20697-1B
Installing and Configuring Windows 10
Companion Content

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Revised July 2013

Module 1

Overview of Windows 10

Contents:

Lesson 1
Introducing Windows 10

Contents:

Question and Answers

Question: What are the benefits to small and medium-sized organizations of using Windows 10? (Choose all that apply)

( ) Windows 10 is easy to use.

( ) Windows 10 is provided with continuous updates.

( ) Microsoft provides Windows 10 as a free upgrade for Windows 7 Enterprise users.

( ) Microsoft provides Windows 10 as a free upgrade for Windows 7 Pro users.

> **Answer:**
>
> (√) Windows 10 is easy to use.
>
> (√) Windows 10 is provided with continuous updates.
>
> ( ) Microsoft provides Windows 10 as a free upgrade for Windows 7 Enterprise users.
>
> (√) Microsoft provides Windows 10 as a free upgrade for Windows 7 Pro users.

Discussion: Is Your Organization Ready for Windows 10?

Question: Has your organization started deploying Windows 10, or are you considering it?

> **Answer:** Answers will vary based on the organizational situations and experiences of students.

Question: What Windows client version does your organization deploy currently?

> **Answer:** Answers will vary based on the organizational situations and experiences of students.

Discussion: Will Your Organization Embrace the BYOD Philosophy?

Question: Does your organization allow users to connect their own devices to the corporate network?

> **Answer:** Answers will vary based on the organizational situations and experiences of students.

Question: If you answered yes to the previous question, with what types of devices do users connect most commonly?

> **Answer:** Answers will vary based on the organizational situations and experiences of students.

Question: Do you think the Windows 10 features for management and integration of users' own devices within the corporate workspace will make it easier for organizations to support BYOD?

> **Answer:** Answers will vary based on the organizational situations and experiences of students.

Lesson 2
Navigating the Windows 10 User Interface

Contents:

Question and Answers

Question: When you sign in to Windows 10 on a touch device, Windows 10 runs in Tablet mode only.

(   ) True

(   ) False

> **Answer:**
>
> (   ) True
>
> (√) False

Demonstration: Navigating the Windows 10 User Interface

Demonstration Steps

Sign in

1. Switch to LON-CL1, and then click the Lock screen.

2. Click **Other user**.

3. In the **User name** box, type **April**.

4. In the **Password** box, type **Pa$$w0rd**, and then press Enter.

Open Action Center

1. On the taskbar, click **Action Center**.

📝   **Note:** If the tiles at the bottom of Action Center do not display, close and open **Action Center** again.

2. Click **Tablet mode**.

3. Click **Start** to close Action Center.

View installed apps

1. In Start, click **All apps**. (This is the icon immediately above the Start button).

2. In the **All apps** list, click **Calculator**.

3. Click **Start**.

4. Click **All apps**, and then click **Alarms & Clock**.

Switch between running apps

1. On the taskbar, click **Task View**. Both running apps should display.

2. Click **Action Center**.

3. Click **Tablet mode**.

4. In **Alarms & Clock**, click **Restore Down**.

5. Drag **Alarms & Clock** to the right side of the display, and then release it.

6. On the taskbar, click **Task View**, and then click **Calculator**. Both apps should display, side by side.

Add a new desktop

1. On the taskbar, click **Task View**.

2.   On the right side of the display, click **New desktop**.

3.   Click **Desktop 2**.

4.   Click **Start**, click **All apps**, click **Microsoft Office 2013**, and then click **Word 2013**.

5.   On the taskbar, click **Task View**. Both desktops should display, side by side.

Sign out

- Close all apps, and right-click **Start**, point to **Shut down or sign out**, and then click **Sign out**.

Demonstration: Customizing the Windows 10 Start Menu

Demonstration Steps

Sign in

1.   Switch to LON-CL1, and then click the Lock screen.

2.   Click **Other user**.

3.   In the **User name** box, type **April**.

4.   In the **Password** box, type **Pa$$w0rd**, and then press Enter.

5.   On the taskbar, click **Action Center**.

Note: If the tiles at the bottom of Action Center do not display, close and then open **Action Center** again.

6.   Click **Tablet mode**.

7.   Click **Start** to close Action Center.

Configure Start

1.   In Start, click **All apps**.

2.   Click **Microsoft Office 2013**, right-click **Word 2013**, and then click **Pin to Start**.

3.   Right-click **PowerPoint 2013**, and then click **Pin to Start**.

4.   Right-click **Excel 2013**, and then click **Pin to Start**.

5.   Right-click **Calculator**, and then click **Pin to Start**.

6.   Click the **Start** screen to close **All apps**.

7.   Click the space immediately above the four tiles.

8.   A text box appears. Type **Microsoft Office**, and then press Enter.

9.   Right-click **Calculator**, and then click **Unpin from Start**.

10.   Click and hold the **Microsoft Office** group, and then drag it to the top of the display above the default groups. Release it.

Configure the taskbar

1.   On the taskbar, click **Action Center**.

2.   Click **Tablet mode**.

3.   Click the desktop to close Action Center.

4. Click **Start**, and then click **All apps**.

5. Right-click **Calculator**, and then click **Pin to taskbar**.

Module Review and Takeaways

Review Question(s)

Question: What are some of the more significant issues that an organization faces when it allows users to bring their own devices to the workplace and connect to the corporate network?

> **Answer:** Most personal devices that users have will remain unmanaged, meaning they may not adhere to corporate standards in terms of apps, security and update settings, and other criteria. This can present security and management challenges.

Question: What is the purpose of Client Hyper-V in Windows 10?

> **Answer:** Client Hyper-V enables you to create discrete operating-system environments within Windows 10 that can support legacy or specialist apps that might not work correctly in Windows 10 natively. For example, these apps might require earlier Windows versions.

Lab Review Questions and Answers

Lab: Navigating and Customizing the User Interface

Question and Answers

Question: In the lab, you configured the user's desktop and Start settings. In your workplace, do you typically let users configure these settings?

> **Answer:** Answers will vary depending upon workplace policies. Typically, many organizations prefer to configure standard desktop settings.

Question: In the lab, you removed the Calculator app from the Microsoft Office group. Is this the same as uninstalling the app?

> **Answer:** No. Removing the tile from a group merely removes the app's shortcut from the group. This is similar to deleting a desktop shortcut in earlier Windows versions. To remove the app, you must choose explicitly to Uninstall the app.

Module 2

Installing Windows 10

Contents:

Lesson 1
Installing Windows 10

Contents:

Question and Answers

Question: Which Windows ADK tool do you use to create provisioning packages?

( ) Application Compatibility Toolkit

( ) Windows PE

( ) Deployment Image Servicing and Management

( ) Imaging and Configuration Designer

( ) Windows System Image Manager

> **Answer:**
>
> ( ) Application Compatibility Toolkit
>
> ( ) Windows PE
>
> ( ) Deployment Image Servicing and Management
>
> (√) Imaging and Configuration Designer
>
> ( ) Windows System Image Manager

Question: You want to secure your laptop by enabling BitLocker. Which editions of Windows 10 include BitLocker?

( ) Windows 10 Home

( ) Windows 10 Pro

( ) Windows 10 Enterprise

( ) Windows 10 Education

> **Answer:**
>
> ( ) Windows 10 Home
>
> (√) Windows 10 Pro
>
> (√) Windows 10 Enterprise
>
> (√) Windows 10 Education

Discussion: Selecting a Windows 10 Edition

Question: Which edition of Windows 10 would you recommend for purchase by Contoso Pharmaceuticals for supervision of its production lines?

> **Answer:** Windows 10 Enterprise Long Term Servicing Branch (LTSB), because the production line software requires a stable operating system that does not receive new features.

Question: Which edition of Windows 10 is the most suitable for the hospital employees doing surveys?

> **Answer:** Windows 10 Mobile or Windows 10 Mobile Enterprise running on a phone or tablet, because these devices are lightweight and employees can use them without a keyboard.

Question: Which edition of Windows 10 would you recommend that Contoso Pharmaceuticals use?

> **Answer:** Windows 10 Enterprise, because you can use AppLocker to limit users to running only authorized apps.

Resources

Windows 10 Editions

Additional Reading: http://aka.ms/k8iq7l

Additional Reading: http://aka.ms/jrdodr

Demonstration: Installing Windows 10

Demonstration Steps

Mount the Windows 10 DVD

1. Start Hyper-V Manager, if it is not already running.

2. In the Virtual Machines pane, right-click **20697-1B-LON-CL5**, and then click **Settings**.

3. In the hardware pane, click **DVD drive**.

4. In the DVD drive pane, click **Image file**, and then click **Browse**.

5. In the Open window, locate the .iso file. It should be located at **C:\Program Files\Microsoft Learning\20697-1\Drives\ Win10Ent_Eval.iso**.

6. Click **Open**.

7. In the Settings window, click **OK**.

Start the 20697-1B-LON-CL5 VM

1. Double-click the **20697-1B-LON-CL5** virtual machine (VM).

2. Click the **Start** icon to start the 20697-1B-LON-CL5 VM.

Install Windows 10

1. On the first page of the Windows setup program, make sure that the settings are:

   o Language to install: **English (United States)**

   o Time and currency format: **English (United States)**

   o Keyboard or input method: **US**

2. Click **Next**.

3. On the second page of the Windows Setup Wizard, click **Install now**.

4. On the **License Terms** page, select the check box **I accept the license terms**.

5. Click **Next**.

6. On the **Which Type Of Installation Do You Want** page, click **Custom: Install Windows only (advanced)**.

7. On the **Where do you want to install Windows** page, ensure that **Drive 0 Unallocated space** is selected. Click **Next**. The install begins. It will take a few minutes to complete.

8. On the **Get going fast** page, click **Use Express settings**.

9. On the **Create an account for this PC** page, type the following:

   o Username: **LocalAdmin**

   o Password: **Pa$$w0rd**

    o   Re-enter password: **Pa$$w0rd**

    o   Password hint: **Standard password**

10. Click **Next**.

Revert virtual machines

When you finish the demonstration, revert the virtual machine to its initial state. To do this, complete the following steps:

1. On the host computer, open **Hyper-V Manager**.

2. In the **Virtual Machines** list, right-click **20697-1B-LON-CL5**, and then click **Revert**.

3. In the **Revert Virtual Machine** dialog box, click **Revert**.

Lesson 2
Upgrading to Windows 10

Contents:

Question and Answers

Question: Migration is the preferred method of upgrading to Windows 10.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Question: You need to migrate user state after an in-place upgrade.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Discussion: Common Upgrade and Migration Scenarios

Question: What is the best upgrade method for the 100 workstations running Windows 7 at Contoso Pharmaceuticals?

> **Answer:** Side-by-side migration

Question: What is the best upgrade method for the 25 computers at Litware, Inc.?

> **Answer:** In-place upgrade

Question: What is the best upgrade method for the 5,000 client computers at A. Datum?

> **Answer:** In-place upgrade

Question: What is the best upgrade method for the 50 users who are getting new computers at Contoso Pharmaceuticals?

> **Answer:** Wipe-and-load migration

Resources

The Process of Migrating to Windows 10

Additional Reading: http://aka.ms/nt1ycs

Module Review and Takeaways

Review Question(s)

Question: Your organization wants to deploy Windows 10 and wants to be able to join the computers to Microsoft Azure Active Directory. Which edition(s) of Windows 10 will you be able to use?

>   **Answer:** Windows 10 Pro, Windows 10 Enterprise, and Windows 10 Education.

Question: You have a few computers running Windows Vista. What is a supported method of upgrading the computers to Windows 10?

>   **Answer:** First, upgrade to Windows 7 Service Pack 1 (SP1), and then upgrade to Windows 10. Alternatively, capture user settings, do a clean install of Windows 10, install applications, and then restore user settings.

Tools

Tool	Use to	Where to find it
Windows ADK	Assess and deploy Windows	Microsoft Download Center
Application Compatibility Toolkit	Check application compatibility for Windows 10	Windows ADK
Windows SIM	Create and edit answer files	Windows ADK
USMT	Migrate user settings	Windows ADK
DISM	Service Windows image files	Windows ADK
Volume Activation Management Tool	Manage volume Windows activation	Windows ADK
Imaging and Configuration Designer	Manage images and provisioning packages	Windows ADK

Lab Review Questions and Answers

Lab: Installing Windows 10

Question and Answers

Question: What is the preferred method of upgrading to Windows 10: in-place upgrade or migration?

> **Answer:** Starting with Windows 10, the preferred method of upgrading to Windows is an in-place upgrade. Previously, the preferred method was migration.

Question: Which tools from Microsoft can help you automate the deployment of Windows 10?

> **Answer:** The Windows Assessment and Deployment Kit (Windows ADK) contains the Windows System Image Manager (Windows SIM), Deployment Image Servicing and Management (DISM), and Imaging and Configuration Designer to help you with building answer files and images. The Microsoft Deployment Toolkit (MDT) can help to automate the deployment itself. User State Migration Tool (USMT) will help to migrate user settings, if you do a migration instead of an in-place upgrade.

Module 3

Configuring Your Device

Contents:

Lesson 1
Overview of Tools You Can Use to Configure Windows 10

Contents:

Question and Answers

Question: Place each item into the appropriate category. Indicate your answer by writing the category number to the right of each item.

Category 1	Category 2	Category 3
Get-Help	Set-ExecutionPolicy	Get-Service

Answer:

Category 1	Category 2	Category 3
Get-Help	Set-ExecutionPolicy	Get-Service
Learn what the Get-Process cmdlet does. Find out all the cmdlets you can use with the Get verb. Find examples of various cmdlets.	Scripts are allowed to run, but must be signed by a trusted publisher. Removes all restrictions on running scripts. Locally created scripts can run.	Shows whether a service is running or stopped. Shows status of all services. Retrieve a list of services.

Question: Categorize each item into the appropriate category. Indicate your answer by writing the category number to the right of each item.

Category 1	Category 2	Category 3
Settings app	Windows PowerShell	GPO

Answer:

Category 1	Category 2	Category 3
Settings app	Windows PowerShell	GPO
Set the main display for the computer Check for updates Add a Microsoft account	Query IP address Test the secure channel to the domain Add parameters to filter a returned list	Enable a policy setting for all computers in an organizational unit (OU) Map a drive letter for all users in the domain Add an interactive logon message

Resources

Using Windows PowerShell

Additional Reading: http://aka.ms/ipge1q

Demonstration: Configuring a Device

Demonstration Steps

Explore and use the Settings app

1. On **LON-CL1**, click the Start menu, and then click the **Settings** item. Maximize the **Settings** page.

2. On the **Settings** page, click the **System** item.

3. Ensure that the **Display** item is selected in the console tree, and then in the details pane, scroll down and click the **Advanced display settings** hyperlink.

4. On the **Advanced Display Settings** page, click the down arrow in the **Resolution** box, select **1280 X 800**, and then click **Apply**.

5. In the Keep these display settings window, click **Keep changes**.

6. At the upper left of the screen, note the back arrow by Settings. Click the back arrow twice. This will return you to the main **Settings** page.

7. On the **Settings** page, click the **Devices** item.

8. Click the **Add a printer or scanner** plus sign.

9. Note how Settings scans for printers or scanners, but finds none. Scroll down and then click the **Devices and printers** hyperlink.

10. Note that the Control Panel, **Devices and Printers** appears. Click the **Add a printer**, hyperlink. Explain that to make some configurations at the Settings level, you will need to use the Control Panel.

11. In the Choose a device or printer to add to this PC window, click the **The printer that I want isn't listed** hyperlink.

12. Click the **Add a local printer or network printer with manual settings** radio button, and then click **Next**.

13. On the **Choose a printer port** page, click **Next**.

14. On the **Install the printer driver** page, under the **Manufacturer** column, select **HP**, under the Printers column, scroll down and click **HP Photosmart 7520 series Class Driver**, and then click **Next**.

15. On the **Type a printer name** page, delete the part of the text that says **series Class Driver**, leaving only the **HP Photosmart 7520** text, and then click **Next**.

16. On the **Printer Sharing** page, click **Next**.

17. On the **You've successfully added HP Photosmart 7520** page, click **Finish**.

18. Click back to the **Printers & scanners** page of Settings. Click the **HP Photosmart 7520** icon. Note the option that appears: **Remove device**. Explain that the controls for printers are limited on this page.

19. Review other Settings items, explaining what they do. When you are finished, close all open windows.

Explore and use the Control Panel

1. Right-click the Start menu, and then click **Control Panel**.

2. Spend just a few moments going over some of the items in Control Panel, as most Control Panel functionality has not changed. If you have time, you can try to find the equivalent item in the Settings app, or ask the students if they can find it.

Open and use Windows PowerShell

1. In the **Search the web and Windows** text box in the taskbar, type **PowerShell**, and then press Enter.

2. At the Windows PowerShell command prompt, type **Get-Command**, and then press Enter.

3. Tell the class about cmdlet **History**, explain how to access it by pressing the Up Arrow key, and explain how the Tab key can help finish long cmdlets.

4. Press the Up Arrow key, and after **Get-Command**, type one space, type **–Listi**, and then press the Tab key. The parameter should change to **–ListImported**. Press Enter. Review the reduced return set with the class.

5. At the Windows PowerShell command prompt, type **Get-Help New-Item**, and then press Enter. If a message is returned that says **Do you want to run Update-Help?**, type **N**, and then press **Enter**.

📋   **Note:** Note the Remarks section of the reply, and explain how you would want to use the **–Online** parameter to get the additional content.

6. At the Windows PowerShell command prompt, type **ipconfig.exe /all**, and then press Enter.

7. At the Windows PowerShell command prompt, type **Get-NetIPAddress**, and then press Enter. Note the similarities and differences between the two output returns. Close Windows PowerShell.

Using Windows PowerShell ISE

1. In the Start menu**,** go to **All apps**, and then scroll down to the **Windows PowerShell** folder.

2. Note the third item in the returned list, **Windows PowerShell ISE** app. Right-click it, and then click **Run as Administrator**.

3. If the User Account Control pop-up window opens, click **Yes**.

4. In Windows PowerShell ISE, at the Windows PowerShell command prompt, type **Get-ExecutionPolicy**, and then press Enter. Confirm that the current execution policy is **Unrestricted**.

5. If it is **Restricted**, at the Windows PowerShell command prompt, type **Set-ExecutionPolicy –Unrestricted**, and then press Enter.

6. Select **Yes to All [A]** by typing **A**, and then pressing Enter.

Open and review a script

1. In Windows PowerShell ISE, click **File**, and then click **Open**.

2. In the Open window, browse to **E:\Labfiles\Mod03**, click **Services.ps1**, and then click **Open**.

3. Read the script, and then explain what the script is doing.

> 📝 **Note:** Note the following:

- o Comments are green.

- o Variables are red.

- o Cmdlets are bright blue.

- o Text in quotation marks is dark red.

Modify and test a script

1. Select line 3 in the script, and then press F8 to run the selection.

2. Read the output in the console pane, and then notice that the line from the script appears in the console pane.

3. In the console pane, type **$services**, and then press Enter.

4. Read the output in the console pane. Notice that a list of services displays.

5. Press F5 to run the script.

6. Read the output, and then notice that it does not have multiple colors.

7. At the end of line 14, enter a space, and then type **–ForegroundColor $color**.

8. Press F5 to run the script.

9. In the **Windows PowerShell ISE** dialog box, select the **In the future, do not show this message** check box, and then click **OK**.

10. Read the output, and then notice that running services are green and services that are not running are red.

11. On line 16, type **Write-Host "A total of" $services.count "services were evaluated"**.

12. Press F5 to run the script.

13. In the Commands pane, in the **Name** box, type **Write-Host**, and then click **Write-Host**.

14. In the **BackgroundColor** box, type **Gray**.

15. In the **ForegroundColor** box, type **Black**.

16. In the **Object** box, type **"Script execution is complete"**.

17. Click **Copy**, and then paste onto line 17 of the script.

18. Press F5 to run the script.

19. Press Ctrl+S to save the script.

20. Close all open windows.

Run a script from the Windows PowerShell command prompt

1. In the taskbar, in the **Search the web and Windows** text box, type **PowerShell**, and then press Enter.

2. At the Windows PowerShell command prompt, type **Set-Location E:\Labfiles\Mod03**, and then press Enter.

3. Type **.\Services.ps1**, and then press Enter.

4. Close the Command Prompt.

Demonstration: Using GPOs to Configure Devices

Demonstration Steps

Explore the Group Policy Editor on the local Windows 10-based computer

1. On LON-CL1, in the taskbar, in the **Search the web and Windows** text box, type **gpedit.msc**, and then press Enter.

2. Maximize the console window. Explain that most of the format and functionality of the Local Computer Policy in Group Policy Editor has not changed. Spend a few moments exploring the various console tree items and what appears in the details pane.

3. Close the Group Policy Editor console.

Configure and test a domain GPO that alters Windows 10 display settings

1. On **LON-DC1**, in **Server Manager**, in the **Tools** drop-down list box, select **Group Policy Management**.

2. Expand the Group Policy window, from the console tree, expand **Forest: Adatum.com**, expand **Domains**, expand **Adatum.com**, and then select the **Group Policy Objects** node.

3. Right-click the **Group Policy Objects** node, and then select **New**.

4. In the **New GPO** pop-up, in the **Name:** text box, type **Win10 Display**, and then click **OK**.

5. In the details pane, right-click **Win10 Display**, and then select **Edit**.

6. The Group Policy Management Editor will open. Maximize the console.

7. In the console tree, under Computer Configuration, expand **Policies**, expand **Windows Settings**, expand **Security Settings**, expand **Local Policies**, and then select **Security Options**. In the details pane, scroll down and select **Interactive Logon: Message title for users attempting to log on**, and then double-click it.

8. In the **Interactive Logon: Message title for users attempting to log on** pop-up dialog box, click to select the **Define this policy setting** check box. In the text box, type **Attention!**, and then click **OK**.

9. In the details pane, scroll down, then select and double-click **Interactive Logon: Message text for users attempting to log on**.

📝 **Note:** This setting is right above the **Interactive Logon: Message title for users attempting to log on** item from step 7.

10. In the **Interactive Logon: Message text for users attempting to log on** pop-up dialog box, click to select the **Define this policy setting in the template** check box. In the text box, type **This computer belongs to the A. Datum Corporation**, and then click **OK**.

11. Close the Group Policy Object Management Editor.

12. In the Group Policy Management console, select and right-click the **Adatum.com** item in the console tree, and then click **Link an Existing GPO**.

13. In the Select GPO window, select the **Win10 Display** item, and then click **OK**.

14. Close the Group Policy Management console.

15. Return to **LON-CL1**. In the taskbar, in the **Search the web and Windows** text box, type **cmd**, and then press Enter.

16. At the command prompt, type **gpupdate /force**, and then press Enter. After the update reports success, close the command prompt.

17. Click the **Start** icon, and in the Start menu, click **Administrator** at the top, and then in the context menu that opens, click **Sign out**.

18. Click **Ctrl+Alt+Delete** in the Virtual Machine Connection window. You should see **Attention! This computer belongs to the A. Datum Corporation** directly underneath the user name. Click **OK**, and then sign in as **Adatum\Administrator** with the password **Pa$$w0rd**.

Lesson 2
Common Configuration Options

Contents:

Question and Answers

Question: Which default power plan offers the greatest savings of electrical power?

( ) High Performance

( ) Balanced

( ) Power Saver

( ) Economy

( ) Lightning Speed

> **Answer:**
>
> ( ) High Performance
>
> ( ) Balanced
>
> (√) Power Saver
>
> ( ) Economy
>
> ( ) Lightning Speed

Question: There are a number of ways to make configuration changes to a Windows 10-based computer. Which method allows you to make changes the most quickly?

( ) GPO

( ) Settings app

( ) Control Panel

( ) Windows PowerShell

( ) Preference

> **Answer:**
>
> ( ) GPO
>
> (√) Settings app
>
> ( ) Control Panel
>
> ( ) Windows PowerShell
>
> ( ) Preference

Demonstration: Configuring Display Options

Demonstration Steps

1. On **LON-CL1**, click the Start menu, and then click the **Settings** item. Maximize the **Settings** page.

2. In the **Settings** page, click the **System** item.

3. Ensure that the **Display** item is selected in the console tree, and then in the details pane, scroll down to the various items available and explain their functions. Remind students that different devices will have different settings.

4. Note the **Change the size of text, apps, and other items:** slider. Slide it over to the far right, setting the text size to **125%**, and then click **Apply**.

5. You will see the Sign in again for the best experience overlay window. Click **Sign out now**.

6. Sign in again as **Adatum\Administrator** with the password **Pa$$w0rd**.

📝   **Note:** If a windows opens that says **"Attention! This computer belongs to the A. Datum Corporation"**, click OK.

7. Right-click the empty desktop, and in the context menu, click the **Display settings** item. Maximize the Settings window.

8. Click the **Advanced display settings** hyperlink.

9. In the **Advanced Display Settings** page, click the down arrow in the **Resolution** box, select **1366 X 768**, and then click **Apply**.

10. In the Keep these display settings window, click **Keep changes**.

11. At the upper left of the screen, note the back arrow by **Settings**. Click the back arrow twice. This will return you to the main Settings page.

12. Click the **Personalization** category icon.

13. Spend a few minutes going over the various items. Go through the various console tree items: **Background**, **Colors**, **Lock screen**, and then **Themes**. Click the **Themes** category in the console tree.

14. Click **Theme settings** in the details pane, and then note that when you navigate to **Theme settings**, you see the **Personalization** area. Close this window.

15. Go to **Start** in the console tree, and then explain the items there.

16. Close all open windows, and then sign out.

Demonstration: Configuring Power Options

Demonstration Steps

1. On **LON-CL4**, in the taskbar, in the **Search the web and Windows** text box, type **Power**, and then in the returned list, under **Settings**, click **Power & sleep settings**.

📝   **Note:** If the Power & sleep settings does not appear under Settings, you can find it under Best match.

On the **Screen** page, note that the only available option says **When plugged in, turn off after**, and that under this is a drop-down list that includes options of different time periods. **10 minutes** is the default for this list. Tell the class that the various hyperlinks in the console tree may be different, depending on the type of device for which you are configuring settings. For example, laptops will have additional options for the lid and battery.

2. At the bottom of the page, click the **Additional power settings** hyperlink.

📝   **Note:** On the Control Panel **Power Options** page, in the **Choose or customize a power plan** section, discuss the two plans shown in the details pane: **Balanced** and **Power saver**. Note that **Balanced** is the installed default.

3. Click the down arrow on the **Show additional plans** line, to reveal the **High performance** plan. Discuss the **Change plan settings** hyperlink beside each plan.

4. In the console tree, click the **Create a power plan** hyperlink.

📝   **Note:** All three default plans appear, with the **Plan name** text box on the lower part of the page. Explain that a new plan always has as its foundation the settings from of one of the three plans. Emphasize that you should know what the details of the three plans are before creating a custom plan, because they might include the settings that you want to configure.

5.   In the **Plan name** text box, type **Demo Plan.** Accept the selected plan above it**,** and then click **Next**.

6.   Use the back arrow in the upper left to go back and change the selected default plan. Look closely at each plan, starting with **Balanced**, to show the differences between them. Look at **Power Saver**, and then **High performance**. You should finish on the **Change settings for the plan** page of the **High performance** default plan.

7.   In the **Turn off the display:** drop-down list box, select **Never** (if already set to **Never**, change to **5 hours**), and then click **Create**.

8.   You will see the **Power Options** page, but now you will note that the Demo Plan's option is selected.

9.   Click the **Change plan settings** hyperlink beside **Demo Plan**.

10. In the Change settings for the plan: Demo Plan window, select the **Change advanced power settings** hyperlink.

11. In the Power Options properties window, go through the various options explaining what they do.

12. Expand the **Wireless Adapter Settings** item, expand the **Power Saving Mode** item, click the **Maximum Performance** drop-down list box, and then change it to **Medium Power Saving**. Click **OK**.

13. On the **Change settings for the plan: Demo Plan** page, set the **Turn off the display:** setting to **4 hours**, and then click **Save changes**.

14. Close all open windows, and then sign out.

15. Revert 20697-1B-LON-CL4.

Lesson 3
Managing User Accounts

Contents:

Question and Answers

Question: What type of account can become a Microsoft account?

(   ) Xbox Live

(   ) Hotmail

(   ) Windows Live ID

(   ) Microsoft Passport

(   ) All of the above

> **Answer:**
>
> (   ) Xbox Live
>
> (   ) Hotmail
>
> (   ) Windows Live ID
>
> (   ) Microsoft Passport
>
> (√) All of the above

Discussion: When to Use a Microsoft Account

Question: When would you use a domain account?

> **Answer:** In general, most organizations, whether business, nonprofit, or government, will use an AD DS domain. Therefore, you would use a domain account in these scenarios. A domain account provides for secure authentication and managed access to all of the organization's resources.

Question: Under what circumstances would you not be able to use a domain account on a Windows 10 device?

> **Answer:** Windows 10 offers so many account choices, choosing the right one may be confusing. However, despite the popularity of the BYOD method, you may not be able to give users' own devices a domain account. Therefore, you would not be able to sign in as a domain user.

Question: What is the benefit of using a Microsoft account?

> **Answer:** When you connect a Microsoft account with your local or domain account, you can access Microsoft cloud services such as Microsoft OneDrive, Mail, Calendar, People, and other personal apps. You can browse the Windows Store even if you do not have a Microsoft account, but to download and install a Windows Store app, you must sign up for a Microsoft account.

Question: The staff at a military base has a special computer that they use to encrypt orders. They want to install Windows 10 on it. Due to security issues, it cannot be on a network. What kind of account should you use?

> **Answer:** You should use a local account in this case.

Question: Contoso, Ltd. has a vigorous Office 365 and Azure cloud-service presence. They have tied in their on-premises AD DS infrastructure with Azure AD. What might Contoso do to ensure that users do not have to sign in to Windows 10 on one account, and then into Office 365 and Azure on another?

> **Answer:** If the AD DS account is associated with a synchronized Azure AD account, then Windows 10 can use Azure AD to authenticate the user for sign-in.

Resources

Using an Azure AD Account

📖 **Additional Reading:** http://aka.ms/ez0cx0

Demonstration: Connecting a Microsoft Account

Demonstration Steps

1. On LON-CL1, in the **Start** menu, click **Settings**.

2. Click **Accounts**, in the console tree, select **Other users**, and then click the **Add someone else to this PC** plus sign.

3. In the How will this person sign in? window, click the **I don't have this person's sign-in information** hyperlink.

4. In the Let's create your account window, create a Microsoft account with the following values, and then click **Next**:

   o First name: *Your first name + last name's first letter* (for example, *KariT*)

   o Last name: **20697-1B**

   o Click the **Get a new email address** hyperlink, and in the **New email** text box, type *Your first name + last initial*-**20697-1B**, and then press Tab.

📝 **Note:** This should return a check mark with the statement *Your first name + last initial-***20697-1B@outlook.com is available**. If not, go back and add the second letter of your last name to the email address (for example, KariTr). You might have to continue to add letters until you reach a name that is unique enough.

📝 **Note:** If you select another country/region instead of the United States, the birth text boxes do not appear. This is expected behavior, and you do not need to enter birth date information in this scenario.

   o Password: **Pa$$w0rd**

   o Country/region: Select your country/region

   o Birth month: **January**

   o Birth day: **1**

   o Year: **1990**

   o In the **Add security info**, **Phone number** text box, type **888-555-1212**, or use a number of your choice.

📝 **Note:** The telephone number will not receive a call or text through this account. This is not important for the purposes of this lab. It only matters that the pattern fits your country/region's telephone system.

📝 **Note:** If you receive a popup window that says "Help us verify your identity", or "Add security info", retype the phone number you used above in the phone number text box and continue by clicking Next.

5. In the See what's most relevant to you window, click **Next**.

6. Close all open windows, and then sign out.

7. Sign in as **LON-CL1\Admin** with the password **Pa$$w0rd**.

8. Click the Start menu, and at the top of the menu, click **Admin**, and then click *Your first name + last initial*-**20697-1B@outlook.com**, enter the password **Pa$$w0rd**, and then press Enter.

📝   **Note:** It will take a few minutes to create your profile.

9. At the **Passwords are so yesterday** page, click **Skip this step**.

10. Close all open windows, and then sign out.

Lesson 4
Using OneDrive

Contents:

Question and Answers

Question: You can synchronize files individually in OneDrive subfolders.

(   ) True

(   ) False

Answer:

(   ) True

(√) False

Resources

What Is OneDrive?

🌐   **Additional Reading:** http://aka.ms/lv5n2s

Demonstration: Synchronizing Settings with OneDrive

Demonstration Steps

1. On **LON-CL2,** in the **Start** menu, select the **Settings** app.

2. Click **Accounts**, and in the console tree, select **Other users**, and then click the **Add someone else to this PC** plus sign.

3. In the **How will this person sign in?** page, in the **Email or phone** text box, type *Your first name + last initial***-20697-1B@outlook.com,** and then click **Next**.

4. In the **Good to go** page, click **Finish**.

5. Close the Settings app, and in the Start menu, click the Admin button and then click *Your first name + last initial***-20697-1B@outlook.com**.

6.   In the **Password** text box, type **Pa$$w0rd**, and press the **Enter** key.

7. It will take a few minutes to build the profile.

8. If the **Set up a PIN** page appears, click **Skip this step**.

9. In the **Get your files here, there and everywhere** page, click **Next**.

10. From the taskbar, click the **File Explorer** icon, and then select the **OneDrive** node

📋   **Note:** It may take a few minutes before the OneDrive node appears for the first time.

11. In the console tree, under **OneDrive**, select the **Documents** folder, and in the details pane, right-click the empty space, select **New**, **Text document**, and in the **name** text box, type **I was here.txt**, and then press Enter.

12. Double-click the **I was here.txt** document, and then when Notepad opens, type **I was here on LON-CL2**. Press Ctrl+S, and then close Notepad.

13. Return to **LON-CL1**. From the taskbar, click the **File Explorer** icon, and then select the **OneDrive** node.

14. Open the **Documents** folder in the OneDrive node. After a few minutes, the **I was here.txt** document should appear (it can take up to five minutes).

15. When the **I was here.txt** document appears, double-click it.

16. In the Notepad window, directly under the **I was here on LON-CL2** line, type **Now I'm here on LON-CL1**, and then press Enter.

17. Press Ctrl+S, and then close Notepad. Make note of the date and time of the **I was here.txt** file.

18. Return to **LON-CL2** and if File Explorer is not still open, on the taskbar, click the **File Explorer** icon, and then select the **OneDrive** node. Select the **Documents** folder in the OneDrive node.

19. Make note of the Date and time of the **I was here.txt** document. When it changes to the date and time you noted on **LON-CL1**, double-click the file (it takes up to five minutes to change).

    📝   **Note:** You should now see two lines in Notepad, as follows:
                I was here on LON-CL2.
                Now I'm here on LON-CL1.

20. Close all open windows, and then sign out of all virtual machines.

When you finish the demonstration, revert the virtual machines to their initial state. To do this, perform the following steps:

1. On the host computer, start Microsoft Hyper-V Manager.

2. In the Virtual Machines list, right-click **20697-1B-LON-DC1**, and then click **Revert**.

3. In the **Revert Virtual Machine** dialog box, click **Revert**.

4. Repeat steps 2 and 3 for **20697-1B-LON-CL1, 20697-1B-LON-CL2**, and **20697-1B-LON-CL4**.

5. Ensure that MSL-TMG1 continues to run for subsequent demonstrations.

Module Review and Takeaways

Review Question(s)

Question: What happens to a Windows 10 tablet device when you remove the magnetically attached keyboard?

> **Answer:** Windows 10 has a feature called Continuum that senses when you remove a tablet's keyboard or remove the tablet from a docking station. When this happens, Continuum puts the device into tablet mode, which changes the Start menu back to a Start screen. The Continuum feature maintains the desktop and ensures that the taskbar is accessible in Tablet mode, and you can scroll the Start screen tiles across the desktop, just as you did with the Start screen tiles in Windows 8.

Question: What is the difference between a child and adult family member Windows 10 account?

> **Answer:** You can add a child account to your family to increase a child's safety online. Adults in the family can view reports of the child's online activity, limit how long and when they use their devices, and help ensure that they do not access inappropriate websites, apps, or games. You can manage family settings online at account.microsoft.com/family, and changes will be applied to any Windows 10 device to which the child signs in.

Tools

Tool	Used to	Where to find it
Settings app	Configure almost any Windows 10 setting	In the Start menu. This tool is a part of the Windows 10 operating system.
Action Center	Quickly provide broad changes to the Windows 10 device, such as putting the device in Airplane or Tablet mode or connecting to a Miracast capable device.	In the notification area on the taskbar in the Notifications icon. This tool is a part of the Windows 10 operating system.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Cannot add or apply a Microsoft account. Clicking Sign in with a Microsoft account instead results in an error.	You cannot add or apply a Microsoft account in a domain if you are signed in as a domain administrator. You must sign out as Administrator and sign in as a standard user to use a Microsoft account.
Cannot sync an offline file in OneDrive.	Windows 10 has removed the placeholders file concept in OneDrive. More information will provided after the final release. When you right-click a OneDrive folder in File Explorer, you can select **Choose OneDrive folders to sync**. This causes the **Sync your OneDrive files to this PC** page to open, so that you can select which folders to synchronize. Files in OneDrive no longer show offline or online status.

Lab Review Questions and Answers

Lab A: Configuring Windows 10

Question and Answers

Question: What was the purpose of building the **Write-Host** cmdlet in the Commands window in Windows PowerShell ISE?

> **Answer:** The Commands window will list the parameters available for a given cmdlet and allow you to create a complex cmdlet to insert into the script.

Question: You set a Computer Configuration Preference to disable the EFS service on LON-CL1. Could a user start that service on the targeted computer?

> **Answer:** Yes. Preferences are not enforced. Users can change them if they have the necessary permissions and rights on a computer.

Lab B: Synchronizing Settings with OneDrive

Question and Answers

Question: Microsoft accounts can also get a free email address. In what domain is the address registered?

> **Answer:** Outlook.com

Question: How do you synchronize new folders in Windows 10 OneDrive File Explorer node?

> **Answer:** You must select the **Choose OneDrive folders to sync** menu option and the **Sync all files and folders in my OneDrive** check box. Within a few minutes, the folder or file should appear in the OneDrive node in File Explorer on other devices. However, because you can clear this check box, and you have selectively set only some folders to synchronize, you would have to select the check box beside the new folder's name in the **Choose OneDrive folders to sync** menu option.

Module 4

Configuring Network Connectivity

Contents:

Lesson 1
Configuring IP Network Connectivity

Contents:

Question and Answers

Question: Domain-joined computers cannot join homegroups.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Question: Which command would you use to obtain a new lease from a DHCP server?

( ) Ping

( ) Tracert

( ) Netsh

( ) Ipconfig

( ) NSLookup

> **Answer:**
>
> ( ) Ping
>
> ( ) Tracert
>
> ( ) Netsh
>
> (√) Ipconfig
>
> ( ) NSLookup

Demonstration: Configuring an IPv4 Connection

Demonstration Steps

View IPv4 configuration from a GUI

1. Switch to LON-CL1.

2. Click the **Network** icon in the notification area, and then click **Network settings**.

3. Click **Network and Sharing Center**.

4. In Network and Sharing Center, to the right of the Adatum.com Domain network, click **Ethernet**.

5. In the **Ethernet Status** dialog box, click **Details**. This window displays the same configuration information for this adapter as would the **Ipconfig** command.

6. In the Network Connection Details window, click **Close**.

7. In the **Ethernet Status** dialog box, click **Properties**. You can configure protocols in this window.

8. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**. You can configure the IP address, subnet mask, default gateway, and Domain Name System (DNS) servers in this window.

9. Click **Advanced**. In the Advanced TCP/IP Settings window, you can configure additional settings, such as additional IP addresses, DNS settings, and Windows Internet Name Service (WINS) servers for NetBIOS name resolution.

10. Close all open windows without modifying any settings.

View IPv4 configuration from a command line

1. Right-click **Start**, and then click **Command Prompt (Admin)**.

2. Type **PowerShell**, and then press Enter.

3. At the Windows PowerShell command prompt, type **Get-NetIPAddress**, and then press Enter.

4. At the Windows PowerShell command prompt, type **Get-NetIPv4Protocol**, and then press Enter.

5. At the command prompt, type **netsh interface ipv4 show config**, and then press Enter. The current IPv4 configuration is displayed.

6. At the Windows PowerShell command prompt, type **ipconfig /all**, and then press Enter.

Test connectivity

1. At the Windows PowerShell command prompt, type **test-connection LON-DC1**, and then press Enter.

2. At the command prompt, type **netstat -n**, and then press Enter. Observe and describe the active connections to 172.16.0.10. Most connections to services are transient.

3. If no connections appear, create a connection. To create a connection, click **Start**, in the **Search** box, type **\\LON-DC1**, and then press Enter.

4. In File Explorer, double-click **NETLOGON**.

5. At the command prompt, type **netstat -n**, and then press Enter. Identify the services that LON-CL1 had connections to on LON-DC1.

Check Windows Firewall configuration

1. Click the **Network** icon in the notification area, and then click **Network settings**.

2. Click **Network and Sharing Center**.

3. Click **Windows Firewall**.

4. In Windows Firewall, click **Advanced settings**.

5. In Windows Firewall with Advanced Security, expand **Monitoring**, and then click **Firewall**. These are the active firewall rules.

6. Switch back to Windows PowerShell.

7. At the command prompt, type **netsh advfirewall firewall show rule name=all dir=in**, and then press Enter.

8. Review the results, which display all inbound rules.

9. Close all open windows, except for the Command Prompt window.

Reconfigure the IPv4 configuration

1. Click the **Network** icon in the notification area, and then click **Network settings**.

2. Click **Network and Sharing Center**.

3. In Network and Sharing Center, to the right of the Adatum.com Domain network, click **Ethernet**.

4. In the **Ethernet Status** dialog box, click **Properties**. In this window, you can configure protocols.

5. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.

6. In the **Properties** dialog box, click **Obtain an IP address automatically**. Notice that when you click this, the **Alternate Configuration** tab becomes available.

7. Click **Obtain DNS server address automatically**.

8. Click the **Alternate Configuration** tab. Configuration information on this tab is used when no DHCP server is available.

9. Click **OK** to save the changes.

10. In the **Ethernet Properties** dialog box, click **Close**.

11. In the **Ethernet Status** dialog box, click **Details**. Notice that DHCP is enabled, and that the IP address of the DHCP server displays.

12. Switch to the command prompt.

13. At the Windows PowerShell command prompt, type **Get-NetIPAddress**, and then press Enter.

14. Close all open windows.

Lesson 2
Implementing Name Resolution

Contents:

Question and Answers

Question: Which command(s) should you always use before starting to test name resolution? Choose all that apply.

(   ) Ipconfig /release

(   ) Ipconfig /flushdns

(   ) Clear-DnsClientCache

(   ) Purge-DnsClientCache

> **Answer:**
>
> (   ) Ipconfig /release
>
> (√) Ipconfig /flushdns
>
> (√) Clear-DnsClientCache
>
> (   ) Purge-DnsClientCache

Demonstration: Configuring and Testing Name Resolution

Demonstration Steps

Verify the IPv4 configuration

1. Switch to LON-CL1.

2. Click the **Network** icon in the notification area, and then click **Network settings**.

3. Click **Network and Sharing Center**.

4. In Network and Sharing Center, to the right of the Adatum.com Domain network, click **Ethernet**.

5. In the **Ethernet Status** dialog box, click **Details**.

6. Notice that DHCP is enabled, and that the IP address of the DHCP server displays. Notice the DNS server address.

7. In the **Network Connection Details** dialog box, click **Close**.

8. In the **Ethernet Status** dialog box, click **Close**.

View and clear the name cache

1. Right-click **Start**, and then click **Command Prompt (Admin)**.

2. Type **PowerShell**, and then press Enter.

3. At the Windows PowerShell command prompt, type **ipconfig /displaydns**, and then press Enter.

4. At the Windows PowerShell command prompt, type **Get-DnsClientCache**, and then press Enter.

5. At the Windows PowerShell command prompt, type **ipconfig /flushdns**, and then press Enter.

6. At the Windows PowerShell command prompt, type **Clear-DnsClientCache**, and then press Enter.

7. At the Windows PowerShell command prompt, type **ipconfig /displaydns**, and then press Enter.

Test name resolution to LON-DC1

1. At the Windows PowerShell command prompt, type **test-connection lon-dc1**, and then press Enter.

2. At the Windows PowerShell command prompt, type **Get-DnsClientCache | fl**, and then press Enter.

3. At the Windows PowerShell command prompt, type **ipconfig /displaydns**, and then press Enter.

Create a record in the Hosts file

1. At the Windows PowerShell command prompt, type **notepad C:\windows\system32\drivers\etc\hosts**, and then press Enter.

2. Scroll to the end of the file, type **172.16.0.10 intranet**, and then press Enter.

3. Click **File**, and then click **Save**.

4. Close Notepad.

Test the new record

1. At the Windows PowerShell command prompt, type **test-connection intranet**, and then press Enter.

2. At the Windows PowerShell command prompt, type **Get-DnsClientCache | fl**, and then press Enter.

3. View the intranet record in the cache.

Test name resolution

1. At the Windows PowerShell command prompt, type **nslookup LON-DC1**, and then press Enter.

2. At the Windows PowerShell command prompt, type **Resolve-Dnsname LON-DC1 | fl**, and then press Enter.

3. At the Windows PowerShell command prompt, type **nslookup –d1 LON-DC1 > file.txt**, and then press Enter.

4. At the command prompt, type **notepad file.txt**, and then press Enter.

5. Review the information, and then close Notepad. Note that you must scroll to the section starting Got answer.

6. Close Windows PowerShell.

Lesson 3
Implementing Wireless Network Connectivity

Contents:

Question and Answers

Discussion: Considerations for Wireless Connectivity

Question: What are some considerations for enabling Wi-Fi access for your users?

Answer: Answers will vary, but may include:

- Potential security issues. Any user within range of a wireless hub can potentially connect.

- Convenience. Wireless connections, by definition, eliminate the need for physical wiring between users' devices and the network.

- Management issues. More users may wish to connect more devices through wireless connections, particularly their own devices, such as cellphones and tablets. These devices are probably unmanaged and can pose problems for IT.

Lesson 4
Overview of Remote Access

Contents:

Question and Answers

Question: Which VPN tunneling protocol supports the VPN auto reconnect feature?

(   ) PPTP

(   ) L2TP

(   ) SSTP

(   ) IKEv2

> **Answer:**
>
> (   ) PPTP
>
> (   ) L2TP
>
> (   ) SSTP
>
> (√) IKEv2

Discussion: Considerations for Remote Access

Question: What are the considerations for enabling remote access to your network?

> **Answer:** Answers will vary, but may include:
>
> o   Security. By enabling remote access, you open the network to possible security threats. It is important to consider the threats posed, and to design a remote access solution that mitigates these risks.
>
> o   Increased productivity by users. The ability to access corporate documents remotely enables users to work any time at a place of their choosing.
>
> o   Choice. You must choose what technology to use to enable remote access. DirectAccess is easier for users to use, because it requires no user intervention to establish remote connections. However, DirectAccess can be complex to set up and maintain. On the other hand, VPN technologies are well understood and mature. However, they can still require users to establish remote connections manually.

Module Review and Takeaways

Review Question(s)

Question: You are troubleshooting a network-related problem. The IP address of the host you are troubleshooting is 169.254.16.17. What is a possible cause of the problem?

> **Answer:** The DHCP server is unavailable.

Question: You are troubleshooting a network-related problem, and you suspect a name-resolution issue. Before conducting tests, you want to purge the DNS resolver cache. How do you do that?

> **Answer:** To clear the DNS resolver cache, you can use the Windows PowerShell cmdlet **Clear-DnsClientCache**. You can also use **IPConfig /flushdns**.

Lab Review Questions and Answers

Lab: Configuring Network Connectivity

Question and Answers

Question: In the lab, you tested name resolution. If a user notices that she cannot access normal enterprise websites, but she knows that she has a valid IP address, what tool must she use to troubleshoot her computer's DNS access?

> **Answer:** She can use **NSLookup** to troubleshoot DNS access issues.

Question: In the lab, you configured the Windows 10 device to obtain its IPv4 configuration automatically. What might happen if you did this and no DHCP server was available?

> **Answer:** The likely outcome would be that the device would obtain an APIPA address in the 169.254.X.Y range.

Module 5

Managing Storage

Contents:

Lesson 1
Overview of Storage Options

Contents:

Question and Answers

Question: What are the advantages of using virtual hard disks? (Select all that apply)

( ) Backup

( ) Performance

( ) Portability

( ) Availability

( ) Physical failures

    Answer:

    (√) Backup

    ( ) Performance

    (√) Portability

    ( ) Availability

    ( ) Physical failures

Question: Which features do you get with Microsoft OneDrive in Windows 10? (Select all that apply)

( ) 15 GB free storage

( ) Synchronization of selected folders

( ) Automatic synchronization of all folders

( ) Built-in universal app

( ) Need to install app to get OneDrive integration

    Answer:

    (√) 15 GB free storage

    (√) Synchronization of selected folders

    ( ) Automatic synchronization of all folders

    (√) Built-in universal app

    ( ) Need to install app to get OneDrive integration

Lesson 2
Managing Disks, Partitions, and Volumes

Contents:

Question and Answers

Question: What are the features of a GPT-initialized disk? (Select all that apply)

( ) Up to four partitions

( ) Up to 128 partitions

( ) Maximum size of 2 TB

( ) Maximum size of 18 exabytes

( ) Redundancy

> **Answer:**
>
> ( ) Up to four partitions
>
> (√) Up to 128 partitions
>
> ( ) Maximum size of 2 TB
>
> (√) Maximum size of 18 exabytes
>
> (√) Redundancy

Question: You can shrink a volume to the size of the used storage space on the volume.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Demonstration: Creating Volumes

Demonstration Steps

Initialize disks

1. Click **Start**, type **PowerShell**, and then press Enter.

2. Type the following command:

```
Get-Disk | Where partitionstyle -eq 'raw' | Initialize-Disk -PartitionStyle MBR
```

Create simple volume in Disk Management

1. Click **Start**, type **diskmgmt.msc**, and then press Enter.

2. Right-click the right side of **Disk 1** in the unallocated part, and then click **New Simple Volume**.

3. In the New Simple Volume Wizard window, click **Next**.

4. On the **Specify Volume Size** page, type **5120**, and then click **Next**.

5. In the Assign Drive Letter or Path window, make sure that drive **E** is selected, and then click **Next**.

6. On the **Format volume** page, type **Simple** in the **Volume Label** text box, and then click **Next**.

7. On the **Completing the New Simple Volume Wizard** page, click **Finish**.

8. If a Windows dialog box opens, click **Cancel**.

Create simple volume in Windows PowerShell

1. Switch to the Windows PowerShell window.

2. Type the following commands:

```
Get-Disk -Number 2
New-Partition –Size 5350879232 –Disknumber 2| Format-Volume -Confirm:$false –
FileSystem NTFS –NewFileSystemLabel Simple2
Get-Partition –DiskNumber 2
```

(Note the partition number you just created, as you will use that in the next step)

```
Set-Partition -DiskNumber 2 -PartitionNumber <NumberFromBefore> -NewDriveLetter F
```

Create spanned volume

1. Switch to the Disk Management window, if necessary.

2. Right-click the right side of **Disk 2** in the unallocated part, and then click **New Spanned Volume**.

3. In the New Spanned Volume Wizard window, click **Next**.

4. On the **Select Disks** page, click **Disk 3**, and then click **Add**. In the **Selected** list, click each disk, and then in the **Select the amount of space in MB** box, type **2048**. Click **Next**.

5. In the Assign Drive Letter or Path window, make sure that drive **G** is selected, and then click **Next**.

6. On the **Format volume** page, in the **Volume Label** text box, type **Spanned**, and then click **Next**.

7. On the **Completing the New Spanned Volume Wizard** page, click **Finish**.

8. In the **Disk Management** dialog box, click **Yes** to accept that Disk Management converts the disks to dynamic disks.

9. If File Explorer opens, close the window.

Create striped volume

1. Switch to the Disk Management window, if necessary.

2. Right-click the right side of **Disk 2** in the unallocated part, and then click **New Striped Volume**.

3. In the New Striped Volume Wizard window, click **Next**.

4. On the **Select Disks** page, click **Disk 3**, and then click **Add**. Click **Next**.

5. In the Assign Drive Letter or Path window, make sure that drive **H** is selected, and then click **Next**.

6. On the **Format volume** page, type **Striped** in the **Volume Label** text box, and then click **Next**.

7. On the **Completing the New Striped Volume Wizard** page, click **Finish**.

8. Leave the virtual machine running.

Demonstration: Resizing a Volume

Demonstration Steps

Shrink partition in Windows PowerShell

1. Switch to Windows PowerShell.

2. Type the following command:

```
Resize-Partition –DiskNumber 1 -PartitionNumber 1 –Size 3GB
```

Extend partition in Disk Management

1. Switch to the Disk Management window.

2. Right-click the right side of **Disk 1** in the **Simple (E:)** part, and then click **Extend Volume**. You might need to refresh the console to view the Simple (E) partition.

3. In the Extend Volume Wizard window, click **Next**.

4. On the **Select Disks** page, click **Next**.

5. On the **Completing the Extend Volume Wizard** page, click **Finish**.

6. Leave the virtual machine running.

Lesson 3
Maintaining Disks and Volumes

Contents:

Question and Answers

Question: Which features in Windows 10 will work on both FAT-formatted and NTFS-formatted volumes? (Select all that apply)

( ) Storage Sense

( ) Defragmenting disks

( ) Folder compression

( ) ZIP compression

( ) Disk quotas

> **Answer:**
>
> (√) Storage Sense
>
> (√) Defragmenting disks
>
> ( ) Folder compression
>
> (√) ZIP compression
>
> ( ) Disk quotas

Question: By default, defragmentation runs on a monthly basis.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Demonstration: Using Storage Sense

Demonstration Steps

1. Click **Start**, and then click **Settings**.

2. In the Settings window, click **System**, and then click **Storage**.

3. On the **Storage** page, click **This PC (C:)**.

4. On the **Storage usage** page, click **Apps and games**.

5. On the **Apps & features** page, in the **Type an app name** text box, type **money**, and then click the **Money** app.

6. Click **Uninstall**. Click **Uninstall** in the window that opens.

7. Click the back arrow to return to **Storage Usage**.

8. On the **Storage usage** page, click **Temporary files** in the category list.

9. On the **Temporary files** page, click **Delete temporary files**. Click **Yes I'm sure**.

10. Click the back arrow to return to **Storage Usage**.

11. Click the back arrow to return to **Storage**.

12. On the **Storage** page, click the drop-down list for **New documents will save to**, and then select **Simple (E:)**.

13. Click **File Explorer** in the taskbar.

14. In the File Explorer window, click **Simple (E:)**.

15. Double-click the **Administrator** folder.

16. Notice the Documents folder where new documents will be saved.

Demonstration: Performing Disk Maintenance

Demonstration Steps

1. Click **File Explorer** on the taskbar.

2. In the File Explorer window, click **This PC**, right-click **Local Disk C:**, and then click **Properties**.

3. In the Local Disk C: Properties window, click the **Tools** tab, and then click **Optimize**.

4. In the Optimize Drives window, verify that **(C:)** is selected, and then click **Analyze**. Click **Optimize**. This should not take very long.

5. In the Optimize Drives window, click **Change Settings**.

6. In the window that opens, click the **Frequency** drop-down list and select **Monthly**. Clear the **Notify me when three consecutive scheduled runs are missed** check box. Click **OK**.

7. In the Optimize Drives window, click **Close**.

8. In the Local Disk C: Properties window, click **OK**.

9. Leave the virtual machine running.

Demonstration: Compressing Files and Folders

Demonstration Steps

1. Click the **File Explorer** icon on the taskbar.

2. Navigate to the **C:\Users** folder. Right-click the **Admin** folder, and then click **Properties**.

3. On the **General** tab, note the **Size on Disk** in MB:_____

4. On the **General** tab, click **Advanced**.

5. In the Advanced attributes window, click **Compress contents to save disk space**, and then click **OK**.

6. Click **Apply**, and then in the Confirm Attribute Changes window, click **OK**.

7. In the Access Denied window, click **Continue**.

8. In the Error Applying Attributes window, click **Ignore All**.

9. After the compression finishes, note the **Size on Disk** in MB:_____, and then click **OK**.

10. Leave the virtual machine running for the next demonstration.

Demonstration: Configuring Disk Quotas

Demonstration Steps

Enable disk quotas

1. In the File Explorer window, right-click **Simple (E:)**, and then click **Properties**.

2. In the Properties window, click the **Quota** tab, and then select the **Enable Quota Management** check box.

3. In the Properties window, select the **Deny disk space to users exceeding quota limit** check box.

4.   Click **Limit disk space to**, in the **Limit disk space to** text box, type **200**, and then in the **Set warning level to** text box, type **100**.

5.   Select **MB** as the unit for both values.

6.   In the Properties window, click **OK**.

7.   If a Windows dialog box opens, click **OK**.

8.   Click **Start**, click **Administrator**, and then click **Sign out**.

Create files

1.   Sign in as the local user **Admin** with the password **Pa$$w0rd**.

2.   Click **Start**, and then type **cmd**. Press Enter.

3.   Type:

```
E:
MKDIR files
CD files
Fsutil file createnew file1.txt 104857600
Fsutil file createnew file2.txt 104857600
```

4.   Click **Start**, click **Admin**, and then click **Sign out**.

Check disk quotas usage

1.   Sign in as **Adatum\Administrator** with the password **Pa$$w0rd**.

2.   Click the **File Explorer** icon on the taskbar.

3.   In the File Explorer window, right-click **Simple (E:)**, and then click **Properties**.

4.   Click the **Quota** tab, and then click **Quota Entries**.

5.   Notice the warning for LON-CL2\Admin for the disk space used.

6.   Close the Quota Entries for Simple (E:) window.

7.   Click **OK** to close the Simple (E:) Properties window**.**

Lesson 4
Managing Storage Spaces

Contents:

Question and Answers

Question: Which types of storage spaces can you create in Windows 10? (Select 4)

( ) Simple

( ) Advanced

( ) Two-way mirror

( ) Three-way mirror

( ) Parity

> **Answer:**
>
> (√) Simple
>
> ( ) Advanced
>
> (√) Two-way mirror
>
> (√) Three-way mirror
>
> (√) Parity

Question: You need three disks to create a three-way mirror storage space.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Features of Storage Spaces

Question: What is the name for a storage space that is larger than the amount of disk space available on the physical disks portion of the storage pool?

> **Answer:** This kind of storage space is a thin provisioned virtual disk. With a thin provisioned storage space, you can use the available space immediately, but you need to add more physical disks to the storage pool to provide the disk space required.

Demonstration: Configuring Storage Spaces

Demonstration Steps

Clear disks in Windows PowerShell

1. Click **Start**, type **diskmgmt.msc**, and then press Enter.

2. In the Disk Management window, in the right side of **Disk 2**, right-click **Simple2**, and then click **Delete Volume**.

3. In the Delete simple volume window, click **Yes**.

4. In the Disk Management window, in the right side of **Disk 2**, right-click **Spanned**, and then click **Delete Volume**.

5. In the Delete spanned volume window, click **Yes**.

6. In the Disk Management window, in the right side of **Disk 2**, right-click **Striped**, and then click **Delete Volume**.

7. In the **Delete striped volume** window, click **Yes**.

8. Click **Start**, type **powershell**, and then press Enter.

9. Type the following command:

```
Get-Disk | Clear-Disk –RemoveData
```

10. Press A to do this on all disks. Notice the error message "clear-disk: Operation not supported on a critical disk." This command does not reset the disk with the Windows installation.

11. Switch to the Disk Management window, and then verify that Disks 1, 2, and 3 are not initialized.

Create a storage space

1. Click **Start**, type **storage spaces**, and then press Enter.

2. In the Storage Spaces window, click **Create a new pool and storage space**.

3. On the **Select drives to create a storage pool** page, verify that Disks 1, 2, and 3 are selected. Click **Create pool**.

4. On the **Enter a name, resiliency type, and size for the storage space** page, click the **Resiliency type** drop-down list, and then select **Parity**. Click **Create storage space**.

5. Click **File Explorer**, and then click **This PC**.

Notice that the size of **Storage Space (E:)** is 14.3 GB.

6. Close the File Explorer window.

Modify an existing storage space

1. On the **Manage Storage Spaces** page, click **Change**.

2. On the **Enter a new name and size for the storage space** page, change the **Storage space size** to **1 TB**.

Notice the information text stating that you can add more drives when the capacity is low.

3. Click **Change storage space**.

4. Click **File Explorer** on the taskbar.

5. Click **This PC**.

Notice that the size of **Storage Space (E:)** is now 0.99 TB.

Revert virtual machines

When you finish the demonstration, revert the virtual machine to its initial state. To do this, complete the following steps:

1. On the host computer, open **Hyper-V Manager**.

2. In the **Virtual Machines** list, right-click **20697-1B-LON-CL2**, and then click **Revert**.

3. In the **Revert Virtual Machine** dialog box, click **Revert**.

Module Review and Takeaways

Review Question(s)

Question: You are implementing 64-bit Windows 10 and need to partition the disk to support 25 volumes, some of which will be larger than 2 terabytes (TB). Can you implement this configuration by using a single hard disk?

> **Answer:** Yes. You can format the disk for GPT rather than MBR. A GPT disk supports up to 128 volumes, each much larger than 2 TB. Additionally, you can boot a computer with 64-bit Windows 10 installed from a GPT disk.

Tools

The following table lists some of the tools that are available for managing hard disks.

Tool	Used for	Where to find
Defrag.exe	Performing disk defragmentation tasks from the command line	Command prompt
Compact.exe	Performing NTFS compression from the command line	Command prompt
DiskPart	Managing disks, volumes, and partitions from the command line or from the Windows Preinstallation Environment	Command prompt
Fsutil.exe	Performing tasks that relate to file allocation table (FAT) and NTFS, such as managing disk quotas from the command line	Command prompt
Disk Management	Managing disks and volumes, both basic and dynamic, locally or on remote computers	Diskmgmt.msc
The Optimize Drives tool	Rearranging fragmented data so that disks and drives can work more efficiently	In File Explorer, right-click a volume, click **Properties**, click the **Tools** tab, and then click **Optimize**
Storage Spaces	Creating and managing storage spaces	Control Panel
Storage Sense	Getting an overview of disk usage and uninstalling applications	PC Settings

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Configuring disk quotas on multiple volumes	After you create a quota, you can export it and then import it for a different volume. In addition to establishing quota settings on an individual computer by using this method, you also can use Group Policy settings to configure quotas. This lets administrators configure multiple computers with the same quota settings.

Common Issue	Troubleshooting Tip
Exceeding the quota allowance	To increase free disk space after exceeding the quota allowance, the user can try the following: Delete unnecessary files Have another user claim ownership of files that are not user-specific Additionally, an administrator could increase the quota allowance as volume size and policy permits.

Lab Review Questions and Answers

Lab: Managing Storage

Question and Answers

Question: When would you use a spanned volume instead of a simple volume? Is there a better solution in Windows 10?

> **Answer:** Spanned volumes allow you to combine space from multiple drives. You would use a spanned volume to present several drives as a single drive to an operating system. A better solution in Windows 10 could be to use Storage Spaces.

Question: In your environment, where would you use disk quotas?

> **Answer:** Answers will vary based on students' experience. One possible answer is that you would do this on a shared system to minimize the effect of users saving files.

Module 6

Managing Files and Printers

Contents:

Lesson 1
Overview of File Systems

Contents:

Question and Answers

Question: Which two of the following file systems can you use on the 100-GB simple volume that you created on a single disk?

( ) FAT

( ) FAT32

( ) exFAT

( ) NTFS

( ) ReFS

> **Answer:**
>
> ( ) FAT
>
> ( ) FAT32
>
> (√) exFAT
>
> (√) NTFS
>
> ( ) ReFS

Question: You cannot convert a partition with the exFAT file system to the NTFS file system.

( ) True

( ) False

> **Answer:**
>
> (√) True
>
> ( ) False

Question: You can format a 1-TB volume on a single physical disk in Windows 10 with ReFS.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

The FAT File System

Question: Why would you use the FAT file system in Windows 10?

> **Answer:** There are not many reasons for using the FAT file system, because the NTFS file system provides many additional features, such as security, auditing, and compression. However, there are times when you might want to use the FAT file system, such as when you need to use the same removable media to share data with systems that do not support NTFS file system or if you need to use a file system with low overhead.

Question: Can you format a 40 GB volume with the FAT32 file system?

> **Answer:** No. The largest volume that you can format with FAT32 file system is 32 GB. You can format a 40 GB volume with the exFAT or NTFS file system, but not with the FAT32 file system.

The NTFS File System

Question: What are the main benefits of the NTFS file system?

> **Answer:** The NTFS file system provides several benefits that are not available with the FAT file system. The most important features of the NTFS file system are its support for larger volume sizes, security, auditing, and encryption.

The ReFS File System

Question: Can you use Disk Management or File Explorer to format a volume with ReFS in Windows 10?

> **Answer:** You can use Disk Management or File Explorer to format a volume with ReFS in Windows 10, but only if the volume is on a two-way or three-way mirror set on storage space. Otherwise, you cannot use ReFS in Windows 10.

Resources

The FAT File System

Additional Reading: http://aka.ms/i7wc50

Additional Reading: http://aka.ms/q3z160

The ReFS File System

Additional Reading: http://aka.ms/m3p37a

Additional Reading: http://aka.ms/al1zfa

Demonstration: Work with File Systems in Windows 10

Demonstration Steps

1. On LON-CL1, right-click the **Start** icon, and then click **Disk Management**.

2. In Disk Management, right-click the unallocated space on Disk 2, and then click **New Simple Volume**.

3. On the **Welcome to the New Simple Volume Wizard** page, click **Next**.

4. On the **Specify Volume Size** page, in **Simple Volume Size in MB**, enter **100**, and then click **Next**.

5. On the **Assign Drive Letter or Path** page, discuss the second option, which is **Mount in the following empty NTFS Folder**. This allows a volume to be mounted only to an empty NTFS folder. Click **Next**.

6. On the **Format Partition** page, open the **File system** drop-down list box, and then look at the available options, which are file allocation table (FAT), FAT32, and NTFS. Open the **Allocation unit size** drop-down list box, and point out the available values. Close the **Allocation unit size** drop-down list box, and then click **Back** twice.

7. On the **Specify Volume Size** page, in **Simple Volume Size in MB**, enter **40000**, and then click **Next** twice.

8. On the **Format Partition** page, open the **File system** drop-down list box, and point out the available options, which are extended file allocation table (exFAT) and NTFS. Explain that FAT32 supports volume sizes up to 32 gigabytes (GB). Therefore, it is not available for a 40 GB volume. Close the **File System** drop-down list box, and then click **Back** twice.

9. On the **Specify Volume Size** page, in **Simple Volume Size in MB**, enter **30000**, and then click **Next** twice.

10. On the **Format Partition** page, open the **File system** drop-down list box, and then look at the available options, which are FAT32 and NTFS. Click **FAT32**, click **Next**, click **Finish**, and then click **Cancel** in the **Microsoft Windows** dialog box. Verify that **NEW VOLUME with FAT32 file system** appears on Disk 2.

11. On the taskbar, click **File Explorer**. In File Explorer, in the navigation pane, right-click **NEW VOLUME (F:)**, and then select **Properties**. Verify that in **NEW VOLUME (F:) Properties**, there is no **Security** and **Quota** tab. This is because FAT does not support permissions and disk quotas. Click **Cancel**.

12. Right-click the **Start** icon, and then select **Command Prompt**.

13. At the command prompt, type **convert f: /fs:ntfs**, and then press Enter. Type **new volume** at the **Enter current volume label for drive F:** prompt, and then press Enter. When the command finishes running, close Command Prompt.

14. In File Explorer, in the navigation pane, right-click **NEW VOLUME (F:)**, and then select **Properties**. Verify that in **NEW VOLUME (F:) Properties**, there is a **Security** and **Quota** tab. This appears because the NTFS file system supports permissions and disk quotas. Point out the **Compress this drive to save disk space** check box, as the NTFS file system supports compression, and then click **Cancel**.

15. On the taskbar, in the **Search the Web and Windows** field, enter **storage**, and then select **Storage Spaces**.

16. In the Storage Spaces window, click **Create a new pool and storage space**.

17. In the Create a storage pool window, verify that **Disk 3** and **Disk 4** are selected, and then click **Create pool**.

18. In the Create a storage space window, select **Simple (no resiliency)** as the **Resiliency type**. Expand the **File system** drop-down list box, and then verify that only NTFS is available. Close the **File system** drop-down list box.

19. Select **Parity** as the **Resiliency type**. Expand the **File system** drop-down list box, and then verify that only NTFS is available. Close the **File system** drop-down list box.

20. Select **Three-way mirror** as the **Resiliency type**. Expand the **File system** drop-down list box, and then verify that NTFS and Resilient File System (ReFS) are available. Close the **File system** drop-down list box.

21. Select **Two-way mirror** as the **Resiliency type**. Expand the **File system** drop-down list box, and then verify that NTFS and ReFS are available. Select **REFS** from the **File system** drop-down list box, click **Create storage space**, and then close the Storage Spaces window.

22. In **Disk management**, verify that Disk 3 and Disk 4 no longer appear, but that Disk 5 does appear and has a primary partition that is formatted with the ReFS file system.

23. In File Explorer, in the navigation pane, right-click **Storage space (G:)**, and then select **Properties**. Verify that in **Storage space (G:) Properties,** there is a **Security** tab. However, there should be no **Quota** tab or **Compress this drive to save disk space** check box. This is because ReFS does not support disk quotas and compression. Click **Cancel**, and then minimize File Explorer.

Lesson 2
Configuring and Managing File Access

Contents:

Question and Answers

Question: On which two file systems can you assign permissions in Windows 10?

( ) FAT

( ) FAT32

( ) exFAT

( ) NTFS

( ) ReFS

> **Answer:**
>
> ( ) FAT
>
> ( ) FAT32
>
> ( ) exFAT
>
> (√) NTFS
>
> (√) ReFS

Question: You can modify inherited permissions on a file without disabling the inheritance.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Tools Used for Managing Files and Folders

Question: Which Windows 10 graphical tool is used most often to manage files and folders?

> **Answer:** Windows 10 includes several tools for managing files and folders, but you will use File Explorer most often.

File and Folder Permissions

Question: If a user's permissions are shown as Special permissions, what file permissions does the user have?

> **Answer:** If a user has a combination of advanced file permissions that cannot be listed as basic file permissions, the user's permissions will be shown as Special permissions.

Question: If user with Read permissions only is a member of a group that has Write permissions, what type of permissions does the user actually have?

> **Answer:** The user has cumulative permissions, which apply to the user and to the group of which the user is a member. In the given scenario, the user will have Read and Write permissions to the file.

Overview of Permission Inheritance

Question: If a file inherits permissions from a folder, can you modify the permissions on that file?

> **Answer:** No, you cannot modify inherited permissions. You can modify them on the folder, where you set them explicitly. The file will inherit modified permissions. Alternatively, you can

disable inheritance on a file, select or convert inherited permissions to explicit permissions, and then modify explicit permissions on it.

Implementing Conditions to Limit File and Folder Access

Question: What conditions should you include so that you limit access to files in the NTFS file system or the ReFS file system?

> **Answer:** You can include values of user or device claims in conditions. User and device claims can have values of attributes that you specify in AD DS.

Effective Permissions

Question: How can you include the calculation of conditions that limit access to the Effective Access feature?

> **Answer:** The Effective Permissions feature, by default, calculates effective access permissions based on group membership. If you want to include the evaluation of conditions that limit access to calculation, you need to specify a user and device claim before viewing effective access.

Question: Can the Effective Access feature consider only the current group membership when it is calculating effective permissions for a selected user or group?

> **Answer:** No. When you are using the Effective Access feature, you can view the effective permissions for a selected user or group that is a member in an additional group or groups.

Copying and Moving Files

Question: You have FileA on the NTFS volume on Computer1. You grant the user John explicit Full control permissions on FileA, and then you move FileA to the NTFS partition on Computer2. Will John still have explicit permissions on FileA?

> **Answer:** When you move FileA from Computer1 to Computer2, you effectively create a new file, with the same content as FileA, on Computer2. The move process then deletes FileA on Computer1. When you create a new file, it has only inherited permissions. It does not have explicit permissions. Therefore, John will not have explicit permissions on FileA when you move it to Computer2.

Resources

Tools Used for Managing Files and Folders

> **Additional Reading:** http://aka.ms/e898bk
> **Additional Reading:** http://aka.ms/xxgj91

Demonstration: Securing Files and Folders with File Permissions

Demonstration Steps

1. On LON-CL1, on the taskbar, click **File Explorer**.

2. In File Explorer, in the navigation pane, expand **This PC**, and then click **Local Disk (C:)**. In the details pane, right-click the empty space, select **New**, select **Folder**, and then type **Data** as the new folder name.

3. Right-click **Data**, and then select **Properties**.

4. In the Data Properties window, click the **Security** tab, and then click **Edit**. Explain why check boxes in the **Permissions for Authenticated Users** section are dimmed.

5. In the **Permissions for Data** dialog box, verify that **Authenticated Users** is selected in the **Group or user names** section, and then click **Remove**. Explain that you cannot remove Authenticated User because this is an inherited permission. Click **OK**, and then click **Add**.

6. In the **Enter the object names to select (examples)** box, enter **managers**, and then click **OK**. Explain why permissions for Managers are not dimmed.

7. In the **Permissions for Managers** section, clear the **Read & execute** and **List folder contents** check boxes, and then click **OK**.

8. In the **Data Properties** dialog box, click **Advanced**.

9. In the **Advanced Security Settings for Data** dialog box, in the **Permission entries** section, select **Managers**, and then click **Edit**.

10. In **Permission Entry for Data**, in the **Basic permissions** section, verify that only the **Read** check box is selected. Click **Show advanced permissions**, and then explain that basic Read permission contains multiple advanced permissions. Click **OK** three times.

11. In File Explorer, in the details pane, double-click **Data**.

12. In the details pane, right-click the empty space, select **New**, select **Text Document**, and then enter **File1** as the file name.

13. Right-click **File1.txt**, click **Properties**, click the **Security** tab, and then click **Advanced**.

14. In the **Advanced Security Settings for File1.txt** dialog box, verify that permissions for Managers are inherited from C:\Data\ and all other permissions are inherited from C:\.

15. Click the entry for **Managers**, click **Remove**, note the message, and then click **OK**.

16. In the **Advanced Security Settings for File1.txt** dialog box, click **Disable inheritance**. Review the options in the **Block Inheritance** dialog box, and then click **Convert inherited permissions into explicit permissions on this object**.

17. In the **Advanced Security Settings for File1.txt** dialog box, verify that all permissions entries are set explicitly on File1.txt, as their permission inheritance is set to **None**.

18. Verify that **Managers** is selected, click **Remove**, and then explain that now you can modify permissions, as they are no longer inherited. Click **OK** twice.

Lesson 3
Configuring and Managing Shared Folders

Contents:

Question and Answers

Question: If users have the Change share permission, they can take ownership of the files when they access the share over the network.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Question: You can configure advanced permissions for the shared folder.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Question: You cannot configure access-based enumeration for shares on a Windows 10–based computer.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

What Are Shared Folders?

Question: Can any user connect to any shared folder?

> **Answer:** No. Only users with appropriate permissions can connect to shared folders. You configure permissions on shared folders when you share a folder, and you can modify permissions.

Methods Available to Share Folders

Question: What is the main difference between sharing a folder by using Network File and Folder Sharing and by using Advanced Sharing?

> **Answer:** If you share a folder by using Network File and Folder Sharing, you can set share and file permissions in a single step. If you share a folder by using Advanced Sharing, you can set only share folder permissions. You cannot modify file permissions by using Advanced Sharing in a single step.

Shared Folder Properties

Question: What is the maximum number of users who can connect to a share simultaneously on Windows 10?

> **Answer:** A maximum of 20 users can connect simultaneously to a Windows 10 share.

Question: Can you configure Caching (Offline Settings) when you share a folder by using Network File and Folder Sharing?

Answer: No. When you share a folder by using Network File and Folder Sharing, you can configure only who can connect to it and what type of permissions the user has to a share. You can use Advanced Sharing or Windows PowerShell to modify share properties, including Caching (Offline Settings) settings.

Resources

Shared Folder Properties

Additional Reading: http://aka.ms/dwc4lz
Additional Reading: http://aka.ms/unkrou

Demonstration: Sharing Folders

Demonstration Steps

1. On LON-CL1, in File Explorer, in the navigation pane, click **Local Disk (C:)**.

2. In the details pane, right-click the **Data** folder, select **Properties**, select the **Security** tab, and point out that **Managers** have permissions on the C:\Data folder. Click the **Sharing** tab, note that the folder is not shared, and then click **OK**.

3. In the details pane, right-click **Data** folder, select **Share with**, and then select **Specific people**.

4. In the **File Sharing** dialog box, select **Managers**, click **Custom** in the **Permission Level** column, and then select **Remove**.

5. Click the drop-down arrow and then click **Find People**. Type **IT** and then click **OK**.

6. Verify that **IT** is added and selected. Click **Read** in the **Permission Level** column, select **Read/Write**, click **Share**, and then click **Done**.

7. In File Explorer, in the navigation pane, right-click **Data**, and then select **Properties**. Click the **Security** tab, point out that **Managers** no longer have permissions on the folder, but **IT** does, and then click the **Sharing** tab.

8. In the **Data Properties** dialog box, verify that the folder is shared, and then click **Advanced Sharing**.

9. In the **Advanced Sharing** dialog box, note that the share name is **Data**, which is the same as the folder name. In the **Limit the number of simultaneous users to** dialog box, enter **5**, and then click **Permissions**.

10. In the **Permissions for Data** dialog box, point out that **Everyone** and **Administrators** have Full Control permissions to the share, click **OK**, and then click **Apply**.

11. In the **Advanced Sharing** dialog box, click **Add**, in the **Share name** field, type **IT Data**, and then click **Permissions**. Select the **Full Control** check box in the **Allow** column, click **OK** three times, and then click **Close**.

12. In File Explorer, click the arrow in the **Address** bar, type **\\LON-CL1**, and then press Enter. Point out that you can see the **Data** and **IT Data** shares in the details pane.

13. Double-click **IT Data**, and then point out that you can see File1.txt, which you created in the previous demonstration.

14. Right-click the **Start** icon, and then select **Computer Management**.

15. In Computer Management, in the navigation pane, expand **Shared Folders**. Click **Shares**, and then point out that in the details pane, you can see the **Data** and **IT Data** shares. Close Computer Management.

16. On the taskbar, in the **Search the web and Windows** field, enter **powershell**, and then press Enter.

17. In Windows PowerShell, type **Get-SmbShare**, and then point out that shares on LON-CL1 are listed, including **Data** and **IT Data**.

18. Close the Windows PowerShell window.

19. Sign out of LON-CL1.

Lesson 4
Work Folders

Contents:

Question and Answers

Question: You can use Work Folders only if a Windows 10 device is joined to AD DS.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Question: User can have single Work Folders in Windows 10.

( ) True

( ) False

> **Answer:**
>
> (√) True
>
> ( ) False

What Are Work Folders?

Question: Can you share your Work Folders content with your coworkers?

> **Answer:** By default, single users can access their individual Work Folders from multiple devices. You cannot share your Work Folder, but you can make a copy of your Work Folders data, and then share the copy with coworkers. However, be aware that the copy is static, and the copy does not synchronize with the content of your Work Folders.

Components of Work Folders

Question: Can users access multiple Work Folders?

> **Answer:** No. Users can access only their subfolder in the Work Folders hierarchy. Users can have sync access to multiple Work Folders, but the Work Folders server uses only a single Work Folder. Users cannot synchronize other Work Folders, even if they have sync access permissions for them.

Configuring Work Folders

Question: Can you use Group Policy to deploy Work Folders centrally to devices that are not domain-joined?

> **Answer:** You can use Group Policy to deploy Work Folders centrally only to domain-joined devices. If devices are not domain-joined, you still can use local Group Policy on each device that is not a domain member to deploy Work Folders. However, you cannot deploy Work Folders centrally.

Resources

What Are Work Folders?

> **Additional Reading:** http://aka.ms/cdspcf

Demonstration: Enabling Work Folders

Demonstration Steps

1. On LON-CL1, sign in as user **adatum\adam** with the password **Pa$$w0rd**.

2. On the taskbar, click **File Explorer**.

3. In File Explorer, in the navigation pane, click **Work Folders**. Right-click in the details pane, select **New**, select **Text Document**, and then type **On LON-CL1** as the file name.

4. On LON-CL4, sign in as user **Admin** with the password **Pa$$w0rd**.

5. On LON-CL4, on the taskbar, right-click the **Start** button, and then select **Control Panel**.

6. In Control Panel, in the **Search Control Panel** field, type **work**, and then click **Work Folders**.

7. On the **Manage Work Folders** page, click **Set up Work Folders**, and then on the **Enter your work email address** page, click **Enter a Work Folders URL instead**.

8. On the **Enter a Work Folders URL** page, in **Work Folders URL** box, type **https://lon-dc1.adatum.com**, and then click **Next**.

9. In the **Windows Security** dialog box, in the **User name** field, type **adatum\adam**, in the **Password** field, type **Pa$$w0rd**, and then click **OK**.

10. On the **Introducing Work Folders** page, review the local Work Folders location, and then click **Next**.

11. On the **Security policies** page, select the **I accept these policies on my PC** check box, and then click **Set up Work Folders**.

12. On the **Work Folders has started syncing with this PC** page, click **Close**.

13. In the WorkFolders window, verify that the On LON-CL1.txt file displays.

14. Sign out of LON-CL1.

Lesson 5
Managing Printers

Contents:

Question and Answers

Question: Which tool would you use to manage printers on multiple Windows 10–based computers in the AD DS environment?

(   ) Device Manager

(   ) Printers & Scanners

(   ) Print Management

(   ) Computer Management

(   ) Connected Devices

> **Answer:**
>
> (   ) Device Manager
>
> (   ) Printers & Scanners
>
> (√) Print Management
>
> (   ) Computer Management
>
> (   ) Connected Devices

Question: You can add multiple printers in Windows 10 for a single printing device that is connected to your computer.

(   ) True

(   ) False

> **Answer:**
>
> (√) True
>
> (   ) False

Overview of Printing Components

Question: Can you add multiple printers in Windows 10, while they are all using the same physical printing device?

> **Answer:** Yes, you can add multiple printers in Windows 10, while they are all using the same physical printing device. You would do that if you want to configure printers with different settings, such as priority, security, or Availability.

What Are Type 4 Printer Drivers?

Question: Do you need a specific Type 4 printer driver for each printer?

> **Answer:** No, a Type 4 printer driver can support similar printing features and a print language that is common to a large set of printing devices. You can have the same Type 4 printer driver that supports many models of printers.

Managing Client-Side Printing

Question: Which Windows PowerShell cmdlet can you use to modify printer properties?

> **Answer:** You can modify printer properties by running the **Set-Printer** Windows PowerShell cmdlet.

Question: Can you manage printers that are connected to a remote Windows 10–based computer by using Devices and Printers?

Answer: No. You can use Devices and Printers only to manage printers that are connected to a local Windows 10–based computer.

Managing Print Server Properties

Question: Do you need to turn on any Windows feature to be able to install and share printers on Windows 10 and use the Print Management tool?

Answer: No. The default Windows 10 installation provides the Print Management tool and support for printing. You do not need to turn on any Windows feature to be able to use them.

Question: Can you use the Print Management tool for managing printers only on Windows 10–based and Windows 8.1–based computers?

Answer: No. You can use the Print Management tool for managing printers on any Windows–based computer on which you have sufficient permissions. This includes Windows 10, Windows Server 2012 R2, and older Microsoft operating systems.

Resources

What Are Type 4 Printer Drivers?

Additional Reading: http://aka.ms/vjupv8

Demonstration: Adding and Sharing a Printer

Demonstration Steps

1. On LON-CL1, on the taskbar, in the **Search the web and Windows** field, enter **printer**, and then click **Devices and Printers**.

2. In Devices and Printers, click **Add a printer**.

3. In the **Add a device** dialog box, click **The printer that I want isn't listed**.

4. On the **Find a printer by other options** page, select the **Add a local printer or network printer with manual settings** option, and then click **Next**.

5. On the **Choose a printer port** page, verify that **Use an existing port** is selected, and then click **Next**.

6. On the **Install the printer driver** page, in the **Manufacturer** list, select **Microsoft**. In the **Printers** list, select **Microsoft PCL6 Class Driver**, and then click **Next**.

7. On the **Type a printer name** page, in the **Printer name** field, type **Managers Printer**, and then click **Next**.

8. On the **Printer Sharing** page, click **Next**, and then click **Finish**.

9. In Devices and Printers, right-click **Managers Printer**, select **Printer properties**, and then select the **Security** tab**.**

10. In the **Managers Printer Properties** dialog box, verify that **Everyone** is selected, and then click **Remove**. Click **Add**, in the **Enter the object names to select (examples)** dialog box, enter **Marketing**, and then click **OK**. In the **Permissions for Marketing** section, verify that the **Print** check box in the **Allow** column is selected.

11. Click the **Advanced** tab, explain the Priority and Available options from the available options, and then click **OK**.

Module Review and Takeaways

Best Practice

File Permissions

Supplement or modify the following best practices for your own work situations:

- To simplify the assignment of permissions, you can grant the Everyone group Full Control share permission to all shares, and then you can configure file permissions to control access. Restrict share permissions to the minimum required to provide an extra layer of security in case file permissions are configured incorrectly.

- When you disable permission inheritance, you have options to convert inherited permissions into explicit permissions, or you can remove all inherited permissions. If you only want to restrict a particular group or user, then you should convert inherited permissions into explicit permissions to simplify the configuration process.

Best Practice

Managing Shared Folders

Supplement or modify the following best practices for your own work situations:

- Be aware that Network File and Folder Sharing (sometimes referred also as Simple File Sharing) modifies file permissions and share folder permissions, while Advanced Sharing does not modify file permissions, only set share permissions.

- If the guest user account is enabled on your computer, the Everyone group includes anyone. In practice, remove the Everyone group from any permission lists, and replace it with the Authenticated Users group.

- Be aware that if you use a different firewall than the one that Windows 10 includes, it can interfere with the network discovery and file sharing features.

Review Question(s)

Question: On which objects can you set file-level permissions?

> **Answer:** You can set file-level permissions on volumes, folders, and files.

Question: Robin recently created a spreadsheet and assigned it file permissions that restricted file access only to her. Following the system reorganization, the file moved to a folder on a different NTFS volume, and Robin discovered that other users were able to open the spreadsheet. What is the probable cause of this situation?

> **Answer:** Because the spreadsheet was moved across partitions, file permissions on the moved file were inherited from the new parent. All explicit permissions that Robin configured were not preserved when the file was moved.

Question: Can you access Work Folders content on a computer without network connectivity?

> **Answer:** A computer that supports Work Folders creates a local copy of Work Folders content. If network connectivity is not available, you will still be able to access and modify a local copy. When network connectivity is restored, local changes will synchronize transparently with the Work Folder content on a file server.

Lab Review Questions and Answers

Lab A: Configuring and Managing Permissions and Shares

Question and Answers

Question: What is the difference between sharing a folder by using Network File and Folder Sharing and using the Advanced Sharing feature?

> **Answer:** If you are sharing a folder by using Network File and Folder Sharing, you will be modifying local file permissions and share permissions. You will configure local file permissions on the **File Sharing** page, while share permissions will be set to allow full control to administrators and the Everyone group. If you are sharing a folder by using the Advanced Sharing feature, local file permissions do not change. The Advanced Sharing feature only sets share permissions.

Question: Can you view effective access permissions on an NTFS volume? Can you view effective access permissions on a FAT32 volume?

> **Answer:** You can view effective access permissions on the **Advanced Security Settings** page for the file or folder on the NTFS volume or for the whole NTFS volume. You can access this page on the **Security** tab of the volume, folder, or file properties. FAT32 volumes do not support security, so you cannot access effective access permission information on the FAT32 volume. Therefore, because you cannot configure security and limit access on the FAT32 volume, everyone has unlimited access to that volume's content.

Question: How can you see user-claims information in Windows 10?

> **Answer:** You can see user-claims information in Windows 10 by running the **whoami /claims** command at a command prompt.

Question: How can you provide members of the same group with different permissions, based on their attribute values in AD DS?

> **Answer:** You can provide members of the same group with different permissions, based on their attribute values in AD DS, by configuring conditions to limit file and folder access.

Lab B: Configuring and Using Work Folders

Question and Answers

Question: Can a user access the same Work Folders from domain devices and from workgroup devices?

> **Answer:** Yes. Users can access the same Work Folders from all devices, regardless of their domain membership. A user's user account is the most important factor. If users access Work Folders by using the same domain credentials from their devices, they will access the same content.

Question: Can you access Work Folders content from a device that does not support Work Folders?

> **Answer:** You can connect to Work Folders only from devices that support Work Folders. However, you can create an SMB share that points to the same folder on a file server. This would enable users to access the content from any device from which you can connect to a shared folder.

Question: Can the same user connect to multiple Work Folders?

> **Answer:** No. Although you can grant the user sync access to multiple sync shares, the user can connect only to a single Work Folder.

Lab C: Installing and Managing a Printer

Question and Answers

Question: How can you list printers that are connected to a computer?

> **Answer:** You can list printers that are connected to a computer in several different ways. You can use the Devices and Printers feature, the Print Management tool, or the **Get-Printer** Windows PowerShell cmdlet.

Question: By default, who can print on a newly created printer?

> **Answer:** By default, everyone has Print permission on a newly created printer, which means that anyone can print on that printer.

Question: How can you determine which printer is the default printer?

> **Answer:** When you view printers in Devices and Printer, the default printer has a green check mark next to its name.

Module 7

Managing Apps in Windows 10

Contents:

Lesson 1
Overview of Providing Apps to Users

Contents:

Question and Answers

Question: Which of the following statements about installing apps in Windows 10 is true? (Choose all that apply)

( ) Desktop apps are installed with either .exe or .appx installer files.

( ) Windows Store apps are installed with .appx files.

( ) RemoteApp apps allow users of Windows RT computers to run apps that are designed for 64-bit versions of Windows 10.

( ) Desktop apps must be signed digitally.

( ) Windows Store apps must be signed digitally.

> **Answer:**
>
> ( ) Desktop apps are installed with either .exe or .appx installer files.
>
> (√) Windows Store apps are installed with .appx files.
>
> (√) RemoteApp apps allow users of Windows RT computers to run apps that are designed for 64-bit versions of Windows 10.
>
> ( ) Desktop apps must be signed digitally.
>
> (√) Windows Store apps must be signed digitally.

Lesson 2
The Windows Store

Contents:

Question and Answers

Question: To install Windows Store apps by using sideloading, you must first configure GPOs to enable the Windows 10 sideloading feature.

(   ) True

(   ) False

       Answer:

       (   ) True

       (√) False

Demonstration: Sideloading Windows Store Apps

Demonstration Steps

Enable sideloading

1. Sign in to LON-CL1 as **Adatum\Chad** with the password **Pa$$w0rd**.

2. In the notification area, click **Notifications**, and then click **All settings**.

3. Click **Update & security**.

4. On the **For developers** tab, select **Sideload apps**.

5. In the **Use developer features** dialog box, click **Yes**.

6. Close Settings.

Install the root certificate

1. On LON-CL1, click **File Explorer** on the taskbar.

2. Navigate to **\\lon-dc1\apps**.

3. Right-click **LeXProductsGrid81_1.1.0.2_AnyCPU.cer**, and then click **Install Certificate**.

4. On the **Certificate Import Wizard** page, click **Local Machine**, and then click **Next**.

5. On the User Account Control, click **Yes**.

6. On the **Certificate Store** page, click **Place all certificates in the following store**, click **Browse**, click **Trusted Root Certification Authorities**, click **OK**, click **Next**, and then click **Finish**.

7. In the **Certificate Import Wizard** dialog box, confirm that the import was successful, and then click **OK**.

8. Sign out of LON-CL1

Install a Windows Store app

1. Sign in to LON-CL1 as **Adatum\April** with the password **Pa$$w0rd**.

2. Right-click **Start**, and then click **Command Prompt (Admin)**.

3. At the **User Account Control** prompt, in the **User name** box, type **Administrator**.

4. In the **Password** box, type **Pa$$w0rd**, and then click **Yes**.

5. At the command prompt, type **PowerShell**, and then press Enter.

6. To install the package, at the Windows PowerShell command prompt, type the following command, and then press Enter:

```
add-appxpackage \\lon-dc1\apps\app1.appx
```

7. Click **Start**, and then click **All apps**.

8. Scroll down, and then click **TestAppTKL1**.

9. Close the app.

Remove an installed Windows Store app

1. Click **Start**, click **All apps**, right-click **TestAppTKL1** tile, and then click **Uninstall**.

2. In the **This app and its related info will be uninstalled** dialog box, click **Uninstall**.

3. Close all open windows.

4. Sign out of LON-CL1.

Lesson 3
Web Browsers

Contents:

Question and Answers

Discussion: Which Browser to Use?

Question: How well suited is Microsoft Edge to your environment?

> **Answer:** Answers will vary based upon the students' own experiences and the web-based apps that users are utilizing within their organizations.

Demonstration: Configuring and Using Internet Explorer 11

Demonstration Steps

Configure Compatibility View

1. Switch to LON-CL1.

2. Sign in to LON-CL1 as **ADATUM\April** with the password **Pa$$w0rd**.

3. Click **File Explorer**.

4. Browse to **C:\Program Files\Internet Explorer**.

5. Right-click **iexplore**, and then click **Pin to taskbar**.

6. Close File Explorer.

7. On the taskbar, click **Internet Explorer**.

📝 **Note:** If prompted, click **Use recommended security and compatibility settings**, and then click **OK**.

8. In the **Address** bar, type **http://LON-DC1**, and then press Enter.

9. Right-click the home symbol, and then click **Menu bar**.

10. On the menu bar, click **Tools**, and then click **Compatibility View settings**.

11. In the **Compatibility View Settings** dialog box, click **Add** to add the LON-DC1 website to Compatibility View, and then click **Close**.

Delete the browsing history

1. In Internet Explorer, click the down arrow next to the **Address** bar to confirm that the address that you typed is stored.

2. In Internet Explorer, on the **Tools** menu, click **Internet options**.

3. Click the **General** tab. Under **Browsing history**, click **Delete**.

4. In the **Delete Browsing History** dialog box, clear the **Preserve Favorites website data** check box, select the **Temporary Internet files and website files**, **Cookies and website data**, and **History** check boxes, and then click **Delete**.

5. Click **OK** to close the **Internet Options** dialog box.

6. Confirm that there are no addresses stored in the Address bar by clicking the down arrow next to the Address bar.

📝 **Note:** You can ignore Bing.com

Configure InPrivate Browsing

1. On the **Tools** menu, click **InPrivate Browsing**.

2. In the **Address** bar, type **http://LON-DC1**, and then press Enter.

3. Confirm that the address you entered is not stored by clicking the down arrow next to the Address bar.

 Note: You can ignore Bing.com

4. Close the InPrivate Browsing window.

View the add-on management interface

1. On the **Tools** menu, click **Manage add-ons**.

2. In the left navigation pane, click **Search Providers**.

3. In the right navigation pane, click **Bing**.

4. In the left navigation pane, click **Accelerators**.

5. In the left navigation pane, click **Tracking Protection**.

6. Click **Close**.

Download a file

1. In the **Address** bar, type **http://LON-DC1**, and then press Enter.

2. In the browser window, click **Download Current Projects**.

3. In the **Internet Explorer** dialog box, click **Save**.

4. In the banner, click **View downloads**.

5. Click **Open**.

6. The file opens in Microsoft Office Excel.

 Note: If prompted by Office, click **Next** three times, and then click **All Done!**

7. Close Excel, and then close Internet Explorer.

Demonstration: Configuring and Using Microsoft Edge

Demonstration Steps

Open a webpage

1. On LON-CL1, on the taskbar, click **Microsoft Edge**.

2. In the **Where to next** box, type **http://lon-dc1**, and then press Enter.

Load a webpage that requires an ActiveX control

1. In Microsoft Edge, on the **A Datum Intranet Home Page**, click **Current Projects**. A new tab opens with columns displayed for **Project** and **Project Lead**. No data displays.

2. Click the **More actions** button (**…**).

3. Click **Open with Internet Explorer**. The same webpage displays, but with the data extracted from the comma-separated value (CSV) file and displayed in the appropriate columns.

4. Close Internet Explorer.

Configure settings

1. In Microsoft Edge, click **More actions**, and then click **Settings**.

2. Under **Reading**, in the **Reading view style** list, click **Dark**.

3. Click **View advanced settings**.

4. Scroll down the list of options, and then highlight the **Help protect me from malicious sites and downloads with SmartScreen Filter**. Do not change the setting.

5. Click **<< Advanced** settings.

6. Click outside the **SETTINGS** pane to close **SETTINGS**.

Download a file

1. In Microsoft Edge, on the **A Datum Intranet** tab, click **Download Current Projects**.

2. In the banner, click **View downloads**.

3. In **DOWNLOADS**, click **projects(1).csv**.

4. The file opens in Microsoft Office Excel.

5. Close Excel.

6. Switch to Microsoft Edge.

Make a web note

1. In the notification area, click **Notifications**, and then click **Tablet mode**.

2. In **Microsoft Edge**, on the **A Datum Intranet** tab, on the menu bar, click **Make a Web Note**.

3. On the webpage, draw a square.

4. Click the **Highlighter** tool.

5. Highlight two of the hyperlinks on the webpage.

6. Click **Add a typed note**, and then click the cursor somewhere on the webpage.

7. Type **This is my note**, and then on the menu, click **Save Web Note**.

8. Click **Favorites**, and then click **Add**.

9. Click **Exit**.

10. In Microsoft Edge, click **Hub**, and then click **Favorites**.

11. Click the **Web Notes – A Datum Intranet** link. Your web note opens.

12. In the notification area, click **Notifications**, and then click **Tablet mode**.

13. Close Microsoft Edge.

Module Review and Takeaways

Review Question(s)

Question: What does Internet Explorer 11 display when a browser detects that a website does not adhere to HTML5 or CSS3 standards?

> **Answer:** Internet Explorer 11 will display the webpage in compatibility mode, which enables the browser to continue to attempt to display the webpage correctly.

Question: You are installing apps from the Windows Store on a tablet that has a small internal hard disk. However, you have added a micro SD card with 64 GB of space. How can you utilize this storage for your apps?

> **Answer:** Windows 10 enables you to move apps to external storage by performing the following steps: open **Settings**, select **System**, tap **Apps & features**. Your apps are listed. Tap each app that you want to move, and then tap **Move**.

Question: You want to know which apps you have previously installed or purchased on your Windows devices, regardless of whether they are installed on your current device. How can you access this information in Windows 10?

> **Answer:** You can access a list of all your apps from the Windows Store Settings menu by tapping My Library, and a list of your apps displays. These apps may not be installed currently on this device, but you have previously installed them on one of the devices associated with your Microsoft account.

Lab Review Questions and Answers

Lab A: Installing and Updating Apps from the Windows Store

Question and Answers

Question: In the lab, you used a self-signed certificate for validating the source of the app that you wanted to sideload. What is wrong with using a self-signed certificate?

> **Answer:** When you use a self-signed certificate, you cannot verify the integrity of the software vendor that produced the app that you are intending to install. This is not a problem if you are testing internally developed apps, but it is a security concern if you are using third-party apps. In production environments, only install apps from trusted sources.

Question: Why was in necessary to sign in by using a Microsoft account during the lab?

> **Answer:** In order to install apps from the Windows Store, you must sign in with a Microsoft account. You do not need to use a Microsoft account to access the Windows Store app or browse apps. However, to download and install apps, you must use a Microsoft account.

Lab B: Configuring Windows 10 Web Browsers

Question and Answers

Question: In the lab, you were unable to get complete functionality from the A. Datum intranet website by using Microsoft Edge. What was the reason? What was the solution?

> **Answer:** The A. Datum intranet site uses an ActiveX control for tabulating data retrieved from a CSV file. ActiveX controls do not work in Microsoft Edge. You were able to view the website correctly by switching to Internet Explorer to view the appropriate page.

Module 8

Managing Data Security

Contents:

Lesson 1
Overview of Data-Related Security Threats

Contents:

Question and Answers

Question: Your coworker lost his USB drive, which contained confidential information about a new project. Which security feature could have prevented unauthorized users from accessing that data? (Choose all that apply)

( ) Applying file permissions

( ) Utilizing BitLocker To Go

( ) Applying claims permissions to files and folders

( ) Applying BitLocker data protection on a laptop computer

>   **Answer:**
>
>   ( ) Applying file permissions
>
>   (√) Utilizing BitLocker To Go
>
>   (√) Applying claims permissions to files and folders
>
>   ( ) Applying BitLocker data protection on a laptop computer

Lesson 2
Securing Data with EFS

Contents:

Question and Answers

Question: Categorize each item below

Category 1	Category 2
Data recovery agent	Key recovery agent

Answer:

Category 1	Category 2
Data recovery agent	Key recovery agent
Allows direct recovery of all encrypted data Authorized person can recover the EFS-encrypted data for all users in the organization	Allows the recovery of EFS private keys from the CA database Authorized person can recover the EFS-encrypted data only for that specific user

What Is EFS?

Question: Why is it not possible to encrypt system files with EFS?

> **Answer:** EFS keys are not available during the startup process. Therefore, if system files are encrypted, the system file cannot start.

How EFS Works

Question: How would you protect files in transit across your organizational network?

> **Answer:** Implement Internet Protocol security (IPsec) to protect files transiting the network.

Demonstration: Using EFS to Secure Data

Demonstration Steps

1. Sign in to LON-CL1 as **Adatum\Don** with the password **Pa$$w0rd**.

2. On the taskbar, click the **File Explorer** icon, click **This PC**, and then double-click **Local Disk (C:)**.

3. On the title bar, click the **New Folder** icon. Name the new folder **SecretDon**.

4. Right-click the **SecretDon** folder, and then click **Properties**.

5. Click **Advanced**.

6. On the **Advanced Attributes** dialog box, select the **Encrypt contents to secure data** check box.

7. Click **OK** twice.

8. Verify that the SecretDon folder is now green.

9. Open the SecretDon folder.

10. In the blank area, right-click, click **New**, and then click **Text Document**.

11. Name the new file **Secrets**.

12. Double-click the file to open the file, and then enter the following text:

    This is a secret file.

13. Close the file. When prompted, click **Save**.

14. Sign out from LON-CL1.

15. Sign in to LON-CL1 as **ADATUM\Adam** with the password **Pa$$w0rd**.

16. On the taskbar, click the **File Explorer** icon.

17. Click **This PC**, and then double-click **Local Disk (C:)**.

18. Open the SecretDon folder.

19. Double-click **Secrets**.

20. Verify that access is denied, and then click **OK**.

21. Sign out from LON-CL1.

Lesson 3
Implementing and Managing BitLocker

Contents:

Question and Answers

Question: Categorize each item below.

Category 1	Category 2
BitLocker	EFS

Answer:

Category 1	Category 2
BitLocker	EFS
Encrypts the entire operating-system volume, including Windows system files and the hibernation file Does not require user certificates Protects the operating system from modification	Encrypts files Requires user certificates Does not protect the operating system from modification

BitLocker Modes

Question: What is a disadvantage of running BitLocker on a computer that does not have TPM 1.2?

> **Answer:** Computers without TPMs will not be able to use the system-integrity verification during startup that BitLocker can provide.

Using Group Policy Settings to Configure BitLocker

Question: How can you use Microsoft BitLocker Administration and Monitoring 2.5 SP1 to reduce the time that the help desk spends recovering a BitLocker unlock key for a remote user?

> **Answer:** Administrators can enable the Microsoft BitLocker Administration and Monitoring 2.5 SP1 Self-Service Portal to allow users to recover a BitLocker recovery password without having to call their organization's help desk.

Recovering BitLocker-Encrypted Drives

Question: What is the difference between the recovery password and the password ID?

Answer: The recovery password is a 48-digit password that unlocks a system in recovery mode. The recovery password is unique to a particular BitLocker encryption, and you can store it in AD DS. A computer's password ID is a 32-character password that is unique to a computer name. You can find the password ID under a computer's properties, which you can use to locate recovery passwords that are stored in AD DS.

Resources

Microsoft BitLocker Administration and Monitoring

Additional Reading: http://aka.ms/n3mqgm

Demonstration: Configuring and Using BitLocker

Demonstration Steps

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

2. In the search box on the taskbar, type **gpedit.msc**, and then press Enter.

3. In the Local Group Policy Editor, expand **Computer Configuration**, expand **Administrative Templates**, expand **Windows Components**, and then expand **BitLocker Drive Encryption**.

4. Click **Operating System Drives**, and then double-click **Require additional authentication at startup**.

5. In the **Require additional authentication at startup** dialog box, click **Enabled**, and then click **OK**.

6. Close the Local Group Policy Editor.

7. Right-click Start, and then click **Command Prompt**.

8. At the command prompt, type **gpupdate /force**, and then press Enter.

9. Close all open windows.

10. On LON-CL1, click **Start**, and then type **bitlocker**.

11. Click **Manage BitLocker**.

12. Click **Allfiles (E:)**, and then click **Turn on BitLocker**

13. In the **BitLocker Drive Encryption (E:)** dialog box, click **Use a password to unlock the drive**.

14. On the **Choose how you want to unlock this drive** page, in the **Enter your password** and **Reenter your password** boxes, type **Pa$$w0rd**, and then click **Next**.

15. On the **How do you want to back up your recovery key?** page, click **Save to a file**.

16. In the **Save BitLocker recovery key as** dialog box, click **Local Disk (C:)**.

17. On the File Explorer toolbar, click **New folder**, type **BitLocker**, and then press Enter

18. In the **Save BitLocker recovery key as** dialog box, click **Open**, click **Save**, click **Yes**, and then click **Next**.

19. On the **BitLocker Drive Encryption (E:)** page, click **Start encrypting**, and then click **Close**.

20. Restart LON-CL1.

21. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

22. On the taskbar, click **File Explorer**.

23. In the navigation pane, click **This PC**.

24. Right-click **Local Disk (E:)**, click **Open**, verify that the drive is listed as not accessible and that access is denied, and then click **OK**.

25. In the search box on the taskbar, type **bitlocker**.

26. Click **Manage BitLocker**.

27. Click **E: BitLocker on (Locked)**, and then click **Unlock drive**.

28. Enter the password **Pa$$w0rd**, press Enter to unlock the drive, and then verify access to the drive contents.

29. Close all open windows.

Module Review and Takeaways

Review Question(s)

Question: What are some limitations of EFS?

> **Answer:** Answers could include that you cannot encrypt files for groups and files do not remain encrypted when sent via email.

Lab Review Questions and Answers

Lab: Managing Data Security

Question and Answers

Question: Why is EFS a better solution than BitLocker for protecting Don's files?

> **Answer:** EFS encrypts files specifically so that they are accessible only to Don. BitLocker encrypts a volume that, once unlocked, is accessible to any user of the computer.

Question: How could Don provide Adam with access to a single EFS-encrypted file without making the file accessible to other users of the computer?

> **Answer:** Don could add Adam's public EFS key to the file. This would allow Adam to access the encrypted file's contents without granting access to other users.

Module 9

Managing Device Security

Contents:

Lesson 1
Using Security Settings to Mitigate Threats

Contents:

Question and Answers

Question: Which of the following options best describes the gold master support feature of Security Compliance Manager?

( ) You can use it to compare your configuration against industry best practices.

( ) You can use it to deploy your configurations to computers that are not domain-joined.

( ) You can use it to manage the security and compliance process efficiently.

( ) You can use it to import your existing GPO settings for reuse and deployment.

> **Answer:**
>
> ( ) You can use it to compare your configuration against industry best practices.
>
> ( ) You can use it to deploy your configurations to computers that are not domain-joined.
>
> ( ) You can use it to manage the security and compliance process efficiently.
>
> (√) You can use it to import your existing GPO settings for reuse and deployment.

Question: After implementing a set of Enhanced Mitigation Experience Toolkit mitigations to protect applications, you should perform extensive testing to ensure that those mitigations do not affect application functionality adversely.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Resources

The Enhanced Mitigation Experience Toolkit

Additional Reading: http://aka.ms/bmhk8y

Demonstration: Using GPOs to Configure Security Settings

Demonstration Steps

1. Sign in to **LON-DC1** as **Adatum\Administrator** with the password **Pa$$w0rd**.

2. On the Tools menu of the Server Manager Console, click **Group Policy Management**.

3. In the Group Policy Management Console, expand **Forest:Adatum.com\Domains\Adatum.com**, and then click the **Group Policy Objects** node.

4. In the Group Policy Objects in Adatum.com window, right-click the **Default Domain Policy** policy, and then click **Edit**.

5. In the Group Policy Management Editor, expand the **Computer Configuration\Policies\Windows Settings\Security Settings\Account Policies** node, and then click **Password Policy**.

6. In the list of policies, double-click the **Minimum Password Length** policy.

7. On the **Minimum password length Properties** page, set the **Password must be at least** value to **12** characters, and then click **OK**.

8. In the console tree, click the **Account Lockout Policy** node.

9. Double-click the **Account Lockout Duration** policy.

10. In the **Account Lockout Duration Properties** dialog box, click **Define This Policy Setting**, and then set the **Account Is Locked Out For** value to **20** minutes. Click **OK**.

11. In the **Suggested Value Changes** dialog box, click **OK**.

12. Double-click the **Account Lockout Threshold** policy.

13. In the **Account Lockout Threshold** dialog box, set the **Account Will Lock Out After** settings to **2** invalid logon attempts, and then click **OK**.

14. Close the Group Policy Management Editor.

15. Close the Group Policy Management Console.

16. On the Tools menu of the Server Manager Console, click **Active Directory Users and Computers**.

17. Expand the **Adatum.com** node, and then click the **IT** organizational unit (OU).

18. Right-click on the **Don Funk** user account, and then click **Properties**.

19. In the **Don Funk Properties** dialog box, click the **Account** tab.

20. In the list of Account Options, deselect the **Password Never Expires** option, and then select the **User Must Change Password at Next Logon** option. Click **OK**.

21. On **LON-DC1**, click the **Windows PowerShell** icon on the taskbar.

22. In the Administrator: Windows PowerShell window, type the following command, and then press Enter:

```
Gpupdate /force
```

23. Sign in to **LON-CL1** as **Adatum\Don** with the password **Pa$$w0rd**.

24. When the message appears that indicates that the user's password must be changed before signing in, click **OK**.

25. In the **New Password** box and the **Confirm Password** box, type **Pa$$w0rd12**, and then press Enter.

26. Review the message that appears that indicates that your new password does not meet the length, complexity, or history requirements of the domain and click **OK**. Type the current password as **Pa$$w0rd**.

27. In the **New Password** box and the **Confirm Password** box, type **Pa$$w0rd1234**, and then press Enter.

28. When a message appears that indicates the password has been changed, click **OK**.

29. After signing in, right-click **Start**, and then click **Command Prompt**.

30. At the command prompt, type the following, and then press Enter:

```
Gpupdate /force
```

31. Click **Start**, click **Don Funk**, and click **Sign out**.

32. Attempt to sign in to **LON-CL1** as **Adatum\Don** with the incorrect password, **Banana**.

33. When a message appears that indicates that the password is incorrect, click **OK**.

34. Attempt again to sign in to **LON-CL1** as **Adatum\Don** with the incorrect password, **Banana**.

35. When a message appears that indicates that the password is incorrect, click **OK**.

36. Attempt again to sign in to **LON-CL1** as **Adatum\Don** with the incorrect password, **Banana**.

37. When a message appears that indicates that the referenced account is locked and that you cannot sign in, click **OK**.

Lesson 2
Configuring UAC

Contents:

Question and Answers

Question: Categorize each item into the appropriate category. Indicate your answer by writing the category number to the right of each item.

Category 1	Category 2	Category 3
Tasks a Standard User Can Perform	Tasks That Require Elevation to an Administrator Account	Tasks that the default UAC setting allows a standard user to perform without receiving a UAC prompt

Answer:

Category 1	Category 2	Category 3
Tasks a Standard User Can Perform	Tasks That Require Elevation to an Administrator Account	Tasks that the default UAC setting allows a standard user to perform without receiving a UAC prompt
Change the desktop background for the current user Configure accessibility options Use Remote Desktop to connect to another computer Establish and configure a wireless connection Configure battery power options Restore a user's backup files	Install a driver for a device, such as a digital camera driver Configure Automatic Updates Configure Remote Desktop access Open Windows Firewall in Control Panel Schedule Automated Tasks Restore system backup files	Install updates from Windows Update Install drivers from Windows Update or those that are included with the operating system View Windows settings Pair Bluetooth devices with the computer Reset the network adapter Perform network repair tasks

Question: Which of the following is the default setting for the UAC elevation prompt?

( ) Never notify me

( ) Notify me only when apps try to make changes to my computer (do not dim my desktop)

( ) Notify me only when apps try to make changes to my computer (default)

( ) Always notify me

>   **Answer:**

>   ( ) Never notify me

>   ( ) Notify me only when apps try to make changes to my computer (do not dim my desktop)

>   (√) Notify me only when apps try to make changes to my computer (default)

>   ( ) Always notify me

Demonstration: Configuring UAC

Demonstration Steps

View the current UAC settings

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

2. In the **Search the web and Windows** box on the taskbar, type **gpedit.msc**, and then press Enter.

3. In the Local Group Policy Editor, expand **Computer Configuration**, expand **Windows Settings**, expand **Security Settings**, expand **Local Policies**, and then click **Security Options**.

Configure the UAC settings

1. In the results pane, double-click **User Account Control: Behavior of the elevation prompt for standard users**.

2. In the **User Account Control: Behavior of the elevation prompt for standard users** dialog box, click **Automatically deny elevation requests**, and then click **OK**.

3. Close the Local Group Policy Editor.

4. Sign out.

Test the UAC settings

1. Sign in to LON-CL1 as **Adatum\Holly** with the password **Pa$$w0rd**.

2. In the **Search the web and Windows** box on the taskbar, type **gpedit.msc**, and then press Enter.

3. The Windows operating system does not display the Local Group Policy Editor snap-in.

4. Sign out.

Reconfigure the UAC settings

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

2. In the **Search the web and Windows** box on the taskbar, type **gpedit.msc**, and then press Enter.

3. In the Local Group Policy Editor, expand **Computer Configuration**, expand **Windows Settings**, expand **Security Settings**, expand **Local Policies**, and then click **Security Options**.

4. In the results pane, double-click **User Account Control: Behavior of the elevation prompt for standard users**.

5. In the **User Account Control: Behavior of the elevation prompt for standard users** dialog box, click **Prompt for credentials**, and then click **OK**.

6. Close the Local Group Policy Editor.

7. Sign out.

Test the UAC settings

1. Sign in to LON-CL1 as **Adatum\Holly** with the password **Pa$$w0rd**.

2. Select **Command Prompt (Admin)** from the Administrative menu by pressing the Windows logo key+X.

3. The Windows operating system displays the User Account Control prompt.

4. In the **User Account Control** dialog box, type **Administrator** in the **User name** box, type **Pa$$w0rd** in the **Password** box, and then click **Yes**.

5. Close the Administrator: Command Prompt window.

6. Sign out.

7. On the host computer, start Hyper-V Manager.

8. In the **Virtual Machines** list, right-click **20697-1B-LON-DC1**, and then click **Revert**.

9. In the **Revert Virtual Machine** dialog box, click **Revert**.

10. Repeat steps 8 and 9 for 20697-1B-LON-CL1.

Lesson 3
Configuring Application Restrictions

Contents:

Question and Answers

Question: What are some of the drawbacks of enforcing a more rigorous account lockout policy?

Answer: Some of the drawbacks of enforcing a more rigorous account lockout policy are:

- Legitimate users are more likely to lock themselves out of their accounts.

- There may be a rise in calls to the service desk to resolve account lockout issues.

Demonstration: Configuring AppLocker Rules

Demonstration Steps

Create a custom AppLocker rule

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

2. Right-click the **Start** tip, and then click **Run**.

3. In the **Run** dialog box, type **gpedit.msc**, and then press Enter.

4. In the Local Group Policy Editor, expand **Computer Configuration**, expand **Windows Settings**, expand **Security Settings**, expand **Application Control Policies**, and then double-click **AppLocker**.

5. Right-click **Executable Rules**, click **Create New Rule** to open the Create Executable Rules Wizard, and then click **Next**.

6. On the **Permissions** page, click **Deny**, and then click **Select**.

7. In the **Select User or Group** dialog box, in the **Enter the object name to select (examples)** box, type **Marketing**, click **Check Names**, click **OK**, and then click **Next**.

8. On the **Conditions** page, click **Path**, and then click **Next**.

9. Click **Browse Files**, in the **File name** box, type **C:\Windows\Regedit.exe**, and then click **Open**.

10. Click **Next** twice, and then click **Create**.

11. Click **Yes** when prompted to create default rules.

Automatically generate the script rules

1. Right-click **Script Rules**, and then click the **Automatically Generate Rules** option.

2. In the Automatically Generate Script Rules Wizard, on the **Folder and Permissions** page, click **Next**.

3. Click **Next** again, and then click **Create**.

4. Click **Yes** when prompted to create default rules.

5. Close the Local Group Policy Editor.

Demonstration: Enforcing AppLocker Rules

Demonstration Steps

Enforce AppLocker rules

1. Switch to LON-CL1.

2. Right-click the **Start** tip, and then click Run.

3. In the **Run** dialog box, type **gpedit.msc**, and then press Enter.

4. In the Local Group Policy Editor, expand **Computer Configuration**, expand **Windows Settings**, expand **Security Settings**, expand **Application Control Policies**, and then double-click **AppLocker**.

5. In the Local Group Policy Editor, right-click **AppLocker**, and then click **Properties**.

6. On the **Enforcement** tab, under Executable rules, select the **Configured** check box, and then click **Enforce rules** from the drop-down list.

7. On the **Enforcement** tab, under Script rules, click the **Configured** check box, click **Audit only** from the drop-down list, and then click **OK**.

8. Close the Local Group Policy Editor.

Confirm the executable rule enforcement

1. Select **Run** from the Administrative menu by pressing the Windows logo key+X, type **cmd.exe**, and then press Enter.

2. At the command prompt, type **gpupdate /force**, and then press Enter. Wait for the policy to update.

3. Select **Computer Management** from the Administrative menu by pressing the Windows logo key+X.

4. Expand **Event Viewer**, expand **Windows Logs**, and then click **System**.

5. In the results pane, locate and click the latest event with Event ID 1502.

6. Review event message details under the **General** tab.

7. Expand **Services and Applications**, and then click **Services**.

8. Right-click the **Application Identity** service in the main window pane, and then click **Start**.

9. Sign out of LON-CL1.

Test the executable rule enforcement

1. Sign in as **Adatum\Adam** with the password **Pa$$w0rd**.

2. Right-click the **Start** tip, and then click **Run**.

3. In the **Run** dialog box, type **cmd**, and then press Enter.

4. At the command prompt, type **Regedit.exe**, and then press Enter.

5. Review the message that informs you that the program is blocked by group policy.

6. Close the Command Prompt window.

7. Sign in as **Adatum\Administrator** with password **Pa$$w0rd**.

8. Select **Computer Management** from the Administrative menu by pressing the Windows logo key+X.

9. Expand **Event Viewer**, expand **Application and Services Logs**, expand **Microsoft**, expand **Windows**, expand **AppLocker**, and then click **EXE and DLL**.

10. Review the entries in the results pane. Locate Event ID 8004. This shows Adam's attempt to run Regedit.exe.

11. Close Computer Management.

12. Sign out of LON-CL1.

Module Review and Takeaways

Question: When you implement UAC, what happens to standard users and administrative users when they perform a task that requires administrative permissions?

Answer: For standard users, UAC prompts the user for the credentials of a user with administrative permissions. For administrative users, UAC prompts the user for permission to complete the task.

Lab Review Questions and Answers

Lab: Managing Device Security

Question and Answers

Question: How can you suppress UAC notifications?

> **Answer:** You can use UAC settings in the Action Center to turn off UAC, so that you never receive notifications about changes to your computer.

Module 10

Managing Network Security

Contents:

Lesson 2
Windows Firewall

Contents:

Question and Answers

Question: You need to open a firewall port to allow Lightweight Directory Access Protocol (LDAP) traffic. Which port would you open to accomplish this task?

( ) 143

( ) 389

( ) 443

( ) 161

> **Answer:**
>
> ( ) 143
>
> (√) 389
>
> ( ) 443
>
> ( ) 161

Demonstration: Configuring Inbound and Outbound Firewall Rules

Demonstration Steps

Test Remote Desktop connectivity

1. Sign in to LON-CL2 as **Adatum\Administrator** with the password **Pa$$w0rd**.

2. Right-click Start, click **Run**, type **mstsc.exe**, and then press Enter.

3. In the **Computer** box, type **LON-CL1**, and then press Enter.

4. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

5. Open the Start menu on LON-CL1, click **Administrator**, and then click **Sign out**.

Configure an inbound rule

1. Switch to LON-CL1.

2. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

3. Right-click Start, and then click **Control Panel**.

4. Click **System and Security**, and then click **Windows Firewall**.

5. In the left pane, click **Advanced settings**, right-click **Inbound Rules**, and then click **New Rule**.

6. In the New Inbound Rule Wizard window, select **Predefined**, click the drop-down list, click **Remote Desktop**, and then click **Next**.

7. On the **Predefined Rules** page, select all available rules, and then click **Next**.

8. On the **Action** page, **select Block the connection**, and then click **Finish**.

9. Minimize the Windows Firewall with Advanced Security window.

Test the inbound rule

1. Switch to LON-CL2.

2. In the search box on the taskbar, type **mstsc**, and then click **mstsc**. This opens a Remote Desktop Connection.

3. In the **Computer** box, type **LON-CL1**, and then press Enter.

4. Verify that the connection attempt fails, and then click **OK**.

Test outbound Remote Desktop connectivity

1. Switch to LON-CL1.

2. In the search box on the taskbar, type **mstsc**, and then click **mstsc**. This opens a Remote Desktop Connection.

3. In the **Computer** box, type **LON-DC1**, and then press Enter.

4. Sign in to LON-DC1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

5. Open the Start screen on LON-DC1, click **Administrator**, and then click **Sign out**.

Configure an outbound rule

1. On LON-CL1, on the taskbar, click the **Windows Firewall with Advanced Security** window, and then click **Outbound Rules**.

2. In the Actions pane, click **New Rule**.

3. On the **Rule Type** page, verify that you are creating a **Program** rule, and then click **Next**.

4. On the **Program** page, click **This program path**, type **C:\Windows\System32\mstsc.exe**, and then click **Next**.

5. On the **Action** page, verify that the action is **Block the Connection**, and then click **Next**.

6. On the **Profile** page, verify that all profiles are selected, and then click **Next**.

7. On the **Name** page, type **Block Outbound RDP to LON-DC1** in the **Name** text box, and then click **Finish**.

8. In the Windows Advanced Firewall with Advanced Security window, click the **Block Outbound RDP to LON-DC1** rule, and then in the Actions pane, click **Properties**.

9. Click the **Scope** tab, and then under the Remote IP address heading, select the **These IP addresses** option.

10. Under the Remote IP address heading, click **Add**, in the **This IP address or subnet** box, type **172.16.0.10**, and then click **OK**.

11. In the **Block Outbound RDP to LON-DC1 Properties** dialog box, click **OK**.

Test outbound Remote Desktop connectivity

1. On LON-CL1, in the search box on the taskbar, type **mstsc**, and then click **mstsc**. This opens a Remote Desktop Connection.

2. In the **Computer** box, type **LON-DC1**, and then press Enter.

3. In the **Remote Desktop Connection** dialog box, click **OK**.

4. Close all open windows.

Lesson 3
Connection Security Rules

Contents:

Question and Answers

Question: Which of the following authentication options allows you to use a preshared key when configuring a connection security rule?

(   ) Computer and User (Kerberos V5)

(   ) Computer (Kerberos V5)

(   ) User (Kerberos V5)

(   ) Computer Certificate

(   ) Advanced

> **Answer:**
>
> (   ) Computer and User (Kerberos V5)
>
> (   ) Computer (Kerberos V5)
>
> (   ) User (Kerberos V5)
>
> (   ) Computer Certificate
>
> (√) Advanced

Demonstration: Creating and Configuring Connection Security Rules

Demonstration Steps

1. Switch to LON-CL2.

2. In the search box on the taskbar, type **PowerShell**, and then click **PowerShell**.

3. In the Administrator: Windows PowerShell window, type **ping LON-CL1**, and then press Enter.

4. Verify that the ping generated four "Reply from 172.16.0.40: bytes=32 time=*x*ms TTL=128" messages. Please note, the times that the message lists may vary from the example.

5. Right-click **Start**, click **Control Panel**, click **System and Security**, and then click **Windows Firewall**.

6. In the left pane, click **Advanced settings**.

7. In the left pane, expand **Monitoring**, and then expand **Security Associations**.

8. Click **Main Mode**, and then examine the information in the center pane. No information should be present.

9. Click **Quick Mode**, and then examine the information in the center pane. No information should be present.

10. Switch to LON-CL1.

11. In the search textbox on the taskbar, type **PowerShell**, right-click **PowerShell**, and then click **Run as administrator**.

12. To examine the Main Mode SAs, at the command prompt, type the following command, and then press Enter:

```
Get-NetIPsecMainModeSA
```

13. To examine the Quick Mode SAs, at the command prompt, type the following command, and then press Enter:

```
Get-NetIPsecQuickModeSA
```

14. Running each command should produce no result.

15. On LON-CL1, right-click Start, and then click **Control Panel**.

16. Click **System and Security**, and then click **Windows Firewall**.

17. In the left pane, click **Advanced settings**, and then click **Connection Security Rules**.

18. In the Actions pane, click **New Rule**.

19. On the **Rule Type** page, verify that **Isolation** is selected, and then click **Next**.

20. On the **Requirements** page, select **Require authentication for inbound connections and request authentication for outbound connections**, and then click **Next**.

21. On the **Authentication Method** page, select **Computer and user (Kerberos V5)**, and then click **Next**.

22. On the **Profile** page, click **Next**.

23. On the **Name** page, in the **Name** text box, type **Authenticate all inbound connections**, and then click **Finish**.

24. Close the Windows Firewall with Advanced Security window.

25. Switch to LON-CL2.

26. On LON-CL2, right-click **Start**, and then click **Control Panel**.

27. Click **System and Security**, and then click **Windows Firewall**.

28. In the left pane, click **Advanced settings**, and then click **Connection Security Rules**.

29. In the Actions pane, click **New Rule**.

30. On the **Rule Type** page, verify that **Isolation** is selected, and then click **Next**.

31. On the **Requirements** page, select **Require authentication for inbound connections and request authentication for outbound connections**, and then click **Next**.

32. On the **Authentication Method** page, select **Computer and user (Kerberos V5)**, and then click **Next**.

33. On the **Profile** page, click **Next**.

34. On the **Name** page, in the **Name** text box, type **Authenticate all inbound connections**, and then click **Finish**.

35. Close the Windows Firewall with Advanced Security window.

36. On LON-CL2, in the Administrator: Windows PowerShell window, type **ping LON-CL1**, and then press Enter.

37. Verify that the ping generated four "Reply from 172.16.0.40: bytes=32 time=$x$ms TTL=128" messages. Please note, the times that the message lists may vary from the example.

38. Right-click **Start**, click **Control Panel**, click **System and Security**, and then click **Windows Firewall**.

39. In the left pane, click **Advanced settings**.

40. In the left pane, expand **Monitoring**, and then expand **Security Associations**.

41. Click **Main Mode**, and then examine the information in the center pane.

42. Click **Quick Mode**, and then examine the information in the center pane.

43. Close all open windows.

44. Switch to LON-CL1.

45. To examine the Main Mode SAs, at the command prompt, type the following command in the Administrator: Windows PowerShell window, and then press Enter:

```
Get-NetIPsecMainModeSA
```

46. Review the result.

47. To examine the Quick Mode SAs, at the command prompt, type the following command, and then press Enter:

```
Get-NetIPsecQuickModeSA
```

48. Review the result.

Lesson 4
Windows Defender

Contents:

Demonstration: Using Windows Defender

Demonstration Steps

1. Switch to LON-CL1.

2. Right-click Start, and then click **Control Panel**.

3. Click **View by**, select **Large Icons**, and then click **Windows Defender**.

4. On the Windows Defender **Home** tab, ensure that the **Quick** scan option is selected.

5. Click **Scan now**, and then review the results.

6. Close Windows Defender.

7. Open File Explorer, and then browse to **E:\Labfiles\Mod10**.

8. In the Mod10 folder, open **sample.txt** in Notepad. The sample.txt file contains a text string to test malware detection.

9. In the sample.txt file, delete both instances of **<remove>**, including the brackets and any extra lines or blank spaces.

10. Save and close the file. Immediately, Windows Defender detects a potential threat.

11. Windows Defender then removes sample.txt from the Malware folder.

12. Right-click **Start**, and then click **Control Panel**.

13. Click **Windows Defender**.

14. In Windows Defender, click the **History** tab.

15. Click **View details**, and then review the results.

16. Select the check box for **Virus:DOS/EICAR_Test_File**, and then click **Remove**.

17. Close all open windows.

Module Review and Takeaways

Review Question(s)

Question: Why is it important to have a firewall on the host *and* a firewall on the perimeter network?

Answer: Answers will vary, but the main reason is that having multiple firewalls provides stronger defense-in-depth, as compared to a single firewall on a perimeter network or just on the host.

Lab Review Questions and Answers

Lab: Managing Network Security

Question and Answers

Question: In what way does a connection security rule protect network traffic?

Answer: Connection security rules protect network traffic from interception and modification by malicious users.

Question: You want to block users from utilizing a particular application on computers that use a specific port to connect to an Internet server. What type of rule should you configure?

Answer: You should configure an outbound rule to block the application from sending traffic on that port.

Module 11

Troubleshooting and Recovery

Contents:

Lesson 1
Managing Devices and Drivers

Contents:

Question and Answers

Question: From which tool or tools can you perform a driver rollback operation for printers?

( ) Device Manager

( ) Devices and Printers

( ) Devices in Windows 10 Settings

( ) All of the above

( ) None of the above

> **Answer:**
>
> ( ) Device Manager
>
> ( ) Devices and Printers
>
> ( ) Devices in Windows 10 Settings
>
> ( ) All of the above
>
> (√) None of the above

Question: Which command or Windows PowerShell cmdlet can you use to install a driver package in the driver store of a Windows 10–based computer running in normal mode?

( ) Msconfig.exe

( ) Driverquery.exe

( ) Pnputil.exe

( ) Add-WindowsDriver

( ) Get-SystemDriver

> **Answer:**
>
> ( ) Msconfig.exe
>
> ( ) Driverquery.exe
>
> (√) Pnputil.exe
>
> ( ) Add-WindowsDriver
>
> ( ) Get-SystemDriver

Question: You can disable the DVD-ROM drive on a remote Windows 10–based computer by using Device Manager.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

What Is a Device Driver?

Question: Can you use a 32-bit device driver with the 64-bit versions of Windows 10?

> **Answer:** No. Device drivers are version-specific. Therefore, you cannot use a device driver meant for a 32-bit version of Windows 10 with a 64-bit version of Windows 10.

Question: Can you use an unsigned device driver with a 32-bit version of Windows 10?

> **Answer:** Windows 10 includes only digitally signed device drivers. Microsoft recommends the use of digitally signed device drivers only. If you try to install an unsigned device driver into the 32-bit version of Windows 10, you will receive a security warning. However, you can decide to install and use unsigned device drivers anyway.

Question: What is the difference between a driver and a driver package?

> **Answer:** A driver package contains a driver and additional files, such as the .cat file, which is the driver's digital signature, and the .inf file, which has driver metadata.

Using Device Manager

Question: Can you use Device Manager to manage devices on a remote Windows 10–based computer?

> **Answer:** No. You can only use Device Manager to manage devices on a local computer. If you try to connect Device Manager to a remote computer, you will get the Access is denied error message.

Question: How does Devices and Printers display a multifunction device that you connect to a Windows 10–based computer differently than Device Manager?

> **Answer:** Devices and Printers displays a connected multifunction device as a single device. Device Manager displays each device functionality separately. For example, Device Manager displays a web camera as an audio input and output device, an imaging device, and a sound, video and game controller device.

Driver Roll Back

Question: Why is the Roll Back Driver option unavailable for some devices?

> **Answer:** The Roll Back Driver option reverts the device driver to the previously used device driver. If the device is using the first and only version of the device driver, the Roll Back Driver option is unavailable for that device.

Question: Can you roll back device drivers for printers in Device Manager?

> **Answer:** No, Device Manager does not provide an option to roll back device drivers for printers (print queues). This is because you manage Printers in Devices and Printers, not in Device Manager.

Demonstration: Managing Device Drivers

Demonstration Steps

1. In LON-CL1, on the taskbar, right-click the **Start** icon, and then click **Device Manager**.

2. In Device Manager, expand **Keyboards**, right-click **Standard PS/2 Keyboard**, and then click **Properties**.

3. In the **Standard PS/2 Keyboard Properties** dialog box, click the **Driver** tab.

> 📝   **Note:** The **Roll Back Driver** button is not available.

4. Click **Update Driver**.

5. In the **Update Driver Software – Standard PS/2 Keyboard** dialog box, click **Browse my computer for driver software**.

6. On the **Browse for driver software on your compute**r page, click **Let me pick from a list of device drivers on my computer**.

7. On the **Select the device driver you want to install for this hardware** page, in the **Show compatible hardware** list, click **PC/AT Enhanced PS/2 Keyboard (101/102 Key)**, click **Next**, and then click **Close**.

8. In the **PC/AT Enhanced PS/2 Keyboard (101/102 Key) Properties** dialog box, click **Roll Back Driver**, and then click **Yes**.

📝   **Note:** Emphasize that after the rollback operation, the dialog box is now called **Standard PS/2 Keyboard Properties**, and the Roll Back Driver is not available. This is because driver rollback can go back by only one version.

9. Click **Close**, click **No**, and then close Device Manager.

10. On the taskbar, click **File Explorer**.

11. In File Explorer, in the navigation pane, expand **This PC**, expand **Local Disk (C:)**, expand **Windows**, expand **System32**, expand **DriverStore**, and then click **FileRepository**.

12. In the details pane, click the **Date modified** column, and note that the highest folder was created most recently.

13. Right-click the **Start** icon, and then click **Command Prompt (Admin)**.

14. At the command prompt, type the following command, and then press Enter:

    pnputil –a E:\Labfiles\Mod11\dc3dh*.inf

15. In File Explorer, in the details pane, point out that the top folder was created when you installed the driver package, and that its name starts with **dc3dh**, as did the name of the .inf file. Double-click the folder and point out that it contains driver package files.

16. Close File Explorer and the command prompt.

Lesson 2
Recovering Files

Contents:

Question and Answers

Question: Which location can File History use to store backup data?

(   ) C:\

(   ) D:\Backup

(   ) \\172.16.10.256\Share1

(   ) E:\

(   ) https://azure.microsoft.com/backup

> **Answer:**
>
> (   ) C:\
>
> (   ) D:\Backup
>
> (   ) \\172.16.10.256\Share1
>
> (√) E:\
>
> (   ) https://azure.microsoft.com/backup

Question: You can use the Backup and Restore (Windows 7) tool to back up data that an ReFS volume is storing.

(   ) True

(   ) False

> **Answer:**
>
> (   ) True
>
> (√) False

Question: You can use the Previous Versions feature only with files that NTFS volumes are storing.

(   ) True

(   ) False

> **Answer:**
>
> (   ) True
>
> (√) False

File Recovery Methods in Windows 10

Question: Does Windows 10 include a backup tool?

> **Answer:** Yes, Windows 10 includes two backup tools:
>
> - Wbadmin.exe, which is a backup command-line tool.
>
> - Backup and Restore (Windows 7), which you can use to schedule backups of individual folders, users' libraries, and a complete Windows 10–based computer.

Question: What is the simplest way to recover a locally stored document that a user accidentally deleted in Windows 10?

> **Answer:** After you set it up, File History is the easiest and most user-friendly way to restore previous versions of files.

File History

Question: Is File History turned on by default?

> **Answer:** No. Before you can use File History, you must configure it with a local drive, a removable drive, or a network location, and then turn on File History.

Question: Can you protect additional folders by using File History?

> **Answer:** Yes. You can add additional folders to one of the libraries that File History is protecting. Alternatively, you can use the **Backup** option in the Update & security section in the Settings app. When you do so, File History also protects the folders you add.

Backup and Restore (Windows 7)

Question: Can you use the Backup and Restore (Windows 7) tool to back up a single file automatically in a folder with multiple documents?

> **Answer:** You can use the Backup and Restore (Windows 7) tool to perform automatic backups, but you can only define which folders to include in the backup, not individual files.

Question: How can you modify the default backup schedule for the Backup and Restore (Windows 7) tool, which performs a backup every Sunday at 7 PM, by default?

> **Answer:** You can use the Backup and Restore (Windows 7) item in Control Panel to configure a simple backup schedule. However, by editing the triggers property for the AutomaticBackup task in Task Scheduler, you can be more specific. For example, you can specify a backup schedule of multiple times per day, or you can provide the precise time to run a backup.

Previous Versions

Question: What must you configure if you want the **Previous Versions** tab in File Explorer to list previous versions of files?

> **Answer:** Previous versions of the files come from File History or from restore points. If you want the **Previous Versions** tab in File Explorer to list previous versions of files, you must protect those files by using File History or including them in the backup that the Backup and Restore (Windows 7) tool creates.

Question: When will the **Previous Versions** tab include the previous versions of a file that the Backup and Restore (Windows 7) tool is backing up?

> **Answer:** As soon as the Backup and Restore (Windows 7) tool creates a backup, the previous version will be available on the **Previous Versions** tab. The same is true if File History is protecting the file. When File History runs, previous versions of the file become available on the **Previous Versions** tab.

Demonstration: Using File History to Recover Files

Demonstration Steps

1. In LON-CL1, on the taskbar, click **File Explorer**.

2. In File Explorer, in the navigation pane, expand **This PC**, and then click **Documents**.

3. In the details pane, right-click an empty space, point to **New**, and then click **Text Document**.

4. Name the new text document **Report**.

5. Double-click **Report.txt**, and then in Notepad, type **This is a report**.

6. Close Notepad and click **Save** to save the changes.

7. On the taskbar, in the **Search the web and Windows** box, type **file**, and then click **File History**.

8. In the **File History** dialog box, in the navigation pane, click **Select drive**.

9. In the **Select Drive** dialog box, click **Add network location**, in the **Folder** box, type **\\LON-DC1\Backup2**, click **Select Folder**, and then click **OK**.

10. In the **File History** dialog box, in the details pane, click **Turn on**. In the navigation pane, click **Advanced settings**. Point out the default values, and then click **Cancel**.

11. In File Explorer, in the navigation pane, click **Documents**, right-click **Report.txt**, and then click **Delete**.

12. In File Explorer, click the **Home** tab, and then click **History**.

13. In the Documents – File History window, right-click **Report.txt**, and then click **Preview**.

Note: Point out that you can see the text that you typed earlier.

14. Click the green round button with the arrow to restore the file to the original location.

15. File Explorer opens. Point out that the Report.txt file has been recovered. Double-click **Report.txt**, point out that it has the content that you typed earlier, close Notepad, and then close File Explorer.

16. In the Report.txt – File History window, on the left of the address box, click the upward-pointing arrow twice.

Note: Point out the folders and libraries that File History is protecting, and verify that the Data folder is currently not among the protected folders.

17. Close the Home – File History window.

18. In File Explorer, in the navigation pane, expand **Local Disk (C:)**, and then click **Data**.

19. In the details pane, right-click **Sales.txt**, click **Properties**, and then click the **Previous Versions** tab.

Note: Point out that there are no previous versions available.

20. Click **OK**, and then on the taskbar, in the **Search the web and Windows** box, type **file**, and then click **File History settings**.

21. In the **Settings** dialog box, in the **Back up using File History** section, click **More options**.

22. In the BACKUP OPTIONS window, in the **Back up these folders** section, click **Add a folder**.

23. In the **Folder** box, type **C:\Data**, and then click **Choose this folder**.

Note: Point out that the C:\Data folder is added. Show and discuss other settings, such as backup frequency, how long to keep files, and which folders are excluded.

24. Close the BACKUP OPTIONS window.

25. In the **File History** dialog box, click **Run now**.

26. In File Explorer, in the details pane, right-click **Sales.txt**, click **Properties**, and then click the **Previous Versions** tab.

📋   **Note:** Point out that there is now one previous version available, which was created when you ran File History.

27. Click **OK**. In File Explorer, click the **Home** tab, and then click **History**.

28. In the Sales.txt – File History window, on the left of the address box, click the upward-pointing arrow until the window title changes to Home – File History.

📋   **Note:** Point out that the Data folder is now among the folders and libraries that File History is protecting.

29. Close the Home – File History and File History windows.

Demonstration: Using Previous Versions to Recover Files

Demonstration Steps

1. In LON-CL1, in File Explorer, in the navigation pane, verify that **Data** is selected. In the details pane, right-click **Sales.txt**, click **Properties**, click the **Previous Versions** tab, point out that there is one previous version, explain that it was created when File History ran in the previous demonstration, and then click **OK**.

2. Double-click **Sales.txt**, in Notepad, type **Before restore point**, close Notepad, and then click **Save** to save the changes.

3. Right-click **Sales.txt**, click **Properties**, click the **Previous Versions** tab, point out that there is still only one previous version, and then click **OK**.

4. On the taskbar, in the **Search the web and Windows** box, enter **backup**, and then click **Backup and Restore (Windows 7)**.

5. In the Backup and Restore (Windows 7) window, click **Set up backup**.

6. In the Set up backup window, click **Save on a network**. In the **Network location** box, enter **\\lon-dc1\Backup2**, in **Username**, type **Adatum\Administrator**, in **Password**, type **Pa$$w0rd**, click **OK**, and then click **Next**.

7. On the **What do you want to back up?** page, select **Let me choose**, click **Next**, clear the **Include a system image of drives: System Reserved, (C:)** check box, expand **Local Disk (C:)**, select **Data**, point out that the **Misc** folder is not selected, and then click **Next**.

8. On the **Review your backup settings** page, click **Save settings and run backup**, and wait until backup finishes.

9. In File Explorer, right-click **Sales.txt**, click **Properties**, click the **Previous Versions** tab, point out that there are now two previous versions because the second previous version was added when the backup was created, and then click **OK**.

10. Right-click **Sales.txt**, and then click **Delete**.

11. In the details pane, right-click the empty space, click **Properties**, click the **Previous Versions** tab, click the first **Data** folder listed under Folder versions, click **Restore**, and then click **OK**.

12. In File Explorer, in the details pane, double-click **Data**, and then point out that the Sales.txt file is restored.

13. In File Explorer, in the navigation pane, expand **Local Disk (C:)**, and then click **Misc**.

14. In the details pane, right-click **Temp.txt**, click **Properties**, and then click the **Previous Versions** tab. Point out that no previous version is available because the backup did not include the folder. Click **OK**, close File Explorer, and then close the Backup and Restore (Windows 7) window.

Lesson 3
Recovering Devices

Contents:

Question and Answers

Question: Which of the following tools cannot preserve user data that is stored on the C drive?

( ) Reset this PC

( ) System Image Recovery

( ) Startup Repair

( ) Diskpart.exe

( ) Go back to the previous build

> **Answer:**
>
> ( ) Reset this PC
>
> (√) System Image Recovery
>
> ( ) Startup Repair
>
> ( ) Diskpart.exe
>
> ( ) Go back to the previous build

Question: System Image Recovery is the easiest and fastest tool for repairing startup problems in Windows 10.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Question: You can use System Restore even if your Windows 10–based computer has startup problems.

( ) True

( ) False

> **Answer:**
>
> (√) True
>
> ( ) False

Overview of Device Recovery Procedures

Question: Can you run the Reset this PC feature from a computer running Windows 10 in the normal mode?

> **Answer:** No. You can select the Reset this PC option only from the recovery environment. To start the computer in the recovery environment, you should select the option to change advanced startup options while Windows 10 is running, or start the computer from Windows 10 installation media and select **Recovery**.

Question: Why would you use Startup Repair instead of System Image Recovery if the Boot Configuration Data (BCD) store is corrupted on a Windows 10–based computer?

> **Answer:** If the BCD store is corrupted, Windows 10 will not start. Both Startup Repair and System Image Recovery can resolve the issue, but Startup Repair is much faster and is a nondestructive operation.

System Protection and Restore Points

Question: How can you configure Windows 10 to create restore points automatically?

Answer: System Protection creates a scheduled task named SR that can schedule the creation of restore points automatically. You can add a new trigger to the task and configure the frequency for creating restore points.

Question: Can you enable System Protection on an ReFS volume?

Answer: No. You can only turn on System Protection on NTFS volumes. You cannot enable it on FAT or ReFS volumes.

Advanced Startup Options

Question: Can you access startup settings options by pressing F8 during computer startup?

Answer: No. You cannot use keyboard shortcuts during the Windows 10 startup process, and you cannot access startup settings options by pressing any key during computer startup. You can access startup options by:

- Changing advanced startup options in Windows 10.
- Pressing the Shift key while selecting the **Restart** option.
- Restarting the computer by running the **shutdown.exe /r /o** command.

Question: How can you access the **Last Known Good Configuration** startup option in Windows 10?

Answer: The **Last Known Good Configuration** startup option is not available in Windows 10.

Tools Available in Windows RE

Question: Can you use System Image Recovery without any previous preparation?

Answer: No. System Image Recovery restores a system image on your computer. To be able to use this option, you must first create the system image while Windows 10 is running.

Question: What are the options for the Reset this PC tool?

Answer: If you start the Reset this PC tool, you can first choose between the **Keep my files** and **Remove everything** options. If you select **Remove everything**, you can further choose between the **Just remove my files** and **Fully clean the drive** options.

Discussion: Recovering Devices

Question: Can you start System Recovery only from Windows 10 running in the normal mode?

Answer: No. You can also start System Recovery from safe mode or from the recovery mode.

Question: When would you use System Image Recovery?

Answer: If your device has failed, you should probably use System Image Recovery as the last resort. This method requires you to prepare a system image in advance, and it completely replaces the device data with the content of the system image.

Demonstration: Using a Restore Point to Roll Back Device Configuration

Demonstration Steps

1. In LON-CL1, in File Explorer, in the navigation pane, right-click **This PC**, click **Properties**, and then click **System protection**.

2. In the **System Properties** dialog box, in the **Protection Settings** section, select **Local Disk (C:) (System)**, click **Configure**, select **Turn on system protection**, move the **Max Usage** slider between **5 GB** and **10 GB**, and then click **OK**.

3. In the **System Properties** dialog box, click **Create**. In the **System Protection** dialog box, type **Initial settings**, click **Create**, and then click **Close**.

4. Right-click the desktop, point to **New**, click **Text Document**, type **My document** as its name, and then press Enter.

5. Right-click the **Start** icon, and then click **Device Manager**.

6. In Device Manager, expand **Keyboards**, right-click **Microsoft Hyper-V Virtual Keyboard**, and then select **Update Driver Software**.

7. In the **Update Driver Software – Microsoft Hyper-V Virtual Keyboard** dialog box, click **Browse my computer for driver software**. Click **Let me pick from a list of device drivers on my computer**, and then clear the **Show compatible hardware** check box. In the **Model** section, select **Microsoft Wireless Keyboard 700 v2.0 (106/109)**, click **Next**, in the **Update Driver Warning** box, click **Yes**, and then click **Close**.

8. Point out that in Device Manager, Microsoft Wireless Keyboard 700 v2.0 (106/109) appears with an exclamation point (!).

9. In the **System Properties** dialog box, in the **System Restore** section, click **System Restore**, and then click **Next**.

10. Select the **Initial settings** restore point, click **Next**, click **Finish**, and then click **Yes**. Wait until LON-CL1 has restarted and System Restore has restored files and settings.

11. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa$$w0rd**.

12. In the **System Restore** dialog box, click **Close**. Point out that My document.txt is still on the desktop.

13. Right-click the **Start** icon, and then click **Device Manager**.

14. In Device Manager, expand **Keyboards**, and then verify that Microsoft Hyper-V Virtual Keyboard is present. Microsoft Wireless Keyboard 700 v2.0 (106/109) was removed, as you added it after creating the restore point. Close Device Manager.

15. On the taskbar, click **File Explorer**.

16. In File Explorer, in the navigation pane, right-click **This PC**, click **Properties**, and then click **System protection**.

17. In the **System Properties** dialog box, click **System Restore**.

18. In the **System Restore** dialog box, select **Choose a different restore point**, and then click **Next**.

19. In the **System Restore** dialog box, verify that the additional restore point with the description **Restore Operation** and the type **Undo** was created.

20. Click **Cancel**, click **OK** in the **System Properties** dialog box, and then close the System window.

Demonstration: Using Advanced Start-up Options

Demonstration Steps

1. In LON-CL1, on the taskbar, in the **Search the web and Windows** box, enter **service**, and then click **View local services**.

2. In the Services window, click the **Status** column to sort the services, scroll down, point out that many (more than 75) services are running, and then close Services.

3. On the taskbar, in the **Search the web and Windows** box, type **advanced**, and then click **Change advanced startup options**.

4. On the **UPDATE & SECURITY** page, in the **Advanced startup** section, click **Restart now**, and then wait a few seconds.

5. On the **Choose an option** page, discuss the available options, and then click **Troubleshoot**.

6. On the **Troubleshoot** page, explain the **Reset this PC** options, and then click **Advanced options**.

7. On the **Advanced options** page, discuss available options, click **Startup Settings**, and then click **Restart**.

8. Discuss the available **Startup** options, and then press 4 to select **Enable Safe Mode**.

9. When the computer starts, type **Pa$$w0rd** as the password for **Adatum\Administrator**, and then press Enter.

10. Point out that the words Safe Mode appear in all four corners of the desktop. Right-click the **Start** icon, and then select **Device Manager**.

11. In Device Manager, right-click **Generic PnP Monitor**, select **Properties**, and then point out that the status of the device is not available when running in safe mode.

12. Click the **Driver** tab and point out that you can still update or uninstall drivers while running in safe mode. Mention that you can also perform Driver Roll Back, if a previous version of the driver exists, and then click **OK**.

13. On the taskbar, try to enter something in the **Search the web and Windows** box. Explain that you cannot search because you are running in safe mode.

14. Right-click the **Start** icon and click **Computer Management**.

15. In Computer Management, in the navigation pane, expand **Services and Applications**, and then click **Services**. In the details pane, click the **Status** column to sort the services, scroll down, and then point out that only a few services (less than 30) are running when you are in safe mode, while more than 75 services were running in normal mode.

16. On your host computer, in the **20697-1B-LON-CL1 on localhost – Virtual Machine Connection** dialog box, on the **Media** menu, point to **DVD Drive**, and then click **Insert Disk**.

17. In the **Open** dialog box, in the **File name** box, type **C:\Program Files\Microsoft Learning\20697-1\Drives\Win10Ent_Eval.iso**, and then click **Open**. If virtual machines are extracted to a different drive than C:, use that drive letter instead of C:.

18. In LON-CL1, right-click the **Start** icon, select **Shut down or sign out**, and then select **Restart**.

19. When you see the **Press any key to boot from CD or DVD** message, press the spacebar, and then wait while Windows Setup loads.

20. When prompted, in the **Windows Setup** dialog box, click **Next**.

21. On the next Windows Setup page, click **Repair your computer**.

22. On the **Choose an option** page, explain that you have the same options available, even though this time you started the computer from DVD media, and then select **Troubleshoot**.

23. On the **Troubleshoot** page, click **Advanced options**.

24. On the **Advanced options** page, point out that the only option that is missing is Startup Settings, because you started the recovery environment from DVD media. Click **System Restore**, and then click **Windows 10**.

25. In the System Restore window, click **Next**. Point out that you can view and use restore points in System Restore even when you start the computer from the installation media.

Module Review and Takeaways

Review Question(s)

Question: The help desk recently installed a new device driver on a computer. A stop code is generated, and you see a blue screen during computer startup. What recovery mechanism would you try first?

> **Answer:** You could try starting the computer in safe mode and using a driver rollback if the computer is able to start from the hard drive. Alternatively, you can use Windows 10 media and Windows RE to apply a System Restore point. You could also use Reset this PC as one of the last recovery options.

Question: Which Windows 10 features can help end users restore previous versions of their files?

> **Answer:** Windows 10 includes several features that can help end users restore previous versions of their files. The easiest way is to use the Previous Versions feature, which sources previous versions from File History and from restore points that Backup and Restore (Windows 7) creates.

Question: Can a nonadministrative user use System Restore from the recovery environment?

> **Answer:** If a user starts the recovery environment from a computer running Windows 10 in the normal mode by changing the advanced startup options, then the user will need to provide administrative credentials to run System Restore. However, if the user starts the recovery environment from the Windows 10 installation media, then he or she can use System Restore without providing administrative credentials.

Lab Review Questions and Answers

Lab: Troubleshooting and Recovery

Question and Answers

Question: What must you do if you want to use the Previous Versions feature in Windows 10?

Answer: If you want to use the Previous Versions feature in Windows 10, you must configure File History, Backup and Restore (Windows 7), or both.

Question: In Windows 10, how can you access advanced startup settings, such as safe mode?

Answer: If you want to access advanced startup settings, such as safe mode, you must click the **Change advanced startup options** option while Windows 10 is running.

Question: Where can you access the Refresh your PC option in Windows 10?

Answer: The Refresh your PC option is not available in Windows 10. It was only available in Windows 8 and Windows 8.1. In Windows 10, Reset this PC integrates the functionality of the Refresh your PC option.

Module 12

Maintaining Windows 10

Contents:

Lesson 1
Updating Windows

Contents:

Question and Answers

Question: Aside from using WSUS to apply updates, what other technologies could you use to help keep your Windows 10 devices up to date? (Choose all that apply)

( ) Microsoft Intune

( ) Microsoft System Center 2012 R2 Configuration Manager

( ) Windows Update for Business

> **Answer:**
>
> (√) Microsoft Intune
>
> (√) Microsoft System Center 2012 R2 Configuration Manager
>
> (√) Windows Update for Business

Question: You can use Windows Update for Business to update all editions of Windows 10.

( ) True

( ) False

> **Answer:**
>
> ( ) True
>
> (√) False

Resources

Windows 10 Servicing Options

Additional Reading: http://aka.ms/h4g0gh

Demonstration: Configuring Windows Update

Demonstration Steps

Configure Windows Update manually

1. Switch to LON-CL1.

2. Click **Start** and then click **Settings**.

3. In SETTINGS, click **Update & security**.

4. On the **Windows Update** tab, click **Advanced options**.

5. On the **ADVANCED OPTIONS** page, beneath **Choose how updates are installed**, and then in the list, click **Automatic (recommended)**.

6. Ensure that the **Give me updates for other Microsoft products when I update Windows** and **Defer upgrades** check boxes are cleared.

7. Notice the **Get started** option beneath **Get Insider builds**.

8. Click **Back**.

Configure Windows Update by using GPOs

1. In the **Search the web and windows** box, type **gpedit.msc**, and then click **gpedit.msc** in the list of returned items.

2. In **Local Group Policy Editor**, navigate to **Computer Configuration/Administrative Templates/Windows Components/Data Collection and Preview Builds**.

3. In the right pane, double-click **Toggle user control over Insider builds**.

4. In the **Toggle user control over Insider builds** dialog box, click **Disabled**, and then click **OK**.

5. In **Local Group Policy Editor**, navigate to **Computer Configuration/Administrative Templates/Windows Components/Windows Update**.

6. In the right pane, double-click **Defer Upgrade**.

7. In the **Defer Upgrade** dialog box, click **Enabled**, and then click **OK**.

8. In the right pane, double-click **Always automatically restart at the scheduled time**.

9. In the **Always automatically restart at the scheduled time** dialog box, click **Enabled**, and then click **OK**.

10. Close the Local Group Policy Editor.

11. Right-click **Start**, and then click **Command Prompt (Admin)**.

12. In the command prompt, type **gpupdate /force**, and then press Enter.

13. Sign out and then sign in as **Adatum\Administrator** with the password **Pa$$w0rd**.

14. Click **Start**, and then click **Settings**.

15. In **SETTINGS**, click **Update & security**.

16. On the **Windows Update** tab, click **Advanced options**.

17. Notice the **Some settings are managed by your organization** banner.

18. Notice that the option to **Get started** with Insider builds is unavailable.

19. Close all open apps and windows.

Lesson 2
Monitoring Windows 10

Contents:

Question and Answers

Question: To establish event subscriptions, at the collector computer, you must run the **winrm quickconfig** command to configure firewall rules.

(   ) True

(   ) False

> **Answer:**
>
> (   ) True
>
> (√) False

Demonstration: Monitoring Windows with Event Viewer

Demonstration Steps

Explore custom views

1.   On LON-CL1, click **Start**, click **All apps**, expand **Windows Administrative Tools**, and then click **Event Viewer**.

2.   In the navigation pane, expand **Custom Views**, and then click **Administrative Events**.

Create a custom view

1.   In the navigation pane, right-click **Custom Views**, and then click **Create Custom View**.

2.   In the **Create Custom View** dialog box, select the **Critical**, **Warning**, and **Error** check boxes.

3.   In the **Event logs** list, expand **Windows Logs**, and then select the **System** and **Application** check boxes. Click in the **Create Custom View** dialog box, and then click **OK**.

4.   In the **Save Filter to Custom View** dialog box, in the **Name** box, type **Adatum Custom View**, and then click **OK**.

5.   In Event Viewer, in the right pane, view the events that are visible within your custom view.

Configure the source computer

1.   Switch to LON-DC1.

2.   Right-click **Start**, and then click **Windows PowerShell (Admin)**.

3.   At the command prompt, type the following command, and then press Enter:

```
winrm quickconfig
```

> **Note:** The service is running already.

4.   In **Server Manager**, click **Tools**, and then click **Active Directory Users and Computers**.

5.   In **Active Directory Users and Computers**, in the navigation pane, expand **Adatum.com**, and then click **Builtin**.

6.   In the results pane, double-click **Administrators**.

7.   In the **Administrators Properties** dialog box, click the **Members** tab.

8.   Click **Add**, and then in the **Select Users, Contacts, Computers, Service Accounts, or Groups** dialog box, click **Object Types**.

9. In the **Object Types** dialog box, select the **Computers** check box, and then click **OK**.

10. In the **Select Users, Contacts, Computers, Service Accounts, or Groups** dialog box, in the **Enter the object names to select (examples)** box, type **LON-CL1**, and then click **OK**.

11. In the **Administrator Properties** dialog box, click **OK**.

Configure the collector computer

1. Switch to LON-CL1.

2. Right-click **Start**, and then click **Command Prompt (Admin)**.

3. At the command prompt, type the following command, and then press Enter:

```
Wecutil qc
```

4. When prompted, type **Y**, and then press Enter.

Create and view the subscribed log

1. In Event Viewer, in the navigation pane, click **Subscriptions**.

2. Right-click **Subscriptions**, and then click **Create Subscription**.

3. In the **Subscription Properties** dialog box, in the **Subscription name** box, type **LON-DC1 Events**.

4. Click **Collector Initiated**, and then click **Select Computers**.

5. In the **Computers** dialog box, click **Add Domain Computers**.

6. In the **Select Computer** dialog box, in the **Enter the object name to select (examples)** box, type **LON-DC1**, and then click **OK**.

7. In the **Computers** dialog box, click **OK**.

8. In the **Subscription Properties – LON-DC1 Events** dialog box, click **Select Events**.

9. In the **Query Filter** dialog box, select the **Critical**, **Warning**, **Information**, **Verbose**, and **Error** check boxes.

10. In the **Logged** list, click **Last 30 days**.

11. In the **Event logs** list, select **Windows Logs**. Click in the **Query Filter** dialog box, and then click **OK**.

12. In the **Subscription Properties – LON-DC1 Events** dialog box, click **OK**.

13. In Event Viewer, in the navigation pane, expand **Windows Logs**.

14. Click **Forwarded Events**.

15. Examine any listed events.

16. Close all apps and open windows.

Lesson 3
Optimizing Performance

Contents:

Question and Answers

Question: When monitoring Windows 10–based computers to optimize their performance, which key system components should you monitor? (Choose all that apply)

( ) Processor

( ) System

( ) Disk

( ) Memory

( ) Network

Answer:

(√) Processor

( ) System

(√) Disk

(√) Memory

(√) Network

Demonstration: Monitoring Performance

Demonstration Steps

Open Performance Monitor

1. On LON-CL1, in **Search the web and windows**, type **perfmon**, and then press Enter.

2. In the Performance Monitor window, click the **Performance Monitor** node. Notice that only **% Processor Time** is displayed by default.

Add new values to the chart

1. On the toolbar, click the plus (**+**) symbol to add an additional counter.

2. In the Available counters area, expand **PhysicalDisk**, and then click **% Idle Time**.

3. In the **Instances of selected object** box, click **0 C:**, click **Add**, and then click **OK**.

4. Right-click **% Idle Time**, and then click **Properties**.

5. In the **Color** box, click **green**, and then click **OK**.

Create a Data Collector Set

1. In the left pane, expand **Data Collector Sets**, and then click **User Defined**.

2. Right-click **User Defined**, point to **New**, and then click **Data Collector Set**.

3. In the **Name** box, type **CPU and Disk Activity**, and then click **Next**.

4. In the **Template Data Collector Set** box, click **Basic**, and then click **Next**. We recommend that you use a template.

5. Click **Next** to accept the default storage location for the data.

6. Click **Open properties for this data collector set**, and then click **Finish**.

7. In the **CPU and Disk Activity Properties** dialog box, on the **General** tab, you can configure general information about the data collector set and the credentials that the data collector set uses when it is running.

8. Click the **Directory** tab. This tab lets you define information about how to store collected data.

9. Click the **Security** tab. This tab lets you configure which users can change this data collector set.

10. Click the **Schedule** tab. This tab lets you define when the data collector set is active and collecting data.

11. Click the **Stop Condition** tab. This tab lets you define when to stop data collection, based on time or collected data.

12. Click the **Task** tab. This tab lets you run a scheduled task when the data collector set stops. You can use this to process the collected data.

13. Click **Cancel**. Notice that there are three kinds of logs in the right pane:

    o **Performance Counter** collects data that you can view in Performance Monitor.

    o **Configuration** records changes to registry keys.

    o **Kernel Trace** collects detailed information about system events and activities.

14. In the right pane, double-click **Performance Counter**. Notice that all Processor counters are collected, by default.

15. Click **Add**.

16. In the Available counters area, click **PhysicalDisk**, click **Add**, and then click **OK**. All the counters for the PhysicalDisk object are now added. Click **OK**.

17. In the left pane, right-click **CPU and Disk Activity**, and then click **Start**.

Examine a Report

1. Wait a few moments for the data collector set to stop automatically.

2. Right-click **CPU and Disk Activity**, and then click **Latest Report**.

3. Review the report, which shows the data that the data collector set collects.

4. Close Performance Monitor.

Module Review and Takeaways

Review Question(s)

Question: What is the benefit of configuring Windows Update by using Group Policy rather than by using Settings?

> **Answer:** By using Group Policy, you can apply configuration settings to multiple computers by performing a single action. It also prevents users from overriding the settings.

Question: What significant counters should you monitor in Performance Monitor?

> **Answer:** You should monitor the following counters:
>
> - Processor > % Processor Time
> - System > Processor Queue Length
> - Memory > Pages/sec
> - Physical Disk > % Disk Time
> - Physical Disk > Avg. Disk Queue Length

Question: If you have problems with your computer's performance, how can you create a data collector set to analyze a performance problem?

> **Answer:** You can create a data collector set manually, from counters in the Performance Monitor display, or by using a template.

Lab Review Questions and Answers

Lab: Maintaining Windows 10

Question and Answers

Question: In the lab, you collected performance data for specific system objects. Which object(s) and counter(s) in Performance Monitor indicate how busy the computer's CPU is?

> **Answer:** The Processor\% Processor Time counter and the System\Processor Queue Length counter together provide the best indication of how busy or overloaded the computer's CPU is.