Chapter 16

Troubleshooting Operating Systems


Episode: Windows Recovery Environment
Objective(s):
Core 2: 2.3 Given a scenario, detect, remove, and prevent malware using the appropriate tools and methods.
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.

Episode Description

The Windows Recovery Environment (WinRE) provides technicians a powerful toolset for repairing and recovering Windows systems. While powerful, WinRE is also easy to use once a tech understands the function of all the tools it includes.

Key Terms

- 0:34 - Windows Preinstallation Environment (WinPE)
- 0:55 - Windows Recovery Environment (WinRE)
- 1:38 - Objective term - Click "Repair your computer" to access the WinRE options
- 2:01 - Objective term - System Restore
- 2:17 - Objective term - Uninstall/roll back updates

Key Terms

- 2:34 - Objective term - Use System Image Recovery to reimage a system
- 3:11 - Macrium Reflect 7 Free Edition
- 3:11 - EaseUS Todo Backup Free
- 3:46 - Startup Repair
- 4:07 - Command Prompt

Quick Review

- Select “Repair your computer” in the Windows Preinstallation Environment (WinPE) to access the Windows Recovery Environment (WinRE)
- Advanced options offer System Restore, Uninstall Updates, System Image Recovery, and Startup Repair
- The Command Prompt option opens the Windows command-line interface

Episode: **Advanced Windows Startup Options**

Objective(s): Core 2: 3.3 Given a scenario, use best practice procedures for malware removal.

Episode Description

Advanced Startup Options was the go-to tool before WinRE, providing many features (such as Safe mode) that helped techs fix Windows systems. Advanced Startup Options live on in WinRE, so it's important for techs to know how to access and use this tool.

Key Terms

- 0:23 - Objective term - Safe boot

Quick Review

- To get to Safe mode options in Windows 10/11, select Boot in System Configuration for Safe boot
- Alternatively, intentionally crash your system several times in a row to get Advanced options
- Startup Settings offer debugging, boot logging, Safe mode, and more


Episode: Troubleshooting Boot Problems
Objective(s):
Core 1: 5.2 Given a scenario, troubleshoot problems related to motherboards, RAM, CPU, and power.
Core 2: 1.3 Given a scenario, use features and tools of the Microsoft Windows 10 operating system (OS).
Core 2: 1.4 Given a scenario, use the appropriate Microsoft Windows 10 Control Panel utility.
Core 2: 1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.
Core 2: 3.3 Given a scenario, use best practice procedures for malware removal.

Episode Description

There are a thousand reasons for a Windows system to not boot properly. The trick is to separate the different reasons into distinct areas and then understand the right tools to diagnose the problems.

Key Terms

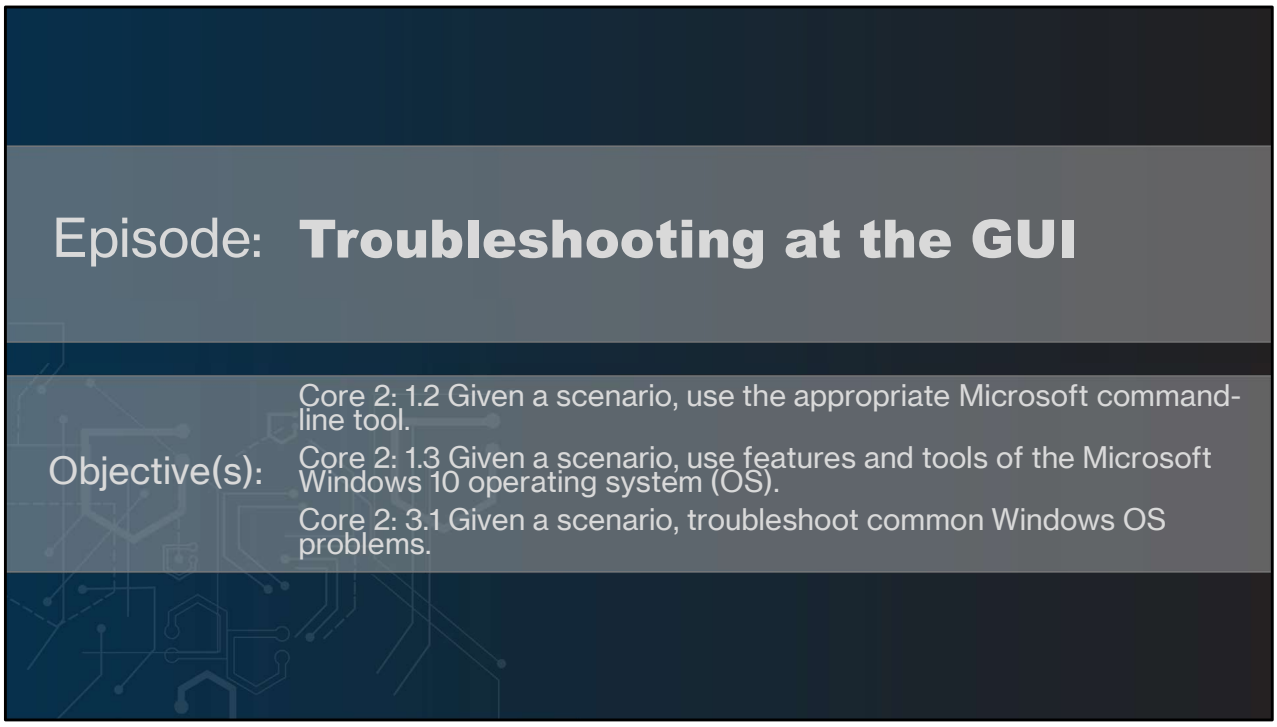
- 0:35 - Objective term - 1. Boot problems
- 0:48 - 2. Windows never loads to a desktop
- 1:00 - 3. Bizarre things happen at desktop level
- 1:07 - Objective term - Blue screen of death (BSoD)
- 1:18 - Objective term - Black screen
- 2:17 - Device driver issues
- 2:47 - Objective term - Step 1: Boot to Safe mode (Safe boot)
- 2:57 - Objective term - Reboot

Key Terms

- 3:14 - Objective term - Step 2: Get to Device Manager
- 4:31 - Roll back device driver
- 4:44 - Update driver
- 4:56 - Disable device
- 5:32 - Objective term - Event Viewer
- 7:33 - Objective term - No OS found
- 7:48 - Objective term - Reset/update boot order
- 8:46 - WinRE (Windows Recovery Environment)
- 9:00 - Objective term - Repair installation

Quick Review

- A black screen on a booted computer often indicates a video driver problem
- Get to Safe mode and try Roll Back Driver or Update Driver in Device Manager
- For other errors like no boot device, check boot order in System setup
- Major failure after installing a new device? Uninstall the device and try again


Episode: Troubleshooting at the GUI
Objective(s):
Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.
Core 2: 1.3 Given a scenario, use features and tools of the Microsoft Windows 10 operating system (OS).
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.

Episode Description

When a system boots there is a point where Windows begins to load. Any boot failure between the initial Windows boot and the Windows Desktop requires careful understanding and use of multiple tools to diagnose and repair.

Key Terms

- 0:34 - Objective term - Reboot
- 1:50 - Objective term - Event Viewer
- 3:48 - Objective term - chkdsk /f
- 4:16 - Mark Russinovich – Sysinternals
- 4:34 - Autoruns
- 5:48 - www.sysinternals.com
- 6:07 - Objective term - Corrupted profile
- 7:08 - Neosmart.net/wiki/corrupt-user-profile

Quick Review

- Try rebooting when you encounter a startup problem
- Check the logs in Event Viewer in Safe mode
- Try Autoruns from Sysinternals for stopping programs that load on boot
- Create a new user account and copy old profile to try to recover from corrupted profile


Episode: Troubleshooting Applications
Objective(s):
Core 1: 5.2 Given a scenario, troubleshoot problems related to motherboards, RAM, CPU, and power.
Core 2: 1.2 Given a scenario, use the appropriate Microsoft command-line tool.
Core 2: 1.3 Given a scenario, use features and tools of the Microsoft Windows 10 operating system (OS).
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.

Episode Description

Applications cause trouble at two main times. The first is right after Windows finishes loading and then loads startup applications. After that, applications can cause trouble any time a user starts one to get their work done. Either way, applications require special understanding to troubleshoot.

Key Terms

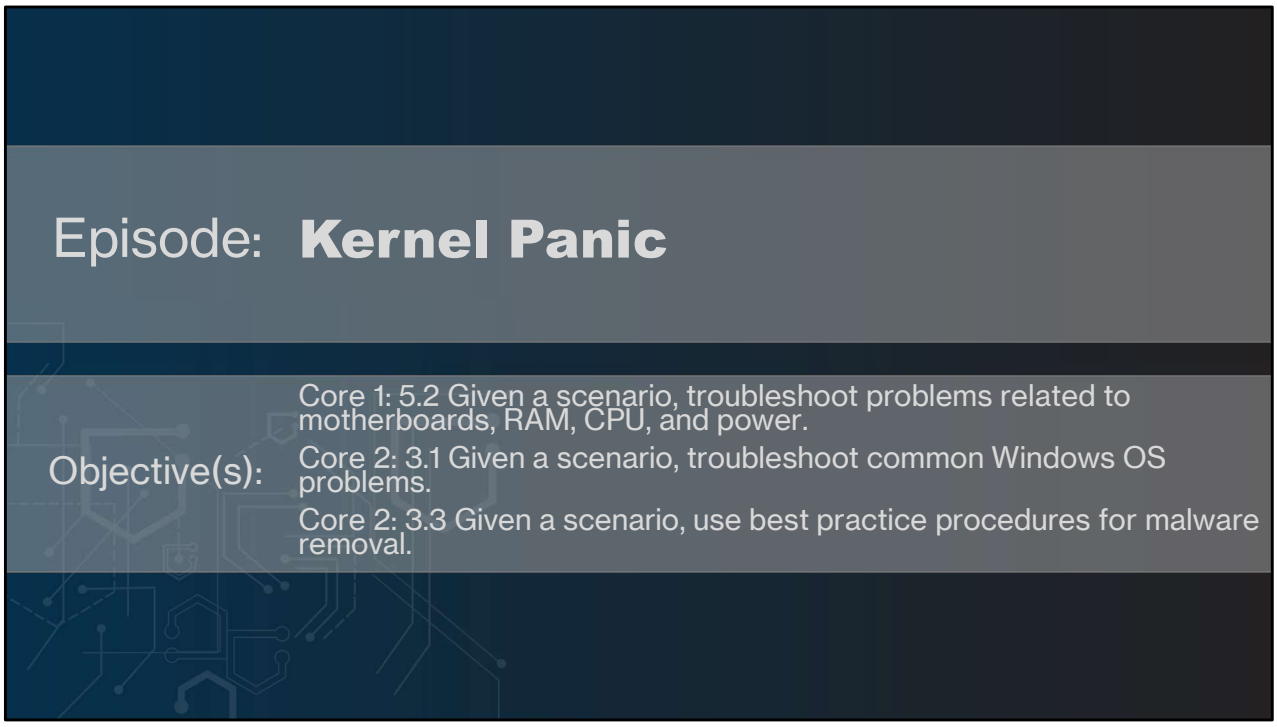
- 0:23 - Objective term - 1. System running slow/sluggish performance
- 0:26 - Objective term - 2. Applications crashing
- 0:29 - Objective term - 3. Problems with services
- 2:28 - Objective term - Defragmentation
- 2:35 - Objective term - chkdsk
- 4:09 - Application repair

Key Terms

- 4:44 - Objective term - Uninstall and reinstall application
- 5:02 - Apply updates
- 5:36 - Objective term - Services that fail to start
- 5:46 - Objective term - Restart the service...but wait! There's more!

Quick Review

- When you have sluggish performance, try Task Manager to find and kill programs hogging CPU or disk resources
- When applications crash, try repair or reinstallation
- With a service that fails to start, start it manually in the Services Administrative Tool, or check Event Viewer for details


Episode: Kernel Panic
Objective(s):
Core 1: 5.2 Given a scenario, troubleshoot problems related to motherboards, RAM, CPU, and power.
Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.
Core 2: 3.3 Given a scenario, use best practice procedures for malware removal.

Episode Description

A kernel panic is an unrecoverable error, generated by every operating system, to inform the user that a serious problem has taken place to the system. Kernel panics look scary, but to an informed tech they're often very easy to fix if the tech knows where to look.

Key Terms

- 0:44 - Objective term - Spinning Pinwheel of Death (SPoD)
- 1:12 - Objective term - Blue Screen of Death (BSoD)
- 2:42 - Most BSoDs are caused by hardware
- 3:43 - Update the hardware
- 4:16 - Objective term - Safe boot

Quick Review

- Kernel panic means the OS is crashing and can't recover
- The most common symptom is a Blue Screen of Death (BSoD)
  Most BSoDs are caused by hardware compatibility – try updating drivers
- Check Event Viewer in Safe mode for clues