

OFFICIAL MICROSOFT LEARNING PRODUCT

# 20688D

Supporting Windows® 8.1

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Revised July 2013

# Module 1

## Implementing a Troubleshooting Methodology

### Contents:

Module Review and Takeaways	2
Lab Review Questions and Answers	3

## Module Review and Takeaways

### Review Question(s)

**Question:** Considering the various form factors of devices that support Windows 8.1, which do you expect your organization's users to implement?

**Answer:** Answers will vary, based on the students' experiences and their organization's preferences and policies. However, answers may include tablets, convertible laptops, desktops, and laptops.

**Question:** A user comes to you, asking whether it is okay to use his own Windows 8.1 tablet to connect to, and access resources on the corporate intranet. Which feature or features of Windows 8.1 will make this process easier?

**Answer:** Windows 8.1 provides a number of Bring Your Own Device improvements, including Workplace Join, and work folders. These features enable users to connect their own Windows 8.1 tablet to the corporate intranet, and access its resources.

# Lab Review Questions and Answers

## Lab: Troubleshooting Windows 8.1

### Question and Answers

**Question:** How did your plan of action differ from those that were suggested during the class discussion?

**Answer:** Answers will vary.

**Question:** After speaking with the user, what else should you consider when troubleshooting this problem?

**Answer:** The process may vary, but typical steps in a troubleshooting methodology include:

- Report the problem.
- Gather information.
- Develop an action plan.
- Implement the action plan.
- Document the correction.

After speaking with the user, additional steps may include:

- Gather any additional information.
- Develop an action plan.
- Implement the action plan.
- Document the correction.

# Module 2

## Troubleshooting Startup Issues

### Contents:

<b>Lesson 1:</b> Overview of the Windows 8.1 Startup Recovery Environment	2
<b>Lesson 2:</b> Troubleshooting Startup Settings	6
<b>Lesson 4:</b> Recovering BitLocker-Protected Drives	9
Module Review and Takeaways	12
Lab Review Questions and Answers	13

## Lesson 1

# Overview of the Windows 8.1 Startup Recovery Environment

### Contents:

Demonstration: Examining the Advanced Startup Environment	3
Demonstration: Accessing System Restore	4

## Demonstration: Examining the Advanced Startup Environment

### Demonstration Steps

#### Launch Windows RE

1. Restart 20688D-LON-CL1.
2. When prompted to **Press any key to boot from CD or DVD**, press the space bar. The computer boots into Windows Setup.
3. In the Windows Setup Wizard, click **Next**.
4. On the **Install now** page, click **Repair your computer**.
5. On the **Choose an option** page, click **Troubleshoot**.
6. On the **Troubleshoot** page, click **Advanced options**.
7. On the **Advanced options** page, notice the four tools that are available.

#### Use the Command Prompt tool

1. Click **Command Prompt**.
2. At the command prompt, type **diskpart**, and then press Enter.
3. At the command prompt, type **list disk**, and then press Enter.
4. At the command prompt, type **list volume**, and then press Enter.
5. At the command prompt, type **exit**, and then press Enter.
6. At the command prompt, type **e:**, and then press Enter.
7. At the command prompt, type **dir**, and then press Enter. This is the system drive.
8. At the command prompt, type **cd\windows\system32**, and then press Enter.
9. At the command prompt, type **net start**, and then press Enter. A list of running services is returned.
10. At the command prompt, type **sc query**, and then press Enter. A list of services and their current status is returned.
11. At the command prompt, type **regedit**, and then press Enter. The Registry Editor opens.
12. Close the Registry Editor.
13. At the command prompt, type **exit**, and then press Enter.

#### Perform Startup Repair

1. On the **Choose an option** page, click **Troubleshoot**.
2. On the **Troubleshoot** page, click **Advanced options**.
3. On the **Advanced options** page, click **Startup Repair**.
4. On the **Startup Repair** page, click **Windows 8.1**. Automatic startup repair begins.
5. On the **Startup Repair** page, notice the log file (**E:\Windows\System32\Logfiles\Srt\SrtTrail.txt**) mentioned in the message, and then click **Advanced options**.

#### Start Windows normally

1. On the **Choose an option** page, click **Continue**.
2. Sign in as **Adatum\administrator** with the password **Pa\$\$w0rd**.
3. In the Start screen, click the **Desktop** tile.



### Examine Startup Repair log file

1. On the taskbar, click the **File Explorer** icon.
2. In File Explorer, navigate to **C:\Windows\System32\Logfiles\Srt\**. Notice that the volume label when the operating system is running is now C.
3. In the Srt folder, double-click **SrtTrail.txt**.
4. Examine the file for any errors. There should be none.
5. Close the file, and then close File Explorer.

### Completion steps

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Demonstration: Accessing System Restore

### Demonstration Steps

#### Create a restore point

1. On LON-CL1, click **Start**.
2. Beneath the Desktop tile, click the down arrow.
3. Right-click **This PC**, and then click **Properties**.
4. In the **Properties** dialog box, click **Advanced system settings**.
5. In the **System Properties** dialog box, click the **System Protection** tab, and then click **Create**.
6. In the **System Protection** dialog box, in the text box, type **Initial System Restore Point**, and then click **Create**.
7. Click **Close**, and then click **OK**.

#### Start a computer in Windows RE

1. Right-click **Start**, point to **Shut down or sign out**, and then click **Restart**.
2. When prompted to **Press any key to boot from CD or DVD**, press the spacebar.
3. In the Windows Setup Wizard, click **Next**.
4. On the **Install now** page, click **Repair your computer**.
5. On the **Choose an option** page, click **Troubleshoot**.
6. On the **Troubleshoot** page, click **Advanced options**.

#### Launch System Restore

1. On the **Advanced options** page, click **System Restore**.
2. On the **System Restore** page, click **Windows 8.1**.
3. In the System Restore Wizard, click **Next**.
4. On the **Restore your computer to the state it was in before the selected event** page, in the unnamed drop-down list box, click **Initial System Restore Point**, and then click **Next**.
5. On the **Confirm your restore point** page, click **Finish**.
6. In the **Once started, System Restore cannot be interrupted. Do you want to continue?** dialog box, click **Yes**. The system restore process begins.



**Note:** System Restore can take an extended period of time.

7. When prompted, click **Restart**.
8. After your computer has restarted, sign in as **Adatum\administrator** with the password **Pa\$\$w0rd**.
9. In Start, click the **Desktop** tile.
10. In the **System Restore** dialog box, click **Close**.
11. Click **Start**.

### **Completion steps**

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Lesson 2

# Troubleshooting Startup Settings

### Contents:

Demonstration: Using Command-Line Tools to Access the BCD Store	7
Demonstration: Using System Configuration and Advanced Startup Options	7

## Demonstration: Using Command-Line Tools to Access the BCD Store

### Demonstration Steps

#### Access advanced startup options

1. On LON-CL1, press the Windows + C keys to access the Charms menu.
2. Click **Settings**, and then click **Change PC settings**.
3. In **PC settings**, click **Update and recovery**.
4. Click **Recovery**.
5. In the results pane, under **Advanced startup**, click **Restart now**.
6. On the **Choose an option** page, click **Troubleshoot**.
7. On the **Troubleshoot** page, click **Advanced options**.

#### Open the Command Prompt tool

1. On the **Advanced options** page, click **Command Prompt**. Your computer restarts into the Command Prompt mode.
2. On the **Command Prompt** page, click **Admin**.
3. In the **Password** box, type **Pa\$\$w0rd**, and then click **Continue**.

#### Work with the boot store

1. At the command prompt, type **bcdedit /enum**, and then press Enter. This lists the available boot options in the store.
2. At the command prompt, type **bootrec /scanos**, and then press Enter. This command scans the partitions for viable operating systems.
3. At the command prompt, type **bootrec /rebuildbcd**, and then press Enter. This command rebuilds the boot store automatically.
4. At the command prompt, type **exit**, and then press Enter.

#### Restart the Windows operating system normally

1. On the **Choose an option** page, click **Continue**.
2. Sign in as **Adatum\administrator** with the password **Pa\$\$w0rd**.

#### Completion steps

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Demonstration: Using System Configuration and Advanced Startup Options

### Demonstration Steps

#### Load the System Configuration tool

1. On LON-CL1, on the Start screen, type **msconfig.exe**, and then press Enter.
2. In the **System Configuration** dialog box, click the **Boot** tab.

#### Enable Safe boot, and then restart

1. On the **Boot** tab, select the **Safe boot** check box, and then click **OK**.

2. In the **System Configuration** dialog box, click **Restart**.

### **Sign in to safe mode**

1. When the computer has restarted, sign in as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. Notice that the desktop is modified to include Safe Mode in each corner.
3. On LON-CL1, click **Start**.

### **Revert to normal startup**

1. In Start, type **msconfig.exe**, and then press Enter.
2. In the **System Configuration** dialog box, on the **General** tab, click **Normal startup**, and then click **OK**.
3. In the **System Configuration** dialog box, click **Restart**.
4. When the computer has restarted, sign in as **Adatum\Administrator** with the password of **Pa\$\$w0rd**.
5. Notice that the Windows operating system starts normally.

### **Access startup settings**

1. On LON-CL1, press Windows + C to access the Charms menu.
2. Click **Settings**, and then click **Change PC settings**.
3. In **PC settings**, click **Update and recovery**.
4. Click **Recovery**.
5. In the results pane, under **Advanced startup**, click **Restart now**.
6. On the **Choose an option** page, click **Troubleshoot**.
7. On the **Troubleshoot** page, click **Advanced options**.
8. On the **Advanced options** page, click **Startup Settings**.
9. On the **Startup Settings** page, click **Restart**.
10. When the computer has restarted, on the **Startup Settings** page, press Enter to start normally. You will not use any of the Startup Settings during this practice.

### **Completion steps**

1. On the host computer, start Hyper-V Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.

## Lesson 4

# Recovering BitLocker-Protected Drives

### Contents:

Demonstration: Encrypting a Partition by Using BitLocker	10
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## Demonstration: Encrypting a Partition by Using BitLocker

### Demonstration Steps

#### Configure required GPO settings

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. At the Start screen, 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**.
5. Double-click **Require additional authentication at startup**.
6. In the **Require additional authentication at startup** dialog box, click **Enabled**, and then click **OK**.
7. Close the Local Group Policy Editor.
8. Right-click **Start**, and then click **Command Prompt**.
9. At the command prompt, type **gpupdate /force**, and then press Enter.

#### Enable BitLocker

1. On LON-CL1, on the desktop, on the Taskbar, click the **File Explorer** icon.
2. In the navigation pane, click **This PC**.
3. Right-click **Floppy Disk Drive (A:)**, and then click **Format**.
4. In the **Format Floppy Disk Drive (A:)** dialog box, click **Start**, and then click **OK**.
5. Click **OK** again, and then click **Close**.
6. In the navigation pane, click **This PC**.
7. In the results pane, right-click **Local Disk (C:)**, and then click **Turn on BitLocker**.
8. In the **BitLocker Drive Encryption (C:)** dialog box, click **Enter a password**. This is necessary because the virtual machine does not support USB flash drives.
9. On the **Create a password to unlock this drive** page, in the **Enter your password** and **Reenter your password** boxes, type **Pa\$\$w0rd**, and then click **Next**.
10. On the **How do you want to back up your recovery key?** page, click **Save to a file**.
11. In the **Save BitLocker recovery key as** dialog box, click **Floppy Disk Drive (A:)**.
12. Click **Open**, and then click **Save**.



**Note:** If you receive an error message saying that “Disk A: is write protected” at this point, use this procedure to resolve the problem:

1. On your host computer, in the **20688D-LON-CL1 on hostname – Virtual Machine Connection** dialog box, click the **Media** menu.
2. Point to **Diskette Drive**, and then click **Eject 20688D-Floppy.vfd**.
3. Click **Media**, point to **Diskette Drive**, and then click **Insert Disk**.
4. In the **Open** dialog box, type **D:\Program Files\Microsoft Learning\20688\Drives\20688D-Floppy.vfd**, and then click **Open**.

5. On the 20688D-LON-CL1 virtual machine, in the **Save BitLocker recovery key as** error message dialog box, click **OK**.
6. In the **Save BitLocker recovery key as** dialog box, click **Save**.
7. Continue from step 13.
8. Click **Next**.
9. On the **Are you ready to encrypt this drive?** page, click **Continue**.
10. Right-click **Start**, point to **Shut down or sign out**, and then click **Restart**.

### Completing the process of configuring BitLocker

1. During the restart sequence, when the **BitLocker** screen displays, in the **Enter the password to unlock this drive** box, type **Pa\$\$w0rd**, and then press Enter.
2. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
3. At the Start screen, click the **Desktop** tile.
4. On the desktop, on the taskbar, click the **File Explorer** icon.
5. In the navigation pane, click **This PC**.
6. Right-click **Local Disk (C:)**, and then click **Manage BitLocker**. Notice that the drive is now being encrypted.
7. Close the BitLocker Drive Encryption window.
8. In **This PC**, double-click **Floppy Disk Drive (A:)**, and then double-click the file that starts **BitLocker Recovery Key**.
9. Write down the recovery key that displays in the file. You will need this for the lab, so write carefully.
10. Close all open windows.

### Completion steps

- After you have completed the practice session, **leave the virtual machines running** for the lab.



## Module Review and Takeaways

**Question:** The boot environment of a user's computer is corrupt, and you suspect a virus. Before you can run virus removal tools, first you must recover the boot environment. What command-line tools could you use?

**Answer:** You can use Bootrec.exe with the **fixmbr** and **fixboot** switches.

**Question:** Your user adds a new hard disk to the computer, which changes the computer's partition numbering. To enable the computer to start, the user needs you to change the BCD. What tool would you use?

**Answer:** You can use **BCDEdit /enum** to view the entries in the BCD store, and then use **BCDEdit** to edit the BCD store to reflect the changes in the computer.

**Question:** After installing a new video driver, your user's computer becomes unstable and will not start correctly. What would you try first to resolve this problem?

**Answer:** You would use System Restore, and then roll back the configuration to a previous point. If System Restore is unavailable, attempt a driver rollback.

## Lab Review Questions and Answers

### Lab A: Troubleshooting Startup Issues

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

**Question:** What was your approach to the second scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

### Lab B: Recovering BitLocker-Encrypted Drives

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

# Module 3

## Troubleshooting Hardware and Device Drivers

### Contents:

<b>Lesson 1:</b> Overview of Hardware Troubleshooting	2
<b>Lesson 3:</b> Troubleshooting Device Driver Failures	4
<b>Lesson 5:</b> Configuring the Registry	8
Module Review and Takeaways	10
Lab Review Questions and Answers	11

## Lesson 1

# Overview of Hardware Troubleshooting

### Contents:

Question and Answers

3

## Question and Answers

### Discussion: Approaches to Troubleshooting Hardware

**Question:** A user is unable to connect their cordless mouse to their laptop computer. What would you check first?

**Answer:** Check to see if the Bluetooth module in their laptop was enabled in the BIOS. In addition, verify if any wireless connection On/Off switches are present on the computer, that they are turned on.

**Question:** You just added a new video display to a user's computer. The resolution of the display is very low, despite being capable of displaying at 1680x1050. What would you check?

**Answer:** Use Device Manager to ensure that the driver installed correctly.

**Question:** A user's computer freezes repeatedly. When this occurs, the computer accepts no input from the keyboard or mouse, and all processing stops. What would you suspect as the problem? What would you try to resolve the issue?

**Answer:** It is possible that there is a memory problem. Run memory diagnostics to verify this. Also, if any new hardware was introduced recently, determine if this is causing a conflict. If neither of these issues appears to be the cause of the problem, it might be a software or device driver issue. However, memory is the most likely cause.

## Lesson 3

# Troubleshooting Device Driver Failures

### Contents:

Demonstration: Managing Device Drivers	5
Demonstration: Using Group Policy to Manage Driver Installation	6

## Demonstration: Managing Device Drivers

### Demonstration Steps

#### Update a device driver

1. If necessary, sign in to the LON-CL1 virtual machine as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. On the Start screen, type **This PC**, right-click **This PC**, and then click **Manage**.
3. In Computer Management, click **Device Manager**.
4. Expand **Keyboards**, right-click **Standard PS/2 Keyboard**, and then click **Update Driver Software**.
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 computer** page, click **Let me pick from a list of device drivers on my computer**.
7. In the **Show compatible hardware** list, click **PC/AT Enhanced PS/2 Keyboard (101/102 Key)**, and then click **Next**.
8. Click **Close**.
9. In the **System Settings Change** dialog box, click **Yes** to restart the computer.

#### Uninstall a device driver

1. Sign in to the LON-CL1 virtual machine as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. Type **This PC**, right-click **This PC**, and then click **Manage**.
3. In Computer Management, click **Device Manager**.
4. Expand **Keyboards**, right-click **PC/AT Enhanced PS/2 Keyboard (101/102 Key)**, and then click **Properties**.
5. In the **PC/AT Enhanced PS/2 Keyboard (101/102 Key) Properties** dialog box, click the **Driver** tab, and then click **Uninstall**.
6. In the **Confirm Device Uninstall** dialog box, click **OK**.
7. In the **System Settings Change** dialog box, click **Yes** to restart the computer.
8. Sign in to the LON-CL1 virtual machine as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
9. Type **This PC**, in the results section, right-click **This PC**, and then click **Manage**.
10. In Computer Management, click **Device Manager**.
11. Expand **Keyboards**, click **Standard PS/2 Keyboard**, and verify that you have successfully uninstalled the driver.
12. Close Computer Management.

#### Install a device driver into the driver store

1. Click **Start**.
2. Type **cmd**, right-click **Command Prompt**, and then click **Run as administrator**.
3. At the Command Prompt, type the following command, and then press Enter:

```
pnputil -a
"D:\Labfiles\Mod03\IntelliPoint\ipoint\setup64\files\driver\point64\point64.inf"
```

4. At the Command Prompt, type the following command, and then press Enter:

```
pnputil -e
```

5. Take note of the published name for the driver that you just installed into the store.
6. Close the Command Prompt window.

### Completion Steps

- After you complete this practice session, leave the virtual machines running for the next practice session.

## Demonstration: Using Group Policy to Manage Driver Installation

### Demonstration Steps

#### Modify Group Policy settings

1. On LON-CL1, on the desktop, double-click Administrative Tools.
2. Double-click **Group Policy Management**.
3. In Group Policy Management, expand **Forest: Adatum.com**, expand **Domains**, expand **Adatum.com**, and then click **Default Domain Policy**.



**Note:** Although you are editing the Default Domain Policy, it would be more typical to create a new Group Policy Object (GPO) and link it to the domain.

4. In the Group Policy Management Console pop-up window, click **OK**.
5. Right-click **Default Domain Policy**, and then click **Edit**.
6. In Group Policy Management Editor, under **Computer Configuration**, expand **Policies**, expand **Administrative Templates**, expand **System**, expand **Device Installation**, and then click **Device Installation Restrictions**.
7. In the right-pane, double-click **Allow installation of devices using drives that match these device setup classes**.
8. In the **Allow installation of devices using drives that match these device setup classes** dialog box, click **Enabled**, and then click **Show**.
9. Leave the window open.

#### Locate the setup class GUID

1. Click **File Explorer**, in the address bar, type **D:\Labfiles\Mod03\**, and then press Enter.
2. In Mod03, double-click **Intellipoint**.
3. Double-click **ipoint**.
4. Double-click **setup64**.
5. Double-click **files**.
6. Double-click **driver**.
7. Double-click **point64**, and then double-click **point64.inf**.
8. In Notepad, locate the line that starts with **ClassGUID**.
9. Select and copy the GUID, including the opening and closing brackets {}.



### Complete the GPO configuration

1. Switch back to the Group Policy Management Editor.
2. In the **Show Contents** dialog box, in the **Value** text box, paste the GUID that you just copied.
3. Click **OK** twice.
4. In Group Policy Management Editor, double-click **Allow administrators to override Device Installation Restriction policies**.
5. Click **Disabled**, and then click **OK**.
6. Double-click **Display a custom message when installation is prevented by a policy setting**.
7. Click **Enabled**, in the **Detail Text** text box, type **Adatum Policy restricts installation of certain devices**, and then click **OK**.
8. Close all open windows.

### Completion Steps

After you have completed the practice session, revert the virtual machines in preparation for the lab:

1. On the host computer, start Hyper-V Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for **20688D-LON-DC1**.

## Lesson 5

# Configuring the Registry

### Contents:

Demonstration: Editing the Registry

9

## Demonstration: Editing the Registry

### Demonstration Steps

#### Export a registry key

1. On LON-CL1, click **Start**.
2. In Start, type **regedit.exe**, and then press Enter.
3. In the Registry Editor, click **HKEY\_LOCAL\_MACHINE**, expand **SOFTWARE**, expand **Microsoft**, expand **Windows NT**, expand **CurrentVersion**, and then click **Winlogon**.
4. Right-click **Winlogon**, and then click **Export**.
5. In the **Export Registry File** dialog box, click **Desktop**.
6. In the **File name** text box, type **Winlogon**, and then click **Save**.

#### Modify a .reg file

1. Minimize the Registry Editor.
2. Right-click **Winlogon.reg**, and then click **Edit**.
3. Scroll down the file, and locate the line that begins with **"DisableCAD"**.
4. Change the value from 00000001 to **00000000**.
5. Click **File**, and then click **Save**.
6. Close the file.

#### Import settings from a .reg file

1. On the desktop, right-click **Winlogon.reg**, and then click **Merge**.
2. In the **Registry Editor** dialog box, click **Yes**.
3. In the **Registry Editor** error dialog box, click **OK**. An error is expected as some of the settings are in use.
4. Switch to the Registry Editor.
5. Scroll down the details pane, and verify that the **DisableCAD** value is now zero.
6. Right-click **Start**, point to **Shut down or sign out**, and then click **Sign out**.
7. Notice that to sign in, you must press CTRL+ALT+DEL.

#### Completion steps

1. On the host computer, start Hyper-V Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for 20688D-LON-DC1.

## Module Review and Takeaways

**Question:** Users are complaining that when they visit customer sites, they are unable to connect to their customers' printers because of device installation restrictions. What two possible actions could you take?

**Answer:** You could enable device installation for setup class GUID for printers, or you could add the drivers to the driver store using Pnputil.exe.

**Question:** Help desk employees have tried to install a new driver for a user in the marketing department to enable the user to use a new scanner. The driver is not part of the driver store, and Group Policy prohibits installation of additional drivers. What GPO setting would you recommend changing to enable this driver to install?

**Answer:** You do not need to change any GPO setting. Instead, it would be better to install the driver directly into the store. Alternatively, you could change the setting for Allow installation of devices using drivers that match these device setup classes. In Computer Configuration, click Policies, click Administrative Templates, click System, and then click Device Installation\Device Installation Restrictions.

**Question:** You decide to install the scanner driver into the driver store. Assuming the driver is in the D:\scanner folder, and the driver .inf file is called Scanner.inf, what command would you use?

**Answer:** You would use the **Pnputil.exe -a D:\scanner\scanner.inf** command.

## Lab Review Questions and Answers

### Lab: Troubleshooting Hardware and Device Drivers

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

# Module 4

## Troubleshooting Remote Computers

### Contents:

Module Review and Takeaways	2
Lab Review Questions and Answers	3

## Module Review and Takeaways

### Question:

Under what circumstances would you use Remote Desktop Connection or Remote Assistance?

**Answer:** You use Remote Desktop to access a computer remotely from another computer. For example, you can use Remote Desktop to connect to your work computer from your home computer. By using Remote Desktop, you have the potential to access to all of your programs, files, and network resources as if you were sitting at your work computer.

You use Remote Assistance to provide or receive assistance remotely. For example, a technical-support person can access your computer from a remote location to help you with a computer problem, or to show you how to complete a task. You can help someone else the same way. In either case, both people see the same computer screen, and both can control the mouse pointer.

**Question:** With Windows PowerShell remoting, what is One-to-Many, or Fan-Out remoting?

**Answer:** With this form of remoting, you issue a command that will be executed on one or more remote computers in parallel.

**Question:** What methods exist for requesting Remote Assistance?

**Answer:** You can save a Remote Assistance request to a file, or you can use email to send your request to a trusted user.

# Lab Review Questions and Answers

## Lab: Troubleshooting Remote Computers

### Question and Answers

**Question:** In the lab, you enabled Remote Desktop through the firewall by editing the local firewall settings. Is there an alternative way in which you can make this change?

**Answer:** Yes, you can configure the settings through Group Policy on a domain controller. This enables you to apply the settings to a larger group of computers using a single administrative step.

**Question:** Can you foresee using Windows PowerShell remoting in your organization?

**Answer:** Answers will vary.



# Module 5

## Resolving Network Connectivity Issues

### Contents:

Lesson 2: Troubleshooting Network Connectivity Issues	2
Module Review and Takeaways	7
Lab Review Questions and Answers	8

## Lesson 2

# Troubleshooting Network Connectivity Issues

### Contents:

Demonstration: Determining Network Settings	3
Demonstration: Troubleshooting DNS	5
Demonstration: Using Microsoft Message Analyzer to Capture Network Traffic	6

## Demonstration: Determining Network Settings

### Demonstration Steps

#### View IPv4 configuration from a GUI

1. Switch to LON-CL1.
2. Press the Windows® + S keys, in the **Search** box, type **Control**, and then click **Control Panel**.
3. In Control Panel, click **Network and Internet**.
4. In Network and Internet, click **View network status and tasks**.
5. In Network and Sharing Center, to the right of the Adatum.com Domain network, click **London\_Network**.
6. In the **London\_Network Status** dialog box, click **Details**. This window displays the same configuration information for this adapter as the **Ipconfig** command would display.
7. In the Network Connection Details window, click **Close**.
8. In the **London\_Network Status** dialog box, click **Properties**. You can configure protocols in this window.
9. 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.
10. 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.
11. Close all open windows without modifying any settings.

#### View IPv4 configuration from a command line

1. Click **Start**.
2. Type **Windows 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, then create a connection. To create a connection, click **Start**, 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.
6. On the taskbar, click the **Internet Explorer** icon.

7. In Windows Internet Explorer®, in the Address bar, type **http://LON-DC1**, and then press Enter.
8. Switch back to the command prompt.
9. At the command prompt, type **netstat -n**, and then press Enter. Identify the additional open connections.

### Check Windows Firewall configuration

1. Click **Start**, type **Windows Firewall**, and then click **Windows Firewall**.
2. In Windows Firewall, click **Advanced settings**.
3. In Windows Firewall with Advanced Security, expand **Monitoring**, and then click **Firewall**. These are the active firewall rules.
4. Switch back to Windows PowerShell.
5. At the command prompt, type **netsh advfirewall firewall show rule name=all dir=in**, and then press Enter.
6. Review the results, which display all inbound rules.
7. Close all open windows.

### Reconfigure the IPv4 configuration

1. Click **Start** to return to the Start screen.
2. Type **Control**, and then click **Control Panel**.
3. Click **Control Panel Home**.
4. In Control Panel, click **Network and Internet**.
5. In Network and Internet, click **View network status and tasks**.
6. In Network and Sharing Center, to the right of the Adatum.com Domain network, click **London\_Network**.
7. In the **London\_Network Status** dialog box, click **Properties**. In this window, you can configure protocols.
8. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
9. In the **Properties** dialog box, click **Obtain an IP address automatically**. Notice that when you click this, the **Alternate Configuration** tab becomes available.
10. Click **Obtain DNS server address automatically**.
11. Click the **Alternate Configuration** tab. Configuration information on this tab is used when no DHCP server is available.
12. Click **OK** to save the changes.
13. In the **London\_Network Properties** dialog box, click **Close**.
14. In the **London\_Network Status** dialog box, click **Details**. Notice that DHCP is enabled, and that the IP address of the DHCP server displays.
15. Close all open windows.

### Completion Steps

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Demonstration: Troubleshooting DNS

### Demonstration Steps

#### View and clear the name cache

1. Switch to LON-CL1.
2. Click **Start**.
3. Type **Windows PowerShell**, and then press Enter.
4. At the Windows PowerShell command prompt, type **ipconfig /displaydns**, and then press Enter.
5. At the Windows PowerShell command prompt, type **Get-DnsClientCache**, and then press Enter.
6. At the Windows PowerShell command prompt, type **ipconfig /flushdns**, and then press Enter.
7. At the Windows PowerShell command prompt, type **Clear-DnsClientCache**, and then press Enter.
8. 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.
6. Close Windows PowerShell.

### Completion Steps

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Demonstration: Using Microsoft Message Analyzer to Capture Network Traffic

### Demonstration Steps

#### Capture network traffic with Microsoft Message Analyzer

1. On LON-CL1, click **Start**.
2. Type **Windows PowerShell**.
3. Click **Windows PowerShell**.
4. At the Windows PowerShell prompt, type **Clear-DnsClientCache**, and then press Enter.
5. On the desktop, double-click **Microsoft Message Analyzer**.
6. In the Microsoft Message Analyzer Wizard, on the **Welcome to Microsoft Message Analyzer** page, click **Do not update items**, and then click **OK**.
7. In the navigation pane, click **Capture/Trace**, and then in the **Trace Scenarios** section, click **Firewall**.
8. In Microsoft Message Analyzer, on the toolbar, click **Start With**.
9. At the Windows PowerShell prompt, type **ping LON-DC1.adatum.com**, and then press Enter.
10. In Microsoft Message Analyzer, on the toolbar, click **Stop**.

#### Analyze the captured network traffic

1. In Microsoft Message Analyzer, in the results pane, select the first **ICMP** packet group.
2. In the result pane, click the plus (+) sign beside the selected packet group. Verify that it includes both **Echo Request** and **Echo Reply** packets. This is a **ping** request.
3. View the source and destination IP addresses for each packet.

#### Filter the network traffic

1. On the Microsoft Message Analyzer toolbar, in the View Filter section, type the following into the box:

```
*DestinationAddress == 172.16.0.10
```

2. In the View Filter section, click **Apply Filter**. Verify that the packets are now being filtered to show only packets that match the filter.
3. Close Microsoft Message Analyzer.
4. Click **Close without saving**.

#### Completion Steps

- After you have completed the practice session, leave the virtual machines running for the lab.

## Module Review and Takeaways

**Question:** After starting her computer, Amy notices that she is unable to access her normal resources. What tool can she use to determine if she has a valid IP address?

**Answer:** Amy either can run **IPConfig /All**, or use **Ping** to verify her domain controller's IP address.

**Question:** Amy notices that she cannot access normal enterprise websites. She knows that she has a valid IP address, but wants to troubleshoot the DNS access of her computer. What tool must she use?

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

**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: Resolving Network Connectivity Issues

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

**Question:** What was your approach to the second scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

**Question:** What was your approach to the third scenario? How did your approach differ from the class?

**Answer:** Answers will vary.



# Module 6

## Troubleshooting Group Policy

### Contents:

<b>Lesson 1:</b> Overview of Group Policy Application	2
<b>Lesson 2:</b> Resolving Client Configuration Failures and GPO Application Issues	5
Module Review and Takeaways	9
Lab Review Questions and Answers	10

## Lesson 1

# Overview of Group Policy Application

### Contents:

Question and Answers	3
Demonstration: Using the Group Policy Management Console	3

## Question and Answers

### Discussion: Group Policy Application

**Question:** How would you use a GPO to distribute an application only to users in a single region?

**Answer:** You should link the GPO that distributes the application to the region that requires the application. You create a GPO with various computer and user settings to standardize settings in a region.

**Question:** You link the GPO to the Computers OU in that region. Which settings does Windows® 8.1 apply?

**Answer:** When the GPO is linked to the Computers OU in a region, Windows 8.1 applies only the computer settings to computers in the Computers OU. Windows 8.1 would apply user settings only if user accounts existed in that OU. Linking the GPO to the Region OU would result in both computer and user settings being applied in the region.

**Question:** Why might roaming users benefit from linking printer distribution to a site rather than to a specific OU?

**Answer:** If a GPO links to a site, then it applies to all users and computers in that site. The site corresponds to a physical location, and printers are specific to a physical location. As users roam, local printers are installed on their mobile computers based on the site in which the users are located.

**Question:** How can you configure security settings in a GPO and ensure that they apply to all regions?

**Answer:** You should link GPO with security settings to the domain, and then enforce the GPO link. Enforcing the GPO link ensures that no GPOs that apply to OUs can override the domain-wide security settings.

**Question:** A GPO that links to the domain defines the home page for users. The home page points at the company intranet. The managers have a new web-based application that they want to define as their home page. You decide to distribute this setting via a GPO. How can you do this?

**Answer:** You create a new GPO that defines the home page for managers, and then link it to the Managers OU in each region. The GPO that links to the Managers OU in each region overrides the setting that defined at the domain.

**Question:** If the administrator of the Region 1 organizational unit configured the Block Inheritance option on his or her OU, what would the effect be on any GPOs configured at the domain level?

**Answer:** They would all be blocked. The Block Inheritance option blocks all GPOs from all higher-level container objects.

**Question:** If the domain administrator applied the Enforced value to the Default Domain Policy, how would this affect the answer to the previous question?

**Answer:** The Default Domain Policy settings would now apply to the Region 1 OU and its sub-containers. Lower-level GPOs would not override these settings. However, all other GPOs linked to the domain would be blocked as before.

## Demonstration: Using the Group Policy Management Console

### Demonstration Steps

#### Use the Group Policy Management Console (GPMC) to create a new GPO

1. On LON-CL1, click the **Desktop** tile, double-click **Administrative Tools**, and then double-click **Group Policy Management**.

2. Expand **Forest: Adatum.com**, expand **Domains**, expand **Adatum.com**, and then click **Adatum.com**.
3. Click the **Linked Group Policy Objects** tab. Notice that the Default Domain Policy and Marketing GPOs link to the root of the Adatum.com domain.
4. Right-click **Adatum.com**, and then click **Create a GPO in this domain, and Link it here**.
5. In the **New GPO** dialog box, in the **Name** box, type **Preferences**, and then click **OK**.

### **Configure a new GPO to create a desktop shortcut**

1. In the left pane, expand **Adatum.com**.
2. Click **Preferences**.
3. Click **OK** to close the warning pop-up window.
4. On the **Scope** tab, verify that no WMI filters are applied.
5. On the **Settings** tab, verify that no settings are defined in this GPO.
6. In the left pane, right-click **Preferences**. Notice in the context menu that the link is enabled but not enforced.
7. In the context menu, click **Edit**.
8. In the Group Policy Management Editor window, review the available information. Notice that there are two categories of settings, User Configuration and Computer Configuration, which are divided further into Policies and Preferences.
9. Under User Configuration, expand **Preferences**, expand **Windows Settings**, and then click **Shortcuts**.
10. Right-click **Shortcuts**, point to **New**, and then click **Shortcut**.
11. In the **New Shortcut Properties** dialog box, enter the following information, and then click **OK**:
  - Action: **Create**
  - Name: **Notepad**
  - Target type: **File System Object**
  - Location: **Desktop**
  - Target Path: **C:\Windows\System32\notepad.exe**
12. Close the Group Policy Management Editor.
13. Close the GPMC.
14. Close Administrative Tools.

### **Update Group Policy on LON-CL1**

1. Right-click **Start** and then click **Command Prompt**.
2. At the command prompt, type **gpupdate /force**, and then press Enter. The **/force** option ensures that all policies are applied and not just updates.
3. When the Group Policy update completes, close the Command Prompt window.
4. Notice that the Notepad shortcut now displays on the desktop.

### **Completion steps**

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Lesson 2

# Resolving Client Configuration Failures and GPO Application Issues

### Contents:

Question and Answers	6
Demonstration: Using GPO Application Troubleshooting Tools	6

## Question and Answers

### Discussion: Reasons for GPO Application Issues

**Question:** What are some of the reasons that GPO settings might not apply as you think they should?

**Answer:** Possible reasons that GPO settings may not apply as intended include:

- A GPO with user settings is not linked to a location where the user account resides.
- A GPO with computer settings is not linked to a location where the computer account resides.
- A computer is not able to communicate with a domain controller to download the GPO due to any of the following reasons:
  - Network communication problems
  - Incorrect time settings on the client computer
  - Corrupted computer accounts
  - Client-side extension problems
- A GPO was not properly tested and/or is configured incorrectly.
- AD DS replication or SYSVOL replication is not functioning between the domain controllers that are distributing the GPOs to client computers.
- Processing exceptions are preventing the GPO from processing, including:
  - Blocked inheritance
  - Enforcement
  - Link order
  - WMI filtering

## Demonstration: Using GPO Application Troubleshooting Tools

### Demonstration Steps

#### Use gpreresult.exe to create a report

1. On LON-CL1, click **Start**.
2. On the **Start** screen, type **cmd.exe**, and then press Enter.
3. In the Command Prompt window, at a command prompt, type **gpreresult /r**, and then press Enter.
4. Review the output in the Command Prompt window.
5. At the command prompt, type the following command, and then press Enter:

```
GPREResult /h c:\results.html
```

6. Close the Command Prompt window.
7. Click **File Explorer**, and navigate to drive **C**.
8. In the details pane, double-click the **results.html** file.
9. In the Windows Internet Explorer window, **click Allow blocked content**.
10. View the report results and then close Internet Explorer®.

### Use the Group Policy Reporting Wizard to create a report

1. On the desktop, double-click **Administrative Tools**.
2. Double-click **Group Policy Management**.
3. In the Group Policy Management window, right-click **Group Policy Results**, and then click **Group Policy Results Wizard**.
4. In the Group Policy Results Wizard, click **Next**.
5. On the **Computer Selection** page, click **Next**.
6. On the **User Selection** page, click **Next**.
7. On the **Summary of Selections** page, click **Next**.
8. On the **Completing the Group Policy Results Wizard** page, click **Finish**.
9. Review the Group Policy results.
10. Expand the **Group Policy Results** folder, right-click the **Administrator on LON-CL1** report, and then click **Save Report**.
11. In the **Save GPO Report** dialog box, click **Desktop**, and then click **Save**.

### Use the Group Policy Modeling Wizard to create a report

1. Right-click the **Group Policy Modeling** folder, and then click **Group Policy Modeling Wizard**.
2. In the Group Policy Modeling Wizard, click **Next**.
3. On the **Domain Controller Selection** page, click **Next**.
4. On the **User and Computer Selection** page, under **User information**, click **User**, and then click **Browse**.
5. In the **Select User** dialog box, type **Ed Meadows**, and then click **OK**.
6. Under Computer information, click **Browse**.
7. In the **Choose Computer Container** dialog box, expand **Adatum**, click **IT**, and then click **OK**.
8. On the **User and Computer Selection** page, click **Next**.
9. On the **Advanced Simulation Options** page, click **Next**.
10. On the **Alternate Active Directory Paths** page, click **Next**.
11. On the **User Security Groups** page, click **Next**.
12. On the **Computer Security Groups** page, click **Next**.
13. On the **WMI Filters for Users** page, click **Next**.
14. On the **WMI Filters for Computers** page, click **Next**.
15. On the **Summary of Selections** page, click **Next**.
16. On the **Completing Group Policy Modeling Wizard** page, click **Finish**.
17. Review the report.

### Review GPO events in the event log

1. Under Group Policy Results, click **Administrator on LON-CL1**.
2. In the details pane, click the **Policy Events** tab, and then review the events.
3. Close all open windows.

4. On the desktop, double-click **Administrative Tools**, and then double-click **Event Viewer**.
5. In the console tree, expand **Windows Logs**, and then click the **System** log.
6. Sort the System log by **Source**.
7. Locate events with Group Policy as the Source.
8. Review the information associated with Group Policy events.
9. In the console tree, expand **Applications and Services Logs**, expand **Microsoft**, expand **Windows**, expand **Group Policy**, and then click **Operational**.
10. Review the events, and then close all open windows.

### **Completion steps**

After you have completed the practice session, revert the virtual machines in preparation for the lab:

1. On the host computer, start Hyper-V® Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for **20688D-LON-DC1**.



## Module Review and Takeaways

**Question:** Do you use loopback policy processing in your organization? In which scenarios and for which policy settings can loopback policy processing be helpful?

**Answer:** Answers will vary. Scenarios could include using loopback policy processing for conference rooms and kiosks, on Virtual Desktop Infrastructures, and in other standard environments.

**Question:** Your organization has a computer lab that it uses for training. When users log on to computers in this lab, they should only have lab-specific settings. The instructor in the lab this week is indicating that users are not seeing the default home page for the web application that they are using for training. You know that a new GPO for the lab was created last Friday. What is the most likely cause of this problem?

**Answer:** The most likely cause of this problem is that the new GPO does not have loopback processing enabled.

**Question:** A new user in accounting has called the help desk indicating that she does not have the standard drive mappings for the accounting department. These drive mappings are configured by using Group Policy Preferences. What is the most likely cause of this problem?

**Answer:** There is likely a configuration problem with the new user account. Depending on how the drive mappings are configured for application, it is possible that the user is not in the correct group, or the user's account is not in the correct OU where the GPO is linked.

## Lab Review Questions and Answers

### Lab: Troubleshooting Group Policy

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

**Question:** What was your approach to the second scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

# Module 7

## Troubleshooting User Settings

### Contents:

Module Review and Takeaways	2
Lab Review Questions and Answers	3

## Module Review and Takeaways

### Review Question(s)

**Question:** You are distributing new laptop computers to executives in your organization. Is any additional configuration required to allow them to sign in by using their domain user account name and password when they are out of the office?

**Answer:** No. Cached credentials are enabled by default.

**Question:** What are common reasons for users being unable to sign in?

**Answer:** Answers may include:

- Incorrect password
- Locked account
- Expired account
- Deleted account
- Signing in with a local account
- Using a Microsoft account
- Corrupted computer account
- Incorrect DNS settings
- General networking problems

# Lab Review Questions and Answers

## Lab A: Troubleshooting Sign-in Problems

### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class-guided approach?

**Answer:** Answers will vary.

**Question:** What was your approach to the second scenario? How did your approach differ from the class-guided approach?

**Answer:** Answers will vary.

## Lab B: Troubleshooting the Application of User Settings

### Question and Answers

**Question:** What was your approach to the scenario? How did your approach differ from the class-guided approach?

**Answer:** Answers will vary.

# Module 8

## Configuring and Troubleshooting Remote Connectivity

### Contents:

<b>Lesson 2:</b> Troubleshooting NAP	2
<b>Lesson 3:</b> Troubleshooting DirectAccess	6
Module Review and Takeaways	9
Lab Review Questions and Answers	10

## Lesson 2

# Troubleshooting NAP

### Contents:

Demonstration: Configuring NAP Server Settings	3
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## Demonstration: Configuring NAP Server Settings

### Demonstration Steps

#### Configure NPS as a NAP Health Policy Server

1. Switch to LON-DC1.
2. In Server Manager, click **Tools** and then click **Network Policy Server**.
3. In the navigation pane, expand **Network Access Protection**, expand **System Health Validators**, expand **Windows Security Health Validator**, and then click **Settings**.
4. In the right pane, under **Name**, double-click **Default Configuration**.
5. In the navigation pane, click **Windows 8/Windows 7/Windows Vista**.
6. In the details pane, clear all check boxes except the **A firewall is enabled for all network connections** check box.
7. Click **OK** to close the **Windows Security Health Validator** dialog box.

#### Configure health policies

1. In the navigation pane, expand **Policies**.
2. Right-click **Health Policies**, and then click **New**.
3. In the **Create New Health Policy** dialog box, under **Policy name**, type **Compliant**.
4. Under **Client SHV checks**, verify that the **Client passes all SHV checks** is selected.
5. Under **SHVs used in this health policy**, select the **Windows Security Health Validator** check box, and then click **OK**.
6. Right-click **Health Policies**, and then click **New**.
7. In the **Create New Health Policy** dialog box, under **Policy Name**, type **Noncompliant**.
8. Under **Client SHV checks**, click **Client fails one or more SHV checks**.
9. Under **SHVs used in this health policy**, select the **Windows Security Health Validator** check box, and then click **OK**.

#### Configure network policies for compliant computers

1. In the navigation pane, under **Policies**, click **Network Policies**.
2. Disable the two default policies found under **Policy Name** by right-clicking the policies, and then clicking **Disable**.
3. Right-click **Network Policies**, and then click **New**.
4. On the **Specify Network Policy Name and Connection Type** page, under **Policy name**, type **Compliant-Full-Access**, and then click **Next**.
5. On the **Specify Conditions** page, click **Add**.
6. In the **Select condition** dialog box, double-click **Health Policies**.
7. In the **Health Policies** dialog box, under **Health policies**, click **Compliant**, and then click **OK**.
8. On the **Specify Conditions** page, click **Next**.
9. On the **Specify Access Permission** page, click **Next**.
10. On the **Configure Authentication Methods** page, clear all check boxes, select the **Perform machine health check only** check box, and then click **Next** twice.



11. On the **Configure Settings** page, click **NAP Enforcement**. Verify that **Allow full network access** is selected, and then click **Next**.
12. On the **Completing New Network Policy** page, click **Finish**.

### **Configure network policies for noncompliant computers**

1. Right-click **Network Policies**, and then click **New**.
2. On the **Specify Network Policy Name and Connection Type** page, under **Policy name**, type **Noncompliant-Restricted**, and then click **Next**.
3. On the **Specify Conditions** page, click **Add**.
4. In the **Select condition** dialog box, double-click **Health Policies**.
5. In the **Health Policies** dialog box, under **Health policies**, select **Noncompliant**, and then click **OK**.
6. On the **Specify Conditions** page, click **Next**.
7. On the **Specify Access Permission** page, verify that **Access granted** is selected, and then click **Next**.
8. On the **Configure Authentication Methods** page, clear all check boxes, select the **Perform machine health check only** check box, and then click **Next** twice.
9. On the **Configure Settings** page, click **NAP Enforcement**, and then click **Allow limited access**.
10. Clear the **Enable auto-remediation of client computers** check box, click **Next**, and then click **Finish**.

### **Configure the DHCP server role for NAP**

1. In Server Manager, click **Tools**, and then click **DHCP**.
2. In DHCP, expand **LON-DC1.Adatum.com**, expand **IPv4**, right-click **Scope [172.16.0.0] Adatum**, and then click **Properties**.
3. In the **Scope [172.16.0.0] Adatum Properties** dialog box, click the **Network Access Protection** tab, click **Enable for this scope**, and then click **OK**.
4. In the navigation pane, under Scope [172.16.0.0] Adatum, click **Policies**.
5. Right-click **Policies**, and then click **New Policy**.
6. In the DHCP Policy Configuration Wizard, in the **Policy Name** text box, type **NAP Policy**, and then click **Next**.
7. On the **Configure Conditions for the policy** page, click **Add**.
8. In the **Add/Edit Condition** dialog box, in the **Criteria** list, click **User Class**.
9. In the **Operator** list, click **Equals**.
10. In the **Value** list, click **Default Network Access Protection Class**, and then click **Add**.
11. Click **Ok**, and then click **Next**.
12. On the **Configure settings for the policy** page, click **No**, and then click **Next**.
13. On the **Configure settings for the policy** page, in the **Vendor class** list, click **DHCP Standard Options**.
14. In the **Available Options** list, select the **006 DNS Servers** check box.
15. In the **IP address** field, type **172.16.0.10**, and then click **Add**.
16. In the **Available Options** list, select the **015 DNS Domain Name** check box.

17. In the **String value** text box, type **restricted.adatum.com**, and then click **Next**.
18. On the **Summary** page, click **Finish**.
19. Close DHCP.

### **Completion Steps**

- After you have completed the practice session, leave the virtual machines running for the lab.

## Lesson 3

# Troubleshooting DirectAccess

### Contents:

Demonstration: Configuring DirectAccess by Using the Getting Started Wizard 7

## Demonstration: Configuring DirectAccess by Using the Getting Started Wizard

### Demonstration Steps

#### Verify network configuration on LON-RTR

1. Switch to LON-RTR.
2. In Server Manager, click **Tools**, and then click **Routing and Remote Access**.
3. In the Routing and Remote Access console, in the navigation pane, right-click **LON-RTR (local)**, and then click **Disable Routing and Remote Access**.
4. Click **Yes** in **Routing and Remote Access** dialog box. This step is needed to disable the Routing and Remote Access that was preconfigured for this lab.
5. Close Routing and Remote Access.
6. Right-click **Start**, and then click **Network Connections**.
7. In the Network Connections window, verify that there are two network adapters: London\_Network and Internet.
8. In the Network Connections window, right-click the **London\_Network** adapter, and then click **Disable**.
9. In the Network Connections window, right-click the **London\_Network** adapter, and then click **Enable**.
10. Repeat steps 8 and 9 for the **Internet** network connection.

#### Verify readiness for DirectAccess

1. Switch to LON-DC1.
2. In Server Manager, click **Tools**, and then click **Active Directory Users and Computers**.
3. In the Active Directory® Users and Computers console tree, right-click **Adatum.com**, click **New**, and then click **Organizational Unit**.
4. In the **New Object – Organizational Unit** dialog box, in the **Name** box, type **DA\_Clients OU**, and then click **OK**.
5. In the Active Directory Users and Computers console tree, expand **Adatum.com**, right-click **DA\_Clients OU**, click **New**, and then click **Group**.
6. In the **New Object - Group** dialog box, in the **Group name** box, type **DA\_Clients**.
7. Under **Group scope**, ensure that **Global** is selected, and under **Group type**, ensure that **Security** is selected, and then click **OK**.
8. In the details pane, right-click **DA\_Clients**, and then click **Properties**.
9. In the **DA\_Clients Properties** dialog box, click the **Members** tab, and then click **Add**.
10. In the **Select Users, Contacts, Computers, Service Accounts, or Groups** dialog box, click **Object Types**, select the **Computers** check box, and then click **OK**.
11. In the **Enter the object names to select (examples)** box, type **LON-CL3**, and then click **OK**.
12. Verify that LON-CL3 is displayed under **Members**, and then click **OK**.
13. Close the Active Directory Users and Computers console.

## Configure DirectAccess by using the Getting Started Wizard

1. Switch to LON-RTR.
2. In Server Manager, click **Tools**, and then select **Remote Access Management**.
3. In the Remote Access Management console, under Configuration, click **DirectAccess and VPN**.
4. Click **Run the Getting Started Wizard**.
5. On the **Configure Remote Access** page, click **Deploy DirectAccess only**.
6. Verify that **Edge** is selected, and in **Type the public name or IPv4 address used by clients to connect to the Remote Access server** box, type **131.107.0.10**, and then click **Next**.
7. In the **Configure Remote Access** page, click the **here** link.
8. On the **Remote Access Review** page, verify that two GPO objects are created, **Direct Access Server Settings** and **DirectAccess Client settings**.
9. Click the **Change** link beside Remote Clients.
10. Select **Domain Computers (Adatum\Domain Computers)**, and then click **Remove**.
11. Click **Add**, type **DA\_Clients**, and then click **OK**.
12. Clear the **Enable DirectAccess for mobile computers only** check box, and then click **Next**.
13. On the **DirectAccess Client Setup** page, click **Finish**.
14. On the **Remote Access Review** page, click **OK**.
15. On the **Configure Remote Access** page, click **Finish** to finish the DirectAccess wizard.
16. In the **Applying Getting Started Wizard Settings** dialog box, click **Close**.

## Completion steps

- After you have completed the practice session, leave the virtual machines running for the lab.

## Module Review and Takeaways

**Question:** Users are complaining that they are unable to connect to the corporate network by using VPNs following recent firewall configuration changes. The team responsible for implementing security policies has determined that only TCP port 443 is allowed through into the internal network. Which tunneling protocol supports this restriction?

**Answer:** SSTP uses HTTPS over TCP port 443.

**Question:** On a client computer, what steps must you perform to ensure that the client's health is being assessed?

**Answer:** You must perform the following steps to ensure that the client computer can be assessed for health:

1. Enable the NAP enforcement client.
2. Enable the Security Center.
3. Start the NAP agent service.

**Question:** How do you configure DirectAccess clients?

**Answer:** To configure DirectAccess clients, use Group Policy. When you use the Configure Remote Access Wizard to configure DirectAccess, two GPOs are created and linked to the domain. These two GPOs define DirectAccess-related settings and are applied to DirectAccess clients.

## Lab Review Questions and Answers

### Lab A: Configuring Network Access Protection Client Settings

#### Question and Answers

**Question:** If you enable NAP tracing, what log files do you need to investigate, and where are they located?

**Answer:** By default, NPS logs are located in %systemroot%\system32\logfiles.

The following logs might also contain details about the following NAP-related information:

- IASNAP.LOG. Contains information about NAP processes, Network Policy Server (NPS) authentication, and NPS authorization.
- IASSAM.LOG. Contains information about user authentication and authorization.

### Lab B: Configuring and Testing DirectAccess

#### Question and Answers

**Question:** If you deploy DirectAccess with the Getting Started Wizard, what client operating systems are supported?

**Answer:** If you configured DirectAccess by using the Getting Started Wizard, the DirectAccess client computer must be running Windows 8, Windows 8.1, Windows Server 2012, or Windows Server 2012 R2.

# Module 9

## Troubleshooting Resource Access within a Domain

### Contents:

<b>Lesson 1:</b> Troubleshooting File Access Issues	2
<b>Lesson 2:</b> Troubleshooting File Permissions Issues	5
Module Review and Takeaways	7
Lab Review Questions and Answers	8



## Lesson 1

# Troubleshooting File Access Issues

### Contents:

Demonstration: Using Group Policy Preferences for Drive Mappings 3

## Demonstration: Using Group Policy Preferences for Drive Mappings

### Demonstration Steps

#### Configure a drive mapping with Group Policy Preferences

1. On LON-CL1, in Start screen, click the **Desktop** tile.
2. Double-click **Administrative Tools**.
3. Double-click **Group Policy Management**.
4. In the console tree, expand **Forest: Adatum.com**, expand **Domains**, expand **Adatum.com**, and then click the **Group Policy Objects** container.
5. In the **Group Policy Objects** folder, in the details pane, right-click the **Default Domain Policy**, and then click **Edit**.



**Note:** It is not usual to edit the Default Domain Policy to store drive mappings.

6. Expand **User Configuration**, expand **Preferences**, expand **Windows Settings**, right-click **Drive Maps**, point to **New**, and then click **Mapped Drive**.
7. In the **New Drive Properties** dialog box, in the **Action** list, click **Create**.
8. In the **Location** text box, type `\\lon-dc1\Research`.
9. Select the **Reconnect** check box.
10. In the **Use** list, click **R**.

#### Target the preference

1. On the **Common** tab, select the **Item-level targeting** check box, and then click **Targeting**.
2. In the **Targeting Editor** dialog box, click **New Item**, and then click **Security Group**.
3. Next to the **Group** text box, click the ellipses (...) button.
4. In the **Select Group** dialog box, in the **Enter the object name to select (examples)** text box, type `Adatum\Research` and then click **OK**.
5. Click **OK** two more times.

#### Test the preferences

1. Right-click **Start**, and then click **Command Prompt**.
2. At the command prompt, type the following command, and then press Enter:

```
gpupdate /force
```

3. Restart LON-CL1.
4. Sign in to LON-CL1 as **Adatum\Allie** with the password **Pa\$\$w0rd**.
5. From the Start screen, click the **Desktop** tile.
6. On the taskbar, click the **File Explorer** icon.
7. In File Explorer, verify the presence of the mapped network drive R.



**Note:** If a Welcome to the Research Lab dialog box displays, this is a user assigned logon script. Click **OK** to close the dialog box.

## Completion Steps

After you have completed the practice session, revert the virtual machines running in preparation for the lab:

1. On the host computer, start Hyper-V Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for 20688D-LON-DC1.

## Lesson 2

# Troubleshooting File Permissions Issues

### Contents:

Question and Answers

6

## Question and Answers

### Discussion: Consider the Interaction of Shared Folder Permissions and File and Folder Permissions

**Question:** If a user has Full Control file system permissions to a file but is accessing the file through a share with Read permission, what will be the effective permission the user will have on the file?

**Answer:** The user will have only Read access to the file when accessing it over the network through the share (because Read access is more restrictive than Full Control). If the user is signed in to the computer that is storing the file and is accessing the file locally, then the user has Full Control.

**Question:** If you want a user to view all files in a shared folder, but the user can modify only certain files in the folder, what permissions should you give the user?

**Answer:** The Share permissions will have to allow the user to modify all files (this opens the folder window-wide, but it will get locked down with file system permissions). You must set the file system permissions for the folder to allow the user Read access only (which then passes on to all the files within that folder). Then on the individual files in the folder that you want the user to modify, assign the Modify file system permission.

**Question:** Identify a scenario at your organization where it might be necessary to combine file system permissions and Share permissions. What is the reason for combining permissions?

**Answer:** Answers will vary, based on the experiences of each student.

## Module Review and Takeaways

**Question:** A user has called the help desk and complained about not being able to access some files. Help desk passed the call to you, and you have determined that the user was not added to the correct group. After you added the user to the correct group, the user is still unable to access the files. What other step is required?

**Answer:** After adding a user to a group, the user must sign out and then sign back in to update the security token that contains group membership information.

**Question:** One department in your organization is using a new application that creates two folders in the root of drive C. One folder is for the program executable files, whereas the other folder is for program data. What file permissions do you need to configure for these folders?

**Answer:** Users need Read and Execute permission for the folder with the program executables. Users need Modify permission for the folder with the program data. You do not need to configure any Share permissions.

## Lab Review Questions and Answers

### Lab: Troubleshooting Resource Access within a Domain

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

**Question:** What was your approach to the second scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

# Module 10

## **Configuring and Troubleshooting Resource Access for Clients That Are Not Domain Members**

### **Contents:**

Module Review and Takeaways	2
Lab Review Questions and Answers	3



## Module Review and Takeaways

**Question:** Your organization has an already working implementation of Work Folders that uses auto discovery. A person has joined your organization. The user account for the new person has been created, and he is attempting to access Work Folders. His attempts to access Work Folders are failing. What are some likely sources of the problem?

**Answer:** Two potential problem sources are:

- The user was not added to a group with permission to access a sync share on a Work Folders server. A user must be given permission to have a Work Folder on a Work Folders server.
- If there are multiple Work Folders servers, the user account might not have been updated with the correct URL in the **msDS-SyncServerURL** attribute to locate the appropriate server.

**Question:** Your organization has implemented OneDrive for Business in SharePoint Online. A user wants to share a document with a colleague outside the organization. Is this possible?

**Answer:** Yes. You can share documents from OneDrive for Business with external users. When you share the document, you can specify the permission that are allowed and send an email to the user that includes a URL for accessing the document.

**Question:** Your organization has implemented OneDrive for Business in an on-premises implementation of SharePoint Server 2013. Some users are reporting that they are getting replication conflicts when they use the OneDrive for Business Windows Sync client. What is the likely source of this problem?

**Answer:** You can collaborate with other users when using the OneDrive for Business Windows Sync client only if you have Office 2013. If you are using Office 2010, replication conflicts occur if another user is editing the document in the SharePoint library while you are editing the synchronized version on your PC. To resolve this problem, upgrade to Office 2013 or edit the document directly from the SharePoint library.

## Lab Review Questions and Answers

### Lab: Configuring and Troubleshooting Resource Access for Clients That Are Not Domain Members

#### Question and Answers

**Question:** What are the important differences between Work Folders and OneDrive for Business?

**Answer:** Work Folders and OneDrive for Business have the differences listed in the following table.

Work Folders	OneDrive for Business
Stored on a file server on-premises	Stored in SharePoint Server 2013 on-premises or SharePoint Online
Synchronizes to multiple devices types	Synchronizes only to computers with the OneDrive for Business Windows Sync client
Designed for personal storage	Designed for personal storage and collaboration

**Question:** Can Workplace Join be implemented without AD FS?

**Answer:** No. The Device Registration Service that performs the Workplace Join process for clients is part of AD FS.

# Module 11

## Troubleshooting Applications

### Contents:

<b>Lesson 1:</b> Troubleshooting Desktop App Installation Issues	2
<b>Lesson 2:</b> Troubleshooting Desktop Apps	5
<b>Lesson 4:</b> Troubleshooting Internet Explorer	8
<b>Lesson 5:</b> Implementing Client Hyper-V	11
Module Review and Takeaways	13
Lab Review Questions and Answers	14

## Lesson 1

# Troubleshooting Desktop App Installation Issues

### Contents:

Question and Answers	3
Demonstration: Controlling Desktop App Installation by Using AppLocker	3

## Question and Answers

### Discussion: Desktop App Deployment Issues

**Question:** What are some reasons that application deployment or installation may fail?

**Answer:**

- Insufficient permissions. Standard users are unable to perform manual installations of applications, because they do not have the necessary permissions to modify system files. Automated installations avoid this problem by installing applications on the local system as a user with administrative permissions.
- Missing dependencies. Many applications require additional software, such as operating system features, to function. For example, many applications need to run on a specific version of Microsoft .NET Framework.
- Application is not compliant with User Account Control (UAC). UAC in Windows 8.1 runs all processes with standard user permissions, even for administrative users. Applications must request elevation to administrative permissions. Older applications designed for the Windows XP operating system were developed prior to UAC, and do not request the elevated permissions required for installation. In some cases, UAC recognizes the problem and elevates permissions automatically, but not in all cases.
- Installation is prevented by AppLocker® rules. AppLocker is a feature designed to help you control software installation and execution in Windows 8.1. You can configure AppLocker to allow only specific applications to install.
- Licensing issues. Most desktop apps require a user license. It is possible that you may encounter problems with the licensing process, or with the required license keys, that may result in installation failure.

### Demonstration: Controlling Desktop App Installation by Using AppLocker

#### Demonstration Steps

##### Create a new installer rule

1. Sign in to LON-CL3 as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. On the Start screen, type **gpedit.msc**, and then press Enter.
3. In the Local Group Policy Editor, expand **Computer Configuration**, expand **Windows Settings**, and then expand **Security Settings**.
4. Expand **Application Control Policies**, and then double-click **AppLocker**.
5. Click **Windows Installer Rules**, right-click **Windows Installer Rules**, click **Create New Rule**, and then click **Next**.
6. On the **Permissions** page, click **Deny**, and then click the **Select** button.
7. In the **Select User or Group** dialog box, in the **Enter the object names to select (examples)** text box, type **Sales**. Click **Check Names**, click **OK**, and then click **Next**.
8. On the **Conditions** page, click **Path**, and then click **Next**.
9. On the **Path** page, click **Browse Files**.
10. In the **Open** dialog box, in the **File name** text box, type **\\lon-dc1\sales\XmlNotepad.msi**, and then click **Open**.
11. Click **Next**.

12. Click **Next** again, and then click **Create**.
13. When prompted to create default rules, click **Yes**.
14. Close Local Group Policy Editor.



**Note:** You will not perform the additional steps to enable this rule.

### **Completion steps**

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Lesson 2

# Troubleshooting Desktop Apps

### Contents:

Demonstration: Resolving a Desktop App Compatibility Issue  
by Using the ACT

6

## Demonstration: Resolving a Desktop App Compatibility Issue by Using the ACT

### Demonstration Steps

#### Identify compatibility issues

1. Sign in to LON-CL1 as **Adatum\Alan** with the password **Pa\$\$w0rd**.
2. Click **Desktop**, and then on the taskbar, click **File Explorer**.
3. Navigate to **C:\Program Files (x86)\StockViewer** and then double-click **StockViewer**.
4. In the **Permission denied** dialog box, click **OK**.
5. On the **Stock Viewer** toolbar, click **Trends**. In the **Error** dialog box, click **OK**.
6. On the **Tools** menu, click **Options**. In the **Unhandled exception has occurred** dialog box, click **Continue**.
7. On the **Tools** menu, click **Show Me a Star**.
8. In the **Unsupported Version** dialog box, click **OK**.
9. Close Stock Viewer.
10. In File Explorer, right-click **StockViewer**, and then click **Run as administrator**.
11. In the **User Account Control** box, provide the following credentials, and then click **Yes**:
  - User name: **Adatum\Administrator**
  - Password: **Pa\$\$w0rd**
12. On the **Stock Viewer** toolbar, click **Trends**.
13. On the **Tools** menu, click **Options**, and then click **OK**.
14. On the **Tools** menu, click **Show Me a Star**, and then click **OK**.
15. Close Stock Viewer and then sign out of LON-CL1.

#### Create a compatibility fix

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. On the Start screen, beneath the desktop tile, click the down arrow.
3. Click **Compatibility Administrator (32-bit)**.
4. In the **Compatibility Administrator (32-bit) – New Database (1) [Untitled\_1]** dialog box, right-click **New Database(1) [Untitled\_1]**, and then click **Rename**.
5. Type **AdatumACT**, and press Enter.
6. In the Compatibility Administrator window, right-click **AdatumACT [Untitled\_1]\***, click **Create New**, and then click **Application Fix**.
7. In the Create New Application Fix wizard, in the **Name of the program to be fixed** field, type **StockViewer**.
8. Click **Browse**.
9. In the Find Binary window, browse to **C:\Program Files (x86)\StockViewer\StockViewer.exe**, and then click **Open**.
10. In the Create New Application Fix window, click **Next**.



11. On the **Compatibility Modes** page, select the **Run this program in compatibility mode for** check box, click the drop-down list, and then click **Windows XP**.
12. In the Additional compatibility modes section, scroll down, select the **RunAsAdmin** check box, and then click **Next**.
13. On the **Compatibility Fixes** page, click **Next**.
14. On the **Matching Information** page, click **Finish**.
15. In the Compatibility Administrator window, click **Save**.
16. In the Save Database window, browse to **d:\labfiles\mod11\**.
17. In the **File name** field, type **AdatumACT**, and then click **Save**.
18. Close the Compatibility Administrator window.
19. Sign out of LON-CL1.

### Test the fix

1. Sign in to LON-CL1 as **Adatum\Alan** with the password **Pa\$\$w0rd**.
2. On the Start screen, type **cmd**, right-click **Command Prompt**, and then click **Run as administrator**.
3. In the **User Account Control** dialog box, enter the following credentials, and then click **Yes**:
  - User name: **Adatum\administrator**
  - Password: **Pa\$\$w0rd**
4. At the command prompt, type the following, and press Enter.

```
Sdbinst D:\labfiles\mod11\AdatumACT.sdb
```

5. On the taskbar, click **File Explorer**.
6. Navigate to **C:\Program Files (x86)\StockViewer** and then double-click **StockViewer**.
7. In the **User Account Control** dialog box, enter the following credentials, and then click **Yes**:
  - User name: **Adatum\administrator**.
  - Password: **Pa\$\$w0rd**
8. On the **Stock Viewer** toolbar, click **Trends**.
9. On the **Tools** menu, click **Options**.
10. Click **OK** to close the message box.
11. On the **Tools** menu, click **Show Me a Star**.
12. Close the Stock Viewer application.

### Completion steps

After you have completed the practice session, **revert the virtual machines** in preparation for the lab:

1. On the host computer, start Hyper-V® Manager.
2. In the **Virtual Machines** list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for **20688D-LON-CL3** and **20688D-LON-DC1**.

## Lesson 4

# Troubleshooting Internet Explorer

### Contents:

Demonstration: Configuring Internet Explorer

9

## Demonstration: Configuring Internet Explorer

### Demonstration Steps

#### Verify Compatibility View settings

1. Sign in to LON-CL1 as **Adatum\Administrator** with the password **Pa\$\$w0rd**.
2. On the Start screen, click **Desktop**.
3. On the desktop, on the taskbar, click the **Internet Explorer** icon.
4. In Internet Explorer®, right-click the star to the right of the home symbol, and then click **Menu bar**.
5. On the menu bar, click **Tools**, and then click **Compatibility View settings**.
6. View the available options, and then click **Close**.

#### Delete browsing history

1. In the Internet Explorer Address bar, type **http://LON-DC1**, and then press Enter.
2. Click the down arrow next to the Address bar to confirm that the address you typed in it is stored.
3. In Internet Explorer, on the **Tools** menu, click **Internet options**.
4. In the **Internet Options** dialog box, on the **General** tab, under **Browsing history**, click **Delete**.
5. In the **Delete Browsing History** dialog box, clear the **Preserve Favorites website data** check box and then click **Delete**.
6. Click **OK** to close the **Internet Options** dialog box.
7. Click the down arrow next to the Address bar to confirm that there are no addresses stored in the Address bar.



**Note:** Bing may appear as a favorite in this list. Disregard it.

#### Configure InPrivate Browsing

1. In Internet Explorer, on the **Tools** menu, click **InPrivate Browsing**.
2. In the Internet Explorer Address bar, type **http://LON-DC1**, and then press Enter.
3. Confirm the address you entered is not stored by clicking on the down arrow next to the Address bar.
4. Close the InPrivate Browsing window.

#### View the Add-on management interface

1. In Internet Explorer, on the **Tools** menu, click **Manage add-ons**.
2. In the Manage Add-ons window, in the Add-on types pane, click **Search Providers**.
3. In the right pane, click **Bing**.
4. In the Add-on types pane, click **Accelerators**.
5. In the Add-on types pane, click **Tracking Protection**.
6. Click **Close** to close the Manage Add-ons window.

#### Download a file

1. In the Internet Explorer Address bar, type **http://lon-dc1**, and then press Enter.
2. Click **Download current projects**.

3. In the **Internet Explorer** dialog box, click **Save**.
4. In the banner, click **View downloads**.
5. In **View Downloads – Windows Internet Explorer**, click **Open**.
6. Verify that the file opens in Microsoft® Excel®.
7. Close Excel.
8. Close Internet Explorer, and then sign out of LON-CL1.

### **Completion steps**

- After you have completed the practice session, leave the virtual machines running for the next lab.

## Lesson 5

# Implementing Client Hyper-V

### Contents:

Demonstration: Managing Virtual Machines in Client Hyper-V	12
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## Demonstration: Managing Virtual Machines in Client Hyper-V

### Demonstration Steps

1. On LON-CL5, sign in as **Admin**, with the password **Pa\$\$w0rd**.
2. On LON-CL5, on the Start screen, type **Control**, click **Control Panel**, and then click **Programs**.
3. Click **Programs and Features**, and then in the Programs and Features window, click **Turn Windows Features on or off**.
4. In the Windows Features window, select the **Hyper-V** check box, and then click **OK**.
5. In the Windows completed the requested changes window, click **Restart Now**.
6. When prompted during startup, click **20688D-LON-CL5**.
7. On LON-CL5, sign in as **Admin** with the password **Pa\$\$w0rd**.
8. On LON-CL5, on the Start Screen, type **Hyper-V**, and then click **Hyper-V Manager**.
9. In **Hyper-V Manager**, right-click **LON-CL5**, and then click **Virtual Switch Manager**.
10. In the Virtual Switch Manager window, in the **Create virtual switch** section, click **Private**, and then click **Create Virtual Switch**.
11. In the **Virtual Switch Properties** section, in the **Name** field, type **Private Network**, and then click **OK**.
12. In **Hyper-V Manager**, right-click **LON-CL5**, point to **New**, and then click **Virtual Machine**.
13. In the New Virtual Machine Wizard, click **Next**.
14. On the **Specify Name and Location** page, in the **Name** field, type **Windows 8.1 Test**, and then click **Next**.
15. On the **Specify Generation** page, make sure **Generation 1** is selected, and then click **Next**.
16. On the **Assign Memory** page, in the **Startup memory** field, type **1024**, and then click **Next**.
17. On the **Configure Networking** page, in the **Connection** drop-down list box, click **Private Network**, and then click **Next**.
18. On the **Connect Virtual Hard Disk** page, click **Next**.
19. On the **Installation Options** page, click **Next**.
20. On the **Completing the New Virtual Machine Wizard** page, click **Finish**.
21. In the Hyper-V Manager window, click **LON-CL5**.
22. In the **Virtual Machines** section, right-click **Windows 8.1 Test**, and then click **Checkpoint**. After a few seconds, confirm that a new checkpoint displays in the **Checkpoints** section for Windows 8.1 Test.
23. Close Hyper-V Manager.

### Completion steps

After you have completed the practice session, restart your computer:

1. On your host computer, click **Start**, and then click **Restart**.
2. In the Choose an operating system window, click **Windows Server 2012 R2**.

## Module Review and Takeaways

**Question:** Which Windows service must be running on the client computer in order to enforce AppLocker Rules?

**Answer:** The Application Identity service.

**Question:** What does Internet Explorer 11 display when the browser detects a website that does not adhere to HTML5 or CSS3 standards?

**Answer:** Internet Explorer 11 will display the web page in Compatibility Mode, which allows the browser to continue attempting to display the web page correctly.

**Question:** When would you deploy Client Hyper-V to a Windows client computer in a corporate environment?

**Answer:** Users can use Client Hyper-V to work with Hyper-V-based virtual machines for troubleshooting and testing purposes. You also can use Client Hyper-V as an isolated test environment, or for running multiple operating systems on the same computer.

## Lab Review Questions and Answers

### Lab A: Troubleshooting Desktop Apps

#### Question and Answers

**Question:** What was your approach to the first scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

**Question:** What was your approach to the second scenario? How did your approach differ from the class?

**Answer:** Answers will vary.

### Lab B: Troubleshooting Windows Internet Explorer

#### Question and Answers

**Question:** What was your approach to the scenario? How did your approach differ from the class?

**Answer:** Answers will vary.



# Module 12

## Maintaining Windows 8.1

### Contents:

<b>Lesson 2:</b> Monitoring and Configuring Performance Options in Windows 8.1	2
<b>Lesson 3:</b> Protecting Windows 8.1 from Malware and Viruses	5
Module Review and Takeaways	7
Lab Review Questions and Answers	8

## Lesson 2

# Monitoring and Configuring Performance Options in Windows 8.1

### Contents:

Question and Answers	3
Demonstration: Using Performance Monitor	3

## Question and Answers

### How Windows Uses Key System Components

**Question:** Which hardware components are most likely to restrict performance for a Windows 8.1 computer?

**Answer:** Memory and processor, but any resource can affect performance.

### Demonstration: Using Performance Monitor

#### Demonstration Steps

##### Open Performance Monitor

1. On LON-CL1, in Start, type **cmd.exe**, and then press Enter.
2. At the command prompt, type **perfmon**, and then press Enter.
3. 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 **1 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 on how the collected data is stored.
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 data collection is stopped, based on time or data that is collected.
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:

- **Performance Counter** collects data that you can view in Performance Monitor.
  - **Configuration** records changes to registry keys.
  - **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 is collected by the data collector set.
4. Close the Performance Monitor. Close the Command Prompt window.

### **Completion Steps**

- After you have completed the practice session, leave the virtual machines running for the lab.

## Lesson 3

# Protecting Windows 8.1 from Malware and Viruses

### Contents:

Demonstration: Removing Malicious Software with Windows Defender	6
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## Demonstration: Removing Malicious Software with Windows Defender

### Demonstration Steps

#### Perform a quick scan

1. On LON-CL1, click **Start**.
2. In Start, type **Windows Defender**, and then click **Windows Defender**.
3. On the Windows Defender **Home** tab, verify that the **Quick** scan option is selected, and then click **Scan now**.
4. Review the results of the scan.

#### Test malware detection

1. Click **File Explorer**.
2. In the File Explorer address bar, type **D:\Labfiles\Mod12\Malware**, and then press Enter.
3. In the **Malware** folder, double-click **Sample.txt** in Notepad. The Sample.txt file contains a text string used to test malware detection.
4. In Notepad, in the Sample.txt file, delete both instances of **<remove>** (including the angle brackets and the blank line before and after the string of remaining text).
5. In Notepad, click **File**, and then click **Save**.
6. Close Notepad.
7. Switch to **Windows Defender**.
8. In Windows Defender, on the **Home** tab, click **Custom**, and then click **Scan now**.
9. In the **Windows Defender** dialog box, select the **Allfiles (D:)** check box, and then click **OK**.
10. Verify that Windows Defender detects the potential malware in the text file. You may not receive a notification. You can also verify that the D:\Labfiles\Mod12\Malware folder no longer contains the Sample.txt file.
11. In Windows Defender, click the **History** tab.
12. Click **Quarantined items**, and then click **View details**.
13. Click **Remove all**.

#### Examine the Windows Defender history

1. Click **All detected items**, and then click **View details**.
2. Review the results. The suspect code was removed.
3. Close all open windows.

### Completion Steps

After you have completed the practice session, **revert the virtual machines running** in preparation for the next module:

1. On the host computer, start Hyper-V Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for 20688D-LON-DC1.

## Module Review and Takeaways

**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.

**Question:** What is the benefit of configuring Windows Update by using Group Policy rather than by using Control Panel?

**Answer:** Using Group Policy enables you to apply configuration settings to multiple computers by performing a single action. It also prevents users from overriding the settings.

## Lab Review Questions and Answers

### Lab: Maintaining Windows 8.1

#### Question and Answers

**Question:** What was your approach to the scenario? How did your approach differ from the class?

**Answer:** Answers will vary.



# Module 13

## Recovering Windows 8.1

### Contents:

<b>Lesson 1:</b> File Recovery in Windows 8.1	2
<b>Lesson 2:</b> Recovery Options in Windows 8.1	5
Module Review and Takeaways	8
Lab Review Questions and Answers	9

## Lesson 1

# **File Recovery in Windows 8.1**

### **Contents:**

Demonstration: Recovering Files

3

## Demonstration: Recovering Files

### Demonstration Steps

#### Create and edit a Microsoft Word document

1. Switch to the LON-CL1.
2. On the Start screen, click the **Desktop** tile.
3. On the desktop, on the taskbar, click the **File Explorer** icon.
4. In File Explorer, double-click **Documents**.
5. In the documents folder, right-click an area of free space, point to **New**, and then click **Microsoft Word Document**.
6. Type **Recovery file**, and then press Enter.
7. Double-click **Recovery file.docx**.
8. If the Microsoft Office Activation Wizard appears, click **Close**.
9. In the First things first wizard, click Ask me later and then click Accept.
10. Click Next three times, and then click All done.
11. In Word, type **This is my file**, and then press the Ctrl+S keys.
12. Close Word.

#### Enable and configure File History

1. Press the Windows key+C, and then click **Settings**.
2. In Settings, click **Control Panel**.
3. In Control Panel, click **System and Security**, and then click **File History**.
4. In File History, click **Turn on**.
5. In the File History window, click **Advanced settings**, review the options, and then click **Cancel**.
6. Switch to File Explorer.
7. In the navigation pane, click **Allfiles (D:)**.
8. In the details pane, double-click **FileHistory**.
9. Double-click the **Administrator@Adatum.com** folder, which is the File History backup folder.
10. Double-click the **LON-CL1** folder, and notice that it contains the backed-up files.

#### Test File History

1. In the navigation pane, click **Documents**.
2. In File Explorer, right-click **Recovery file.docx**, and then click **Delete**.
3. In File Explorer, on the ribbon, click the **Home** tab, and then click **History**.
4. In **Documents – File History**, right-click **Recovery file.docx**, and then click **Restore**.
5. In File Explorer, notice that the Word document has been recovered.
6. Close all open windows.

### **Completion Steps**

- After you have completed the practice session, leave the virtual machines running for the next practice session.

## Lesson 2

# Recovery Options in Windows 8.1

### Contents:

Demonstration: Exploring Recovery Options

6

## Demonstration: Exploring Recovery Options

### Demonstration Steps

#### Initiate the Refresh your PC process

1. Switch to LON-CL1.
2. Click **Start**.
3. On the Start screen, press the Windows+C keys, and then click **Settings**.
4. In Settings, click **Change PC settings**.
5. In PC settings, click **Update and recovery**.
6. In Update and recovery, click **Recovery**, and then in the details pane, under Refresh your PC without affecting your files, click **Get started**.
7. At the **Refresh your PC** prompt, click **Next**.
8. At the **Apps you'll need to reinstall** prompt, click **Next**.
9. At the **Ready to refresh your PC** prompt, click **Refresh**. Your computer restarts and the Refresh process begins.



**Note:** Because this process takes an extended time, you will not complete it.

10. On the host computer, start Hyper-V Manager.
11. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
12. In Hyper-V Manager, click **20688D-LON-CL1**, and then in the Actions pane, click **Start**.
13. In the Actions pane, click **Connect**. Wait until the virtual machine starts.
14. Sign in by using the following credentials:
  - User name: **Administrator**
  - Password: **Pa\$\$w0rd**
  - Domain: **Adatum**

#### Initiate the Reset your PC process

1. Right-click **Start**, point to **Shut down or sign out**, and then click **Restart**.
2. When prompted to **Press any key to boot from CD or DVD**, press a key.
3. In Windows Setup, click **Next**, and then click **Repair your computer**.
4. On the **Choose an option** page, click **Troubleshoot**, and then click **Reset your PC**.
5. On the **Choose a target operating system** page, click **Windows 8.1**.
6. On the **Here's what will happen** page, click **Next**.
7. On the **Your PC has more than one drive** page, click **All drives**.
8. On the **Do you want to fully clean your drive?** page, click **Fully clean the drive**.
9. On the **All ready to go** page, click **Reset**. The Reset your PC process begins.



**Note:** Wait until the reset process has begun, and then revert your virtual machines in preparation for the lab, by following the instructions above.

### Completion Steps

After you have completed the practice session, revert the virtual machines in preparation for the lab:

1. On the host computer, start Hyper-V Manager.
2. In the Virtual Machines list, right-click **20688D-LON-CL1**, and then click **Revert**.
3. In the **Revert Virtual Machine** dialog box, click **Revert**.
4. Repeat steps 2 and 3 for **20688D-LON-DC1**.

## Module Review and Takeaways

**Question:** When you initiate Refresh your PC, what happens?

**Answer:** When you perform a refresh using Refresh your PC, the following takes place:

- Your files and personalization settings are retained.
- Your PC settings are reverted to installation defaults.
- Apps from the Windows Store are retained.
- Desktop apps are removed.
- A list of these removed apps is saved on the computer desktop.

**Question:** How is a Refresh your PC operation different than when you perform a recovery using System Image Recovery?

**Answer:** A system image includes all the drives required for Windows to run. It also includes the Windows operating system and your system settings, programs, and files. Therefore, when you perform a system image recovery, your computer is returned to the point in time when the image was captured.

When you use Refresh your PC for recovery, although your files, your personalized settings, and installed Windows Store apps are retained, all desktop apps are removed and all user computer settings are reverted to their post-installation defaults.



## Lab Review Questions and Answers

### Lab A: Troubleshooting a Windows 8.1 Computer (1)

#### Question and Answers

**Question:** What was your approach to the scenario? How did your approach differ from the class-guided approach?

**Answer:** Answers will vary.

### Lab B: Troubleshooting a Windows 8.1 Computer (2)

#### Question and Answers

**Question:** What was your approach to the scenario? How did your approach differ from the class-guided approach?

**Answer:** Answers will vary.