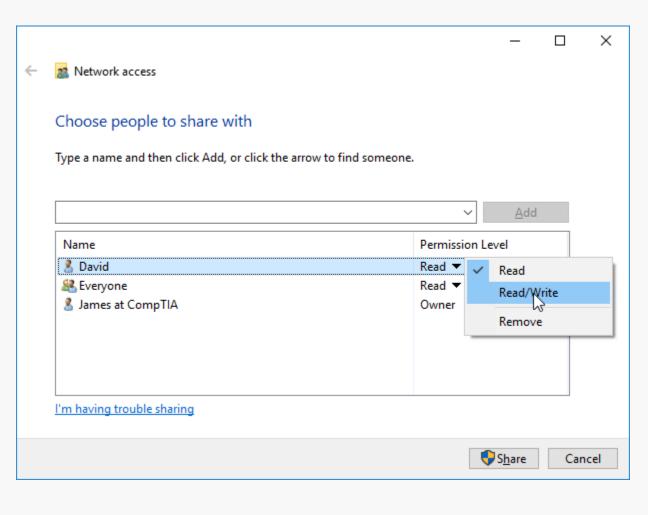
👱 System			_		×
← → ✓ ↑ 🗹 « All Control	I Panel Items > System	✓ Ö Search Control Panel			Q
Control Panel Home	View basic information	about your computer			?
💡 Device Manager	Windows edition				
💎 Remote settings	Windows 10 Pro				_
System protection	© 2018 Microsoft Corporat	tion. All rights Win	dow	\mathbf{O}	
💡 Advanced system settings	reserved.	d.			
	System				
	Processor:	Intel(R) Core(TM) i7-2670QM CPU @ 2.20GHz 2.20 G	GHz		
	Installed memory (RAM):	6.00 GB			
	System type:	64-bit Operating System, x64-based processor			
	Pen and Touch:	No Pen or Touch Input is available for this Display			
	Computer name, domain and	workgroup settings			
	Computer name:	COMPTIA	Cha	nge sett	ings
	Full computer name:	COMPTIA			
	Computer description:				
	Workgroup:	WORKGROUP			
	Windows activation				
See also	Windows is activated Rea	d the Microsoft Software Licence Terms			
Security and Maintenance	Product ID:	A4177	Change	produc	t key

 Windows provides all the client and server
 software required for
 file sharing

•Workgroups versus domains

File and Printer Sharing (1)

- Share any folder via shortcut menu or folder properties
- In a workgroup, each computer must be separately configured with the same user accounts



File and Printer Sharing (2)

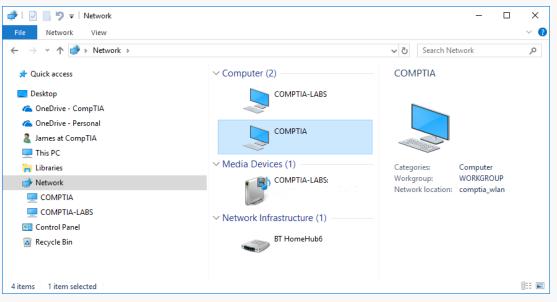
•4 Advanced sharing settings	_	×
← → ▼ 🔨 « Network and S > Advanced sharing settings 🗸 🗸 Search Control Panel		Q
Guest or Public		
All Networks		
Public folder sharing		
When Public folder sharing is on, people on the network, including homegroup members, can access files in the Public folders.		
O Turn on sharing so that anyone with network access can read and write files in the Public folders		
 Turn off Public folder sharing (people logged on to this computer can still access these folders) 		
Media streaming		
When media streaming is on, people and devices on the network can access pictures, music and videos on this computer. This computer can also find media on the network.		
Choose media streaming options		
File sharing connections		
Windows uses 128-bit encryption to help protect file sharing connections. Some devices don't support 128-bit encryption and must use 40- or 56-bit encryption.		
Use 128-bit encryption to help protect file sharing connections (recommended)		
Enable file sharing for devices that use 40- or 56-bit encryption		
Password-protected sharing		
When password-protected sharing is on, only people who have a user account and password on this computer can access shared files, printers attached to this computer and the Public folders. To give other people access, you must turn off password-protected sharing.		
 Turn on password-protected sharing Turn off password-protected sharing 		
Save changes Cancel		

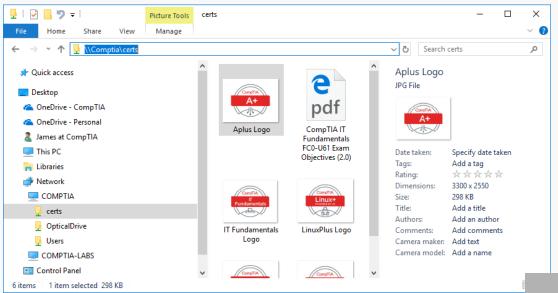
 Configure advanced settings to allow anonymous access—no security

CompTIA IT Fundamentals+

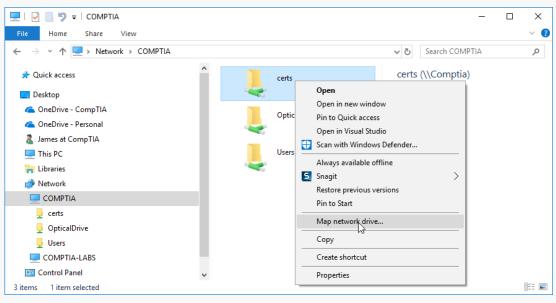
Browsing Network Shares and Drives (1)

- View computers, printers, routers (network infrastructure), and other devices via the Network object
- UNC (Universal Naming Convention) paths

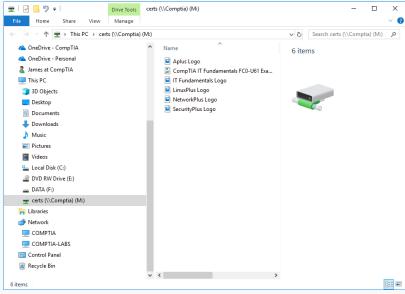




Browsing Network Shares and Drives (2)



•Map a shared folder as a local drive



CompTIA IT Fundamentals+

Hosted Sharing and Storage

- HTTP/HTTPS and file downloads
 - Upload files to a web server
 - Clients can download using a link or URL over HTTP/HTTPS
 - Website can require authentication if necessary
- File Transfer Protocol (FTP)
 - $_{\odot}$ More efficient than HTTP/HTTPS
 - Most browsers support basic FTP functionality but a dedicated FTP client is usually preferable
 - More secure to use encrypted types of FTP

		Site M	lanag	ger		×
Select Entry:		General	Adva	inced	Transfer Settings Charset	
My Sites		Host:		www.g	tslearning.com Port:	
		Protocol:	:	FTP - F	ile Transfer Protocol	~
		Encryptio	-		in FTP	~
		Logon Ty	I		in FTP explicit FTP over TLS e implicit FTP over TLS	
		User:		webm	aster@gtslearning.com	
		Password	d:	•••••	•••••	
		Account:	:			
		Commen	nts:			
New Site	New Folder					<u>^</u>
New Bookmark	Rename					
Delete	Duplicate					×
		[Co	nnect	ОК	ancel

Cloud Computing

Cloud computing versus hosted storage

Pay-per-use (metered service)
 Rapid elasticity/scalability

Cloud depends on resource pooling and virtualization

 Less visibility and control about where your data is actually stored compared to hosted solutions

Cloud-based Storage

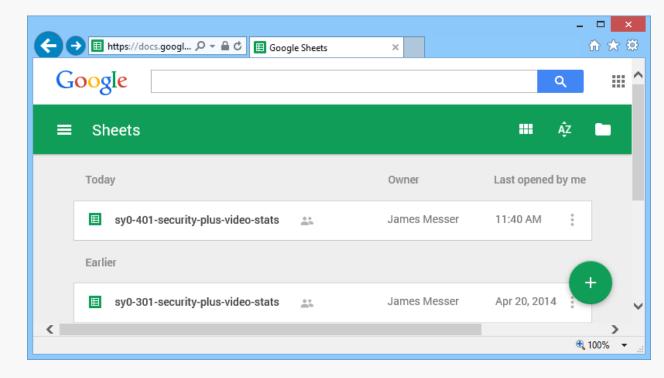
licrosoft OneDrive	×
Settings Account Auto-save Network	Office About
Desktop, Documents and Pictures	
Choose where you want to save your	desktop, documents and pictures
Desktop	This PC only $\qquad \lor$
Documents	This PC only $\qquad \qquad \lor$
Pictures	This PC only $\qquad \checkmark$
Photos and videos Automatically save photos and vide a camera, phone, or other device t Screenshots Automatically save screenshots I ca	-
	OK Cancel

 Vendors—Apple, Google, Microsoft, DropBox, Amazon

- Access via a browser or client app
- OneDrive can be integrated with File
 Explorer

Cloud-based Collaborative Applications

- Provide apps and
 - collaboration features
 - as well as basic storage
- •Vendors—Microsoft Office 365, Google G Suite, Smartsheet



Peer-to-Peer File Sharing

BitTorrent 7.10.4 (build 44521) [32-bit]								-		×
File Options Help		ADVERTISEMENT						port X		
Now		ADVERIGEMENT					Ke	bort X		
⊕ ⁺₊ Torrents (1)										
🗄 🗣 Labels	+ 🖘 🗎	 				D -	٩	9	見 ::	. 🗅 🕯
S Feeds (0)	# Name		Playback	Size	Status	Down S			Seed	ds/Peers
Devices (0)	1 kali-linux-	-2018.2-amd64		2.73 GB	Downloading	3.5 % 30.8	kB/s 0.4 kB/s	3y 31w		2.195
	Files 🕕 Info	🔉 🔍 Peers 💿 Trackers 🗾 Speed								*
	Downloaded:								_	3.5 %
	Availability:									2.035
	Transfer									^
DVERTISEMENT Report X	Time Elapsed: Downloaded:	1m 16s	Remaining:	3y 31w		Wasted:	138 kB (0 hash			
		100 MB d: 30.8 kB/s (avg. 1.3 MB/s)	Uploaded: Upload Speed	0 B : 0.4 kB/s (av	a. 0 B/s)	Seeds: Peers:	2 of 73 connec 0 of 1794 conn			
N. C.	Down Limit:	00	Up Limit:	0.4 kB/s	g, -,	Share Ratio				
	Status:	Downloading								
and the second second	General		2010.2							
of the local division of the local divisiono	Save As: Total Size:	C:\Users\James\Downloads\kali-lin 2.73 GB (100 MB done)	ux-2018.2-amd64		Pieces:	11203 x 256 kB (have 396	a			
and the second se		30/04/2018 22:20:35				mktorrent 1.1	,			
frame gener's past a grantly face		26/08/2018 13:07:31			Completed On:	Incomplete				
	Hash:	176E2A9696092482D4ACDEF445B53								
	Comment:	kali-linux-2018.2-amd64 from https	://www.kaii.org/							
Constant on Condition Cont										~
		DHT: 764 no	des [D: 8.3 kB/s T: 10)1.3 MB	U: 0.7 kB/s T: 9	945.8 kB		f 🈏 🦷	0

• Files are uploaded to a network of peers

• Each peer hosts

fragments of files



- Data files backup
- System configuration backup
- Backup considerations
 - oOn-site versus off-site
 - Backup media security
 - Point-in-time backups
 - Backup schedule

Backup Storage Types

- Locally attached storage
- Network Attached Storage
- •Offsite/cloud-based
- Use multiple methods for comprehensive backup

Local storage for regular point-in-time backups
 Cloud storage for periodic off-site backups

File Backups and Critical Data

- Selection of drives/folders/files to include in backup jobs
- •Where is critical data stored?
- Do the locations selected cover all critical files?

Database Backups

- File copy methods are not sufficient to back up databases (in most cases)
- Database must preserve integrity by tracking operations as transactions
- Replication copies completed transactions between master and replica servers
- Point-in-time backups must still be made to recover from errors (transaction rollback)
- Snapshot backups can be used for "last ditch" recovery and for logging/auditing changes

OS Backups

- Restore a host without having to manually reinstall operating system and applications software
- Recover from file corruption, faulty disk storage, malware infection,...
- Bare metal/image-based backup
- •Keep OS and data backups as separate jobs—use well-defined areas for user data storage

Windows Backup

😻 Back up and Restore (Windows	7)			- 0	×	
🗧 🚽 🗸 🛧 🐉 « All Contro	ol Panel Items > Back up a	and Restore (Windows 7)	~ Ü	Search Control Panel	,p	
Control Panel Home	Back up or resto	ore your files			^ ()	
 Turn off schedule Create a system image Create a system repair disc 	a Ba	ck-up in progress		View Details		
	Back-up					
	Location:	Black disk (V:) 219.34 GB free of 232.88 GB Back-up size: Not Available		Back up now		
		₩ anage space				
	Next back-up: Last back-up: Contents:	In progress Never Files in selected folders and system image				
	Schedule:	Every Sunday at 19:00				
See also Security and Maintenance File History	Restore <u>a</u> ll use	our files that were backed up on the current lo rs' files ' back-up to restore files from	cation.	<u>R</u> estore my files	~	
le History				_		×
le History → × ↑ 🍻 « All C >	File History	✓ ひ Search Control Panel		_		× م
				_		
→ ~ ↑ <table-cell> « All C ></table-cell>	Keep a hist	✓ ♂ Search Control Panel cory of your files ves copies of your files so you ca	in get t			
→ × ↑ 🦗 « All C >	Keep a hist File History sa damaged.	ory of your files	an get t			
→ ~ ↑ <table-cell> « All C ></table-cell>	Keep a hist File History sa damaged.	cory of your files ves copies of your files so you ca story is on m: Libraries, Desktop, Contac	ts and			
→ ~ ↑ <table-cell> « All C > ontrol Panel Home estore personal files elect drive clude folders</table-cell>	Keep a hist File History sa damaged. File His Copy files fro	cory of your files ves copies of your files so you ca story is on m: Libraries, Desktop, Contac Flash Drive (I: 3.49 GB free o	ts and) f 30.2 (Favourites		
→ ~ ↑ <table-cell> « All C > ontrol Panel Home estore personal files elect drive clude folders</table-cell>	Keep a hist File History sa damaged. File His Copy files fro	cory of your files ves copies of your files so you ca story is on m: Libraries, Desktop, Contac Flash Drive (I:	ts and) f 30.2 (Favourites		
→ ~ ↑ <table-cell> « All C > ontrol Panel Home estore personal files elect drive clude folders</table-cell>	Keep a hist File History sa damaged. File His Copy files fro	cory of your files ves copies of your files so you ca story is on m: Libraries, Desktop, Contac Flash Drive (I: 3.49 GB free o Files last copied on 23/08/	ts and) f 30.2 (Favourites	lost or	
→ ~ ↑ ▲ All C > ontrol Panel Home estore personal files elect drive clude folders dvanced settings	Keep a hist File History sa damaged. File His Copy files fro	cory of your files ves copies of your files so you ca story is on m: Libraries, Desktop, Contac Flash Drive (I: 3.49 GB free o Files last copied on 23/08/	ts and) f 30.2 (Favourites	lost or	

 Backup and Restore (Windows 7)

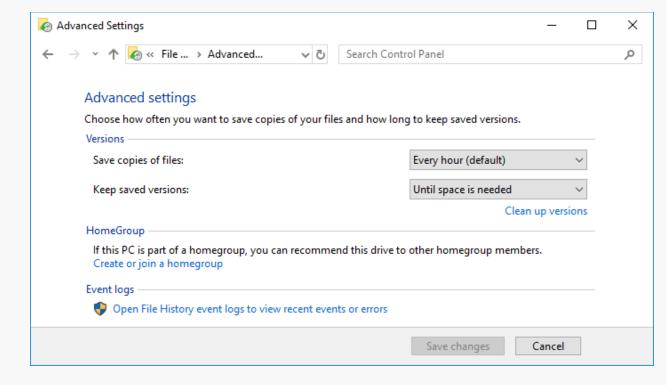
 Enables you to perform selective, scheduled, and adhoc backups

• File History (Windows 8 and Windows 10)

 As files are modified, the versions are tracked and backed up automatically

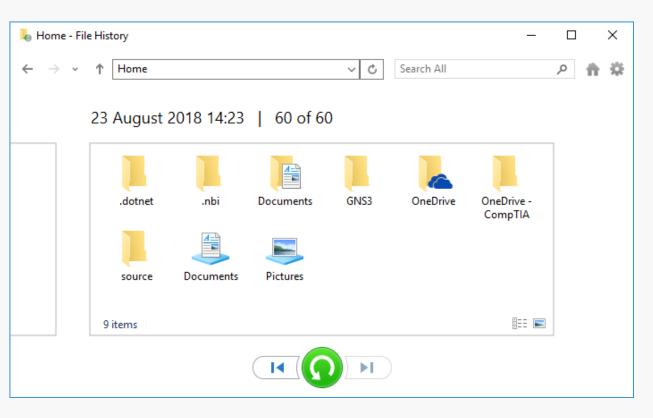
Scheduling and Frequency

- Scheduling and frequency require careful consideration
 - What are the recovery scenarios?
 When might we need to recover a file?
 - How much backup storage capacity is there?
 - How long do backups take to complete? Do they interfere with normal operations?
 - How can offsite backups be facilitated?



Restoring Data and Verifying Backups

Error detection



 Do backups complete successfully?

Configuration

 Is all critical data being backed up?

Test restore

Review

Image by Wavebreak Media © 123rf.com

 List ways to share files and storage on a local network

 Describe means of sharing files and services on the Internet

• Explain the importance of backups and configure simple backup options

CompTIA IT Fundamentals+