Working with the Command-Line Interface

Chapter 15

Episode: **Understanding the CLI**

Objective(s):

Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.

Core 2: 4.8 Identify the basics of scripting.

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Episode Description

All operating systems provide at least one command-line interface (CLI). While the CLIs differ, they all share certain features and functions.

Key Terms

- 0:39 - Command-line interface (CLI)
- 1:04 - Command Prompt
- 1:34 - Windows PowerShell
- 2:14 - Bash shell
- 3:49 - Objective term - dir
- 4:45 - dir /p
- 4:48 - Switch
- 5:37 - Objective term - dir /?

Key Terms

- 6:27 - cls
- 7:16 - Objective term - sudo
- 7:23 - Objective term - sudo ls
- 7:59 - Objective term - su allows for a one-time admin login
- 7:59 - Objective term - sudo is used per command
- 8:37 - clear
- 8:54 - ls -l
- 9:55 - Objective term - man

Quick Review

- All operating systems offer a command-line interface (CLI)
- A specific CLI is called a shell; most OSes provide multiple shell choices
- All shells have a prompt to type in commands
- Many commands use switches
- All shells offer some form of help

Episode: **Navigating the CLI**

Objective(s):

Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.

Core 2: 1.11 Identify common features and tools of the Linux client/desktop OS.

Episode Description

Navigating around your mass storage is one of the most critical command-line interface (CLI) functions. To do it, you'll need to know about specific commands, their relevant switches, and how directories are structured.

Key Terms

- 0:29 - Objective term - dir
- 1:00 - Objective term - cd\
- 1:14 - Root directory
- 1:40 - Objective term - “cd” stands for change directory
- 2:14 - One "." shows where you are
- 2:19 - Double ".." shows the folder above where you are

Key Terms

- 2:31 - cd ..
- 2:55 - cd\windows
- 3:23 - cd Temp
- 3:56 - Objective term - cd c:\Windows
- 6:20 - Objective term - d:
- 7:19 - Objective term - x:

Key Terms

- 8:40 - Objective term - ls
- 8:51 - Capitalization matters in Linux!
- 9:12 - Tab auto-fills available commands
- 9:36 - cd ~
- 9:59 - cd /
- 10:28 - Objective term - pwd

Quick Review

- Use the cd command in all operating systems to move the prompt to different folders/directories
- To change drives in Windows, type the drive letter at a prompt and press the Enter key
- When it comes to capitalization, Linux is case-sensitive
- For navigation paths: Windows uses \ and Linux uses /

Episode: **Working with Folders**

Objective(s): Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.

Episode Description

The data stored in our mass storage devices is organized into a large tree of folders (also known as directories). A good tech must understand how to create, delete and move folders.

Key Terms

- 1:16 - Objective term - md mike
- 3:55 - rd mike
- 4:32 - You can't delete directories using "rd" in Windows. To delete directories, use the "rd /s" command.
- 5:12 - mkdir mike
- 5:23 - Up arrow key shows previous commands
- 5:47 - Objective term - rmdir Mike/
- 6:02 - Objective term - rmdir mike/

Quick Review

- Use the md (Windows) or mkdir (Linux) command to make a folder or directory
- Windows is case insensitive; Linux is case sensitive
- Use the rd (Windows) or rmdir (Linux) command to delete or remove a folder or directory
- Use rd /s (Windows) or rm -r (Linux) to remove a directory and its contents

Episode: **Working with Files**

Objective(s):

Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.

Core 2: 1.11 Identify common features and tools of the Linux client/desktop OS.

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Episode Description

Within that big tree of folders, the data itself is saved in individual files. A good tech must understand how to create, delete, and move files.

Key Terms

- 0:55 - del mike1.jpg
- 1:33 - Wildcard
- 1:51 - del *.txt
- 2:28 - del *.*
- 3:24 - Objective term - copy fred.txt k:
- 8:26 - Objective term - rm Mike1.odt
- 9:22 - Objective term - cp in Linux will copy
- 9:22 - Objective term - mv in Linux will move

Quick Review

- Use the del (Windows) or rm (Linux) command to delete files
- Use wildcards to work with more than one file at a time
- Use the copy (Windows) or cp (Linux) command to copy files
- Use the move (Windows) or mv (Linux) command to copy a file to a new location while deleting the previous file


Episode: Working with Drives
Objective(s):
Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.

Episode Description

Every CLI provides a complete set of tools to administer our mass storage drives. You'll find tools to format and partition drives, scan for errors and correct them, and more.

Key Terms

- 0:18 - Objective term - Format
- 1:10 - /FS:filesystem to specify the type of file system
- 1:19 - Objective term - format e: /FS:NTFS
- 1:44 - /Q for quick format
- 1:57 - Objective L3 - format e: /FS:NTFS /Q
- 2:52 - Objective term - chkdsk
- 4:04 - Objective term - chkdsk /f

Key Terms

- 5:01 - Objective term - System File Checker (SFC) Deployment Image Servicing & Management (DISM)
- 5:52 - Objective term - sfc /scannow
- 6:28 - sfc /verifyonly (scans without repairing)
- 7:43 - dism /online /cleanup-image /restorehealth
- 9:34 - Objective term - diskpart

Quick Review

- The format command formats partitions and uses many switches to control the type of format
- chkdsk fixes formatted partitions
- sfc repairs critical Windows files based on the system store
- dism repairs critical Windows files based on online system stores
- diskpart partitions drives

Episode: **Super Copy Commands**

Objective(s): Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.

Episode Description

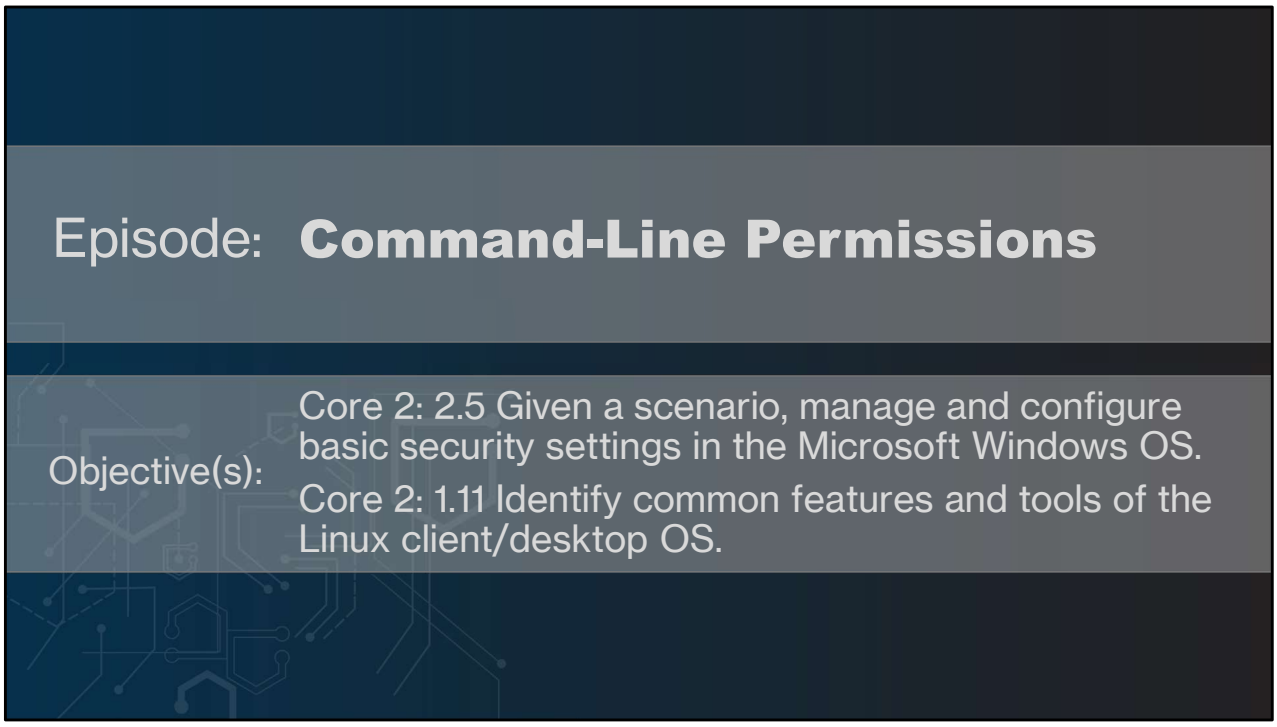
Every CLI provides a basic copy command to move files from one location to another. These basic tools lack special features such as copying entire folder structures. That's where special "Super" copy commands come in.

Key Terms

- 0:42 - Objective term - xcopy
- 2:40 - Objective term - robocopy
- 4:15 - Objective term - robocopy D:\VMs “Server\vmbackup”
- 5:01 - dd
- 7:00 - dd if=/dev/sda2 of=~/backup.img
- 7:33 - dd if=/dev/zero of=/dev/sdb

Quick Review

- The copy command is inconvenient for copying directory trees
- xcopy is the original Windows tool to copy entire directory trees, including any files in the tree
- robocopy is an improved version of xcopy, it's faster and safer
- Linux uses the dd command



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Episode Description

All Linux/UNIX operating systems share a unique file/folder permission system, very different from Windows', which requires careful understanding.

Key Terms

- 0:28 - icacls
- 1:14 - Objective term - chmod
- 2:05 - rwxrwxrwx
- 5:21 - Objective term - chown
- 6:17 - passwd

Quick Review

- icacls changes Windows NTFS permissions from the command line
- chmod changes Linux permissions
- chown enables root users to take control of any Linux folder or file
- passwd changes the password in Linux

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Episode Description

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The Windows command line also provides hundreds of tools, and many have nothing to do with managing files, folders, and drives. A good tech should understand commands for manipulating processes and group policies.

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Key Terms

- 0:19 - Objective term - shutdown
- 1:07 - Objective term - shutdown /s
- 1:15 - tasklist/taskkill
- 3:43 - Objective term - gpupdate/gpresult

Quick Review

- The shutdown command shuts down the system
- tasklist lists the processes on a system
- taskkill shuts down processes on a system
- gpupdate or gpresult forces policy updates to a system and lists the resultant policy

Episode: **Advanced Linux Commands**

Objective(s):

Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.

Core 2: 1.11 Identify common features and tools of the Linux client/desktop OS.

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Episode Description

The CompTIA exam covers a few more advanced Linux commands. These commands enable some unique navigation.

Key Terms

- 0:29 - Objective term - shutdown
- 0:40 - shutdown -c
- 0:47 - shutdown -r
- 1:00 - shutdown now
- 2:10 - Objective term - apt-get
- 2:55 - apt-get update
- 4:19 - apt-get install

Key Terms

- 5:27 - apt-get upgrade
- 6:05 - apt-get remove
- 7:03 - Objective term - ps
- 7:34 - ps aux
- 9:01 - ps aux |
- 9:28 - Objective term - grep
- 10:11 - kill

Quick Review

- shutdown shuts down the system
- apt-get gives users access to the Debian repository
- The ps command gives control over processes
- kill shuts down processes

Episode: **Introduction to Scripting**

Objective(s): Core 2: 4.8 Identify the basics of scripting.

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Episode Description

Scripting is the process of combining a list of commands into text files in order to easily re-run the whole sequence of commands again later. Every operating system has at least two if not more scripting functions to allow a tech to do exactly this.

Key Terms

- 1:17 - Batch file
- 1:24 - Notepad
- 2:22 - Objective term - Batch files use extension ".bat"
- 3:28 - Environment variable
- 5:29 - PowerShell
- 5:56 - Objective term - PowerShell use extension ".ps1"
- 6:26 - cmdlet
- 7:24 - Integrated Scripting Environment (ISE)
- 8:16 - Bash shell uses extension ".sh"

Quick Review

- A batch file is a text file that stores a list of commands
- Batch files use a ".bat" file extension
- Environment variables are phrases that point to system-wide functions
- PowerShell provides far more powerful scripts
- Linux bash shell scripts also provide powerful scripting functions

Episode: **Interpreted Languages**

Objective(s): Core 2: 4.8 Identify the basics of scripting.

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Episode Description

Every operating system contains interpreters that can read higher-level programming languages. This episode covers three popular interpreters: Visual Basic, Python, and JavaScript.

Key Terms

0:42 - Executable files have a ".exe" extension

1:07 - Compiled code

4:09 - Objective term - Visual basic uses the ".vbs" extension

4:41 - Variables

5:13 - Integers and strings

8:01 - Objective term - Python (uses ".py" extension)

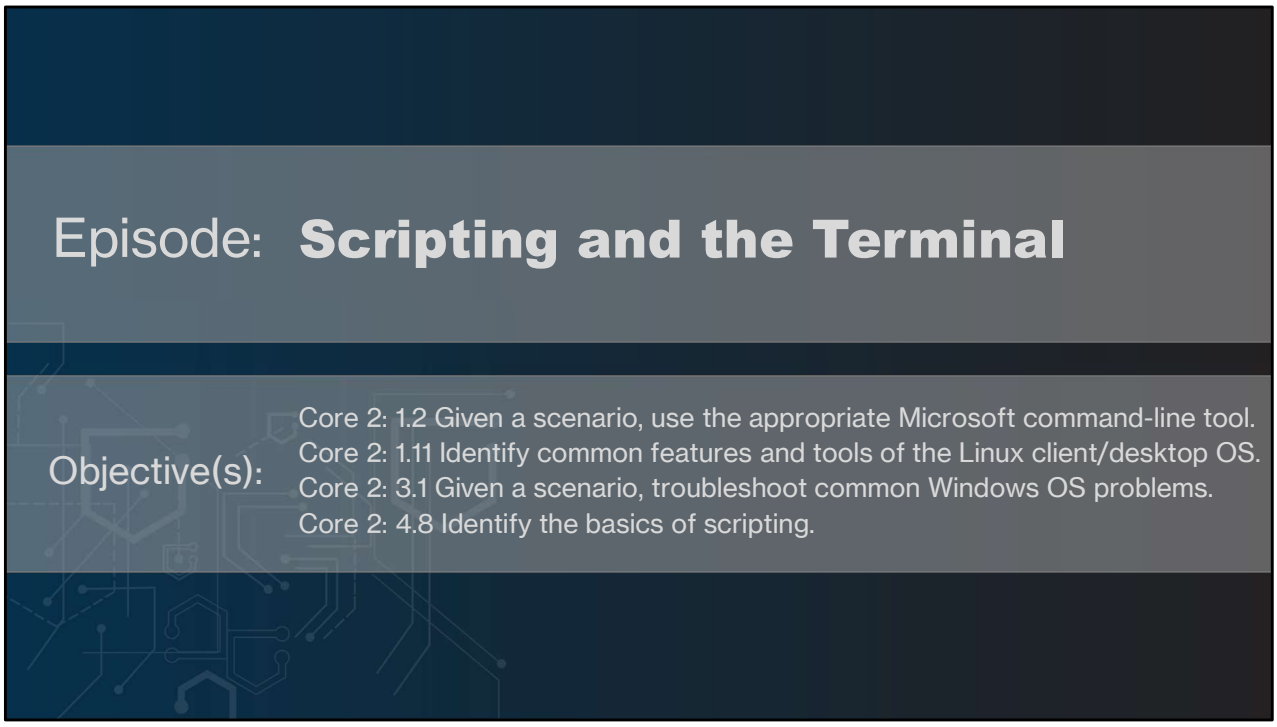
9:18 - Web application

Key Terms

- 9:15 - Objective term - JavaScript (uses ".js" extension)
- 9:22 - Client-side application
- 10:30 - For statement
- 10:43 - If statement
- 10:50 - Functions
- 11:31 - Objective term - Visual Basic - “.vbs”
- 11:31 - Objective term - Python - “.py”
- 11:31 - Objective term - JavaScript - “.js”

Quick Review

- Operating systems have built-in interpreters
- Visual Basic is only for Windows and uses files with the ".vbs" extension
- Python is easier to read for most people and uses a ".py" extension
- JavaScript is used for client-side Web applications and uses the ".js" extension


Episode: Scripting and the Terminal
Objective(s):
Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.
Core 2: 1.11 Identify common features and tools of the Linux client/desktop OS.
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.
Core 2: 4.8 Identify the basics of scripting.

Episode Description

Scripting can make tedious tasks more efficient, but there are a number of other reasons to use it as well. This episodes reviews the use cases for scripting, what can happen when scripting goes wrong, and a few other helpful tips.

Key Terms

- 0:32 - Objective term - Terminal
- 0:46 - Objective term - hostname
- 0:54 - Objective term - pathping
- 1:19 - Objective term - Time drift
- 2:20 - Objective term - nano is a text editor
- 3:15 - Objective term - cp
- 3:32 - Objective term - Add the ".sh" extension to turn a file into a batch script
- 5:40 - Objective term - Basic automation

Key Terms

- 5:48 - Objective term - Automate backups
- 5:53 - Objective term - Installation of applications
- 6:01 - Objective term - Restart machine
- 6:12 - Objective term - shutdown /r /t
- 6:58 - Objective term - /? brings up a help menu in Windows command line
- 7:19 - Objective term - man brings up a help menu in Linux terminal

Key Terms

- 7:46 - Objective term - mv
- Objective term - Gathering of information/data
- Objective term - Initiating updates
- 8:13 - Objective term - Verify script source to avoid unintentionally introducing malware
- 8:33 - Objective term - Be careful not to inadvertently change system settings
- 8:58 - Objective term - Browser or system crashes due to mishandling of resources

Windows Command-Line Reference Sheet

- https://docs.microsoft.com/en-us/windows-server/administration/windows-commands/windows-commands

Quick Review

- You can set up scrips to automate useful functions such as remapping network drives and scheduling backups
- Always be cautious that your scripts don't inadvertently change system settings or cause a mishandling of resources
- Triple check the URLs used in scripting to avoid unintentionally introducing malware into the system