Installing and Upgrading Operating Systems

Chapter 11

CompTIA A+ (220-110x)
Mike Meyers and Steve Nicholson

Episode:	**Windows 10 Editions and Features**
Objective(s):	Core 2: 1.1 Identify basic features of Microsoft Windows editions. Core 2: 2.1 Summarize various security measures and their purposes

Episode Description

There are important differences between Windows 10 Home, Pro, Pro for Workstations, and Enterprise. This episode reviews the versions and feature differences.

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Key Terms

- 2:14 - Objective term - winver
- 2:41 - Objective term - Windows 10 Home
- 2:41 - Objective term - Windows 10 Pro
- 2:41 - Objective term - Windows 10 Pro for Workstations
- 2:41 - Objective term - Windows 10 Enterprise
- 4:57 - Objective term - Random-access memory (RAM) support limitations

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Key Terms

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- 5:05 - Objective term - Domain access vs. workgroup
- 5:17 - Objective term - Availability of Remote Desktop Protocol (RDP)
- 5:32 - Objective term - gpedit.msc
- 5:33 - Objective term - Group Policy/updates
- 5:48 - Objective term - BitLocker

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Windows 10 Editions

Edition	RAM	Domain	Remote Desktop Protocol	Group Policy (gpedit.msc)	BitLocker	Long-Term Servicing Branch (LTSB)
Windows 10 Home	1GB (32-bit) 2GB (64-bit)	N	N	N	N	N
Windows 10 Pro	1GB (32-bit) 2GB (64-bit)	Y	Y	Y	Y	N
Windows 10 Pro for Workstations	1GB (32-bit) 2GB (64-bit)	Y	Y	Y	Y	N
Windows 10 Enterprise	1GB (32-bit) 2GB (64-bit)	Y	Y	Y	Y	Y

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Compare Windows 10 Versions and Features

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- https://www.microsoft.com/en-us/windows/compare-windows-10-home-vs-pro

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Quick Review

- The A+ exam will quiz you on Windows 10 Home, Pro, Pro for Workstations, and Enterprise versions
- You will need to know RAM support limitations for each version
- Know how to identify which versions contain additional support for things like Remote Desktop, BitLocker, and Group Policy Management

Episode:	**Windows 11 Editions and Features**
Objective(s):	Core 1: 3.4 Given a scenario, install and configure motherboards, central processing units (CPUs), and add-on cards.
	Core 2: 1.1 Identify basic features of Microsoft Windows editions.
	Core 2: 2.1 Summarize various security measures and their purposes.
	Core 2: 2.5 Given a scenario, manage and configure basic security settings in the Microsoft Windows OS.
	Core 2: 2.6 Given a scenario, configure a workstation to meet best practices for security
	Core 2: 3.1 Given a scenario, troubleshoot common Windows OS problems.

Episode Description

There are important differences between Windows 11 Home, Pro, Pro for Workstations, and Enterprise. This episode reviews the versions and feature differences.

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Key Terms

- 0:31 - Unified Extensible Firmware Interface (UEFI)
- 0:43 - Windows 11 also requires Secure Boot and Trusted Platform Module (TPM) 2.0
- 1:01 - Zero Trust
- 1:32 - Must have Internet connection to set up Windows and local accounts can't initially be used

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Key Terms

- 2:06 - Objective term - Windows 11 Home
- 2:14 - Objective term - Random-access memory (RAM) support limitations
- 2:39 - Objective term - Domain access vs. workgroup
- 2:39 - Objective term - Availability of Remote Desktop Protocol (RDP)

Key Terms

- 2:39 - Objective term - gpedit.msc
- 2:39 - Objective term - Group Policy/updates
- 3:05 - Objective term - BitLocker
- 3:26 - Objective term - Windows 11 Pro
- 3:35 - Objective term - Windows 11 Pro for Workstations
- 3:39 - Objective term - Windows 11 Enterprise

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Windows 11 Editions

Edition	Min RAM	Min CPU	Domain	Remote Desktop Protocol	Group Policy (gpedit.msc)	OneDrive for Business	BitLocker	Long-Term Servicing Channel
Windows 11 Home	4GB	1Ghz 2 cores	N	N	N	N	N	N
Windows 11 Pro	4GB	1Ghz 2 cores	Y	Y	Y	Y	Y	N
Windows 11 Pro for Workstations	4GB	1Ghz 2 cores	Y	Y	Y	Y	Y	N
Windows 11 Enterprise	4GB	1Ghz 2 cores	Y	Y	Y	Y	Y	Y

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Windows 11 Comparisons

- Compare Windows 11 Home vs. Pro
  - https://www.microsoft.com/en-us/windows/compare-windows-11-home-vs-pro-versions
- Compare Windows 11 Business Editions
  - https://www.microsoft.com/en-us/windows/business/compare-windows-11

Quick Review

- Windows 11 features a much more security-centric build
- If your Windows 10 PC meets the minimum specifications, you can easily upgrade to Windows 11

Episode: **Boot from Everything**

Objective(s):
Core 2: 1.7 Given a scenario, apply application installation and configuration concepts.

Core 2: 1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.

Core 2: 2.3 Given a scenario, detect, remove, and prevent malware using the appropriate tools and methods.

Episode Description

A PC can only boot from a bootable drive. A mass storage device with a working OS installed on it is one kind of bootable drive. But what if there's no OS installed, or the installation is broken? No problem! Just pop in a bootable device such as the OS installation media, or a bootable diagnostic toolkit. If you don't have one, you can make your own with a spare optical disc or thumb drive, an ISO image file of the bootable media, and a program to burn the ISO file to your media.

Key Terms

- 0:47 - Objective term - ISO image
- 1:31 - Objective term - The operating system must be in the partition table of the mass storage device
- 0:53 - Objective term - Optical media
- 2:33 - Objective term - Windows OS on a USB thumb drive
- 4:02 - Objective term - Mount ISO file
- 4:42 - Objective term - Some operating systems can also be downloaded as an .iso file

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Key Terms

- 8:20 - Objective term - Boot to SD card/flash drive
- 9:04 - Objective term - Boot over a network
- 9:11: Pre-boot Execution Environment (PXE)
- 9:11 - Apple NetBoot
- 10:30 - Windows Recovery Environment (WinRE)

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Rufus - Create Bootable USB Drives

- https://rufus.ie/en/

Quick Review

- Use an ISO image of bootable media to install operating systems
- Download ISO files and burn them to optical media or thumb drives
- Boot to the installation media to install operating systems
- You can also boot from a network server using PXE

Episode:	**Installing and Upgrading Windows 10**
Objective(s):	Core 2: 1.1 Identify basic features of Microsoft Windows editions.
	Core 2: 1.8 Explain common OS types and their purposes.
	Core 2: 1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.
	Core 2: 2.4 Explain common social-engineering attacks, threats, and vulnerabilities.

Episode Description

There's more than one way to install Windows and a good tech understands all of them. Additionally, it's important to perform a few pre-installation tasks to make sure your system will work with your desired version of Windows.

Key Terms

- 0:38 - Objective term - Install Windows 10
- 0:55 - Objective term - Repair installation
- 3:18 - Objective term - The end-of-life (EOL) for operating systems occurs at the end of the product lifecycle
- 3:40 - Objective term - Upgrading Windows 10 with in-place upgrade

Key Terms

- 3:49 - Objective term - Check Windows Update for system requirements and hardware compatibility
- 4:04 - PC Health Check
- 5:19 - Objective term - Image deployment
- 5:23 - Objective term - Remote network installation

Quick Review

- Keeping your Windows OS updated ensures that your system is protected against known threats
- The end-of-life (EOL) for operating systems occurs at the end of the product lifecycle
- Performing an upgrade using the built-in Windows OS installer is called an in-place upgrade
- Image deployment can be done through a remote network installation to remotely update many computers simultaneously

Episode: **Post-Installation Tasks**

Objective(s):

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: 1.5 Given a scenario, use the appropriate Windows settings.

Core 2: 1.8 Explain common OS types and their purposes.

Core 2: 1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.

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.

Core 2: 4.3 Given a scenario, implement workstation backup and recovery methods.

Episode Description

The job isn't done the second the Windows installer finishes. There are several steps that must take place after the Windows operating system is installed to get the system up to speed and ready to work.

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Key Terms

- 1:03 - Objective term - Be sure to install any third-party drivers after installing or upgrading an OS
- 4:47 - Objective term - Windows Update
- 6:13 - Objective term - Recovery disk/partition
- 7:12 - Objective term - Restore point
- 9:57 - Objective term - Windows comes with pre-installed anti-malware, antivirus, and firewall software
- 10:44 - Use Windows File History to automatically backup your files

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Quick Review

- Check Device Manager to ensure all hardware is properly installed
- Update drivers as needed
- Run Windows Update to install any needed updates
- Create recovery media and restore point
- Configure Windows security as needed

Episode: **Installing and Updating Linux**

Objective(s):

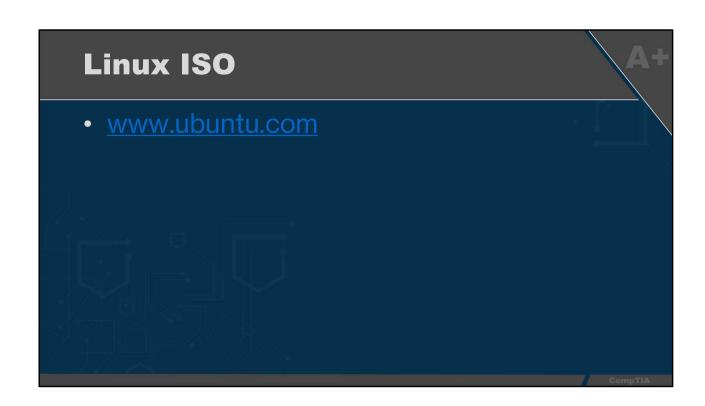Core 2: 1.8 Explain common OS types and their purposes.

Core 2: 1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.

Episode Description

Linux is a fantastic open-source and free operating system that anyone can download and use. Let's discover how to install and update this wonderful OS.

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Linux ISO

- www.ubuntu.com

Key Terms

- 0:24 - Distributions (distros) or versions
- 1:19 - Objective term - Installing Ubuntu
- 2:51 - Objective term - Update Ubuntu Linux with Software Updater

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Quick Review

- You can install many editions of Linux from a CD/DVD or USB drive using an iso file
- Some editions of Linux can be run as a 'Live CD', requiring no actual software installation
- Linux can be updated from the software manager or the command-line interface

Episode: **Upgrading macOS**

Objective(s):

Core 2: 1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.

Core 2: 1.10 Identify common features and tools of the macOS/desktop OS.

Core 2: 4.6 Explain the importance of prohibited content/activity and privacy, licensing, and policy concepts.

Episode Description

Upgrading macOS is simple. Follow along with Mike Smyer in this episode to find out how to upgrade to the newest version of macOS.

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Key Terms

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- 0:21 - Objective term - macOS upgrade can be found under Software Update
- 0:41 - Objective term - End-user license agreement (EULA)
- 1:51 - Objective term - Be sure to check before upgrading as it can introduce incompatibilities or bugs

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Quick Review

- macOS upgrade options can be found under System Preferences > Software Update
- Be sure to check before you upgrade any operating system, as it can introduce incompatibilities or issues with your workflow