MTA

Windows Operating System Fundamentals

Project Workbook

MTA Windows Operating System Fundamentals (98-349) Project Workbook

First Edition

Student Edition

LearnKey provides on-demand training courses and online learning solutions to education, government, business, and individuals worldwide. LearnKey provides expert instruction for popular computer software, technical certifications, and application development with dynamic video-based courseware and effective learning management systems. LearnKey delivers content on the web, by enterprise network, and on interactive CD-ROM. For a complete list of courses, visit:

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Windows Operating System Fundamentals

Introduction

Best Practices Using LearnKey's Online Training

LearnKey offers video-based training solutions that are flexible enough to accommodate the private students and educational facilities and organizations.

Our course content is presented by top experts in their respective fields and provides clear and comprehensive information. The full line of LearnKey products has been extensively reviewed to meet superior standards of quality. Our course content has also been endorsed by organizations such as Certiport, CompTIA®, Cisco, and Microsoft. However, it is the testimonials given by countless satisfied customers that truly set us apart as leaders in the information training world.

LearnKey experts are highly qualified professionals who offer years of job and project experience in their subjects. Each expert has been certified at the highest level available for their field of expertise. This expertise provides the student with the knowledge necessary to obtain top-level certifications in their chosen field.

Our accomplished instructors have a rich understanding of the content they present. Effective teaching encompasses presenting the basic principles of a subject and understanding and appreciating organization, real-world application, and links to other related disciplines. Each instructor represents the collective wisdom of their field and within our industry.

Our Instructional Technology

Each course is independently created, based on the manufacturer's standard objectives for which the course was developed.

We ensure that the subject matter is up-to-date and relevant. We examine the needs of each student and create training that is both interesting and effective. LearnKey training provides auditory, visual, and kinesthetic learning materials to fit diverse learning styles.

Course Training Model

The course training model allows students to undergo basic training, building upon primary knowledge and concepts to more advanced application and implementation. In this method, students will use the following toolset:

Pre-assessment: The pre-assessment is used to determine the student's prior knowledge of the subject matter. It will also identify a student's strengths and weaknesses, allowing the student to focus on the specific subject matter he/she needs to improve the most. Students should not necessarily expect a passing score on the pre-assessment as it is a test of prior knowledge.

Video training session: Each training course is divided into sessions or domains and lessons with topics and subtopics. LearnKey recommends incorporating all the available external resources into your training, such as student workbooks, glossaries, course support files, and additional customized instructional material. These resources are located in the folder icon at the top of the page.

Exercise Labs: Labs are interactive activities that simulate situations presented in the training videos. Step-by-step instructions and live demonstrations are provided.

Post-assessment: The post-assessment is used to determine the student's knowledge gained from interacting with the training. In taking the post-assessment, students should not consult the training or any other materials. A passing score is 80 percent or higher. If the individual does not pass the post-assessment the first time, LearnKey would recommend incorporating external resources, such as the workbook and additional customized instructional material.

Workbook: Workbooks have various activities, such as glossary puzzles, short answer questions, practice exams, research topics, and group and individual projects, which allow the student to study and apply concepts presented in training.

Using This Workbook as a Student

This project workbook contains practice projects and exercises to reinforce the knowledge you have gained through the video portion of the **MTA Windows Operating System Fundamentals** course. The purpose of this workbook is twofold. First, get you further prepared to pass the MTA Operating System Fundamentals (98-349) exam, and second, to get you job-ready skills and increase your employability in the area of configuring an instance of Windows 10.

This project workbook is versatile in that the projects follow the order of the video portion of this course. You can complete the workbook exercises as you go through each section of the course, complete several of these at the end of each session, or complete them after viewing the entire course. The key is to go through these projects to strengthen and solidify your knowledge of this course.

Each project is mapped to a specific video (or videos) in the course and specific test objectives. The materials you will need for this course include:

- LearnKey's **MTA Windows Operating System Fundamentals** courseware.
- The practice files for these projects, which are available at the following URL: https://media-aws.onlineexpert.com/files/MTA_Windows_Operating_System_Fundamentals_%2898-349%29_Support_Files.zip
- **Benefits**
    - Learn how to configure Windows 10 from an administrative standpoint.
    - View your online courseware anytime and anywhere.
    - Put your skills to the test with dozens of pre-assessment and post-assessment questions and practice labs.

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Skills Assessment

Instructions: Rate your skills on the following tasks from 1-5 (1 being needs improvement, 5 being excellent).

Skills	1	2	3	4	5
Configure Control Panel options.	☐	☐	☐	☐	☐
Configure desktop settings.	☐	☐	☐	☐	☐
Configure native applications and tools.	☐	☐	☐	☐	☐
Configure mobility settings.	☐	☐	☐	☐	☐
Configure and use management tools.	☐	☐	☐	☐	☐
Identify Windows operating system editions.	☐	☐	☐	☐	☐
Identify upgrade paths.	☐	☐	☐	☐	☐
Understand installation types.	☐	☐	☐	☐	☐
Understand operating system architecture.	☐	☐	☐	☐	☐
Configure applications.	☐	☐	☐	☐	☐
Configure User Account Control (UAC).	☐	☐	☐	☐	☐
Configure antivirus settings.	☐	☐	☐	☐	☐
Understand services.	☐	☐	☐	☐	☐
Understand file systems.	☐	☐	☐	☐	☐
Understand file and print sharing.	☐	☐	☐	☐	☐
Understand encryption.	☐	☐	☐	☐	☐
Understand libraries.	☐	☐	☐	☐	☐
Connect devices.	☐	☐	☐	☐	☐
Understand storage.	☐	☐	☐	☐	☐
Understand printing devices.	☐	☐	☐	☐	☐

Skills	1	2	3	4	5
Understand system devices.	☐	☐	☐	☐	☐
Understand backup and recovery methods.	☐	☐	☐	☐	☐
Understand maintenance tools.	☐	☐	☐	☐	☐
Configure updates.	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

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MTA Windows Operating System Fundamentals (98-349) Video Times

Domain 1	Video Time
Introduction	00:03:49
Control Panel	00:15:57
Desktop Settings	00:15:29
Native Applications and Tools	00:23:09
Mobility Settings	00:09:04
Management Tools	00:10:05
Session 1 Recap	00:01:18
Total Time	**01:18:51**

Domain 2	Video Time
Operating System Editions	00:06:05
Upgrade Paths	00:05:45
Installation Types	00:15:21
Operating System Architecture	00:07:38
Session 2 Recap	00:01:44
Total Time	**00:36:33**

Domains 3 and 4	Video Time
Application Configuration	00:18:02
User Account Control	00:07:44
Antivirus Settings	00:06:36
Services	00:06:31
Files, Folders, and Sharing	00:32:25
Encryption	00:08:28
Libraries	00:08:48
Session 3 Recap	00:03:19
Total Time	**01:31:53**

Domain 5	Video Time
Connect Devices	00:08:44
Storage	00:25:33
Printing Devices	00:13:38
System Devices	00:05:48
Session 4 Recap	00:02:05
Total Time	**00:55:48**

Domain 6	Video Time
Backup and Recovery Methods	00:16:47
Maintenance Tools	00:13:31
Updates	00:12:55
Session 5 Recap	00:04:01
Total Time	**00:47:14**

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Windows Operating System Fundamentals

Domain 1

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Fill-in-the-Blanks

Instructions: While watching Domain 1, fill in the missing words according to the information presented by the instructor. [References are found in the brackets.]

Lesson 1

1. Administrative Tools are found through the _____ category in the Control Panel. [Administrative Tools]
2. Accessibility options are found in the _____ area of the Control Panel. [Accessibility Options]
3. In _____ mode, a computer does not shut off the RAM. [Power Settings]

Lesson 2

4. In File Explorer, one can control whether extensions for known file _____ are displayed. [File Explorer Settings]
5. A roaming profile allows for _____ settings to roam from device to device. [Profiles]
6. _____ is the feature that allows text to be calibrated to display as clearly as possible. [Display Settings]
7. Shortcuts are most often placed on one's _____. [Shortcuts]

Lesson 3

8. On the Start Menu, shortcuts to apps show as _____. [Start Menu]
9. Through the taskbar settings, the _____ of the taskbar icons can be controlled. [Taskbar Settings]
10. The availability of toolbars is partially dependent upon the _____ one has installed on a device. [Toolbars]
11. The Notifications icon is in the _____ corner of the screen. [Notifications]
12. Microsoft Edge is a browser that is an updated from the previous Microsoft-based browser, _____. [Microsoft Edge]

Lesson 4

13. Cortana can be used for _____ searches and interactions. [Cortana]
14. Hyper-V is used to host _____ machines on a device. [Hyper-V]
15. The msconfig command can be used to open the _____ utility. [MSConfig]
16. _____ can be terminated from within Task Manager to decrease the use of CPU and memory. [Task Manager]

Lesson 5

17. The number of drive letters in use can be found in the _____ tool within Computer Management. [Computer Management]
18. The Sync Center allows one to work with network and database files from a server while _____ from that server. [Sync Center]
19. Windows Mobility Center is available on tablets and _____. [Windows Mobility Center]

20. Remote Desktop is supported for incoming connections on Windows 10 Education, Enterprise, and _____. [Remote Desktop]

Lesson 6

21. MMC allows one to create custom consoles by adding one or more _____ to the console. [MMC]
22. PowerShell uses a _____ structure for all its commands. [PowerShell Console]
23. PowerShell ISE uses a _____ to help users write scripts. [PowerShell ISE]

Administrative Tools

Administrative tools are used to configure a system and help keep it up and running efficiently and properly. These tools are found in the Control Panel, but many can be accessed from the Start menu or the Run dialog box.

Purpose

Upon completing this project, you will be able to identify which administrative tool to use given a situation.

Steps for Completion

1. On a Windows 10 device, open the Control Panel.
2. If necessary, change the view to Category.
3. Navigate to the Administrative Tools area.
4. Identify the administrative tool used to perform each function:
    a. Looking through system logs: _____
    b. Controlling password length: _____
    c. Protecting from unwanted data: _____
    d. Creating virtual machines: _____
    e. Showing the amount of RAM on a device: _____

Project Details

Project file
N/A

Estimated completion time
5 to 10 minutes

Video reference
Domain 1
Topic: Control Panel
Subtopic: Administrative Tools

Objectives covered
1 Understanding Operating System Configurations
1.1 Configure Control Panel options
1.1.a Configure administrative tools

Accessibility Options

Accessibility options allow one to set Windows up to help those who are vision-impaired, hearing-impaired, or have trouble working with a mouse or a keyboard.

Changing the color and size of the mouse pointer can also help those who do not have limitations. Also, one can affect how Windows runs by changing settings such as turning off unnecessary animations.

Purpose

Upon completing this project, you will have a better understanding of the Ease of Access options.

Steps for Completion

1. If necessary, open the Control Panel.
2. Navigate to the Ease of Access Center.
3. Open the Let Windows suggest settings area.
4. Skip through to the Recommended settings area.
5. Change the mouse pointer to the Large White setting.
6. Complete the settings change.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Control Panel
Subtopic: Accessibility Options

Objectives covered
1 Understanding Operating System Configurations
1.1 Configure Control Panel options
1.1.b Configure accessibility options

Power Settings

Through the Control Panel, one can control power settings for a device. A basic power setting is the timing for turning off a device and/or a monitor. An advanced power setting is the ability to control what to do when, for example, a lid is shut on a laptop. Through advanced settings, one can also control the importance of CPU cooling if such a setting is available. Power settings will vary based on the type of device being configured.

Purpose

Upon completing this project, you will better understand how to control power settings on a device. Note that actual power options may vary depending on your device and a laptop is best suited for this project.

Steps for Completion

1. Open the Control Panel.
2. Navigate to the Power Options area.
3. Edit the Balanced setting never to put the computer sleep.
4. Open the Advanced Settings for the Balanced power plan.
5. Hibernate mode cuts power to which device hardware part? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Control Panel
Subtopic: Power Settings

Objectives covered
1 Understanding Operating System Configurations
1.1 Configure Control Panel options
1.1.c Configure power settings

File Explorer Settings

File Explorer is the main tool used to view files and folders on a Windows device. As with many other Windows tools, File Explorer has many settings that allow one to control how files and folders are viewed. For example, one could choose whether to show file extensions and/or hidden files within File Explorer.

Purpose

Upon completing this project, you will have a better idea of how to control File Explorer settings.

Steps for Completion

1. Use the search options in the Control Panel to find the File Explorer Options area
2. Open the File Explorer Options window.
3. Access the View tab.
4. Select the Show hidden files, folders, and drives option.
5. If the Hide extensions for known file types check box is selected, clear the check box.
6. Finish the changes to the File Explorer settings.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Control Panel
Subtopic: File Explorer Settings

Objectives covered
1 Understanding Operating System Configurations
1.1 Configure Control Panel options
1.1.c Configure File Explorer settings

Profiles, Display Settings, and Shortcuts

A profile is a set of folders and properties for a user account. These settings include user folders, such as desktop, documents, and downloads folders, and Windows settings, such as the background display on a desktop.

Display settings entail font sizes for Windows items such as menus and title bars, the screen resolution for one or more monitors for a device, color calibration, and ClearType, making text on a screen easier to read.

Shortcuts provide a fast way to reach apps, folders, and files. Many shortcuts are stored on one's desktop. If a user's profile roams from device to device, the shortcuts will follow the user from device to device.

Purpose

Upon completing this project, you will better understand user profiles and display settings for a device. You will also know how to set up a desktop shortcut.

Steps for Completion

1. Which type of profile follows a user from device to device? _____
2. If necessary, open the Control Panel.
3. Navigate to the Appearance and Personalization area.
4. Navigate to the Display area.
5. Increase the font size of your title bars a single point.
6. Ensure that the resolution on your device is set to the recommended resolution.
7. If necessary, enable the Turn on ClearType setting.
8. Navigate to the desktop.
9. On the desktop, create a shortcut to your Documents folder.

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 1
Topic: Desktop Settings
Subtopic: Profiles; Display Settings; Shortcuts

Objectives covered
1 Understanding Operating System Configurations
1.2 Configure desktop settings
1.2.a Configure profiles, display settings, and desktop shortcuts

The Start Menu

The Start menu is a gateway to apps, settings, user information, and the ability to sign out of an account, switch accounts, and even shut down or restart a device. Through the Settings area, one can configure multiple Start menu options.

Purpose

Upon completing this project, you will know how to configure Start menu settings.

Steps for Completion

1. Access the Settings area from the Start menu.
2. In the Settings area, search for Start settings.
3. Turn on the Show more tiles on Start feature.
4. Navigate to the area that allows one to choose which folders appear on the Start menu.
5. Ensure that the following folders appear on the Start menu:
    a. File Explorer
    b. Settings
    c. Documents

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Desktop Settings
Subtopic: Start Menu

Objectives covered
1 Understanding Operating System Configurations
1.2 Configure desktop settings
1.2.b Configure and customize Start Menu

Taskbar Settings and Toolbars

Taskbar settings allow one to control the size of taskbar icons. For those who tend to have multiple apps open at once, smaller icons can make it easier to shift from app to app. Through the Taskbar settings, one can also hide the taskbar in desktop or tablet mode.

Toolbars give users options for easier access to apps, shortcuts, and other areas of Windows. The list of toolbars one will have will vary based on apps installed on a device.

Purpose

Upon completing this project, you will know how to control taskbar settings and toolbar displays.

Steps for Completion

1. Open the Taskbar settings area.
2. Turn on the Use small taskbar buttons setting.
3. Turn on the Show taskbar on all displays option (if the option is available).
4. Display the Address toolbar.
5. Use the Address toolbar to navigate to the learnkey.com website.
6. Close the web browser.
7. If desired, revert all changed settings.

Project Details

Project file
N/A

Estimated completion time
5-10 minutes

Video reference
Domain 1
Topic: Desktop Settings
Subtopic: Taskbar Settings; Toolbars

Objectives covered
1 Understanding Operating System Configurations
1.2 Configure desktop settings
1.2.c Configure Taskbar settings
1.2.d Configure toolbars

Notifications

Notifications appear on the Windows screen's right side and are accessible through the Notifications icon in the lower-right corner of the screen. The types of notifications one sees can be configured.

Purpose

Upon completing this project, you will be able to control which notifications appear in the Notifications area.

Steps for Completion

1. Access the Notifications area. Make a note of any notifications displayed.
2. Access the Settings area.
3. Search for and navigate to the Notifications & actions settings area.
4. Navigate to the Add or remove quick actions area.
5. Turn off Tablet notifications.
6. Turn on Wi-Fi notifications.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Desktop Settings
Subtopic: Notifications

Objectives covered
1 Understanding Operating System Configurations
1.2 Configure desktop settings
1.2.e Configure notifications

Microsoft Edge

Microsoft Edge is the latest web browser to ship with Windows 10. Technically, it is meant to replace Internet Explorer, though Internet Explorer is still widely used.

Purpose

Upon completing this project, you will know how to change Microsoft Edge settings.

Steps for Completion

1. Launch Microsoft Edge.
2. Access the Settings area.
3. Set the start page to www.learnkey.com.
4. Change the theme to Dark.
5. Close the Settings area.
6. Which type of browsing does not save browser history but is still seen by an internet provider? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Native Applications and Tools
Subtopic: Microsoft Edge

Objectives covered
1 Understanding Operating System Configurations
1.3 Configure native applications and tools
1.3.a Configure Microsoft Edge

Cortana and Hyper-V

Cortana is the voice-activated feature within Windows. Cortana can be used to search the web, open apps, and interact with apps. Cortana is usually on within Windows but often needs to be configured for it to be used optimally.

Hyper-V, specifically Hyper-V Manager, is an app used to host virtual machines, allowing one device to host multiple operating systems, including Windows, Windows Server, and Linux.

Purpose

Upon completing this project, you will know how to configure Cortana settings. Note that your device must have a working mic, built-in or otherwise, to use Cortana. To do the Hyper-V steps in this project, you will need to have Hyper-V active. Check your Windows Features through the Control Panel to make sure Hyper-V is on.

Steps for Completion

1. Open the Settings area.
2. Search for and navigate to the Cortana settings.
3. What choice can be set under Cortana settings? _____
4. Search for and navigate to the Microphone privacy settings.
5. Ensure that Microsoft Store apps can use Cortana.
6. Navigate to the Voice activation privacy settings.
7. Ensure that apps can use voice activation.
8. If Hyper-V is enabled, open Hyper-V Manager.
9. Add a new virtual switch, accepting the default settings for the switch.
10. Which resources do virtual machines consume on a host device? _____

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 1
Topic: Native Applications and Tools
Subtopic: Cortana; Hyper-V

Objectives covered
1 Understanding Operating System Configurations
1.3 Configure native applications and tools
1.3.b Configure Cortana
1.3.c Configure Hyper-V

System Configuration Utility

The System Configuration Utility, also known as MSConfig, allows one to change the startup type on a device, control services, and launch administrative tools.

Purpose

Upon completing this project, you will better understand the capabilities within the System Configuration utility.

Steps for Completion

1. Use the msconfig command to open the System Configuration utility.
2. Answer the following questions about the System Configuration utility:
    a. Which startup type loads basic devices and services only? _____
    b. Which boot mode loads a minimal set of drivers? _____
    c. (True or False) Enabled services are always running. _____
    d. Which tab shows but has its configuration inside of Task Manager? _____
    e. (True or False) Computer Management can be launched from System Configuration. _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Native Applications and Tools
Subtopic: MSConfig

Objectives covered
1 Understanding Operating System Configurations
1.3 Configure native applications and tools
1.3.d Configure settings using MSCONFIG

Task Manager

Task Manager is a multifaceted utility that helps one manage processes, services, and startup items and give a snapshot of device performance. For example, one can use Task Manager to see which processes take up the highest amounts of CPU percentage, memory, and network bandwidth.

Purpose

Upon completing this project, you will have a better understanding of the capabilities within Task Manager.

Steps for Completion

1. Open the Task Manager.
2. What is the current CPU percentage in use? _____
3. Which app is using the most CPU? _____
4. Close a process you do not need to be running.
5. List two columns of data available under the App history tab.

   _____

   _____.
6. Disable an app that you do not need to start up when your device starts up.
7. (True or False). A process can be ended via the Details tab. _____
8. (True or False) Services can be stopped on the Services tab. _____

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 1
Topic: Native Applications and Tools
Subtopic: Task Manager

Objectives covered
1 Understanding Operating System Configurations
1.3 Configure native applications and tools
1.3.e Configure processes and applications using Task Manager

Computer Management

The Computer Management tool is a multipurpose tool that allows one to access other tools, including shares, the Device Manager, the Performance area, and the Disk Management area. Many of these tools can be accessed on their own, but the Computer Management tool provides a central point of access for these tools.

Purpose

Upon completing this project, you will be more familiar with the utilities inside the Computer Management tool.

Steps for Completion

1. Open the Computer Management tool.
2. Access the Shares under the Shared Folders. Which symbol indicates an administrative share? _____.
3. Access the Performance area. What percentage of Memory bytes are currently in use? _____
4. Access the Device Manager area. Do any devices have any problem indicators? _____
5. Access the Disk Management area. How many drive letters are in use? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Native Applications and Tools
Subtopic: Computer Management

Objectives covered
1 Understanding Operating System Configurations
1.3 Configure native applications and tools
1.3.d Configure Computer Management

Sync Center and Windows Mobility Center

The Sync Center allows one to synchronize a device with network files, such as files on a network share or a database server. The synchronization process allows a user to work with these files without connecting to the server hosting the files. When a device reconnects to the server hosting the files, the changes made locally are synchronized with the files on the server.

The Windows Mobility Center allows those with mobile devices, such as laptops, to have a central location to control display settings, volume settings, and sync settings.

Purpose

Upon completing this project, you will know how the Sync Center works to allow users to work network files offline. You will also have a better understanding of the Windows Mobility Center.

Steps for Completion

1. Open the Control Panel.
2. Switch the view to the Large icons view.
3. Open the Sync Center.
4. Make sure the management of offline files is enabled. Nothing else will happen unless you have a connection to a network server.
5. With which database server can Sync Center synchronize data? _____
6. (True or False) Windows Mobility Center is available on desktop computers. _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Mobility Settings
Subtopic: Sync Center; Windows Mobility Center

Objectives covered
1 Understanding Operating System Configurations
1.4 Configure mobility settings
1.4.a Configure Sync Center
1.4.b Configure Windows Mobility Center

Remote Desktop

Remote Desktop is a feature that allows one to connect from one device to another, utilizing the user's own account for authentication. An example of this is an administrator using Remote Desktop to connect to a remote server.

Remote Desktop is supported in the following editions of Windows 10: Education, Enterprise, and Professional.

Purpose

Upon completing this project, you will better understand how to set up Remote Desktop for incoming remote connections.

Steps for Completion

1. Which edition of Windows 10 does not support incoming Remote Desktop connections? _____
2. Open the Control Panel.
3. If necessary, switch the view to the Category view.
4. Access the System area.
5. Access the Remote tab under System Properties.
6. Enable allowing remote connections to the device.
7. Ensure that you have access to the ability to remote into your own device.
8. What is the major difference between Remote Assistance and Remote Desktop?

   _____

   _____.
9. Close all open windows.

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 1
Topic: Mobility Settings
Subtopic: Remote Desktop

Objectives covered
1 Understanding Operating System Configurations
1.4 Configure mobility settings
1.4.c Configure Remote Desktop

Microsoft Management Console

Microsoft Management Console is a tool that allows one to create one or more groups of snap-ins. Snap-ins are connections to Windows tools. For example, one could build a console consisting of Disk Management, Local Users and Groups, and Task Scheduler tools.

Purpose

Upon completing this project, you will know how to create a custom group of snap-ins in the Microsoft Management Console.

Steps for Completion

1. Open the Microsoft Management Console.
2. Start the process of adding a new snap-in.
3. Add the following snap-ins to the new snap-in, choosing the Local option where applicable:
    a. Disk Management
    b. Hyper-V Manager
    c. Local Users and Groups
4. Save the snap-in with the name **MyConsole** to your Student folder.
5. Close the Microsoft Management Console.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Management Tools
Subtopic: MMC

Objectives covered
1 Understanding Operating System Configurations
1.5 Configure and use management tools
1.5.a Configure MMC

PowerShell and PowerShell ISE

PowerShell is a command-driven language that uses verb-noun combinations to retrieve Windows configuration information or set configurations. These verb-noun combinations are known as cmdlets.

PowerShell Integrated Scripting Environment (ISE) allows one to build and test PowerShell scripts through a graphical user interface.

Purpose

Upon completing this project, you will know how to run a PowerShell cmdlet from within PowerShell and the PowerShell ISE.

Steps for Completion

1. Open PowerShell.
2. Run the command that will list all services, both running and not running.
3. Open PowerShell ISE.
4. Use the Name feature to search for the Get-Acl cmdlet.
5. Run the Get-Acl cmdlet.
6. Close all open windows.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 1
Topic: Management Tools
Subtopic: PowerShell Console; PowerShell ISE

Objectives covered
1 Understanding Operating System Configurations
1.5 Configure and use management tools
1.5.b Configure the Windows PowerShell console and Windows PowerShell ISE

MTA

Windows Operating System Fundamentals

Domain 2

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Fill-in-the-Blanks

Instructions: While watching Domain 2, fill in the missing words according to the information presented by the instructor. [References are found in the brackets.]

Lesson 1

1. Windows 10 requires a minimum speed of _____ for a processor. [Hardware and Compatibility Requirements]
2. BitLocker requires Windows 10 _____ or higher. [Devices and Editions]
3. Most upgrades from Windows 7, 8, or 8.1 to 10 match the _____ from one Windows version to the other. [Upgrades from Previous Versions]
4. One can check for application compatibility when upgrading Windows through downloading and running the Application Compatibility _____. [Application Compatibility]

Lesson 2

5. When doing a clean install of Windows 10 off a DVD, a _____ is needed to complete the installation. [Clean Installs]
6. Upgrading via Windows Update is often done on Windows 7 and Windows _____ devices. [Upgrade via Windows Update]
7. _____ is a tool used to help keep user files and settings intact from an old Windows installation to a new installation. [Migrate from Previous Versions]
8. _____ is a completely automated installation of Windows 10. [Other Installation Types]
9. _____ is a voice-enabled tool used to do searches in Windows 10. [Finishing an Install]

Lesson 3

10. In Kernel mode, processes run in _____ address spaces. [Kernel and User Modes]
11. The UI is the _____ portion of any program. [Memory, IRQs, Drivers, CPU, and UI]
12. A 64-bit edition of Windows can support up to _____ of RAM for the Pro or Enterprise versions. [32-Bit vs. 64-Bit Architecture]

Hardware and Compatibility Requirements

As is the case with any operating system installation, Windows 10 has a minimum standard for installation hardware and compatibility requirements. One should keep in mind that while these are minimum requirements, these requirements do not ensure Windows will run well. In theory, the more powerful the processor, the more RAM a device has, and the faster and larger capacity a disk drive has, the better the experience one will have with Windows.

Purpose

Upon completing this project, you will be able to identify the minimum amounts for hardware requirements for installing Windows 10.

Steps for Completion

1. For each hardware listing, indicate the minimum amounts required for a successful Windows 10 installation:
    a. CPU: _____
    b. RAM for 64-bit systems: _____
    c. Disk space for 32-bit systems: _____
    d. Disk space for 64-bit systems: _____
    e. Version of DirectX: _____
    f. Minimum display resolution: _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 2
Topic: Operating System Editions
Subtopic: Hardware and Compatibility Requirements

Objectives covered
2 Installing and Upgrading Client Systems
2.1 Identify Windows operating system editions
2.1.a Identify hardware and compatibility requirements

Windows 10 Editions

Windows 10 ships in several editions, including Home, Professional, Enterprise, Education, and Mobile. For the exam, it is important to know which edition is needed for a certain feature, such as Professional for hosting Remote Desktop sessions, as an example.

Purpose

Upon completing this project, you will be able to identify the edition of Windows needed for certain features.

Steps for Completion

1. For each Windows feature, identify the edition of Windows needed to utilize the feature:
    a. Hyper-V: _____
    b. AppLocker: _____
    c. Device Guard: _____
    d. Control Telemetry: _____
    e. BitLocker: _____
2. What is an advantage to having an Education version of Windows? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 2
Topic: Operating System Editions
Subtopic: Devices and Editions

Objectives covered
2 Installing and Upgrading Client Systems
2.1 Identify Windows operating system editions
2.1.b Determine appropriate editions per device type

Upgrade Paths

There are two ways to install Windows 10 on a device. A clean installation erases any previous existence of Windows. An upgrade from a previous version of Windows is possible, with some restrictions. Typically, one must upgrade with the same edition as the current version of Windows. For example, Windows 7 Home Premium cannot be upgraded directly to Windows 10 Professional. One would need to upgrade to Windows 10 Home and then to Windows 10 Professional.

As part of upgrading, one may need to check to make sure apps running in Windows 7 or 8/8.1 are compatible with Windows 10. Microsoft has tools available to assist in that process.

Purpose

Upon completing this project, you will be familiar with upgrade paths from Windows 7 and Windows 8/8.1 to Windows 10. You will also know how upgrades are done within Windows 10.

Steps for Completion

1. For each edition of Windows, indicate the edition of Windows 10 to which the current version can be upgraded:
    a. Windows 7 Starter: _____
    b. Windows 7 Ultimate: _____
    c. Windows Phone 8.1: _____
    d. Windows 10 Professional: _____
2. Which website can help an administrator determine if an app running on Windows 7 is compatible with Windows 10? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 2
Topic: Upgrade Paths
Subtopic: Upgrades from Previous Versions; Application Compatibility

Objectives covered
2 Installing and Upgrading Client Systems
2.2 Identify upgrade paths
2.2.a Identify upgrade paths from previous Windows versions
2.2.b Identify application compatibility

Installation Methods

Whether doing an upgrade or a clean installation, Windows 10 can be installed differently using different media. A clean installation formats the drive on which Windows is being installed, so if one wants to save files and settings from a previous version of Windows, the files and settings need to be saved in an alternate location before the installation takes place.

Installations can take place without having the physical media present. For example, network installations can take place using several methods, each of which you should know for the exam.

Purpose

Upon completing this project, you will better understand the different ways in which Windows is installed.

Steps for Completion

1. Which type of physical media can be used for a Windows 10 installation? _____
2. Which Windows 7 or Windows 8/8.1 feature can be used to upgrade one to Windows 10? _____
3. Which third-party tool is often used to ensure files and settings are transferred properly from an older version of Windows to a newer version? _____
4. For each network installation, indicate the type of touch installation taking place:
    a. All configuration is done manually: _____
    b. Uses the Microsoft Deployment Toolkit: _____
    c. Uses SCCM: _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 2
Topic: Installation Types
Subtopic: Clean Installs; Upgrade via Windows Update; Migrate from Previous Versions; Other Installation Types

Objectives covered
2 Installing and Upgrading Client Systems
2.3 Understand installation types
2.3.a Perform a clean install
2.3.b Identify application compatibility
2.3.c Migrate from previous Windows versions
2.3.d Perform removable media installation
2.3.e Perform network installation

Kernel and User Modes

There are two modes in which Windows processes run. Kernel mode runs operating system components while user mode runs apps and their components. For the exam, it is important to understand the behavioral differences between the two modes.

Purpose

Upon completing this project, you will better understand the characteristics of the kernel and user modes for Windows 10.

Steps for Completion

1. Which mode runs hardware? _____
2. Which mode drivers run in their own virtual address spaces? _____
3. Which mode driver will cause a BSOD should the driver crash? _____
4. Which mode runs file system drivers? _____
5. Which mode driver will cause an app to crash should the driver crash? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 2
Topic: Operating System Architecture
Subtopic: Kernel and User Modes

Objectives covered
2 Installing and Upgrading Client Systems
2.4 Understand operating system architecture
2.4.a Understand kernel mode
2.4.b Understand user mode

Memory, IRQs, Drivers, CPUs, and UI

An administrator needs to understand the hardware aspect of running Windows 10 as a problem, such as an app crashing periodically, can sometimes be an indicator of an underlying hardware issue.

In addition, a poorly designed user interface can be problematic for running an app smoothly. A poorly designed user interface, along with hardware, is just part of what may need troubleshooting when an app becomes faulty.

Purpose

Upon completing this project, you will be able to differentiate among hardware types and their roles in running Windows.

Steps for Completion

1. For each description, identify the hardware or app piece being described:
    a. Bits of code that make hardware run: _____
    b. A hardware signal sent to a processor: _____
    c. The graphical portion of an app: _____
    d. The hardware piece that handles all the instructions we give to a device: _____
    e. The hardware piece that stores instructions and then moves them to a processor: _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 2
Topic: Operating System Architecture
Subtopic: Memory, IRQs, Drivers, CPU, and UI

Objectives covered
2 Installing and Upgrading Client Systems
2.4 Understand operating system architecture
2.4.c Understand memory, IRQs, drivers, CPUs, and UI

32-Bit vs. 64-Bit Architecture

Windows 10 can run on both 32-bit and 64-bit architecture, though the 64-bit architecture is preferred as it can support more RAM and process instructions far faster than that of 32-bit architecture, which one would find on older or lower-end devices.

Purpose

Upon completing this project, you will better understand the limitations placed on Windows devices using 32-bit architecture.

Steps for Completion

1. What is the maximum amount of RAM a 32-bit installation of Windows will support? _____
2. What is the maximum amount of RAM a 64-bit installation of Windows 10 Home will support? _____
3. What is the maximum amount of RAM a 64-bit installation of Windows 10 Enterprise will support? _____
4. Can one run a 32-bit instance of Windows on a 64-bit processor? _____
5. Can one run a 64-bit instance of Windows on a 32-bit processor? _____

Project Details

Project file
N/A

Estimated completion time
N/A

Video reference
Domain 2
Topic: Operating System Architecture
Subtopic: 32-Bit vs. 64-Bit Architecture

Objectives covered
2 Installing and Upgrading Client Systems
2.4 Understand operating system architecture
2.4.d Understand 32-bit vs. 64-bit architecture

MTA

Windows Operating System Fundamentals

Domain 3

LK LearnKey

Fill-in-the-Blanks

Instructions: While watching Domain 3, fill in the missing words according to the information presented by the instructor. [References are found in the brackets.]

Lesson 1

1. To get easy access to an app, one can pin the app to the Windows _____. [Desktop Applications]
2. The Startup tab is in the _____. [App Startup Options]
3. Windows features can be added or removed through the _____. [Windows Features]
4. Windows SmartScreen helps warn users about _____ apps. [Windows SmartScreen]
5. An app can be removed using the app's uninstaller or through the _____. [Application Removal]
6. Most apps obtained from the Windows Store have their own _____. [Windows Store Apps]

Lesson 2

7. _____ users can make changes to the Windows registry. [Standard vs. Administrative Users]
8. The default UAC setting is to notify a user when _____ try to make changes to a computer. [Types of UAC Prompts and Levels]
9. With antimalware tools like Windows Defender, it is important to keep _____ updated. [Windows Defender]
10. The Malicious Software Removal Tool removes specific types of _____. [Malicious Software Removal Tool]
11. Service startup types include automatic, _____, and disabled. [Service Startup Types]
12. If a service fails to start, one may want to see if one or more of the service's dependencies _____ to start. [Service Accounts and Dependencies]

Apps and App Startups

Windows comes with many built-in apps that help one do day-to-day tasks. Apps include Notepad, which helps one build simple text files, WordPad, a basic word processing app, and Calculator. Users will often create shortcuts to these apps.

As other apps are installed, they are sometimes set up to start when a device boots into Windows. While this can be convenient, it does add to the overall CPU and RAM usage of a device. The Startup tab helps one control which apps start when Windows starts.

Purpose

Upon completing this project, you will know how to create shortcuts for apps and control what apps start when Windows starts.

Steps for Completion

1. Create a shortcut on the Desktop that points to the Notepad app.
2. Pin the calculator app to the Windows Taskbar.
3. Open Task Manager.
4. Find the Startup tab.
    a. How many apps are set to start when Windows starts? _____
5. Disable an app from starting when Windows starts.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 3
Topic: Application Configuration
Subtopic: Desktop Applications; App Startup Options

Objectives covered
3 Managing Applications
3.1 Configure applications
3.1.a Configure desktop applications
3.1.b Configure app startup options

Windows Features

Windows features are tools that can help Windows run more efficiently and provide users options for getting specific tasks done. As many features are not used by most Windows users, many features are not enabled by default.

A specific feature to know about for the exam is Windows SmartScreen, which is used to warn about unrecognized apps, such as phishing websites.

Purpose

Upon completing this project, you will better understand how to enable or disable Windows features.

Steps for Completion

1. On a Windows device, enable the Trivial File Transfer Protocol (TFTP) feature.
2. Find the App & browser control feature within Settings.
3. Ensure that the following SmartScreen settings are set:
    a. The Check apps and files setting is set to Warn.
    b. SmartScreen for Microsoft Edge is on.
    c. SmartScreen for Microsoft Store apps is set to Warn.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 3
Topic: Application Configuration
Subtopic: Windows Features; Windows SmartScreen

Objectives covered
3 Managing Applications
3.1 Configure applications
3.1.c Configure Windows features
3.1.d Configure Windows SmartScreen

App Removal and Store Apps

There are two basic ways to remove an app one no longer needs: either use the uninstall package that comes with the app or remove the app through the Programs and Features area of the Control Panel.

A different type of app is a Microsoft Store app. These apps can be downloaded and installed by anyone with any type of Microsoft account.

Purpose

Upon completing this project, you will better understand how to delete desktop apps and install and configure Microsoft Store apps.

Steps for Completion

1. Find an app you no longer need and uninstall it using the app's uninstall package.
2. Find an app you no longer need and uninstall it through the Control Panel.
3. Open the Microsoft Store.
4. Search for the Windows Maps app.
5. Install the Windows Maps app.
6. Launch the Windows Maps app.
7. Name at least three settings that can be configured within the Windows Maps app.

_____

_____.

Project Details

Project file
N/A

Estimated completion time
5-10 minutes

Video reference
Domain 3
Topic: Application Configuration
Subtopic: Application Removal; Windows Store Apps

Objectives covered
3 Managing Applications
3.1 Configure applications
3.1.e Configure application removal
3.1.f Configure Windows Store apps

User Types and UAC

Windows accounts come in two types: standard and administrative. Administrator accounts have more privileges on a device than do standard accounts. At times, standard accounts can be granted temporary permission to perform tasks reserved usually for administrators.

Part of this can be done through User Account Control (UAC). The primary purpose of UAC is to warn users when they are trying to perform administrative tasks. Users may not be aware of the actions they are trying to take on their devices.

Purpose

Upon completing this project, you will better understand the differences between standard and administrative accounts. You will also know the versatility of UAC.

Steps for Completion

1. Which account type is needed for a user to install apps? _____
2. What can an administrative account change that a standard account cannot change? _____
3. On a Windows device, add a standard local account with a username of **Student** and a password of your choosing.
4. Open the User Account Control settings window.
5. Which is the strictest control setting under UAC? _____
6. In UAC, there are two notification settings for apps but not Windows settings. What is the difference between the two? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 3
Topic: User Account Control
Subtopic: Standard vs. Administrative Users; Types of UAC Prompts and Levels

Objectives covered
3 Managing Applications
3.2 Configure User Account Control (UAC)
3.2.a Understand standard user vs. administrative user
3.2.b Understand types of UAC prompts and levels

Protecting Against Malware

Windows has two primary tools to protect a device from malware: Windows Security (formerly Windows Defender), which comes with Windows, and the Malicious Software Removal Tool, which one can download, install, and then run to see what, if any, software should be removed.

Purpose

Upon completing this project, you will know the roles of Windows Defender and the Malicious Software Removal Tool.

Steps for Completion

1. On a Windows device, launch Defender (which may now be known as Windows Security).
2. Navigate to the Virus & threat protection section.
3. Run a Quick scan on your device. If you have another antimalware app on your device, you may
4. Download and install the Malicious Software Removal Tool.
5. Run the tool and remove any software found to be malicious.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 3
Topic: Antivirus Settings
Subtopic: Windows Defender; Malicious Software Removal Tool

Objectives covered
3 Managing Applications
3.3 Configure antivirus settings
3.3.a Configure Windows Defender
3.3.b Configure the Malicious Software Removal tool

Services

Services are tools that help start apps and Windows features and keep those apps and features up and running. Often, when a feature hangs or ceases to work, restarting its service will get the feature back up and running.

Services have different startup types and service dependencies. Services also tend to run with their own system accounts rather than with a user account. This helps ensure a service consistently runs since, if a user account is used and its password is changed, the password needs to be updated on every service in which it is being used.

Purpose

Upon completing this project, you will be able to control services and their startup types. You will also know how to evaluate service accounts and dependencies.

Steps for Completion

1. Open the Services app.
2. Restart the Print Spooler service.
3. What is the startup type of the Print Spooler service? _____
4. List a system component the Print Spooler service is dependent upon:
   _____
5. Find a service that updates software and is using the Automatic startup type and change its startup type to Manual.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 3
Topic: Services
Subtopic: Service Startup Types; Service Accounts and Dependencies

Objectives covered
3 Managing Applications
3.4 Understand services
3.4.a Understand service startup types, service accounts, and service dependencies

MTA

Windows Operating System Fundamentals

Domain 4

LearnKey

Fill-in-the-Blanks

Instructions: While watching Domain 4, fill in the missing words according to the information presented by the instructor. [References are found in the brackets.]

Lesson 1

1. _____ is a file system that can be found on drives on a Windows server. [FAT32, NTFS, and ReFS]
2. Folder permissions are often _____ from the drive on which the folder resides. [File System Permissions]
3. The two most common permissions given when creating a share are Read and _____. [Share Permissions]
4. A homegroup allows for resources to be shared across devices without the need for a _____. [Homegroup Settings]

Lesson 2

5. Multiple print drivers are often necessary for printers as many printers need to be installed on devices with different versions of _____. [Print Drivers]
6. Effective permissions are a combination of permissions assigned through shares and the _____ tab under a file or folder's properties. [Effective Permissions]
7. The three types of shares are Advanced, Basic, and _____ shares. [Shares]
8. The Map Network Drive feature is used to map drive _____ to network shares. [Mapped Drives]

Lesson 3

9. BitLocker _____ is a form of BitLocker used to encrypt data on removable drives. [BitLocker]
10. Folder encryption is not supported on Windows 10 _____. [Encrypting File System]
11. Offline files are managed through the _____ in the Control Panel. [Offline Files]
12. A library location can be added through a library's _____. [Library Configuration]
13. Locations added to libraries can be local or _____ locations. [Library Locations]

File Systems

For Windows devices, disk drives are formatted using one of three file systems: File Allocation Tables (FAT32), New Technology File System (NTFS), or Resilient File System (ReFS). FAT32 is older and seen mostly on older removable drives, NTFS is used on most disk drives, and ReFS is used on some Windows Server drives. For the exam, it is most important to know the characteristics that make each file system unique.

Purpose

Upon completing this project, you will better understand the differences between the major file systems in Windows.

Steps for Completion

1. What is the partition limit for a FAT32 volume? _____
2. What is the approximate partition limit for an NTFS volume? _____
3. What is the file size limit within a FAT32 volume? _____
4. Which file system uses automatic data integrity checking? _____
5. With automatic data integrity checking, which command-line tool is no longer needed? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 4
Topic: Files, Folders, and Sharing
Subtopic: FAT32, NTFS, and ReFS

Objectives covered
4 Managing Files and Folders
4.1 Understand file systems
4.1.a Understand FAT32, NTFS, and ReFS

Permissions and HomeGroups

There are two main methods of giving permissions to a file or folder on a Windows device. One involves controlling the file system permissions while the other is used as a share. In most situations, shares are preferable as they are easier to find and can be used as sources for a mapped network drive.

HomeGroups, which are no longer present in newer updates to Windows 10, allow users to create a password-based share and control which libraries are shared, including Documents, Pictures, and Videos.

Purpose

Upon completing this project, you will be able to give file system permissions and set up a share to a folder.

Steps for Completion

1. Access the properties for your Student folder.
2. Navigate to the Security tab. What do gray check boxes indicate for allowed permissions?

   _____

3. Add a permission to where the Users group has read access on the folder.
4. Add a share to the folder where everyone has read access on the folder.
5. A Windows 10 user is trying to set up a HomeGroup but cannot find the feature. Why?

   _____

Project Details

Project file
The Student folder

Estimated completion time
5 minutes

Video reference
Domain 4
- **Topic**: Files, Folders, and Sharing
  - **Subtopic**: File System Permissions; Share Permissions; Homegroup Settings

Objectives covered
4 Managing Files and Folders
- **4.2** Understand file and print sharing
  - **4.2.a** Configure file system permissions
  - **4.2.b** Configure share permissions
  - **4.2.c** Configure HomeGroup settings

Configuring Print Drivers

Though Windows comes with many generic print drivers for popular printer manufacturers, one will want to obtain the latest drivers from the manufacturer's website to get maximum functionality out of th printer. These drivers can then be added to a printer and, in the case of the printer being shared, distributed.

Purpose

Upon completing this project, you will better understand how to obtain and share printer drivers. For this project, use a printer you have installed, or, if not, add a printer before doing this project.

Steps for Completion

1. Obtain the latest drivers for your printer from the printer manufacturer's website. Make sure you know where you placed the drivers.
2. Access the Devices area under Settings.
3. Navigate to the Printers & scanners area.
4. Access the properties of the printer for which you will add the drivers.
5. Share the printer.
6. Access the Additional Drivers area.
7. Install the x86 driver for the printer (or the x64 driver, if x86 is not present) using the path to the drivers you downloaded earlier.

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 4
Topic: Files, Folders, and Sharing
Subtopic: Print Drivers

Objectives covered
4 Managing Files and Folders
4.2 Understand file and print sharing
4.2.d Configure print drivers

Effective Permissions

Effective permissions show the complete permissions a user has on a file or folder. For the exam, it is important to know what adds up to effective permissions and how to see effective permissions on a resource.

Purpose

Upon completing this project, you will better understand how effective permissions are determined and viewed.

Steps for Completion

1. Which three aspects of permissions make up one's effective permissions on a file or folder?

   _____

   _____

2. Access the properties for your Student folder.
3. Navigate to the window containing the permissions, auditing, and effective access for the folder.
4. View the effective access for the Users group.
5. Does the Users group have full control permissions on the folder? _____

Project Details

Project file
Student folder

Estimated completion time
5 minutes

Video reference
Domain 4
Topic: Files, Folders, and Sharing
Subtopic: Effective Permissions

Objectives covered
4 Managing Files and Folders
4.2 Understand file and print sharing
4.2.d Configure print drivers

Shares and Mapped Drives

Earlier in this domain, you had an opportunity to create a share. The share you created was a basic share in that you gave everyone read/write permissions to your Student folder. Advanced sharing, with more sharing options, is available.

One can map a network drive for any share, that is, assign a drive letter to the share. Doing so helps one not to have to access a share manually.

Purpose

Upon completing this project, you will know how to create an advanced share and map a network drive.

Steps for Completion

1. Which type of folders are shared with others who can see the device on which the folders reside? _____
2. Access the sharing area for your Student folder.
3. Start the process of creating an advanced share. Which three permissions are available? _____
4. Assign the Change permission to everyone.
5. Map the Z: drive to the share you just created.

Project Details

Project file
Student folder

Estimated completion time
5 minutes

Video reference
Domain 4
Topic: Files, Folders, and Sharing
Subtopic: Shares; Mapped Drives

Objectives covered
4 Managing Files and Folders
4.2 Understand file and print sharing
4.2.f Create shares
4.2.g Create mapped drives

Offline Files

Before the advent of file synchronization across cloud resources such as OneDrive, the only option users had to work with files on network locations was connecting to the network location, downloading the files, working on the files, and then uploading the files back to the network.

The Offline Files feature allows users to set up synchronization with network files to work with local copies of those files and then synchronize those changes with the files in the network location when a connection is present with the network location.

Purpose

Upon completing this project, you will set up Offline Files for file synchronization with network locations.

Steps for Completion

1. Which types of network locations can be used for file synchronization with Offline Files? Network shares
2. If one wants to synchronize files with a cloud service instead of a network source, what should be used instead of Offline Files? OneDrive
3. In which part of the Control Panel is Offline Files located? Sync Center
4. Enable Offline Files.
5. If you have a network share, set up file synchronization using Offline Files.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 4
Topic: Libraries
Subtopic: Offline Files

Objectives covered
4 Managing Files and Folders
4.4 Understand libraries
4.4.a Understand offline files

Configuring Libraries and Locations

Libraries are centralized places where users can see files from one or more folders. Though Windows devices start with a set of libraries with links to common folders such as Documents, Music, Pictures, and Videos, libraries can be configured and customized as needed.

Purpose

Upon completing this project, you will be able to configure and customize libraries.

Steps for Completion

1. Navigate to the Libraries area inside of File Explorer
2. Add a new library, naming the library **Student**
3. Access the properties of the Student library
4. Add the location of your Student folder as a library location.
5. If a library is deleted, are the contents of the library deleted? _____
6. Can locations from network shares be added as library locations? _____

Project Details

Project file
Student folder

Estimated completion time
5 minutes

Video reference
Domain 4
Topic: Libraries
Subtopic: Offline Files

Objectives covered
4 Managing Files and Folders
4.4 Understand libraries
4.4.b Configure libraries
4.4.c Add multiple locations to a library
4.4.d Add networked locations

MTA

Windows Operating System Fundamentals

Domain 5

LK LearnKey

Fill-in-the-Blanks

Instructions: While watching Domain 5, fill in the missing words according to the information presented by the instructor. [References are found in the brackets.]

Lesson 1

1. Drivers installed during a plug and play installation are often _____ drivers. [Connect Plug-and-Play Devices]
2. Printers can be connected to a network through either a _____ or wireless connection. [Connect and Disconnect Printers]
3. Third-party software drivers are usually obtained from a manufacturer's _____. [Third-Party Software Installation]
4. Disk types on hard disks are classified as either basic or _____. [Disk Types]
5. BitLocker uses a _____ chip if one is present on a device. [Security and Encryption]

Lesson 2

6. _____ transfers are common for transferring data from a digital camera to a computer. [Storage Device Types]
7. _____ drives are drives inside of an extended partition. [Storage Drive Types]
8. With _____ volumes, data is written across two or more disks. [Simple and Spanned Volumes]
9. For a disk to host an extended partition, it needs to be _____, not basic. [Disk Management]

Lesson 3

10. OneDrive can be used to store in and synchronize files with the _____. [OneDrive Use]
11. The disk _____ is used to optimize performance on hard drives. [Optimize Drives]
12. A local printer is connected to a device through a parallel, serial, or _____ cable. [Local Printers]
13. A shared printer is often shared from a _____ instead of a client device.[Network Printers]
14. The print queue shows print jobs that are in progress or _____. [Print Queues]

Lesson 4

15. The print to file feature saves a document in a _____ format instead of printing it. [Print to File]
16. Internet printing uses the _____ protocol. [Internet Printing]
17. Mice, keyboards, pens, and _____ devices are all examples of infrared input devices. [Video, Audio, and Infrared Input Devices]
18. In Device Manager, a downward pointing arrow next to a device indicates that the device is _____ [Device Manager]

Connecting Devices and Third-Party Software

Devices such as printers, game controllers, scanners, and other USB-based devices can often be connected and then used without downloading and installing drivers for these devices. These devices are known as plug-and-play devices. If third-party drivers are needed, they can be obtained from the device's website.

For connections, the same is true for printers, though printers can be connected to and installed if a device can find it on a network.

Purpose

Upon completing this project, you will know the positives and negatives of using plug-and-play to connect to and use devices. You will also know the different ways in which a printer can be installed.

Steps for Completion

1. What is a negative of using plug-and-play to install devices, assuming the devices do install and work?

   _____
   _____
   _____.

2. If you have a device that can be installed via plug-and-play, connect it to a Windows device.
3. Which types of cables are typically used to connect a printer to a device? _____
4. If you have a printer, connect to it using either a cable or a wired or wireless network.
5. What must be done with a printer before it can be seen on a network? It must be connected and shared
6. Download and install the software package for the printer you have connected during this project.

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 5
Topic: Connect Devices
Subtopic: Connect Plug-and-Play Devices; Connect and Disconnect Printers; Third-Party Software

Objectives covered
5 Managing Devices
5.1 Connect devices
5.1.a Connect plug-and-play devices
5.1.b Connect and disconnect printers
5.1.c Install third-party software for devices

Disk Types

As hard disks are provisioned for a Windows installation and/or to store data within Windows, there are two major types used to classify disks: basic and dynamic. For the exam, it is important to know the difference between the two types. It is also important to know the difference between a partition and a volume.

Purpose

Upon completing this project, you will better understand the differences between a basic and a dynamic disk, and you will know the difference between a partition and a volume.

Steps for Completion

1. On a Windows device, open the Disk Management app.
2. How many basic hard disks are on the device?

   _____
3. How many dynamic hard disks are on the device? _____
4. Which best defines a partition? _____
5. Name three types of volumes that can be created:
   a. _____
   b. _____
   c. _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 5
Topic: Storage
Subtopic: Disk Types

Objectives covered
5 Managing Devices
5.2 Understand storage
5.2.a Understand disk types

Disk and File Encryption

Encryption is necessary to protect data at rest as it helps prevent data from being viewable by unwanted sources. Windows 10 features two primary forms of encryption: BitLocker, which encrypts entire hard drives, and Encrypting File System (EFS) encrypts files and folders.

Purpose

Upon completing this project, you will know the encryption requirements for a hard drive and files and folders, and you will know how to implement these encryptions.

Steps for Completion

1. A user goes to encrypt a hard drive using BitLocker, and BitLocker is unavailable. What is the most likely reason?_
   _____
   _____
2. On a Windows 10 device, encrypt the hard drive using BitLocker, choosing the fastest encryption method.
3. What is the primary protection given for using EFS on a folder?
   _____
   _____
4. Use EFS to encrypt your Student folder.
5. Which form of BitLocker encrypts removable drives? _____

Project Details

Project file
Student folder

Estimated completion time
5 minutes

Video reference
Domain 4
Topic: Encryption
Subtopic: BitLocker; Encrypting File System
Domain 5
Topic: Storage
Subtopic: Security and Encryption

Objectives covered
4 Managing Files and Folders
4.3 Understand encryption
4.3.a Understand BitLocker and Encrypting File System (EFS)
5 Managing Devices
5.2 Understand storage
5.2.b Understand security (encryption)

Storage Device Types

There are several storage device types used on Windows devices. Some are internal, some are external, and some are more geared toward use on servers. For the exam, it is essential to know how to identify a storage device type given its description and use.

Purpose

Upon completing this project, you will better understand the types of storage device types available in Windows.

Steps for Completion

1. For each description of a storage device type, identify the storage device type being used:
    a. The 3.0 version can transfer data at up to 5 Gbps per second: _____
    b. Uses channel adapters for data transmission: _____
    c. Connects storage devices to each other: _____
    d. Connector cables can be up to 2 meters in length: _____
    e. Often used for a digital camera to computer transfer: _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 5
Topic: Storage
Subtopic: Storage Device Types

Objectives covered
5 Managing Devices
5.2 Understand storage
5.2.c Understand storage device types (eSATA, USB, IEEE 1394, iSCSI, InfiniBand)

Drive Types and Volumes

Windows 10 offers multiple ways to set up and configure drives to present the user's ideal storage solution. For the exam, it is vital to know the differences among these drive types and how to set up different types of volumes, as volumes are the logical representation of physical disk drives.

Purpose

Upon completing this project, you will have a better understanding of drive types and how to create drive volumes in Windows.

Steps for Completion

1. Which storage drive type is necessary to hold a spanned, mirrored, or striped volume? _____
2. Which type of partition can hold logical drives? _____
3. Which type of partition is used to boot to an operating system? _____
4. Which type of volume has data written to one disk and then copied to another disk? _____
5. Which type of volume works across multiple disks? _____
6. If you have a hard drive with at least one available partition, use Disk Management to set up a simple volume within the available partition, using the entire amount of free space for the partition.

Project Details

Project file
N/A

Estimated completion time
5-10 minutes

Video reference
Domain 5
Topic: Storage
Subtopic: Storage Drive Types; Simple and Spanned Volumes; Disk Management

Objectives covered
5 Managing Devices
5.2 Understand storage
5.2.d Understand storage drive types (basic, primary, extended, logical, dynamic disk, VHDs)
5.2.e Configure simple and spanned volumes
5.2.f Configure disk management

Configuring OneDrive

OneDrive is Microsoft's cloud storage service and allows anyone with a Microsoft account to set up and synchronize files between a Windows device and a OneDrive folder online.

Purpose

Upon completing this project, you will understand the role of OneDrive and be able to set up a OneDrive connection. You need a Microsoft account or a business account using OneDrive for Business to set up a connection.

Steps for Completion

1. Which version of OneDrive is used for those who do not use a Microsoft account to connect to OneDrive? _____
2. Open the OneDrive app on a Windows device.
3. Display the properties for the OneDrive app within File Explorer.
4. If you have a Microsoft account, add it to your instance of OneDrive.
5. Use the Choose folders feature to adjust which folders are available on your device.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 5
Topic: Storage
Subtopic: OneDrive Use

Objectives covered
5 Managing Devices
5.2 Understand storage
5.2.g Configure OneDrive use

Printers and Queues

Printers can be connected to a device either locally or through a network connection. Once a printer is connected and installed, a queue is available to see current and pending print jobs for the printer at any time.

Purpose

Upon completing this project, you will understand what is needed to connect a local printer or a network printer to a device. You will also understand how to view a print queue.

Steps for Completion

1. Which is the most common method of connecting a printer to a device locally? _____
2. If you have a printer that you can connect locally, connect the printer to your device.
3. What device does a network printer need to be connected to a network via an Ethernet cable? _____
4. If you have a printer you can install from a network share, install it.
5. Open the Printers & scanners area within Settings.
6. Open the queue for one of your existing printers.
7. Using the queue, set the printer you are viewing as the default printer.

Project Details

Project file
N/A

Estimated completion time
5-10 minutes

Video reference
Domain 5
Topic: Printing Devices
Subtopic: Local Printers; Network Printers; Print Queues

Objectives covered
5 Managing Devices
5.3 Understand printing devices
5.3.a Understand local printers
5.3.b Understand network printers
5.3.c Understand print queues

Print-to-File and Internet Printing

On a rare occasion, you may find the need to get a file into a more straightforward format for printing but not actually print the file. The print-to-file feature is a Windows feature that assists in that need. Most will save a file to a PDF, if possible.

Internet printing allows one to print to a printer from a remote location, so long as the printer is configured to allow for internet printing.

Purpose

Upon completing this project, you will know how to use the print-to-file feature and set up a device for internet printing.

Steps for Completion

1. Open the **sample text file.txt** file from your Student folder.
2. Using the print-to-file feature, save the printed file as **output.prn**
3. Through the Control Panel, enable the Print and Document services feature.
4. What must be installed for a device to accept internet printing? _____
5. Which protocol must be enabled for a device to accept internet printing?
   _____

Project Details

Project file
sample text file.txt

Estimated completion time
5 minutes

Video reference
Domain 5
Topic: Printing Devices
Subtopic: Local Printers; Network Printers; Print Queues

Objectives covered
5 Managing Devices
5.3 Understand printing devices
5.3.a Understand local printers
5.3.b Understand network printers
5.3.c Understand print queues

Devices and Device Manager

It is essential to understand the roles of video and audio devices used to understand how Windows 10 runs. It is also important to know which devices are input devices, that is, they input information into Windows.

These devices can be managed through Device Manager, an app that lists all recognized hardware devices on a system and their status.

Purpose

Upon completing this project, you will know details about video and audio devices and be able to identify which types of devices are input devices. You will also know the basics of Device Manager.

Steps for Completion

1. Name two ways in which a video card can be installed on a device:
   _____
   _____
2. Which audio device is an input device? _____
3. Name at least two infrared input devices:
   _____
   _____
4. Open Device Manager
5. Which icon next to a device indicates that the device is not installed correctly? _____
6. Which icon next to a device indicates that the device is disabled? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 5
Topic: System Devices
Subtopic: Video, Audio, and Infrared Input Devices; Device Manager

Objectives covered
5 Managing Devices
5.4 Understand system devices
5.4.a Understand video, audio, and infrared input devices
5.4.b Understand Device Manager

MTA

Windows Operating System Fundamentals

Domain 6

LearnKey

Fill-in-the-Blanks

Instructions: While watching Domain 6, fill in the missing words according to the information presented by the instructor. [References are found in the brackets.]

Lesson 1

1. A System Restore affects apps but not _____. [System Restore]
2. A recovery drive needs to be an external drive that can be _____. [Recovery Drives]
3. To get to the boot options in Windows, one should hold down the _____ key while restarting a machine. [Recovery Boot Options]
4. A folder deleted from OneDrive is _____ from the OneDrive site. [Recover Files from OneDrive]
5. Disk Defragmenter is not necessary for _____ drives. [Disk Defragmenter]
6. Disk Cleanup removes downloaded program files and _____ internet files. [Disk Cleanup]
7. Within Task Scheduler, a _____ causes a task to run. [Task Scheduler]
8. The System Information window displays the CPU and the amount of _____, which is memory available on a system. [System Information]
9. A patch used to fix a software bug is known as a _____. [Windows Update Options]
10. Insider Preview allows one to see Windows 10 features before they are _____. [Insider Preview]
11. With Current Branch, devices receive updates to Windows every _____ months. [Current Branch]
12. With Current Branch for Business, Windows updates can be _____ as necessary. [Current Branch for Business]
13. The Update history area allows one to view and possibly _____ updates. [Update History]
14. Windows updates can be uninstalled in the Update _____ area. [Uninstall Updates]

System Restore

System Restore can help save a system from instability as it can roll a system back to a point in time before recent installations took place. Restoring a system help it roll back to a state before an unstable app was installed.

Purpose

Upon completing this project, you will know how to establish a system restore point.

Steps for Completion

1. What is not affected by a system restore? _____
2. Open the System Properties window.
3. Access the System Protection tab.
4. Create a restore point, naming the point **RestorePoint1**
5. When is the best time to create a restore point?

   _____

   _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 6
Topic: Backup and Recovery Methods
Subtopic: System Restore

Objectives covered
6 Understanding Operating System Maintenance
6.1 Understand backup and recovery methods
6.1.a Configure System Restore

Recovery Options

It is essential to have options to recover Windows in case a system becomes too unstable to function correctly. A recovery drive can allow for a system recovery to occur from a different drive if a system crashes.

A system can be booted into a last known good configuration or into Safe Mode, where diagnostics can be run to determine what is causing a system to be unstable.

Purpose

Upon completing this project, you will know what is needed for a recovery drive and how to access recovery options within a Windows installation.

Steps for Completion

1. Which type of drive is needed for a recovery drive?

   _____

2. Sign out of your current session of Windows.
3. Hold down the Shift key on the keyboard and restart your device.
4. Access the Troubleshoot area.
5. Access the Advanced options area.
6. Explore the Startup Settings.
7. Restart the device in Safe Mode.
8. Restart the device to the normal startup mode.

Project Details

Project file
N/A

Estimated completion time
10 minutes

Video reference
Domain 6
Topic: Backup and Recovery Methods
Subtopic: Recovery Drives; Recovery Boot Options

Objectives covered
6 Understanding Operating System Maintenance
6.1 Understand backup and recovery methods
6.1.b Configure a recovery drive
6.1.c Configure recovery boot options such as Last Known Good and various Safe Mode options

Recovery in OneDrive

The behavior of files synchronized with cloud storage often differs from that of files stored strictly on a local hard drive. For example, OneDrive does not have a recycle bin on a local drive. However, files can still be recovered on the OneDrive site.

Purpose

Upon completing this project, you will know how to recover files deleted from OneDrive.

Steps for Completion

1. Copy your Student folder to your OneDrive folder.
2. Delete the Student folder you just copied to your OneDrive folder.
3. Sign in to your OneDrive account online.
4. Access the recycle bin in your online OneDrive folder.
5. Recover your deleted Student folder from your OneDrive recycle bin.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 6
Topic: Backup and Recovery Methods
Subtopic: Recovery Files from OneDrive

Objectives covered
6 Understanding Operating System Maintenance
6.1 Understand backup and recovery methods
6.1.d Recover files from OneDrive

Disk Maintenance

For hard disks, there are two main maintenance tools one can use to keep a disk free from unnecessary clutter and to keep a disk performing as well as possible. The Optimize Drive tool puts file fragments together while Disk Cleanup rids a hard drive of unnecessary files.

Purpose

Upon completing this project, you will know how and when to use the Optimize Drives and Disk Cleanup tools.

Steps for Completion

1. Which hard drives do not need to be optimized, and why?_____
2. Open the Optimize Drives app.
3. Optimize one of your drives.
4. Which two types of files are set to delete by default when Disk Cleanup is run? _____
5. Run the Disk Cleanup tool on your C drive.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 5
Topic: Storage
Subtopic: Optimize Drives
Domain 6
Topic: Maintenance Tools
Subtopic: Disk Defragmenter; Disk Cleanup

Objectives covered
5 Managing Devices
5.2 Understand storage
5.2.h Optimize drives
6 Understanding Operating System Maintenance
6.2 Understand maintenance tools
6.2.a Understand Disk Defragmenter
6.2.b Understand Disk Cleanup

Task Scheduler

Task Scheduler is used to automate tasks, many of which are built into Windows. Tasks can be set to run based on either an event within Windows or on a set schedule.

Purpose

Upon completing this project, you will understand Task Scheduler terminology and be able to schedule a task to run regularly.

Steps for Completion

1. What is the term that causes a task to run? _____
2. What is the event that happens when a task runs knows as?

   _____
3. Open Task Scheduler.
4. Display all running tasks within Task Scheduler.
5. Use Task Scheduler to schedule a new basic task with these settings:
   a. Name: **Weekly Optimization**
   b. Frequency: every Saturday
   c. Action: Run the Optimize Disks app (C:\Windows\System32\dfrgui.exe)

Project Details

Project file
N/A

Estimated completion time
5-10 minutes

Video reference
Domain 6
Topic: Maintenance Tools
Subtopic: Task Scheduler

Objectives covered
6 Understanding Operating System Maintenance
6.2 Understand maintenance tools
6.2.c Understand Task Scheduler

System Information

The System Information screen shows RAM, CPU, and other important system information. This information can be used to determine the specs on an unfamiliar device or remind one of the specs on a familiar device.

Purpose

Upon completing this project, you will know how to access and read the System Information window.

Steps for Completion

1. On a Windows device, open the System Information window.
2. How much RAM is on the current device? _____
3. What is the processor type?

   _____
4. What is the BIOS mode?

   _____
5. What is the name of the Display component? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 6
Topic: Maintenance Tools
Subtopic: System Information

Objectives covered
6 Understanding Operating System Maintenance
6.2 Understand maintenance tools
6.2.d Understand System Information

Windows Update Options

Having Windows Update options configured correctly is crucial to ensuring a secure and stable Windows installation. Though it is essential to receive crucial security updates, there is some flexibility in how these updates are obtained and applied.

Purpose

Upon completing this project, you will be able to configure Windows Update options.

Steps for Completion

1. Through Settings, open Windows Update.
2. Set the active hours for your device to update automatically.
3. Access the Advanced options area.
4. Turn on the notification for when a PC requires a restart to finish updating.
5. Which two types of updates can be deferred? _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 6
Topic: Updates
Subtopic: Windows Update Options

Objectives covered
6 Understanding Operating System Maintenance
6.3 Configure updates
6.3.a Configure Windows Update options

Insider Preview and Branching

In addition to controlling feature and quality updates through Windows Update, users can decide whether to see previews of new Windows features through Insider Preview.

Current Branch allows one to control when feature updates are received. For example, a business may want to receive updates on test machines but defer those updates on other machines until those updates have been tested thoroughly.

Purpose

Upon completing this project, you will know how to configure Insider Preview and Current Branch.

Steps for Completion

1. Is a Windows device signed up for Insider Preview by default? _____
2. Start the process of signing up for the Windows Insider Program.
3. Which three options are available for Insider settings?

   _____

   _____
4. Cancel the process of signing up for the Windows Insider Program.
5. Which aspect of Current Branch allows one to defer updates to Windows devices?

   _____

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 6
- **Topic**: Updates
  - **Subtopic**: Insider Preview; Current Branch; Current Branch for Business

Objectives covered
6 Understanding Operating System Maintenance
- **6.3** Configure updates
  - **6.3.b** Implement Insider Preview
  - **6.3.c** Implement Current Branch
  - **6.3.d** Implement Current Branch for Business Scenarios

Update History and Rollback

In an earlier project, you configured settings for Windows Update. There are two more settings to look at: update history and rollback, specifically the act of uninstalling updates. You may find that an update caused more problems than it solved, in which case you would want to uninstall the update.

Purpose

Upon completing this project, you will know how to find and uninstall updates to Windows.

Steps for Completion

1. Open the Windows Update settings area with Settings.
2. View the update history. How many updates have occurred in the last 30 days? _____
3. Which updates should not be uninstalled? _____
4. Access the Uninstall updates screen.
5. If desired, uninstall any update you deem to be unnecessary.

Project Details

Project file
N/A

Estimated completion time
5 minutes

Video reference
Domain 6
Topic: Updates
Subtopic: Update History; Uninstall Updates

Objectives covered
6 Understanding Operating System Maintenance
6.3 Configure updates
6.3.e Manage update history
6.3.f Roll back updates

MTA

Windows Operating System Fundamentals

Appendix

LK LearnKey

Glossary

Term	Definition
Accessibility Options	Options that enhance the Windows experience for those who need assistance in doing so. One example includes a magnifier, a tool that can be hovered over text to make it larger and easier to read.
Administrative Tools	Tools that help one find the individual tools necessary to administer and configure a Windows installation.
Administrative User	A user account type that has complete control over the Windows environment.
Application	A program designed specifically for users.
Audio Input Device	A type of input device such as sound cards, headsets, microphones, and speakers (and MIDI devices).
Basic Disk Type	A major type of storage device which contains simple partitions.
BitLocker	An encryption system that encrypts hard drives.
BitLocker To Go	An encrypting system that encrypts removable hard drives.
CPU	A central processing unit (CPU) processes all of the instructions given to a PC—the faster the processor, the more instructions it can process at any given time.
Compatibility	The state in which two things can coexist without issues.
Computer Management	A suite of tools that includes disk management and user management capabilities.
Control Panel	A tool that has many options to help configure a Windows environment.
Cortana	A voice-activated search feature in Windows 10.
Current Branch	A setting in Windows that installs updates and new features as they are released.
Current Branch for Business	A Windows feature that delays installing new Windows features until about eight months after release.
Desktop	The area of a Windows screen that holds shortcuts to a user's most commonly used apps and files.
Device	An object that functions as a computer.
Device Manager	The place in which hardware devices are displayed, and drivers are managed.
Disk Cleanup	A Windows tool that deletes temporary files, empties the Recycle Bin, and deletes update installation files from a hard drive.
Disk Defragmenter	A tool that pairs up data fragments on a hard drive, thus allowing for faster and more consistent disk performance.
Display Settings	Settings that control the number of displays one will use and the display resolutions and refresh rates.
Drivers	Bits of code that make hardware run and are needed to install devices such as printers, scanners, and mice with specific features.
Dynamic Disk Type	A type of storage device that can contain the following types of volumes: simple, spanned, striped, and mirrored.
EFS	The Encrypting File System (EFS) is an encryption system that encrypts files and folders.
Effective Permissions	Actual permissions a user has on a resource. These permissions are a combination of granted and inherited permissions.
Encryption	An application of cipher-based scrambling to data to make it unreadable should it be intercepted in transmission or accessed without permission while being stored.
Enterprise Edition	A regular business edition of Windows 10 that supports the features of Home and Pro editions, as well as DirectAccess, AppLocker, Application Virtualization, User Environment Virtualization, and Device Guard.
Extended	A type of volume or partition that is used to hold logical drives.

Term	Definition
FAT32	File allocation table 32 (FAT32) is the most common version of FAT and is a file system that can handle files up to 4 GB in size and disk partitions of up to 32 GB.
File Explorer	The Windows area that shows all drives, folders, and files.
HTI	A High Touch Installation (HTI) is a typical, manual installation involving media (either a DVD or USB).
Hardware	A collection of physical parts that make up an operating computer system.
Home Edition	A regular edition of Windows 10 that supports basic features.
Homegroup	A network grouping that allows devices on a network to share documents, music, pictures, and videos.
Hyper-V	A virtual machine hypervisor that can be activated and then used in Windows 10. Hyper-V is not available in the Windows 10 Home edition.
IEEE 1394	A type of storage device that is used for high-speed data transfers.
IRQ	An interrupt request (IRQ) is a hardware signal sent to a processor.
InfiniBand	A communications standard that competes with Ethernet using channel adapters for data transmission.
Infrared Input Device	A type of input device, for example, a mouse, a keyboard, pens, and gaming devices.
Insider Preview	A Windows feature that allows users to preview Windows features before they are officially released to the general public.
Install	To place new equipment or software in a position for use.
Internet Printing	A type of protocol that allows users to use a web browser to connect to and print from shared printers.
Kernel Mode	The mode in which core operating system components run, including hardware, file system drivers, and other operating system drivers.
LTI	A Lite Touch Installation (LTI) is a semi-automatic installation that uses the Microsoft Deployment Toolkit.
Library	A collection of folders to make the folders easily accessible from a single window.
Local Printer	A printer directly connected to a computer through a cable such as a USB, serial, or parallel.
Logical	The drives that are inside of an extended partition.
MMC	The Microsoft Management Console (MMC) app is used to build custom consoles to administer a computer effectively.
MSConfig	A configuration tool that can set boot and service options.
Malicious Software Removal Tool	A tool used to identify and remove software that can harm a system.
Mapped Drive	A folder that is mapped as a drive letter to a user.
Memory	Also known as RAM, memory stores instructions that move to the processor while a computer is on.
Microsoft Edge	The latest internet browser from Microsoft. It comes with Windows 10.
Mobile Edition	An edition of Windows 10 that is prominent on Windows phones.
Mobile Enterprise Edition	A mobile edition of Windows 10 that supports mobile and managing updates.
NTFS	The New Technology File System (NTFS) is the most common Windows file system. It can handle files up to 16 TB in size and disk partitions of up to 256 TB.
Network Printer	A printer connected to a network and shared (from a network server) for people to connect to it.
Notifications	Pop-up messages that originate from the notification area, typically located in the screen's lower-right corner.
Offline Files	Files that are stored on a network drive, then synchronized with a local drive, and then accessible while a local device is not connected to its network source.

Term	Definition
OneDrive	A Microsoft product that allows users to store and share files online.
Operating System	The software that supports the basic functions of a computer or device.
PCmover	A tool that copies files with a Wizard.
Partition	A specific space reserved on a disk.
Plug-and-Play Device	A device that can be attached to or installed on a computer and then used.
Power Settings	Settings that control what a computer does when left alone for a length of time. On laptops and similar devices, this also controls how much of the CPU is used during battery-powered operations.
PowerShell	A scripting language used to assist in configuring Windows and certain Windows apps.
Primary	A type of volume or partition that is used to boot to an operating system.
Print Queue	A list of print jobs waiting to be printed.
Print to File	The user's ability to save a text file or document in a format that can be printed from different printers.
Pro Edition	A regular business edition of Windows 10 that supports Hyper-V, Remote Desktop, and BitLocker.
Product Key	A particular software key that certifies and unlocks an original software program, such as Windows 10.
Profile	A user setting containing a user's standard folders, which include Documents, Music, Pictures, and Videos. User preferences, such as a desktop background, are also stored here.
ReFS	Resilient File System (ReFS) is a Windows filing system first introduced in Windows Server 2012. It was designed to replace NTFS eventually.
Recovery Drive	A drive that stores the necessary files to recover Windows in case Windows needs to be reinstalled.
Remote Desktop	An app used to allow remote access to a device.
Service	A feature used to keep an app or a system process running.
Standard User	The default type of Windows user account. Standard users can run applications, control their desktop environments, and surf the web.
Start Menu	A menu in which a user's apps and folders can be accessed.
Sync Center	A Control Panel app that controls offline file and folder management.
System Information	A Windows screen that shows RAM, processor, system model specifications, user information, default Windows directories, and more.
System Restore	A Windows feature that allows one to restore a system (not including files) to a point in time known as a restore point. In this scenario, a user can undo an installation that may have caused instability to a system.
Task Manager	A configuration tool that shows running processes, performance, and startup options.
Task Scheduler	A Windows tool that schedules (and allows one to schedule) common maintenance processes and tasks on a device.
Taskbar	The area typically located at the bottom of the screen. It can show shortcuts to apps and Cortana, a voice-activated search feature.
UI	A user interface (UI) is the graphical portion of any program.
USB	A Universal Serial Bus (USB) is a type of storage device that is the most common means of transfer to an external data drive.
Upgrade	To improve something by adding to or replacing aspects of the original.
User Account Control	A Windows feature that helps control alerts for installations and operating system changes.
User Mode	The mode in which a processor functions. Each user-mode driver runs in its own virtual address space, so a crash does not affect other applications nor the entire operating system.
VHD	A virtual hard disk drive (VHD) is the storage space that sits inside a physical disk and can be easily transferred to a different location.

Term	Definition
Video Input Device	A type of input device, for example, a video card, TV tuner card, video capture card, and webcam.
Volume	A disk space that can span over multiple disks and can be configured to be spanned, striped, or mirrored.
Windows 10	The latest release of Microsoft's Windows operating system.
Windows Defender	An app that helps to protect a system against malware and spyware.
Windows Mobility Center	An app available only on laptops and similar mobile devices. It is used to help users control mobility device settings, such as power settings and brightness display.
Windows SmartScreen	A feature that helps protect users from phishing attacks.
Windows Update	A Windows feature that downloads and installs the operating system, security, and, in some cases, application updates.
ZTI	A Zero Touch Installation (ZTI) is a completely automated installation that uses the System Center Configuration Manager.
eSATA	External Serial Advanced Technology Attachment (eSATA) is a type of storage device that is very common for connecting drives.
iSCSI	An Internet Small Computer System Interface (iSCSI) is a type of storage device used to connect network storage devices.

Objectives – Domains 1-3

MTA OS Fundamentals (98-349) Objectives		
Domain 1 **Understanding OS Configurations**	**Domain 2** **Installing and Updating Client Systems**	**Domain 3** **Managing Applications**
1.1 Configure Control Panel options 1.1.a Configure administrative tools 1.1.b Configure accessibility options 1.1.c Configure power settings 1.1.d Configure File Explorer settings	2.1 Identify Windows operating system editions 2.1.a Identify hardware and compatibility requirements 2.1.b Determine appropriate editions per device type	3.1 Configure applications 3.1.a Configure desktop applications 3.1.b Configure app startup options 3.1.c Configure Windows features 3.1.d Configure Windows SmartScreen 3.1.e Configure application removal 3.1.f Configure Windows Store apps
1.2 Configure desktop settings 1.2.a Configure profiles, display settings, and shortcuts 1.2.b Configure and customize Start Menu 1.2.c Configure Task Bar settings 1.2.d Configure toolbars 1.2.e Configure notifications	2.2 Identify upgrade paths 2.2.a Identify upgrade paths from previous Windows versions 2.2.b Identify application compatibility	3.2 Configure User Account Control (UAC) 3.2.a Understand standard user vs. administrative user 3.2.b Understand types of UAC prompts and levels
1.3 Configure native applications and tools 1.3.a Configure Microsoft Edge 1.3.b Configure Cortana 1.3.c Configure Hyper-V 1.3.d Configure settings using MSCONFIG 1.3.e Configure processes and applications using Task Manager 1.3.f Configure computer management	2.3 Understand installation types 2.3.a Perform a clean install 2.3.b Upgrade via Windows Update 2.3.c Migrate from previous Windows versions 2.3.d Perform removable media installation 2.3.e Perform network installation	3.3 Configure antivirus settings 3.3.a Configure Windows Defender 3.3.b Configure the Malicious Software Removal tool
1.4 Configure mobility settings 1.4.a Configure Sync Center 1.4.b Configure Windows Mobility Center 1.4.c Configure Remote Desktop	2.4 Understand operating system architecture 2.4.a Understand kernel mode 2.4.b Understand user mode 2.4.c Understand memory, IRQs, drivers, CPUs, and UI 2.4.d Understand 32-bit vs. 64-bit architecture	3.4 Understand services 3.4.a Understand service startup types, service accounts, and service dependencies
1.5 Configure and use management tools 1.5.a Configure MMC 1.5.b Configure the Windows PowerShell console and Windows PowerShell ISE		

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Objectives – Domains 4-6

MTA OS Fundamentals (98-349) Objectives		
Domain 4 **Managing Files and Folders**	**Domain 5** **Managing Devices**	**Domain 6** **Understanding OS Maintenance**
4.1 Understand file systems 4.1.a Understand FAT32, NTFS, and ReFS	5.1 Connect devices 5.1.a Connect plug-and-play devices 5.1.b Connect and disconnect printers 5.1.c Install third-party software for devices	6.1 Understand backup and recovery methods 6.1.a Configure System Restore 6.1.b Configure a recovery drive 6.1.c Configure recovery boot options such as Last Known Good and various Safe Mode options 6.1.d Recover files from OneDrive
4.2 Understand file and print sharing 4.2.a Configure file system permissions 4.2.b Configure share permissions 4.2.c Configure HomeGroup settings 4.2.d Configure print drivers 4.2.e Configure effective permissions 4.2.f Create shares 4.2.g Create mapped drives	5.2 Understand storage 5.2.a Understand disk types 5.2.b Understand security (encryption) 5.2.c Understand storage device types (eSATA, USB, IEEE 1394, iSCSI, InfiniBand) 5.2.d Understand storage drive types (basic, primary, extended, logical, dynamic disk, VHDs) 5.2.e Configure simple and spanned volumes 5.2.f Configure disk management 5.2.g Configure OneDrive use 5.2.h Optimize drives	6.2 Understand maintenance tools 6.2.a Understand Disk Defragmenter 6.2.b Understand Disk Cleanup 6.2.c Understand Task Scheduler 6.2.d Understand System Information
4.3 Understand encryption 4.3.a Understand BitLocker and Encrypting File System (EFS)	5.3 Understand printing devices 5.3.a Understand local printers 5.3.b Understand network printers 5.3.c Understand print queues 5.3.d Understand print-to-file 5.3.e Understand Internet printing	6.3 Configure updates 6.3.a Configure Windows Update options 6.3.b Implement Insider Preview 6.3.c Implement Current Branch 6.3.d Implement Current Branch for Business scenarios 6.3.e Manage update history 6.3.f Roll back updates
4.4 Understand libraries 4.4.a Understand offline files 4.4.b Configure libraries 4.4.c Add multiple locations to a library 4.4.d Add networked locations	5.4 Understand system devices 5.4.a Understand video, audio, and infrared input devices 5.4.b Understand Device Manager	