Microsoft 365 Modern Desktop Administrator Guide to Microsoft Exam MD 100 Windows 10 1st edition Wright Solutions Manual

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Solution and Answer Guide

Microsoft® 365 Modern Desktop Administrator Guide to Exam MD-100: Windows® 10, [978-0-357-50175-7], Module 1: Introduction to Windows 10

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Review Questions Answers

1. A friend has asked you which version of Windows 10 should be purchased to start a new home-based business. Your friend needs only one computer for now and requires support for Windows Store applications needed to manage the business. Your friend is not very experienced with computers and has asked for easy-to-use features. Which version of Windows 10 do you recommend?
    a. Windows 10 Education
    b. Windows 10 Home
    c. Windows 10 Pro
    d. Windows 10 Enterprise

    Answer: B

2. The new browser included with Windows 10 is called ____.
    a. Charlie
    b. Virtual Desktop
    c. Cortana
    d. Microsoft Edge
    e. Windows Hello

    Answer: D

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3. You are considering purchasing an inexpensive computer from a friend that has a 32-bit CPU and 8 GB of RAM. You install Windows 10 Home, 32-bit edition, but you cannot see the full amount of RAM. What is wrong?
    a. The CPU does not support hyperthreading.
    b. You need to install a 64-bit version of Windows 10.
    c. The CPU does not support multiple cores.
    d. You must install Windows 10 Pro.
    e. Windows 10, 32-bit editions cannot support more than 4 GB of RAM.

    Answer: E

4. Your workstation is running Windows 10 Pro, and you decide to share a folder on your computer. Twenty-two people in your office are trying to connect to that folder at the same time over the network. The first 20 people can connect, but the other two cannot. To fix this, you could _____.
    a. buy a computer, software, and licenses to run Windows Server 2016
    b. restart your computer
    c. make sure the network card is using WDF device drivers
    d. None of the answers is correct.

    Answer: A

5. Which of the following is an advantage of domain networking?
    a. No central security database
    b. Included in every version of Windows 10
    c. Centralized security management
    d. Support for up to 25 simultaneous shared connections

    Answer: C

6. A new company will have 40 workstations in one building sharing a single network. All users must be able to share files and printers with one another. Access to shared information must be secure and simple to administer. The best technology for this system is _____.
    a. workgroups
    b. Windows Peer-to-Peer Networking
    c. people to people
    d. domain networking

    Answer: D

7. Application windows can be docked to the sides and corners of the screen using a feature called _____.
    a. Snap
    b. Shake
    c. Virtual Desktop
    d. Peek
    e. Docker

    Answer: A

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8. An administrator of a manufacturing company would like to manage corporate computers with Group Policy. The administrator is reviewing a purchase request for 20 new computers from the business owners. Which version of Windows 10 should the administrator consider for installation on the new computers? (Select two.)
    a. Windows 10 Home
    b. Windows 10 Pro
    c. Windows 10 Education
    d. Windows 10 Enterprise
    e. Windows 10 Ultimate

    Answer: B & D

9. You are installing a computer to run a nuclear reactor management system. The software lists Windows 10 as a requirement. To ensure that future feature updates do not impact the stability of the software, you should consider what type of Windows 10 installation?
    a. Windows 10 Pro
    b. Windows 10 Enterprise
    c. Windows 10 Core
    d. Windows 10 Enterprise LTSC

    Answer: D

10. Which of the following is a disadvantage of workgroup computing?
    a. Requires one or more expensive servers
    b. Supports an unlimited number of workstations
    c. No centralized security management
    d. Simple to set up initially

    Answer: C

11. What type of software does Windows 10 require to manage a new type of hardware?
    a. Hardware driver
    b. Hardware shim
    c. Plug and play software
    d. Resource configuration driver
    e. API

    Answer: A

12. Which editions of Windows 10 have support for 6 TB of memory? (Select two.)
    a. Windows 10 Enterprise
    b. Windows 10 Home
    c. Windows 10 Pro
    d. Windows 10 Pro for Workstations
    e. Windows 10 Pro Education

    Answer: A & D

13. Which type of license cannot be moved from one physical computer to another?
    a. OEM
    b. FPP

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c. MAK
d. KMS
e. Volume licensing

Answer: A

14. A volume license for Windows 10 is an upgrade from an OEM edition of Windows 10. True or False?
    a. True
    b. False

    Answer: A

15. Which of the following are valid upgrade paths? (Select 3)
    a. Windows 7 Home to Windows 10 Pro
    b. Windows 8 Enterprise to Windows 10 Enterprise
    c. Windows 7 Enterprise to Windows 10 Pro
    d. Windows 8.1 Pro to Windows 10 Enterprise
    e. Windows 8.1 Pro to Windows 10 Pro

    Answer: A, D & E

16. You can use cloud licensing for which specific scenario?
    a. New installations of Windows 10 Enterprise
    b. Upgrading from Windows 10 Pro to Windows 10 Enterprise
    c. Upgrading Windows 8.1 Pro to Windows 10 Enterprise
    d. New installations of Windows 10 Pro

    Answer: B

17. Which type of license has the product key embedded in firmware?
    a. OEM
    b. FPP
    c. MAK
    d. KMS
    e. Volume licensing

    Answer: A

18. Active Directory-based activation is more reliable than KMS. True or False?
    a. True
    b. False

    Answer: A

19. What is the minimum activation threshold when using KMS with Windows 10?
    a. 5
    b. 10
    c. 15
    d. 20
    e. 25

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Answer: E

20. To use KMS or Active Directory-based activation, you need to configure all Windows 10 computers with the same key. True or False?
    a. True
    b. False

    Answer: A

Case Project Solutions

Case Project 1-1: Designing a Small Network:

Master Motors is an automobile dealership and repair shop with 18 computers running Windows 8.1 Home. Their main dealership management software is installed on one person's computer and shared with other users. Their software vendor has told them that they need to host the application on a server if they have more than 20 computers.

You are a representative from a managed services provider (MSP) that needs to design a solution for Master Motors that includes an upgrade to Windows 10. Which networking model will you suggest? Which edition of Windows 10 will you suggest?

Solution:
Master Motors should use Windows 10 Pro in a domain model for networking.

Because Master Motors has nearly reached the limit for their application, you should recommend a solution that includes a server. After the server is introduced, a domain model for networking will be much easier to manage. This will allow users to sign in from any workstation and not just their own.

To support using a domain model, Master Motors should install Windows 10 Pro. Windows 10 Pro is the minimum edition that supports joining a domain. Windows 10 Enterprise has advanced features that are not typically required for smaller organizations such as Master Motors.

Case Project 1-2: Upgrading to Windows 10:

Gigantic Life Insurance has 4,000 users spread over five locations in North America. They have called you as a consultant to discuss different options for deploying Windows 10 to the desktops in their organization.

Most of the existing desktop computers are a mix of Windows 7 Pro and Windows 8.1 Pro, but one office is running Windows 8 Enterprise. They have System Center Configuration Manager to control the deployment process automatically. They want to begin distributing applications by using App-V.

Can you identify any issues that need to be resolved before the project begins? Which edition of Windows 10 should they use? Which type of activation should they use?

Solution:

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Windows 8 cannot be upgraded to Windows 10. Windows 10 Enterprise is the preferred edition of Windows 10. Active Directory-based activation should be used.

The only problem with the upgrade plan is the existence of Windows 8 computers that cannot be upgraded to Windows 10. Those users should be issued brand new computers with Windows 10 already installed or they need to be updated to Windows 8.1 before the upgrade to Windows 10.

The requirement to use App-V for application distribution means that they need to use Windows 10 Enterprise. Windows 10 Enterprise also provides advanced management and security features that can be useful for a large organization like this.

For computers that are connected to Active Directory and joined to the domain, Active Directory-based activation should be configured. This is easier than using KMS for activation.

Networking for Life

Window 10 is part of an entire computing ecosystem that also includes applications and hardware. In a business, this ecosystem exists to make your and your co-workers more productive. In a home, this ecosystem provides you and your family with entertainment and education. To get the most benefits out of this ecosystem, you need to monitor blogs that announce new features, hardware, and applications.

For this Networking for Life activity, you need to identify a posting on the Windows Experience blog (https://blogs.windows.com/windowsexperience/) that you think is interesting or useful. The posting that you select needs to be unique for your class. So, when you determine which article you want to use, put a posting in the Learning Management System (LMS) used by your school. The title of your posting should match the title of the blog you have selected. Review the list of postings in the LMS to confirm that the blog post you selected is not already listed. If someone else has already selected the same blog post, then you need to select a different blog post.

Your post in the LMS should be at least 200 words and should contain:

- A link to the original blog post.
- A summary of the blog post.
- A description of why you thought it was interesting or useful.

In addition to creating your own post in the LMS, read the postings of your fellow students. Select one posting where you think you can provide some additional insight. Use the link in the blog posting to read the original post before you reply with your thoughts. Your thoughts need to be unique and not merely a repetition of the original post. Your response should be a minimum of 50 words.

Grading Rubric

Category	Description	Points	Points

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		Possible	Earned
Post title	Title matches original blog post	5	
Post content	Contains a link to the original blog post, accurate summary of the blog article, and reasonable explanation as to why the blog post is interesting	25	
Post format	Grammar, spelling, punctuation	5	
Reply content	Shows evidence of understanding the original blog post and provides additional unique information or perspective	10	
Reply format	Grammar, spelling, punctuation	5	

Reflections

Windows 10 comes in many different editions. Each edition of Windows 10 has different features and limitations. Many times, when new computers are purchased, they are purchased with an edition of Windows 10 that's not suitable for the organization. So, it's important for you to understand the distinctions between different editions of Windows 10.

For this Reflection activity, you need to read about the differences and commonality between different editions of Windows 10. Use the information found in your textbook and the Microsoft website (https://www.microsoft.com/windowsforbusiness/compare).

In the Learning Management System (LMS) of your school create a posting about a specific feature in Windows 10. The posting that you select needs to be unique for your class. So, when you determine which article you want to use, put a posting in the Learning Management System (LMS) used by your school. The title of your posting should be the name of the feature you have selected. Review the list of postings in the LMS to confirm that the blog post you selected is not already listed. If someone else has already selected the same blog post, then you need to select a different blog post.

Your post in the LMS should be at least 100 words and must contain:

- A description of the feature.
- List of the editions of Windows 10 that the feature appears in.
- A description why the feature is appropriate for those editions that have it.

In addition to creating your own post in the LMS, read the postings of your fellow students. Select two postings where you think you can provide some additional insight about how that feature could be useful. Your thoughts need to be unique and not merely a repetition of the original post. Your response should be a minimum of 50 words.

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Grading Rubric

Category	Description	Points Possible	Points Earned
Post title	Title is the name of the feature	5	
Post content	Contains an accurate description of the feature, an accurate list of Windows 10 editions containing the feature, and a reasonable explanation why the feature is appropriate for those editions of Windows 10	20	
Post format	Grammar, spelling, punctuation	5	
Reply #1 content	Shows evidence of understanding the feature and provides additional unique information or perspective	10	
Reply #2 content	Shows evidence of understanding the feature and provides additional unique information or perspective	10	

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Instructor Manual

Wright and Plesniarski, Microsoft 365 Modern Desktop Administrator Guide to Exam MD-100: Windows 10, 2022, ISBN 9780357501757; Module 1: Introduction to Windows 10

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Purpose and Perspective of the Module

The purpose of this module is to outline the editions of the Windows 10 operating system and the features available in each edition. This information enables users to determine which version is appropriate for a given scenario. Next, the module gives step-by-step instructions to install or upgrade to Windows 10, including licensing and activating Windows 10. This module also introduces how to use features in Windows 10 user interface. Enhanced networking models are also covered in the module.

Cengage Supplements

The following product-level supplements provide additional information that may help you in preparing your course. They are available in the Instructor Companion Site.

- Transition Guide (provides information about what's new from edition to edition)
- Test Bank (contains assessment questions and problems)
- Solution and Answer Guide (offers solutions, answers, and feedback)
- PowerPoint (provides text-based lectures and presentations)
- MindTap Educator Guide (provides information about the activities included in MindTap)
- MindTap Transition Guide (compares what has changed or been renamed from edition to edition)

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Module Objectives

The following objectives are addressed in this module:

1. Describe the role of an operating system
2. Select an appropriate edition of Windows 10
3. Install Windows 10
4. Select an appropriate activation method for Windows 10
5. Understand the Windows 10 user interface
6. Identify network models available for Windows 10

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What's New in This Module

Read about the updates and improvements in this module.

Module 1, Introduction to Windows 10, outlines the role of an operating system and the editions of Windows 10. You learn how to perform a basic installation of Windows 10 and

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the options available for activation. The Windows 10 user interface and networking models are explained.

New activities, review questions, and case projects have been created to reinforce the concepts and techniques presented in the module and to help you apply these concepts to real-world scenarios.

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Teaching Tips

Consider the following teaching tips when assigning this module to your students.

Understanding Operating Systems

1. Explain that a common need among home users and business users is running applications.

2. Explain that when selecting an operating system, first identify the applications that will be used then identify the operating system requirement for those applications.

3. Note that Windows 10 is compatible with a wide availability of applications, making it popular among home and business uses.

Operating System Architecture

1. Describe how computer hardware, an operating system, and applications all work together. (Refer to Figure 1-1.)

2. Explain how a computer requires both hardware and an operating system to function. Hardware components such as the processor, memory, hard drive, or graphics card need the instructions of the operating system to perform tasks.

3. Note that hardware drivers provide the functionality required for the operating system to work with specific types of hardware. Because of its popularity, most hardware manufacturers provide drivers compatible with Windows 10.

4. Mention that application developers use application programmer interfaces (APIs) to perform common functions like opening and writing to a file. APIs are specific to

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each operating system, meaning applications are not always compatible with more than one operating systems.

Windows 10 Extras

1. Mention that Windows 10 has simple, but useful applications included, such as Notepad, Calculator, Microsoft Edge (Internet browser), Remote Desktop Connection, and Snip & Sketch.

2. Explain that Windows 10 includes tools for IT professionals for centralized management, such as: automatic updates integration with Active Directory, and group policy.

Alternative Operating Systems

1. Different operating systems available include: MacOS, Linux, Android, iOS, and iPadOS

Windows 10 Editions

1. This section describes the following five market segments with unique editions of Windows 10:

    - Home
    - Small business
    - Small business power users
    - Enterprise
    - Education

2. This section also describes the Windows 10 N & KN specialized versions of Windows 10 and Windows 10 compatibility with older software and hardware drivers.

Windows 10 Home

1. Explain that Windows 10 Home concentrates on enabling the home user to enjoy a rich and productive personal experience. Business enhancements such as encrypted files, joining a domain, and processing Group Policy settings are not available unless the operating system is upgraded to a business grade edition.

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2. Mention that this version includes the following features:

    - Support for 1 physical processor and up to 128 GB of memory
    - Run Windows applications
    - Customizable Start menu
    - Cortana voice assistant
    - Microsoft Edge browser
    - Windows Hello biometric authentication
    - Device encryption
    - Tablet mode
    - Windows Update
    - Local user accounts
    - Local Group Policy
    - Windows Defender Antivirus
    - Windows Defender Firewall
    - Windows Defender Exploit Protection (partial features)
    - Microsoft Store

Windows 10 Pro

1. Explain that Windows 10 Professional allows a business to simplify its operations and concentrate on doing business by centrally controlling authentication, access, deployment, and security.

2. Mention that this version includes the features of Window 10 Home plus the following:

    - Support for 2 physical processors and up to 2 TB of memory
    - Domain join to Active Directory
    - Azure Active Directory (Azure AD)
    - Group Policy from Active Directory
    - Windows Hello for Business with PIN authentication
    - Remote Desktop
    - Client Hyper-V
    - BitLocker drive encryption
    - Windows Defender Credential Guard
    - Windows Defender System Guard
    - Windows Autopilot for deployment
    - Windows Update for Business
    - Microsoft Store for Business

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Windows 10 Pro for Workstations

1. Explain that Windows 10 Pro for Workstations is for power users who need high-end performance with high-speed processing requirements.

2. Mention that this version adds the following features:

    - Support for 4 physical processors and up to 6 TB of memory
    - ReFS file system to support larger volumes and files
    - Persistent memory using nonvolatile memory
    - SMB Direct for high-performance network file access

Windows 10 Enterprise

1. Explain that Windows 10 Enterprise is available to customers with advanced security and management needs.

2. Mention that this version adds the following features to Windows 10 Pro:

    - Windows Defender Application Guard to isolate untrusted websites from enterprise data
    - Windows Defender Application Control and AppLocker to control which applications are allowed to run
    - Desktop Analytics to analyze upgrade readiness and compliance
    - BranchCache speeds up access to document across a WAN by caching them at a branch office
    - Windows 10 Enterprise Long Term Servicing Channel (LTSC) for specialized software
    - Cloud activation
    - Manage Microsoft Store access, the Start menu, Taskbar, and Cortana settings
    - Windows Virtual Desktop use rights
    - Microsoft Application Virtualization (App-V) for easier application distribution
    - Microsoft User Environment Virtualization (UE-V) for simplified user roaming among computers

Windows 10 Enterprise LTSC

1. Explain that Windows 10 Enterprise LTSC has removed some features from Windows 10 Enterprise to minimize change requirements.

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2. Mention that this version removes the following features:
   - The Microsoft Store
   - Modern apps (a newer development method for applications)
   - Microsoft Edge

3. Discuss with students the following considerations for using Windows 10 Enterprise LTSC:
   - Most applications are not tested or supported on Windows 10 Enterprise LTSC.
   - The .NET Framework required for many applications will not be updated to the latest versions.
   - The latest hardware advances will not be supported, and you might be limited using older hardware.
   - A proper deployment schedule should be developed that works for an organization, and do not simply avoid all updates to avoid recertifying.

Windows 10 Education Editions

1. Mention that Windows 10 Education Editions include: Windows 10 Pro Education and Windows 10 Education.

2. Explain that Windows 10 Education Editions provides the same feature set as Windows 10 Pro and Windows 10 Enterprise. Windows 10 Education Editions disable the display of Windows 10 tips, “fun facts,” and Microsoft Store suggestions. If Microsoft Store suggestions are turned on, then only Microsoft apps are displayed.

Windows 10 N & KN Editions

1. Note that the N releases are sold in European countries that do not allow Microsoft to bundle in Windows Media Player and other media software as part of the operating system.

2. Also note that the K releases are only sold in South Korea and have some features, like Windows Media Player, removed as well.

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3. However, explain that even though these features were removed due to legal requirements in Europe and South Korea, users with the N and KN editions can download the Media Feature Pack from Microsoft to access the multimedia applications that were removed.

32-Bit Versions

1. Explain that Windows 10 is available in 32-bit and 64-bit versions. The 32-bit version is offered to accommodate legacy software or hardware that are still in use.

2. Explain that a 32-bit application can run on the 32-bit and 64-bit versions of Windows 10. However, a 64-bit application can only on a 64-bit version of Windows 10.

3. Mention that the 64-bit version of Windows 10 offers the best performance and compatibility.

Installing Windows 10

1. Explain that most computers are purchased with Windows 10 already installed. All that is needed is to turn on the computer and follow setup instructions on the screen.

2. Mention, however, in business environments, it is common for the manufacturer Windows 10 operating system to be removed and replaced by a different version.

Hardware Requirements

1. Explain that Windows 10 is designed to provide a similar look and feel across systems with different device hardware and device capabilities.

2. Use Table 1-1 to show the minimum hardware requirements for Windows 10.

3. Note that minimum requirements are often not sufficient for a user's needs. Consider the purpose of the computer when determining the hardware

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recommendations. It is wise to go at least 1 step higher in memory and processing speed than the expected needs of a computer because you do not want to be maxing out performance during daily use.

DVD Boot Installation

1. Mention that the DVD boot installation is the simplest method to install Windows 10. Simply start the computer with the DVD installed and follow on-screen instructions.

2. Explain that a DVD boot installation is not suitable for a large volume of computers because it would require a technician to physically touch each computer. This method is best suited for personal use or a small organization that only occasionally installs Windows 10.

3. Note that customization is limited with a DVD boot installation because the drivers and components included are limited. To customize during a DVD boot installation, you can use removable media, such as USB storage.

4. Mention that using a USB flash drive is faster than a DVD drive because the interface is faster.

Upgrading to Windows 10

1. Explain that Windows 7 SP1 and Windows 8.1 can be upgraded to Windows 10, however Windows 8.0 would need to be upgraded to Windows 8.1 before upgrading to Windows 10.

2. Note that when upgrade, choose an equivalent or better edition of Windows. For example, you cannot upgrade from Windows 7 Pro to Windows 10 Home.

3. Mention that to perform an upgrade, use the upgrade option during the install process.

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4. Note that during an upgrade, user data and compatible applications are retained, and incompatible applications are identified during the upgrade process.

Edition Upgrades

1. Explain that upgrading editions within Windows 10 is simple. You do not need to reinstall Windows 10. Instead, simply update the product key to the new edition that was purchased. This is commonly done when buying a computer with Windows 10 already installed, but you need a higher edition.

Licensing Windows 10

2. Explain that licensing Windows 10 can be a complex issue, especially when doing a volume license. You should always verify licensing details with Microsoft before purchasing.

3. Describe the following licensing options:

    - *Original equipment manufacturer (OEM) license* – This license is tied to physical device and cannot be transferred to a different device. OEM product keys are stored in the firmware and are automatically detected during a reinstall of Windows 10.
    - *Full package product (FPP) license* – This license is purchased from a retail store and generally includes install media and a product key. This type of license can be transferred to another device, and it is more expensive than an OEM license.
    - *Volume licensing* – This license agreement is used by organizations to obtain software directly from Microsoft to upgrade from an OEM license. A volume license grants access to a website for downloading files and access to product keys. A volume license also includes image rights for faster installs and an option to purchase software assurance, which provides new version rights and other benefits.
    - *Cloud licensing* – This license is available to upgrade from Windows 10 Pro to Windows 10 Enterprise. This license can also include larger packages, such as Microsoft 365. This type of licensing is enabled through Microsoft Azure AD, using an assigned license rather than a product key.

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Activating Windows 10

1. Explain that product activation is used to reduce piracy. If Windows 10 is not activated, some features are disabled.

OEM and FPP License Activation

1. Mention that activation status can be viewed on the Updates & Security page of the Settings app. This is also where you can update the product key, if needed.

2. Note that significant hardware changes may require Windows 10 to be reactivated.

3. Note that an FPP license allows for 2 active automatic product activations, which is useful when transferring the license to a new computer.

Volume License Activation

1. Describe the following options for managing volume license activations:

    - *Multiple Activation Key (MAK*) – Similar to an OEM key, it can be activated over the Internet or by phone. However, a MAK has an allowance for a specific number of computers, rather than just one.
    - *Key Management Service (KMS)* – This product key type requires you to install KMS on a computer. Product keys are then installed on the KMS server. Computers communicate with the KMS server on an internal network, which then communicates through the Internet to activate the product key. KMS simplifies key management for large organizations or where a client computer cannot activate on the Internet due to firewalls.
    - *Active Directory-based activation* – This product key type requires communication between a computer and an Active Directory domain at least every 180 days.

Troubleshooting MAK Activation

1. Explain the following troubleshooting tips for MAK activation:

    - Ensure there is an Internet connection.
    - If no Internet connection is available, you can use a phone-based activation, but that is time-consuming.

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- If no Internet connection and phone-based activation is too time-consuming, you can use the Volume Activation Management Tool (VAMT) as a proxy activation. VAMT is the tool that is configured as a KMS host.
- If the VAMT cannot communicate with the Internet, export information from the isolated VAMT to a connected VAMT server for activation. After activation, it is then exported from the connected VAMT and imported to the isolated VAMT.
- If you are retiring computers, and trying to activate new computers, you might exceed your maximum number of activations for a key. Simply call the activation center and explain what you are doing.

Troubleshooting KMS Activation

1. Explain the following troubleshooting tips for KMS activation:

    - Make sure the KMS server is updated to support Windows 10 clients.
    - Client computers must be configured with a generic volume license key (GVLK).
    - A Windows 10 KMS server requires a minimum activation threshold of 25 activation attempts.
    - Verify that the service (SRV) record is present, and that the client computer can connect to the KMS server. In a multidomain environment, configure the DNSDomainPublishList registry key on the KMS server to ensure the SRV record is created in all domains.
    - A KMS activation is valid for 180 days. If a client computer cannot connect to the KMS server at least every 180 days, then use MAK activation instead.
    - When troubleshooting, use the command slmgr /dlv to view detailed licensing information.

Troubleshooting Active Directory-Based Activation

1. Explain the following troubleshooting tips for Active Directory-based activation:

    - Verify Windows 10 has a GVLK installed.
    - Verify Windows 10 is joined to Active Directory where Active Directory-based activation is configured.
    - Verify Windows 10 can properly authenticate to Active Directory.
    - Verify Windows 10 has authenticated to Active Directory within the last 180 days.
    - Verify the KMS key for Windows 10 was installed for Active Directory-based activation.

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Using Windows 10

1. Explain that Windows 10 includes new features to improve security, reliability, and ease of use:

    - Lock screen
    - Start menu
    - Search interface
    - Taskbar
    - Notification area
    - Advanced Window Management

Lock Screen

1. Use Figure 1-4 to display the Windows 10 lock screen. Note that because Windows 10 is used with a large range of devices, the lock screen was changed to a format that is similar to what one would see on a smartphone.

2. Explain that when the user triggers the lock screen to remove itself by performing an action like clicking the mouse, pressing a key, or touching a touch sensitive screen, the sign-in screen replaces it and allows the user to sign in with a user identity. Use Figure 1-5.

Start Menu

1. Note that the Start button present in Windows 7 and removed in Windows 8 has been reinstated with Windows 10. Use Figure 1-6 to show the new look of the Start button.

2. Mention that the way the Start menu displays has also changed. The left-hand column shows small icons to identify the currently signed-in user and a few standard Windows shortcuts. The middle column contains a list of frequently used applications at the top, and a sorted list of installed applications below that. The right-hand column includes application live tiles that display up-to-date information from applications and allow the user to fully launch those applications.

3. Define Jump Lists as a feature in Windows 10 that identifies what content was recently opened by an application, or what content is automatically linked to the menu item.

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4. Mention that right-clicking the Start button displays a short menu of commonly used administrative tools. Use Figure 1-7 to show the shortcut menu for administrative tools.

Search Interface

1. Use Figure 1-8 to show the features of the Search box in Windows 10. This provides a single point you can use to search for documents, Windows settings, websites, and applications.

Taskbar

1. Define the taskbar as a horizontal bar located at the bottom of the screen by default. It contains the Start button, search tool, and Task View button to the left and the notification area to the right. In the middle is an area to keep track of open windows. Use Figure 1-9 to illustrate your explanation.

2. Demonstrate the Peek feature. Identify the icon of an open program (indicated by a colored bar beneath the icon). Hover the mouse over that icon to display the preview window.

3. Mention that taskbar buttons can represent a shortcut to an application, even if it is not actively running.

Notification Area

1. Explain that the notification area is located to the right of the taskbar in the bottom right-hand side of the Windows 10 screen. Use Figure 1-6 to illustrate your explanation.

2. Mention that the area has been simplified by default to display the clock and icons for volume, network connectivity, power, and Action Center notifications. The Action Center notifications list important operating system messages in one convenient place.

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3. Note that other applications can add icons to the notification area, but they are not displayed automatically.

Advanced Window Management

1. Explain that the Snap feature allows windows to quickly be resized by having the user click on the title bar of the window and drag it to the top, sides, or middle of the screen.

2. Describe the Shake feature. If a user clicks on the title bar of a window and shakes the mouse from side to side, all other windows will automatically minimize. Repeating the shake will restore all other windows to their original size and location.

3. Explain that clicking Task View changes the display to show an ordered preview of all application windows that are currently open. Clicking a window's preview image brings that window forward to become the active window.

4. Also show how Task View can be used to create a Virtual Desktop. Virtual Desktop allows the user to create multiple desktops that can host different open windows. Using the Task View control, users can toggle between virtual desktops as required and avoid a confusing mix of windows on a single desktop.

Windows 10 Networking Models

1. This section describes the following networking models supported by Windows 10:

    - Workgroup Model
    - Domain Model
    - Azure AD Join

Workgroup Model

1. Define a workgroup as a loosely knit collection of peer computers on a network where no computer has control or a superior role to any other computer. Each computer is identified by its name and address on the network. The default workgroup name is typically WORKGROUP.

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2. Mention that the workgroup design is traditionally known as a peer-to-peer networking model.

3. Explain that managing a workgroup can be difficult. Computers in a workgroup are usually part of a single local area network operating with direct access between each computer. Workgroups should be limited to 10 to 20 computers.

Domain Model

1. Define a domain model as a client/server strategy that allows central administrative management of its members.

2. Define a domain as a collection of computers and users that are identified by a common security database. The database is stored on one or more dedicated servers called domain controllers (DCs). Each member of the domain can take on a client or server role.

3. Mention that a domain model is typically employed in business environments.

4. Describe the main characteristics of the Microsoft implementation of a central database that stores domain information: Active Directory.

Azure AD Join

1. Define Azure AD as a directory service hosted by Microsoft as a cloud-based service via the Internet.

2. Explain that Azure AD join is used to register a Windows 10 device with Azure AD to enable centralized management of that device by the company's administrators.

3. Explain that Azure AD join is suitable for devices that cannot join a domain and in environments where users can best be managed from the cloud with Mobile Device Management (MDM) solutions.

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Key Terms

Action Center: A list of operating system and application notifications in addition to buttons that enable and disable some common options.

Active Directory: A centralized directory used for domain-based networking that contains user and computer accounts.

Active Directory-based activation: A method for activating software internally without needing to implement a KMS server.

application programmer interfaces (APIs): Methods for application developers to make requests to an operating system to perform tasks.

applications: Software used to perform tasks, generate data, and manipulate data. Microsoft word is an example of an application.

Azure AD: A cloud-based directory service hosted by Microsoft.

Azure AD join: A process to register Windows 10 in Azure AD to allow for centralized management.

cloud licensing: Licenses that are available only when upgrading Windows 10 Pro to Windows 10 Enterprise. The licenses are enabled when users sign in to Azure AD.

computer hardware: The physical components of a computer, such as memory, hard drive, and peripherals.

domain: A networking model that centralizes authentication and management. The list of users and computers is contained in a domain database.

DVD boot installation: The installation option for Windows 10 that requires you to boot from a DVD to perform an installation; uses the same process, but is faster when booting from USB media.

full packaged product (FPP) license: A license for Windows 10 that you purchase from a retailer.

generic volume license key (GVLK): A generic product key that needs to be entered in Windows 10 when using KMS or Active Directory-based activation.

Group Policy: A feature integrated with Active Directory that can be used to centrally manage the configuration of Windows 2000 and newer Windows computers, including Windows 10.

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hardware drivers: Small pieces of software used by an operating system to manage specific types of hardware.

Key Management Service (KMS): An internal activation service that organizations can use if they purchase volume licensing.

Mobile Device Management (MDM): A system used to manage mobile devices. This can be used when Windows 10 is joined to Azure AD.

Multiple Activation Key (MAK): A product key available through volume licensing that can be used for multiple instances of Windows 10.

notification area: The area on the taskbar that is used by applications to display notifications; this area also contains the system time and Action Center.

operating system: Software that manages the hardware and applications running on a computer.

original equipment manufacturer (OEM) license: A license for Windows 10 that is provided by a computer manufacturer. This license cannot be transferred to another computer.

product activation: A license verification process that Microsoft instituted to reduce piracy.

Start menu: A menu in Windows 10 that allows users to access applications installed on their computer.

Task View: A display that shows currently running applications and provides the capability to switch between virtual desktops.

taskbar: A horizontal bar at the bottom of the desktop that contains the Start menu, search area, running application icons, and the notification area.

Virtual Desktop: A new feature that allow you to create virtual desktops with unique sets of running applications.

Volume Activation Management Tool (VAMT): A tool included as part of the Windows ADT that allows you to configure a computer as an activation proxy or KMS host.

volume licensing: A license agreement that an organization enters into with Microsoft that provides licenses for Windows 10. Software is downloadable from a website.

Windows 10 Education: The edition of Windows 10 that is oriented to educational institutions. The feature set is equivalent to Windows 10 Enterprise.

Windows 10 Enterprise: This edition of Windows 10 is oriented to larger organizations. The feature set contains additional options for manageability and security.

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Windows 10 Enterprise Long Term Servicing Channel (LTSC): The variation of Windows 10 Enterprise that is optimized to reduce updates in specialized environments. Some features of Windows 10 Enterprise are removed.

Windows 10 Home: The edition of Windows 10 that is oriented to home users.

Windows 10 Pro: The edition of Windows 10 that is oriented to small and mid-sized organizations. A key feature in this edition is the ability to join a domain.

Windows 10 Pro Education: The edition of Windows 10 that is oriented to educational institutions that do not need the full features of Windows 10 Education. The feature set is equivalent to Windows 10 Pro.

Windows 10 Pro for Workstations: The edition of Windows 10 that is oriented to data analysts and engineers that need a higher level of processing power and more memory.

workgroup: A networking model that organizes computers for browsing but does not centralize authentication or management.

x64 architecture: The processor architecture that is required to support the 64-bit version of Windows 10.

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Discussion Questions

You can assign these questions several ways: in a discussion forum in your LMS; as whole-class discussions in person; or as a partner or group activity in class.

1. Discussion: Troubleshooting Windows 10 (Windows 10 Networking Models, pgs. 19-21, PPT Slides 43-47). Duration: 5 minutes.
    a. Your workstation is running Windows 10 Pro, and you decide to share a folder on your computer. Twenty-two people in your office are trying to connect to that folder at the same time over the network. The first 20 people can connect, but the other two cannot.
    b. Why cannot the 21st and 22nd people connect to the folder?
        i. Answer: All Windows 10 editions workgroups are limited to support a maximum of 20 simultaneous connections.
    c. How can you resolve this issue?
        i. Answer: Change to a domain model using a Windows Server operating system to host the shared resource.
    d. Why might that solution not work for you?
        i. Answer: Typically companies that use Workgroups are small organizations. Changing to a domain with a Windows Server operating system might be too expensive for the company.

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Additional Activities and Assignments

1. **Windows 10 Security**: Research Windows 10 security using the Internet.
    a. Use the Internet to find the security advantages of using Windows 10. Report your findings.
2. **Windows 10 Upgrade Paths:** Indicate upgrade paths to Windows 10 given a previous version of Windows.
    a. Using the list of features included with each version of Windows 10 provided in this module, create a table that can be used as a map to upgrade from different Windows-based operating systems to Windows 10. Use the following format:

Original Windows-based OS	Windows 10 Version
Windows 2000 Server	
Windows XP SP2	
Windows Media Center	
Windows Vista SP1	

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Additional Resources

External Videos or Playlist

- Install Windows 10: https://www.youtube.com/watch?v=HKMJnlKGPWk
- Identify OEM, Retail, Volume License in Windows 10: https://www.youtube.com/watch?v=k4sFsL-OPg0

Internet Resources

- Microsoft Software Assurance (SA) at: www.microsoft.com/en-us/Licensing/licensing-programs/software-assurance-default
- Troubleshooting Windows Volume Activation at: https://docs.microsoft.com/en-us/windows-server/get-started/activation-troubleshooting-guide
- Perform Proxy Activation at: https://docs.microsoft.com/en-us/windows/deployment/volume-activation/proxy-activation-vamt
- Windows Store: https://www.microsoft.com/en-us/store/apps
- Windows 10 security overview: https://docs.microsoft.com/en-us/windows/security/threat-protection/overview-of-threat-mitigations-in-windows-10

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- Azure Active Directory: https://docs.microsoft.com/en-us/powershell/azure/active-directory/install-msonlinev1

Primary Sources

- Windows 10 help forum: https://windows10.help/

External Audio Resources

- Windows Weekly podcast: https://twit.tv/shows/windows-weekly

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