Microsoft

OFFICIAL MICROSOFT LEARNING PRODUCT

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Administering Microsoft Exchange Server 2016

Companion Content

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Revised July 2013

Module 1

Deploying Exchange Server 2016

Contents:

Lesson 1

Overview of Exchange Server 2016

Contents:

Question and Answers

Question: What is the most important architectural change in Exchange Server 2016 and what benefits does this change provide?

Answer: The most important architectural change is that all key functionalities including the Mailbox server role, Client Access server role, Hub Transport server role, and Unified Messaging server role are now located on the Mailbox server. This architectural change provides the following benefits:

- Fewer physical or virtual servers
- Simplified management
- Better scalability and reliability

Feedback: In Exchange Server 2016, Microsoft consolidated multiple server roles and functionalities on to the Mailbox server. This is one of the key changes.

Question: Did you consider implementing Exchange Online instead of Exchange Server on-premises? Why or why not?

Answer: Answers might vary.

Question: Which service on Exchange Server 2016 accepts client connections?

( ) The Hub Transport service

( ) The front-end client access service

( ) The back-end client access service

( ) The Edge Transport service

( ) Unified Messaging

Answer:

( ) The Hub Transport service

(√) The front-end client access service

( ) The back-end client access service

( ) The Edge Transport service

( ) Unified Messaging

Resources

What’s new in Exchange 2016 for Exchange 2013 administrators

Additional Reading: For more information, refer to What's new in Exchange 2016: http://aka.ms/qaltvc

Discontinued and deemphasized features in Exchange Server 2016

Additional Reading: For more information, refer to What's new in Exchange 2016: http://aka.ms/qaltvc

Lesson 2

Requirements and Deployment Options for Exchange Server 2016

Contents:

Question and Answers

Question: In which Active Directory partition does Exchange Server store its configuration?

( ) Application partition

( ) Domain Partition

( ) Schema Partition

( ) Configuration Partition

( ) Global catalog

Answer:

( ) Application partition

( ) Domain Partition

( ) Schema Partition

( ) Configuration Partition

(√) Global catalog

Question: What tool should you use to determine the hardware sizing for a Mailbox server?

Answer: You should use the Exchange Server Role Requirements Calculator.

Resources

AD DS and Exchange Server Integration

Additional Reading: For more information, refer to Exchange 2016 Active Directory schema changes: http://aka.ms/i60f20

Preparing AD DS for Exchange Server 2016 installation

Additional Reading: https://technet.microsoft.com/EN-US/library/bb78144(v=exchg.160).aspx

Module Review and Takeaways

Best Practices

- Always plan for Exchange server resources before starting an installation process.
- Monitor Exchange Server services and logs with monitoring software such as Operations Manager.
- Learn how to use Exchange Management Shell.
- To avoid restarts, install the Windows Server roles and features that are required for Exchange Server 2016, prior to installing Exchange Server.

Review Question

Question: How can you configure high availability options for Exchange Online? How does it differ from Exchange deployed on-premises?

> **Answer:** You do not configure any options for Exchange Online high availability because it is provided and managed by Microsoft. On an Exchange server that is locally deployed, you must configure two or more servers to achieve high availability.

Tools

- Exchange Server setup wizard
- Exchange Server Role Requirements Calculator

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Schema extension fails	• Verify that you have the appropriate permissions to modify AD DS. • Ensure that you have provided all necessary switches.

Lab Review Questions and Answers

Lab: Deploying Exchange Server 2016

Question and Answers

Question: What software do you need to preinstall on Windows Server before starting an Exchange Server 2016 installation?

Answer: You should install Windows Management Framework 4.0 or later, Remote Server Administration Tools for AD DS, Microsoft Unified Communications Managed API 4.0, and Core Runtime 64-bit.

Question: Which methods can you use to perform Exchange Server 2016 installation?

Answer: You can perform the installation by using the setup wizard (GUI), or by using unattended installation through a command-line interface.

Question: What should you do to verify if the Exchange Server installation was successful?

Answer: You should check the Exchange Server services and the functionality of the Exchange admin center, and you should try to send and receive email.

Module 2

Managing Exchange Server 2016 servers

Contents:

Lesson 1

Exchange Server 2016 management

Contents:

Demonstration: Using the Exchange Server admin center

Demonstration Steps

1. On LON-EX1, from the **Start** screen, open Internet Explorer.
2. In the address bar, type **https://LON-EX1.adatum.com/ecp**, and then press Enter.
3. On the **Exchange admin center** page, sign in as **Adatum\Administrator** with the password **Pa$$w0rd**.
4. If prompted, in the **Would you like to store your password for adatum.com** dialog box, click **Yes**.
5. On the **Choose your preferred display language and home time zone below** page, in the **Time zone** list, click your time zone and click **Save**.
6. Review the options in the Exchange admin center.
7. In the Exchange admin center console, click **recipients** in the left pane, and then click **mailboxes** in the central pane.
8. Click the **+** sign, and then click **User mailbox**.
9. In the **new user mailbox** window, select **Existing user**, and then click **Browse**.
10. In the **Select User – Entire Forest** window, select **Aidan Delaney**, and then click **OK**.
11. In the **Alias** text box, type **AidanD**, and then click **Save**.
12. Make sure that Aidan Delaney appears in the list of mailboxes.

Demonstration: How to use help in the Exchange Management Shell

Demonstration Steps

1. On LON-EX1, click the **Exchange Management Shell** icon on the taskbar.
2. In the Exchange Management Shell window, type the following command, and then press Enter to display a list of Exchange cmdlets:

```
Get-ExCommand | more
```

3. Use the spacebar to page through the list of Exchange-related cmdlets.
4. In the Exchange Management Shell window, type the following command, and then press Enter to view all of the Mailbox-related cmdlets:

```
Get-Command -noun Mailbox
```

5. In the Exchange Management Shell window, type the following command, and then press Enter to view information about the **Enable-Mailbox** cmdlet:

```
Help Enable-Mailbox | more
```

6. Use the spacebar to page through the help information on the **Enable-Mailbox** cmdlet.
7. In the Exchange Management Shell window, type the following command, and then press Enter to view information about the **Enable-Mailbox** cmdlet:

```
Get-Help Enable-Mailbox -examples | more
```

8. When prompted to update help, press **N**, and then press Enter.

9. Use the spacebar to page through the information providing examples on using the **Enable-Mailbox** cmdlet.

Lesson 3

Configuring Mailbox servers

Contents:

Demonstration: Configuring iSCSI storage for the Mailbox server role

Demonstration Steps

1. On LON-DC1, from the taskbar, start Server Manager, click **Manage**, and then click **Add Roles and Features**.
2. In the Add Roles and Features Wizard, on the **Before you begin** page, click **Next**.
3. On the **Select installation type** page, click **Next**.
4. On the **Select destination server** page, make sure that **Select a server from the server pool** is selected, and then click **Next**.
5. On the **Select server roles** page, expand **File And Storage Services (2 of 12 installed)**, expand **File and iSCSI Services (1 of 11 installed)**, select the **iSCSI Target Server** check box, and then click **Next**.
6. On the **Select features** page, click **Next**.
7. On the **Confirm installation selections** page, click **Install**.
8. When the installation is complete, click **Close**.
9. On LON-DC1, in Server Manager, in the navigation pane, click **File and Storage Services**.
10. In the File and Storage Services pane, click **iSCSI**.
11. In the iSCSI VIRTUAL DISKS pane, click **TASKS**, and then in the **TASKS** drop-down list box, select **New iSCSI Virtual Disk**.
12. In the New iSCSI Virtual Disk Wizard, on the **Select iSCSI virtual disk location** page, under **Storage location**, click **C:**, and then click **Next**.
13. On the **Specify iSCSI virtual disk name** page, in the **Name** box, type **iSCSIDisk1**, and then click **Next**.
14. On the **Specify iSCSI virtual disk size** page, in the **Size** box, type **2**, make sure **GB** is selected in the drop-down list box, and then click **Next**.
15. On the **Assign iSCSI target** page, click **New iSCSI target**, and then click **Next**.
16. On the **Specify target name** page, in the **Name** box, type **LON-EX1**, and then click **Next**.
17. On the **Specify access servers** page, click **Add**.
18. In the **Select a method to identify the initiator** dialog box, click **Browse.** In the Select Computer window, type **LON-EX1**, click **Check Names**, click **OK**, and then click **OK** again.
19. On the **Specify access servers** page, click **Next**.
20. On the **Enable Authentication** page, click **Next**.
21. On the **Confirm selections** page, click **Create**.
22. On the **View results** page, wait until the creation is completed, and then click **Close**.
23. In the iSCSI VIRTUAL DISKS pane, click **TASKS**, and then in the **TASKS** drop-down list box, select **New iSCSI Virtual Disk**.
24. In the New iSCSI Virtual Disk Wizard, on the **Select iSCSI virtual disk location** page, under **Storage location**, click **C:**, and then click **Next**.
25. On the **Specify iSCSI virtual disk name** page, in the **Name** box, type **iSCSIDisk2**, and then click **Next**.

26. On the **Specify iSCSI virtual disk size** page, in the **Size** box, type **500**, make sure **MB** is selected in the drop-down list box, and then click **Next**.
27. On the **Assign iSCSI target** page, click **lon-ex1**, and then click **Next**.
28. On the **Confirm selections** page, click **Create**.
29. On the **View results** page, wait until the creation is completed, and then click **Close**.
30. Switch to LON-EX1, and then click the **Desktop** tile.
31. On LON-EX1, on the taskbar, click **Server Manager**, click **Tools**, and then click **iSCSI Initiator**.
32. In the **Microsoft iSCSI** dialog box, click **Yes.**
33. Click the **Discovery** tab.
34. Click **Discover Portal**.
35. In the **IP address or DNS name** box, type **172.16.0.10**, and then click **OK**.
36. Click the **Targets** tab.
37. Click **Refresh**.
38. In the **Targets** list, select **iqn.1991-05.com.microsoft:lon-dc1-lon-ex1-target**, and then click **Connect**.
39. Select **Add this connection to the list of Favorite Targets**, and then click **OK** two times.

Demonstration: Creating and managing mailbox databases

Demonstration Steps

1. On LON-EX1, in Server Manager, click **Tools**, and then click **Computer Management**.
2. If necessary, expand **Storage**, and then click **Disk Management**.
3. Right-click **Disk 1**, and then click **Online**.
4. Right-click **Disk 1**, and then click **Initialize disk**. In the **Initialize Disk** dialog box, click **OK**.
5. Right-click the unallocated space next to **Disk 1**, and then click **New Simple Volume**.
6. On the **Welcome to the New Simple Volume Wizard** page, click **Next**.
7. On the **Specify Volume Size** page, click **Next**.
8. On the **Assign Drive Letter or Path** page, click **Next**.
9. On the **Format Partition** page, in the **Volume Label** box, type **DB2**. Select the **Perform a quick format** check box, and then click **Next**.
10. Click **Finish**. (Note: If the Microsoft Windows window pops up with a prompt to format the disk, click **Cancel**.)
11. Repeat steps 3 through 10 for **Disk 2**. (Note: Use **Logs** for **Volume Label**). Close the Computer Management window.
12. Switch to the Exchange Admin Center in **Internet Explorer**.
13. Click **servers** in the feature pane, and then click the **databases** tab.
14. Click **New**.
15. In the Database window, type **DB2** in the **Mailbox database** text box.
16. Click **Browse**.

17. In the Select Server window, select **LON-EX1**, and then click **OK**.
18. In the **Database file path** text box, type: **E:\DB2\DB2.edb**.
19. In the **Log folder path** text box, type **F:\Logs\DB2**.
20. Ensure that **Mount this database** is selected, and click **Save**. Click **OK**.
21. Switch to Exchange Management Shell.
22. In the Exchange Management Shell window, type

Set-MailboxDatabase –identity DB2 –DeletedItemRetention 20.00:00:00 –CircularLoggingEnabled $true –ProhibitSendQuota 2.2GB, and then press Enter.

23. Type **Dismount-Database –identity DB2**, and then press Enter.
24. Type **y**, and then press Enter.
25. Type **Mount-Database –identity DB2**, and then press Enter.

Module Review and Takeaways

Best Practices

- Where possible, provide high availability for Mailbox servers.
- Do not use circular logging on mailboxes in production.

Review Question

Question: What customizations can you make on mailbox databases?

Answer: Mailbox database configuration options include mailbox limits, journaling recipients, default public folder databases, maintenance schedules, and circular logging.

Tools

- Windows PowerShell
- Exchange Management Shell
- Exchange admin center

Lab Review Questions and Answers

Lab: Configuring Mailbox servers

Question and Answers

Question: Can you move existing mailbox databases to a different path by using the Exchange admin center?

Answer: No, you can move them only by using the Exchange Management Shell.

Question: Why would you choose to use SATA drives instead of a SAN or SCSI drives for your Mailbox servers?

Answer: Serial Advanced Technology Attachment (SATA) drives are much less expensive than a storage area network (SAN) or small computer system interface (SCSI) drive for data storage. However, they do have lower performance, at least in part due to slower spindle speeds. Exchange Server 2016 makes it possible to consider using lower performing SATA drives because of changes to the store that improves disk performance.

Module 3

Managing recipient objects

Contents:

Lesson 1

Exchange Server 2016 recipients

Contents:

Question and Answers

What are resource mailboxes?

Question: Your organization coordinates schedules of resources and equipment with outside partners. You want to provide a solution that allows anyone from outside the organization who has an Internet browser to view the scheduling information without deploying additional software. How might you accomplish this?

> **Answer:** You can enable Internet calendar publishing in your Exchange 2016 organization for the resource mailboxes by using a sharing policy to support Anonymous domains.

Resources

What are distribution groups?

 **Additional Reading:** For more information, refer to Filterable properties for the -RecipientFilter parameter: http://aka.ms/mbklhp

Lesson 2

Managing Exchange Server recipients

Contents:

Question and Answers

Managing resource mailboxes

Question: When configuring multiple delegates for a resource mailbox, you can specify a group instead of multiple users. What are the requirements for a resource delegate group?

Answer: A resource delegate group should be a mail-enabled security group.

Resources

Additional Reading: For more information, refer to Set-CalendarProcessing: http://aka.ms/bokeye

What is a shared mailbox?

Additional Reading: For more information, refer to By default, shared mail folders are downloaded in Cached mode in Outlook 2010 and later versions: http://aka.ms/fe55qa

Demonstration: Managing mailbox settings

Demonstration Steps

1. On LON-EX1, click **Start**, click **Internet Explorer**, type **https://lon-ex1.adatum.com/ecp** in the address bar, and then press Enter.
2. Sign in as **Adatum\Administrator** by using the password **Pa$$w0rd**.
3. On the **Choose your preferred display language and home time zone below**, in the **Time Zone** menu, select your time zone, and then click **Save**.
4. In the Feature pane, click **recipients**.
5. On the toolbar, click **New**, and then click **User mailbox**.
6. In the **new user mailbox** dialog box, fill in the following information:
   - Alias: **Alice**
   - New User: Click **New user**
   - First name: **Alice**
   - Last name: **Ciccu**
   - Organizational unit: click **browse**, in the **select an organizational unit** dialog box, click **Research**, and then click **ok**.
   - User logon name: **Alice**
   - New password: **Pa$$w0rd**
   - Confirm password: **Pa$$w0rd**
   - Click **more options**
   - Next to Mailbox database: click **browse**.
   - In the **Select Mailbox Database** dialog box, click **Mailbox Database 1**, and then click **ok**.
   - Click **save**.

7. In the **List** view, click **Alice Ciccu**, and review the options displayed in the Details pane.
8. Double-click **Alice Ciccu**.
9. In the User Mailbox window, click the tabs and describe the settings available for the user account.
10. On the tabs where the **More options** link appears, click the link, and then describe the settings available under them.
11. Click **save**.
12. On the toolbar, click **New**, and then click **User mailbox**.
13. In the new user mailbox dialog box, fill in the following information:
    - Alias: **Anil**
    - Existing user: Click **Browse**, click **Anil Elson**, and click **OK**.
    - Click **more options**
    - Next to Mailbox database: click **browse**.
    - In the **Select Mailbox Database** dialog box, click **Mailbox Database 1**, and then click **OK**.
    - Click **Save**.
14. In the **List** view, click **Anil Elson**, and review the options displayed in the Details pane.
15. In the **List** view, click **Alice Ciccu**.
16. On the toolbar, click the **Delete** icon, and then click **yes**.
17. In the List view, click **Anil Elson**.
18. On the toolbar, click the **More** icon, click **Disable**, and then click **yes**.
19. On LON-DC1, open Server Manager.
20. Click the **Tools** menu, click **Active Directory Users and Computers**, and then click the **Research** organizational unit (OU).
21. Verify that Alice Ciccu's account has been deleted and that Anil Elson's account is still listed.

Note: Deleting the mailbox deletes the specified user account and mailbox. Disabling the mailbox removes the mailbox, but leaves the user account enabled.

22. On LON-EX1, on the **Start** page, click **Exchange Management Shell**.
23. To enable the mailboxes for users in the Research OU on the Mailbox Database 1 mailbox database, type the following command, and then press Enter.

```
Get-User –OrganizationalUnit Research | Enable-Mailbox –Database "Mailbox Database 1"
```

Demonstration: Creating and managing resource mailboxes

Demonstration Steps

1. On **LON-EX1**, in the **Exchange Administration Center**, on **recipients**, click the **resources** page.
2. Click the drop-down arrow next to **New**, and then click **Room mailbox**.
3. Fill in the following information:
    - Room name: **Conference Room 1**

- Alias: **ConferenceRoom1**
- Organizational unit: Click **browse**, click **Sales**, and then click **ok**.
- Location: **London**
- Capacity: **20**

4. Click **more options**, under **Mailbox database**, click **browse**, click **Mailbox Database 1**, and then click **ok**.
5. Click **save**.
6. On the **resources** tab, click **Conference Room 1**, and then click **Edit**.
7. Click **booking options**.
8. In the **Maximum booking lead time (days)** text box, type **365**.
9. In the **If you want the meeting organizer to receive a reply, enter the text below** text box, type **You have successfully booked Conference Room 1**.
10. Click **save**.
11. On **LON-CL1**, sign in as **Adatum\Nate** with the password **Pa$$w0rd**.
12. Click **Start**, click **All apps**, and then click **Outlook 2016**.
13. If prompted, sign in as **Adatum\Nate** using the password **Pa$$w0rd**.
14. In Outlook, click the down arrow next to **New Items**, and then click **Meeting**.
15. In the Untitled - Meeting window, type **Sales Meeting** in the **subject** text box, and then type **Administrator** in the **To** text box.
16. In the **Start time** and **End time** drop-down lists, select a time in the future.
17. Click **Scheduling Assistant**.
18. Click **Add Rooms**, click **Conference Room 1**, click **Rooms**, and then click **OK**.
19. Click **Appointment**, and then click **Send**.
20. Verify that Nate receives a message that the meeting has been accepted by Conference Room 1, and that the acceptance message includes the custom text that you assigned to the room.
21. On LON-EX1, in the Exchange Administration Center, on the **resources** tab, click **Conference Room 1**, and then click **Edit**.
22. Click **booking delegates**, and then click **Select delegates who can accept or decline booking requests**.
23. Click **Add**, click **Amr Zaki**, click **Add**, and then click **ok**. Click **save**.
24. On LON-CL1, in Outlook, click the down arrow next to **New Items**, and then click **Meeting**.
25. In the **Untitled - Meeting** window, type **IT Meeting** in the **subject** text box, and then type **Administrator** in the **To** text box.
26. In the **Start time** and **End time** drop-down lists, select a time that does not conflict with any other meetings and that is in the future.
27. Click Scheduling Assistant.
28. Click **Add Rooms**, click **Conference Room 1**, click **Rooms**, and then click **OK**.
29. Click **Appointment**, and then click **Send**.

30. Review the response received from the meeting room.
31. On the taskbar, click **Internet Explorer**, type **https://lon-ex1.adatum.com/owa** in the address bar, and then press Enter.
32. Sign in as **Adatum\amr** by using the password **Pa$$w0rd**.
33. On the **Choose your preferred display language and home time zone below**, in the **Time Zone** menu, select your time zone, and then click **Save**.
34. In your Inbox, select the meeting request sent by Nate, click **Accept**, and then click **send the response now**.
35. Close Internet Explorer.
36. In Outlook, verify that the meeting response was received from Amr.
37. Close Outlook.

Demonstration: Creating a shared mailbox

Demonstration Steps

1. On **LON-EX1**, switch to **Exchange Administration Center**, click the **shared** tab, and then click **New**.
2. Fill in the following information:
   - Display name: **Sales Information**
   - Alias: **salesInfo**
   - Organizational unit: **Sales**
3. Under **Users**, click **Add**, click **Nate Sun**, and then click **add**.
4. Click **Amr Zaki**, click **add**, and then click **ok**.
5. Click **more options**.
6. Under **Mailbox database**, click **browse**, click **Mailbox Database 1**, and then click **ok**.
7. Click **save**.
8. In Internet Explorer, type **https://lon-ex1.adatum.com/owa** in the address bar, and then press Enter.
9. On the sign in page, sign in as **Adatum\Administrator** with the password **Pa$$w0rd.**
10. Click **New**.
11. Create a new message with the recipient **Sales Information** and the subject **Information request**, and then send the message.
12. On LON-CL1, ensure that you are signed in as **Nate**.
13. Open Outlook 2016, and then verify that the **Sales Information** folder is displayed. It can take a few minutes for the folder to appear.
14. Under **Sales Information**, click **Inbox**, click the message from Administrator, and then click **Reply**.
15. Type a message, and then click **Send**.
16. Open Internet Explorer, type **https://lon-ex1.adatum.com/owa** in the address bar, and then press Enter.
17. Sign in as **Adatum\amr** by using the password **Pa$$w0rd**.
18. Click the person icon in the top right corner, and then click **Open another mailbox**.

19. In the **Open another mailbox** dialog box, type **SalesInfo@adatum.com**, click **Search Directory**, and then click **Open**.
20. Verify that Amr has access to the mailbox.
21. Close Internet Explorer.

Demonstration: Managing public folder mailboxes

Demonstration Steps

1. On **LON-EX1**, switch to **Exchange Administration Center**.
2. In the Feature pane, click **public folders**.
3. Click **public folder mailboxes**, and then click new **public folder mailbox**.
4. On the **new public folder mailbox** page, type **PFMBX1** in the **Name** text box.
5. Under **Organizational unit**, click **browse**, click **IT**, and then click **ok**.
6. Under **Mailbox database**, click **browse**, click **Mailbox Database 1** and then click **ok**.
7. Click **Save**.
8. Perform steps 3 through 7 again to create another public folder mailbox named **PFMBX2**.
9. Click **public folders**, and then click **New public folder**.
10. On the **new Public Folder** dialog box, in the **Name** text box, type **Departments**, and then click **Save**.
11. Click **Departments**, and then click **New public folder**.
12. In the **new Public Folder** dialog box, in the **Name** text box, type **IT**, and then click **Save**.
13. On the **Start** screen, click **Exchange Management Shell**.
14. At the command prompt, type **get-publicfolder –recurse | FL**, and then press Enter. Review the information displayed about each public folder.
15. At the command prompt, type **New-PublicFolder –Name Research –path \Departments –Mailbox PFMBX2**, and then press Enter.
16. In the Exchange Administration Center, on the **public folders** page, click **refresh**, then click **Departments**. Verify that the Research public folder is listed.
17. Click **Go to the parent folder**.
18. Ensure that the **Departments** public folder is selected, and then under **Folder permissions**, click **Manage**.

Note: Do not click the **Departments** link.

19. In the Departments window, click **Add**.
20. In the public folder permissions window, next to **User**, click **browse**.
21. In the Select Recipient window, click **Administrator**, and then click **ok**.
22. Under **Permission level**, click **Owner**, and then click **save**.
23. Select **Apply changes to this public folder and all its subfolders**, and then click **save**.
24. Click **close**.

Lesson 3

Configuring address lists and policies

Contents:

Question and Answers

Configuring email address policies

Question: In most environments, you might have a need to hide some recipients from the address list, such as when a user leaves the organization. After configuring this on the recipient object, the recipient is removed from all address lists. You receive a request for a manager to have access to the hidden mailbox. However, after granting the manager access to the mailbox, they are unable to open it. How can users access mailboxes that are hidden from the address list?

> **Answer:** When opening the mailbox in Outlook, or Outlook on the web, the client can access only mailboxes that are visible in the address list, by default. The most common workaround is for the manager to specify the mailbox's **legacyExchangeDN** attribute when opening the mailbox in Outlook or Outlook on the web.

Demonstration: Configuring address lists

Demonstration Steps

1. On **LON-EX1**, switch to the **Exchange Admin Center**.
2. In the left navigation pane, click **organization**, click the **address lists** tab, and then click **New**.
3. In the **new address list** window, type **All Departments** in the **Name** text box.
4. Click **only the following recipient types**, select **Users with Exchange mailboxes**, click **Save**, and then click **OK** in the **warning** dialog box.
5. Click **New**.
6. In the **new address list** window, type **Research** in the **Name** text box.
7. Next to the **Address list path**, click **Browse**.
8. In the **Address List Picker** window, click **All Departments**, and then click **OK**.
9. In the **new address list** window, click **Only the following recipient types**, and then select **Users with Exchange mailboxes**.
10. Click **add a rule**, from the new drop-down menu, click **Select one**, and then click **Department**.
11. In the **specify words or phrases** dialog box, type **Research**, click **Add**, and then click **OK**.
12. Click **Preview recipients the address list includes**, verify that only members of the Research department are listed, and then click **Close**.
13. Click **Save**, click **OK** on the warning dialog box, and then click **Update** in the right navigation pane.
14. In the **warning** dialog box, click **Yes**, and then click **Close**.
15. On **LON-CL1**, open **Outlook 2016**.
16. On the **SEND/RECEIVE** tab, click **Send/Receive Groups**, and then click **Download Address Book**.
17. Click **OK**.
18. On the **HOME** tab, click **Address Book**.
19. Under **Address Book**, expand the drop down list, click **Research** and verify that the address list contains the users in the Research department.
20. Close the Address Book window, and then close Outlook.
21. Sign out of LON-CL1.

Demonstration: Configuring address book policies

Demonstration Steps

1. On **LON-EX1**, switch to **Exchange Management Shell**.
2. At the command prompt, type the following command, and press Enter to create the Global Address List.

```
New-GlobalAddressList -Name ResearchGAL –ConditionalDepartment Research –
IncludedRecipients AllRecipients
```

3. At the command prompt, type the following command, and press Enter to update the recipient list of the Global Address List.

```
Update-GlobalAddressList -Identity ResearchGAL
```

4. At the command prompt, type the following command, and press Enter to create the Offline Address Book.

```
New-OfflineAddressBook -Name "ResearchOAB" -AddressLists "ResearchGAL"
```

5. At the command prompt, type the following command, and press Enter to create the address-book policy.

```
New-AddressBookPolicy -Name ResearchABP -AddressLists “\All Departments\Research” -
OfflineAddressBook  ResearchOAB -GlobalAddressList ResearchGAL -RoomList "\All Rooms"
```

6. At the command prompt, type the following command, and press Enter to enable the address-book policy on all the mailboxes in the Research OU.

```
Get-Mailbox -OrganizationalUnit Research | Set-Mailbox -AddressBookPolicy ResearchABP
```

7. On **LON-CL1**, sign in as **Adatum\Allie** with the password **Pa$$w0rd**.
8. Open **Outlook 2016**.
9. On the **Welcome to Outlook 2016** page, click **Next**.
10. On the **Add an Email Account** page, click **Next**.
11. On the **Auto Account Setup** page, click **Next**, and then click **Finish**.
12. In the **First things first** dialog box, click **Ask me later**, and then click **Accept**.
13. When Outlook 2016 opens, click **Address Book**. Verify that only other members of the Research department are listed in the GAL.

Demonstration: Configuring email address policies

Demonstration Steps

1. On **LON-EX1**, switch to the **Exchange Administration Center**.
2. In the left navigation pane, click **mail flow**, and then click the **email address policies** tab.
3. Double-click **Default Policy**.
4. In the **Default Policy** window, click **email address format**, and then click **Add**.
5. In the **email address format** window, click **John.Smith@contoso.com**, and then select **Make this format the reply email address**.

6. Click **Save** twice. In the **warning** dialog box, click **OK**.
7. In the Details pane, click **Apply**, and then click **yes**.
8. Click **Close**.
9. On the **accepted domains** tab, click **New**.
10. In the new accepted domain window, type **Sales** as the **Name**, and **sales.adatum.com** as the **Accepted domain**, and then click **Save**.
11. On the **email address policies** tab, click **New**.
12. In the **new email address policy** window, type **Sales Email** as the **Policy name**.
13. Under **Email address format**, click **Add**.
14. From the **Select an accepted domain** drop-down list, select **sales.adatum.com**.
15. Click **JohnS@contoso.com**, and then click **Save**.
16. In the **new email address policy** window, click **add a rule**, in the drop-down menu, click **Select one**, click **Recipient container**, click **Sales**, and then click **OK**.
17. Click **Save**, and then click **OK**.
18. In the Details pane, click **Refresh**, click **Apply**, and then click **Yes**.
19. Click **Close**.
20. In the Feature pane, click **recipients**.
21. Click **mailboxes**, double-click **Anil Elson**, and then click **email address**.
22. Verify that two email addresses are assigned to Anil Elson, and then click **cancel**.
23. Double-click **Arlene Huff**, and then click **email address**.
24. Verify that three email addresses are assigned to Arlene Huff, and then click **cancel**.

Module Review and Takeaways

Best Practice

If you have a large number of users in your organization, spend some time learning how to manage recipients by using the Exchange Management Shell and scripts. This will save you a significant amount of time once you are comfortable using the commands.

Review Question(s)

Question: An organization has two large divisions and one Exchange organization. Employees in the two divisions rarely communicate with each other. What can you do to reduce the number of recipients that the employees of each division see when they open the Exchange Server address list?

> **Answer:** To make it easier for employees to find recipients who exist only in their division, you can create two new custom address lists. When searching for recipients in their division, these custom address lists allow employees to select only the address list that is specific to their division.

Question: An organization has a large number of projects that leverage distribution groups. Managing group members takes considerable time. You need to reduce the time that the help desk staff spends managing groups so that they can work on other issues. What should you do?

> **Answer:** Allow end users to manage their own groups by using the Outlook on the web options, or by managing them through Outlook. End users might require some training up front, but this approach ultimately will save time.

Question: You employ contractors who need an email address from your organization. You do not want the contractors to sign in to your network, but you want their names to appear in the GAL. The organization needs to enable the contractors to receive messages in their current third-party mailboxes. What should you do?

> **Answer:** Create mail-enabled contacts for each of the contractors, and use the contractors' third-party email address as the destination address.

Real-world Issues and Scenarios

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

- Define clear naming conventions and adhere to them. Naming conventions help identify the location and purpose of recipient objects, and also help both end users and administrators to locate recipients easily.
- Test global changes before making them in a production environment. Changes to global settings, such as email-address policies, should be tested in a lab environment before you make changes in production. This helps avoid configuration errors.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Resource mailbox does not respond automatically or correctly to meeting requests.	This issue can have multiple causes, but it is usually associated with an incorrect mailbox or calendar configuration. Here are a few items to check: • Use the **Get-Mailbox** cmdlet to verify if ResourceType is Room and RecipientTypeDetails is Room. If not, use the **Set-Mailbox** cmdlet to convert the mailbox to a Room mailbox. • Use the **Get-CalendarProcessing** cmdlet to verify if AutomateProcessing is set to AutoAccept to respond

Common Issue	Troubleshooting Tip
	automatically to meeting requests. • Some booking issues are related to corrupted Free/Busy data. In these cases, you might need to use MFCMapi (or EWSEditor) to open the resource mailbox, and remove the files **Local Data** and **Sniffer** from the Free/Busy folder located above the Top of Information Store.
Meeting requests are accepted automatically by the resource mailbox without delegate approval.	Use the **Get-CalendarProcessing** cmdlet to verify if the AllBookInPolicy setting is True. This parameter specifies whether to approve in-policy requests from all users automatically. To remedy this issue, change the setting to **False**.
Meeting requests do not appear automatically in the resource mailbox as tentative.	Use the **Get-CalendarProcessing** cmdlet to verify if the AddNewRequestsTentatively setting is False. This parameter specifies whether to add meeting requests as tentative automatically. To remedy this issue, change the setting to **True**.
Meeting requests to a user do not appear in their Inbox or Calendar, and are deleted.	Use the **Get-CalendarProcessing** cmdlet to verify if the AutomateProcessing is set it AutoAccept. Even though this parameter is reserved for resource mailboxes only, there might be times when it was applied accidentally to user mailboxes. To remedy this issue, change the setting to **AutoUpdate**.
Recurring meeting requests that are conflicting are not acting according to expected behavior. For example, a certain number/percentage of recurring conflicts does not decline all the meeting requests. In another example, all recurring meeting requests with some conflicts are declined even if a certain number/percentage of recurring conflicts are allowed.	Use the **Get-CalendarProcessing** cmdlet to verify the following parameters: • *AutomateProcessing*. Must be set to AutoAccept. • *AllowRecurringMeetings*. Should be set to True to allow recurring meetings. • *AllowConflicts*. This parameter determines if conflicting meeting requests are allowed. o If True, recurring meeting requests with conflicts will ignore the **ConflictPercentageAllowed** and **MaximumConflictInstances** settings. Conflicting instances are always declined, but the number or percentage of conflicting instances will not impact the entire series. o If False, recurring meeting requests use the following two settings together to determine if the entire series is impacted; if either one is exceeded, the entire series of recurring meeting requests is declined. ▪ *ConflictPercentageAllowed*. This parameter specifies the maximum percentage of meeting conflicts for new recurring meeting requests. ▪ *MaximumConflictInstances*. This parameter specifies the maximum number of conflicts for new recurring meeting requests.

Lab Review Questions and Answers

Lab A: Managing Exchange Server recipient objects and public folders

Question and Answers

Question: How would you ensure that meeting requests to room mailboxes are validated manually before being approved?

> **Answer:** Assign a delegate for the resource, and allow the delegated user to make the decision to approve or deny meeting requests that do not fit standard policies.

Question: How would you give access to allow a user to send messages from another mailbox without giving the user access to the mailbox contents?

> **Answer:** Assign the user Send As permissions to the mailbox.

Lab B: Managing Exchange Server email address lists and policies

Question and Answers

Question: Because Outlook syncs the address book once a day, by default, what alternative options could you use to validate if users experience a change to the email-address policy?

> **Answer:** In Outlook, manually download the offline address book. In addition, verify the address book in Outlook on the web because the address book is online.

Module 4

Managing Microsoft Exchange Server 2016 and recipient objects by using Exchange Management Shell

Contents:

Lesson 1

Overview of the Exchange Management Shell

Contents:

Question and Answers

Question: The Exchange Server 2016 management tools are required to use the Windows PowerShell cmdlets for Exchange Server.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: No. Installing the management tools will install the Exchange Management Shell. However, you still can import the Windows PowerShell cmdlets for Exchange Server by establishing a remote Windows PowerShell session to your Exchange Server or Exchange Online.

Question: Which Windows PowerShell cmdlets should you pipe output to when you want to return specified properties of an object?

( ) Where-Object

( ) Select-Object

( ) Measure-Object

( ) Sort-Object

( ) Format-List

Answer:

( ) Where-Object

(√) Select-Object

( ) Measure-Object

( ) Sort-Object

(√) Format-List

Feedback: Select-Object is the most correct answer, because it returns an unformatted object that can continue down the pipeline. Format-List also will allow you to return specified properties, but you generally cannot pipe the output of Format-* cmdlets to other cmdlets and take further action on them.

Question: When you are using **Select-Object** with the *–First* or *–Last* parameter, when might it be relevant to also use **Sort-Object**?

Answer: Whenever you use the *–First* or *–Last* parameters with **Select-Object**, the first or last n objects in the collection return, in no particular order. If your intent is to return the top or bottom n objects, you first must use **Sort-Object** to sort the collection in the order that you desire.

Question: Which Exchange Management Shell cmdlet should you use when you want to remove a mailbox but leave the Active Directory Domain Services (AD DS) user account otherwise intact?

( ) Remove-Mailbox

( ) Enable-MailUser

( ) Disable-Mailbox

( ) Set-Mailbox –Status Disabled

( ) Disable-MailUser

Answer:

( ) Remove-Mailbox

( ) Enable-MailUser

(√) Disable-Mailbox

( ) Set-Mailbox –Status Disabled

( ) Disable-MailUser

Feedback: Disable-Mailbox removes Exchange Server attributes from the AD DS user object, but leaves the account otherwise intact.

Explanation for the incorrect options:

Remove-Mailbox would remove both the mailbox and user account.

You cannot run **Enable-MailUser** against an object that is mail-enabled.

Set-Mailbox –Status Disabled is not a valid command.

You can run **Disable-MailUser** only against a recipient of type MailUser.

Resources

Connecting to Exchange Server and Exchange Online by using Windows PowerShell

Additional Reading: For more information, refer to Using Windows PowerShell with Exchange 2016 (Exchange Management Shell): http://aka.ms/e8xtzv

Additional Reading: For more information, refer to Connect to Exchange servers by using remote Windows PowerShell: http://aka.ms/la53tj

Additional Reading: For more information, refer to Connect to Exchange Online using remote Windows PowerShell: http://aka.ms/puiu7s

Overview of Exchange Management Shell recipient cmdlets

Additional Reading: For more information, refer to Mailbox cmdlets: http://aka.ms/xokeaf

Additional Reading: For more information, refer to Users and Groups cmdlets: http://aka.ms/gl4i1h

Using filters in Windows PowerShell commands

Additional Reading: For more information, refer to Where-Object: http://aka.ms/br0e20

Additional Reading: For more information, refer to Select-Object: http://aka.ms/ytsbj0

Additional Reading: For more information, refer to Filterable properties for the *–Filter* parameter: http://aka.ms/n6g91m

Demonstration: Managing Exchange recipients by using the Exchange Management Shell

Demonstration Steps

1. On LON-EX1, go to the Start screen.
2. On the Start screen, type Windows PowerShell ISE, right-click Windows PowerShell ISE, and then click Run as administrator.
3. Click **File**, and then click **Open**.
4. Go to C:\Labfiles\Mod04\Democode.
5. Select Lesson01Demo-ManagingRecipients.ps1, and then click Open.
6. Follow the script's instructions to complete the demonstration.

 **Note:** If at any time, you are prompted **Do you want to run Update-Help?** Click **No**.
If at any time, you are prompted to enter a password, use **Pa$$w0rd**.

Lesson 2

Managing Exchange Server 2016 by using Exchange Management Shell

Contents:

Question and Answers

Question: Which cmdlet allows you use pipelining when the output of a cmdlet is not compatible with the cmdlet to which you want to pipe the output?

( ) Select-Object

( ) Where-Object

( ) Convert-Object

( ) ForEach-Object

( ) Convert-Pipeline

Answer:

( ) Select-Object

( ) Where-Object

( ) Convert-Object

(√) ForEach-Object

( ) Convert-Pipeline

Feedback: The ForEach-Object cmdlet allows you to process each object in the pipeline through a foreach loop, thereby making it possible to pass output data between cmdlets that are not compatible natively.

Question: Which cmdlets can you use to monitor your Exchange Server environment?

( ) Get-MailboxDatabaseCopyStatus

( ) Test-ReplicationHealth

( ) Get-Queue

( ) Get-Message

( ) Test-ServiceHealth

Answer:

(√) Get-MailboxDatabaseCopyStatus

(√) Test-ReplicationHealth

(√) Get-Queue

(√) Get-Message

(√) Test-ServiceHealth

Feedback: All of the above answers are valid cmdlets that you can use to monitor your Exchange Server environment.

Resources

Overview of Exchange Management Shell server-configuration cmdlets

Additional Reading: For more information, refer to Exchange Server 2016 cmdlets: http://aka.ms/nc7rko

Demonstration: Managing server configuration by using Exchange Management Shell

Demonstration Steps

1. **In Windows PowerShell ISE**, click **File**, and then click **Open**.
2. Go to C:\Labfiles\Mod04\Democode\.
3. Select **Lesson02Demo-ManagingExchange.ps1**, and then click Open.
4. Follow the instructions within the script to complete the demonstration.

Demonstration: Monitoring Exchange Servers by using Exchange Management Shell

Demonstration Steps

1. In **Windows PowerShell ISE**, click **File**, and then click **Open**.
2. Go to C:\Labfiles\Mod04\Democode\.
3. Select **Lesson02Demo-MonitoringExchange.ps1**, and then click **Open**.
4. Follow the instructions within the script to complete the demonstration.

Lesson 3

Managing Exchange Server 2016 by using Exchange Management Shell scripts

Contents:

Question and Answers

Question: What is the default Windows PowerShell execution policy on Windows Server 2012 R2?

( ) Restricted

( ) AllSigned

( ) RemoteSigned

( ) Unrestricted

( ) Bypass

Answer:

( ) Restricted

( ) AllSigned

( ) RemoteSigned

( ) Unrestricted

(√) Bypass

Feedback: RemoteSigned is the default execution policy on Windows Server 2012 R2. This policy requires that a trusted publisher signs all scripts and configuration files that download from the Internet. This execution policy is useful because it assumes that local scripts are ones that you create yourself, and that you trust them. It does not require that local scripts be signed. However, scripts that download from the Internet or that you receive through email are not trusted unless they carry an intact, trusted digital signature. However, you still can run those scripts—for example, by running the shell under a lesser execution policy, or even by signing the script yourself. However, because you must take these additional steps, it is unlikely that you can run such a script accidentally or unknowingly.

Question: Before running a community-provided Exchange Management Shell script, which of the following should you ensure?

( ) You trust the website from which you downloaded it

( ) You trust the author who wrote it

( ) The code is documented properly

( ) You understand what the code is doing

( ) You run the script in a lab environment before you run it in production

Answer:

(√) You trust the website from which you downloaded it

(√) You trust the author who wrote it

(√) The code is documented properly

(√) You understand what the code is doing

(√) You run the script in a lab environment before you run it in production

Feedback: All of the above answers are correct.

Question: For which types of tasks might you want to create a script?

Answer: Typically, you would create a script for any manual or multistep task that you anticipate performing on a regular basis. However, the decision to create a script, or not create one, ultimately depends on the script author's skill level and the time that it takes to write a script, when you compare these two factors to how long it takes to perform the task manually. Consider a scenario where you have a manual task that takes 20 minutes to complete, and you only perform it three times a year. However, you estimate that it would take you two business days (16 hours) to automate this task. In this situation, writing the script may not be a worthwhile initiative.

Resources

Using third-party Exchange Management Shell scripts

 **Additional Reading:** For more information, refer to Microsoft Script Center: http://aka.ms/tijx1b

 **Additional Reading:** For more information, refer to the Exchange Server Pro blog: http://aka.ms/nr2swn

 **Additional Reading:** For more information, refer to PowerShell.org: http://aka.ms/y6euui

Demonstration: Using an Exchange Management Shell script

Demonstration Steps

1. In **Windows PowerShell ISE**, click **File**, and then click **Open**.
2. Go to C:\Labfiles\Mod04\Democode\.
3. Select **Lesson03Demo-ProvisioningSetup.ps1**, and then click **Open**.
4. Follow the instructions within the script to complete the demonstration.

Module Review and Takeaways

Best Practices

- Set a goal to spend time learning how to use the Exchange Management Shell and Windows PowerShell for your common tasks. As you become more familiar with Windows PowerShell, you will become better prepared to use it for more-complex tasks and for resolving certain problems.
- Save the commands that you use to resolve problems in a script file so that you can refer to them at a later date.
- Use the Windows PowerShell ISE to help you write scripts and ensure that you are using the correct syntax.

Review Question(s)

Question: Which cmdlet enables a new mailbox for an existing user account?

Answer: The **Enable-Mailbox** cmdlet creates a new mailbox for an existing user account.

Question: Which cmdlet mounts a database?

Answer: The **Mount-Database** cmdlet mounts a database.

Tools

You can use the following tools to work with Windows PowerShell:

- Windows PowerShell ISE. A simple, powerful interface to create, execute, and debug scripts.
- Powershell.exe. The Windows PowerShell executable.
- Exchange Management Shell. A shortcut that imports the Exchange Management PowerShell module automatically.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
You cannot find the correct Windows PowerShell cmdlet for a task.	Use the **Get-Command** cmdlet and Help in the Windows PowerShell ISE to search for cmdlets.
You are new to Windows PowerShell, and you are uncomfortable with the command line.	Use the Windows PowerShell ISE to become more familiar with the command line. Also, use the **Get-Command** and **Show-Command** cmdlets to get additional help.

Lab Review Questions and Answers

Lab: Managing Exchange Server and recipient objects by using Exchange Management Shell

Question and Answers

Question: What happens if you try to run an Exchange Server cmdlet and have not imported the Exchange Management Shell module?

Answer: Windows PowerShell will not recognize the cmdlets. If you run native Windows Server 2012 R2 cmdlets for registered modules, Windows PowerShell automatically loads modules as needed, but it does not automatically load the Exchange Management Shell module.

Module 5

Implementing client connectivity

Contents:

Lesson 1

Configuring client access services in Exchange Server 2016

Contents:

Question and Answers

Question: POP3 and IMAP4 are automatically enabled on a server that runs Exchange Server 2016.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: POP3 and IMAP4 functionality are installed automatically with Exchange Server 2016, but the services are not enabled. To enable POP3 and IMAP4, you need to enable the services to start automatically and start the services.

Question: How does the new certificate wizard identify the names that should be included in the certificate?

Answer: The new certificate wizard identifies the names required on the certificate by reading the internal and external URLs that are assigned to services. If the wizard selects unexpected names, you should ensure that all of your services are configured correctly.

Feedback: The new certificate wizard identifies the names required on the certificate by reading the internal and external URLs that are assigned to services. If the wizard selects unexpected names, you should ensure that all of your services are configured correctly.

Resources

How client access services work in Exchange Server 2016

 **Additional Reading:** For more information, refer to Outlook Connectivity with MAPI over HTTP: http://aka.ms/cauwlv

Configuring and managing namespaces

 **Additional Reading:** For information, refer to Namespace Planning in Exchange 2016: http://aka.ms/kxailu

Demonstration: Managing certificates

Demonstration Steps

Create a DNS record

1. On LON-DC1, in Server Manager, click **Tools**, and click **DNS**.
2. In DNS Manager, expand **LON-DC1**, expand **Forward Lookup Zones**, and click **Adatum.com**.
3. Right-click **Adatum.com** and click **New Host (A or AAAA)**.
4. In the New Host window, in the **Name** box, type **mail**.
5. In the **IP address** box, type **172.16.0.14** and then click **Add Host**.
6. In the DNS dialog box, click **OK**.
7. In the New Host window, click **Done**.

8. Close DNS Manager.

Create a certificate request

1. On LON-EX1, in the Start menu, click **Internet Explorer**. In the address bar, type **https://lon-ex1.adatum.com/ecp**, and press Enter.
2. Sign in as **Adatum\Administrator** with the password **Pa$$w0rd**.
3. In the **Time zone** box, select **(UTC-8:00) Pacific Time (US & Canada)** and click **Save**.
4. In the Exchange admin center, in the left navigation pane, click **servers**.
5. In the right pane, click **certificates**.
6. Click the **+** sign.
7. In the **new Exchange certificate** window, click **Create a request for a certificate from a certification authority**, and then click **Next**.
8. In the **Friendly name for this certificate** box, type **mail.adatum.com** and then click **Next**.
9. On the page containing the request for a wildcard certificate, do not make any changes, and click **Next**.
10. Click **Browse**.
11. In the Select a Server window, click **LON-EX1**, and click **OK**.
12. Click **Next**.
13. On the next page, click **Outlook Web App (when accessed from the Internet)**, and then click the pencil icon.
14. In the **Specify the domains for the above Access type** box, type **mail.adatum.com**, and then click **OK**.
15. Repeat steps 13 and 14 for items where **<not specified>** is in the DOMAIN column.
16. Click **Next**.
17. On the next page, make sure that you have the following names in the list: **mail.adatum.com**, **lon-ex1.adatum.com**, **AutoDiscover.Adatum.com, LON-EX1**, and **Adatum.com**.
18. Click **mail.adatum.com**, click the checkmark, and then click **Next**.
19. On the next page, fill in the fields as follows:
    a. Organization name: **A.Datum**
    b. Department name: **IT**
    c. City/Locality: **London**
    d. State/Province: **England**
    e. Country/Region name: **United Kingdom**
20. Click **Next**.
21. On the next page, type **\\LON-EX1\C$\windows\temp\certreq.req**, and click **Finish**.

Process a certificate request

1. In the Start screen, type **notepad** and click **Notepad**.
2. In Notepad, click **File** and then click **Open**.
3. In the Open window, click **Text Documents (*.txt)** and then click **All Files (*.*)**.

4. Browse to **C:\Windows\Temp** and double-click **certreq.req**.
5. In Notepad, press Ctrl-A and then press Ctrl-C.
6. Close Notepad.
7. In Internet Explorer, open a new tab.
8. In the address bar, type **http://lon-dc1/certsrv** and press Enter.
9. On the **Welcome** page, click **Request a certificate**.
10. On the **Request a Certificate** page, click **advanced certificate request**.
11. On the **Advanced certificate request** page, click **Submit a certificate request by using a base-64-encoded CMC or PKCS #10 file, or submit a renewal request by using a base-64-encoded PKCS #7 file**.
12. On the **Submit a Certificate Request or Renewal Request** page, in the **Saved Request** box, press Ctrl-V.
13. In the **Certificate Template** box, select **Adatum Web** and then click **Submit**.
14. On the **Certificate Issued** page, click **Download certificate**.
15. When prompted, to open or save certnew.cer, click **Save**.
16. In the Exchange admin center, on the **certificates** tab, click **mail.adatum.com** and then click **complete**. If mail.adatum.com is not visible, click **Refresh**.
17. In the complete pending request window, in the File to import from box, type **\\LON-EX1\c$\Users\Administrator.Adatum\Downloads\certnew.cer** and click **OK**.

Assign service to the certificate

1. In the Exchange admin center, double-click **mail.adatum.com**.
2. Click **services**, select the **SMTP** and **IIS** checkbox, and then click **Save**.
3. In the warning window, click **Yes**.

Lesson 2

Managing client services

Contents:

Question and Answers

Question: If Autodiscover is not available, you can configure Outlook 2016 clients manually with the correct server name.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: You must configure Outlook 2016 by using Autodiscover. Previous versions of Outlook allowed you to manually configure the server for connectivity but often had limited functionality afterwards. For example, users would be unable to configure out-of-office messages.

Question: There are often users in your organization that are away for extended periods of time. While those users are away, they are not checking email. To warn other users that they are away for an extended period of time, you want to implement MailTips. How should you do this?

( ) Configure a MailTip for an Extended Leave group and add users to the group when they leave.

( ) Create a MailTip object with a standard message and associate the MailTip object with each user when the absence starts.

( ) Create a MailTip policy with a standard message and associate the MailTip policy with each user when the absence starts.

( ) Associate the MailTip with an organizational unit (OU) and move users to the OU when the absence starts.

( ) Set a MailTip for each specific user when the absence starts.

Answer:

( ) Configure a MailTip for an Extended Leave group and add users to the group when they leave.

( ) Create a MailTip object with a standard message and associate the MailTip object with each user when the absence starts.

( ) Create a MailTip policy with a standard message and associate the MailTip policy with each user when the absence starts.

( ) Associate the MailTip with an organizational unit (OU) and move users to the OU when the absence starts.

(√) Set a MailTip for each specific user when the absence starts.

Resources

Configuring Autodiscover

 **Additional Reading:** Students might ask why the attribute says URI when you are configuring a URL. For more information, refer to URL vs URI vs URN: http://aka.ms/chx00q

Demonstration: Configuring MailTips

Demonstration Steps

Configure a MailTip

1. On LON-EX1, in Exchange admin center, click **recipients**, and then click **mailboxes**.
2. In the list of mailboxes, click on **Alex Darrow**, and then click on the pencil icon on the toolbar.
3. In the **Alex Darrow** window, click **MailTip**.
4. In the textbox for MailTip, type **This person is on extended leave** and click **Save**.

Test a MailTip

1. On LON-DC1, open **Internet Explorer**, and type **https://lon-ex1.adatum.com/owa**.
2. Sign in as **Adatum\Amr** with the password **Pa$$w0rd**.
3. On the **Language and time zone** page, select **English (United States)**.
4. In the **Time zone** box, select **(UTC -8:00) Pacific Time (US & Canada)** and click **Save**.
5. In the Mail window, click **New**.
6. In the **To** field, type **Alex**, and press **Tab**. Ensure that the field is populated with Alex Darrow.
7. Click in the **Subject** field. Ensure that the MailTip appears.
8. Close Internet Explorer.

Lesson 3

Client connectivity and publishing of Exchange Server 2016 services

Contents:

Question and Answers

Question: When MAPI over HTTP is enabled, older clients are still able to use Outlook Anywhere.

( ) True

( ) False

Answer:

(√) True

( ) False

Feedback: MAPI over HTTP and Outlook Anywhere coexist on servers that run Exchange Server 2016. If it is a new Exchange organization, then MAPI over HTTP is preferred.

Question: Why is it beneficial to use mobile versions of Outlook with Exchange ActiveSync instead of the native messaging client on a mobile device?

Answer: Each vendor that implements Exchange ActiveSync includes various levels of functionality. All of them provide basic access to messages, calendar, and contacts. The mobile versions of Outlook for Android and iOS provide enhanced levels of functionality over the native messaging client.

Resources

Exchange Server security guidelines

Additional Reading: For more information, refer to SSL Server Test: http://aka.ms/ofmd32

Additional Reading: For more information refer to IIS Crypto: http://aka.ms/mdr003

Demonstration: Configuring client connectivity options

Demonstration Steps

Configure MAPI over HTTP

1. On LON-EX1, open Exchange Management Shell.
2. In Exchange Management Shell, type **Get-MapiVirtualDirectory –Server lon-ex1** and press Enter.
3. Type **Set-MapiVirtualDirectory –Identity "LON-EX1\mapi (Default Web Site)" –InternalURL https://mail.adatum.com/mapi -ExternalUrl https://mail.adatum.com/mapi** and press Enter.
4. Close Exchange Management Shell

Configure Outlook Anywhere

1. In Exchange admin center, click **servers** and click the **servers** tab.
2. Double-click **LON-EX1**.
3. In the LON-EX1 window, click the **Outlook Anywhere** tab.
4. In the **Specify the external host name (for example, contso.com) that users will use to connect to your organization** box, type **mail.adatum.com**.
5. **Specify the internal host name (for example, contso.com) that users will use to connect to your organization** box, type **mail.adatum.com**.

6. Click **Save**.
7. In the warning window, click **OK**.

Review client options for a recipient

1. In Exchange admin center, click **recipients** and then click the **mailboxes** tab.
2. Click **Alex Darrow** and review the settings in the right pane. Note that Exchange ActiveSync and Outlook on the web are enabled.
3. Double-click **Alex Darrow** and click the **mailbox features** tab. Note that POP and IMAP are listed here.
4. Click **Cancel**.

Lesson 4

Configuring Outlook on the web

Contents:

Question and Answers

Question: After installing an add-in for Outlook, it is automatically available in both Outlook and Outlook on the web.

( ) True

( ) False

Answer:

(√) True

( ) False

Feedback: Add-ins for Outlook extend the functionality of both Outlook and Outlook on the web. After you have installed an add-in for Outlook, it is available for both.

Question: In the default configuration, why is the ability to differentiate between private and public computers not very useful?

Answer: In Exchange Server 2016, the option to select private or public computer is hidden by default. In practice, this means that most users will never get the opportunity to select public computer, as private computer is the default.

Demonstration: Configuring options for Outlook on the web

Demonstration Steps

Configure Settings on the Outlook Web App Virtual Directory

1. On LON-EX1, in Exchange admin center, click **servers** in left navigation pane and click **virtual directories**.
2. Select the **owa (Default Web Site)** virtual directory for LON-EX1, and then click **Edit** on the toolbar.
3. On the **General** tab, in the **Internal URL** and **External URL** boxes, type **https://mail.adatum.com/owa**.
4. Click the **authentication** tab and review the settings.
5. Click the **features** tab.
6. Clear the **Journaling** and **Themes** checkboxes to disable these functionalities.
7. Click the **file access** tab.
8. Clear the **Direct file access** checkbox in the **Public or shared computer** section.
9. Click **Save**.
10. In the warning window, click **OK**. Note that this should also be changed for the ecp virtual directory.

Configure an Outlook Web App policy

1. In Exchange admin center, click **permissions** in the left navigation pane and click **Outlook Web App policies**.
2. Click the **New** icon.
3. In the new Outlook Web App mailbox policy window, in the **Policy name** box, type **Remote Users Policy**.
4. In the **Communication management** section, clear the **Instant messaging** and **Text messaging** checkboxes.
5. Scroll down and click **More options**.

6. In the **Information management** section, clear the **Recover deleted items** checkbox.
7. In the **Public or shared computer** section, clear the **Direct file access** checkbox.
8. Click **Save**.
9. In Exchange admin center, click **recipients**.
10. Double-click **Alex Darrow**.
11. In the **Alex Darrow** window, click **mailbox features** in the left navigation pane.
12. In the right pane, scroll down to the **Email Connectivity** section, and click **View details**.
13. In the **Outlook Web App mailbox policy** window, click **browse**.
14. Select **Remote Users Policy**, click **OK**, and then click **Save** two times.

Demonstration: Using add-ins for Outlook

Demonstration Steps

Review the default add-ins for Outlook in Exchange admin center

1. On LON-EX1, in Exchange admin center, click **organization** and click the **add-ins** tab.
2. Click the **+** button to view the options for adding new add-ins.
3. Double-click **Unsubscribe**.
4. In the Unsubscribe window, clear the **Make this add-in available to users in your organization** checkbox and click **Save**.

View the add-ins for Outlook in Outlook on the web

1. LON-DC1, in Internet Explorer, in the address bar, type **https://lon-ex1.adatum.com/owa** and press Enter.
2. Sign in as **Adatum\Amr** with a password of **Pa$$w0rd**.
3. In the Mail window, click the settings button and click **Options**.
4. In Options, click **General** and then click **Manage add-ins**.
5. Review the list of add-ins and verify that **Unsubscribe** is not listed.

Test add-ins for Outlook

1. On LON-EX1, in Internet Explorer, open a new tab.
2. In the address bar, type **https://lon-ex1.adatum.com/owa** and press Enter.
3. In the Mail window, click New.
4. In the **To** field, type **Amr**.
5. In the **Subject** field, type **App Testing**.
6. In the message body, type **Are you available to meet with me tomorrow at 10:00 AM? Meeting location is Microsoft Corp, One Microsoft Way, Redmond, WA 98004**.
7. Click **Send**.
8. On LON-DC1, in Outlook on the web, click **Mail** to return to the Inbox and click the new message.
9. Read the message contents and verify that two links are created add-ins for Outlook.
10. Click **Are you available to meet with me tomorrow at 10:00AM**.

11. When the suggested meeting appears, click **Schedule event**.

Demonstration: Configuring Office Online Server integration

Demonstration Steps

1. On LON-EX1, in Exchange Management Shell, type **Get-OrganizationConfig | FL *WAC*** and press Enter.
2. Type **Set-OrganizationConfig –WACDiscoveryEndpoint https://office.adatum.com/hosting/discovery** and press Enter.
3. Type **Get-OwaVirtualDirectory –Server LON-EX1 | FL *WAC*** and press Enter.
4. Review the configuration settings for the virtual directory on LON-EX1
5. Type **Get-OwaMailboxPolicy "Remote Users Policy" | FL *WAC*** and press Enter.
6. Review the settings for the Remote Users Policy.

Demonstration: Using Outlook on the Web offline access

Demonstration Steps

Enable offline access

1. On LON-DC1, in Outlook on the web, while signed in as Amr, click Settings and click **Offline settings**.
2. Select the **Turn on offline access** checkbox.
3. On the Offline access setup wizard, for the question, **Are you the only person who uses this computer?**, click **Yes**.
4. Wait for the pop-up requesting permission for adatum.com to use additional storage, and click **Yes**.
5. Click **Next**.
6. Click **Next**.
7. Click **OK**.

Test offline access

1. On LON-DC1, in Server Manager, click **Local Server** and then click **172.16.0.10, IPv6 enabled**.
2. In the Network Connections window, right-click **Ethernet** and click **Disable**.
3. Close Internet Explorer.
4. Open Internet Explorer, in the address bar, type **https://lon-ex1.adatum.com/owa** and press Enter.
5. Verify that you have access to the mailbox.
6. Create a new message and send it to Administrator@adatum.com.
7. Click **Outbox** and verify that the message for Administrator is waiting for delivery.
8. In the Network Connections window, right-click **Ethernet** and click **Enable**.
9. Close Network Connections.
10. Sign into Outlook on the web as **Adatum\Amr** with a password of **Pa$$w0rd**.
11. If prompted to update, click **Refresh**.
12. Click **Sent Items** and verify that the message to Administrator is sent.

Lesson 5

Configuring mobile messaging on Exchange Server 2016

Contents:

Question and Answers

Question: Your organization has recently migrated to Exchange Server 2016 from a non-Microsoft messaging platform. A co-worker with previous Exchange Server experience is very concerned about the number of mobile device associations that a user can have. In a position with another organization, they often had users hit the limit for device associates and this resulted in calls to the help desk, which were difficult to figure out. How many device associations can a user have in Exchange Server 2016?

( ) 5

( ) 10

( ) 25

( ) 50

( ) 100

Answer:

( ) 5

( ) 10

( ) 25

( ) 50

(√) 100

Feedback: Previous versions of Exchange Server have a limit of 10 devices per user. If you migrate your Exchange organization to Exchange Server 2016 from a previous version of Exchange Server, this limit will still be in place. If you do a new installation of Exchange Server 2016, the throttling policy limits each user to 100 device associations.

Question: You do not need Intune to manage mobile devices with Configuration Manager.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: Configuration Manager manages mobile devices by integrating with Intune. The Configuration Manager console provides access to the Intune devices.

Demonstration: Managing access for mobile devices

Demonstration Steps

1. On LON-EX1, in Exchange admin center, click **mobile** and then click the **mobile device access** tab.
2. Under **Exchange ActiveSync Access Settings**, click **Edit**.
3. In the Exchange ActiveSync access settings window, under **Connection Settings**, click **Quarantine – Let me decide to block or allow later**.
4. Under **Quarantine Notification Email Messages**, click **+**.
5. In the Select Administrators window, click **Administrator**, click **add**, and click **OK**.
6. In the Exchange ActiveSync access settings window, click **Save**.

7. In Exchange Management Shell, type **New-ActiveSyncDeviceAccessRule –Characteristic DeviceOS –QueryString "Android 3.0.0" –AccessLevel Block** and press Enter.

Module Review and Takeaways

Review Question

Question: How is it possible to use the same namespace internally and externally?

Answer: To use the same namespace internally and externally, you use split DNS. The internal DNS resolves the namespace to an internal IP address, and the external DNS resolves the same namespace to an external IP address that is reachable from the Internet.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Certificate trust warnings in Outlook or Outlook on the web	Certificate trust warnings are caused by incorrectly configured certificates or web services URLs. A certificate must be issued by a source that is trusted by the clients. The URLs must use a name that is included in the certificate
External devices unable to find the Exchange server	External devices typically locate autodiscover by resolving autodiscover.emaildomain. You need to make sure that this name is configured to resolve to the external IP address of your Exchange Server.
User unable to add a new mobile device	The two most common reasons that a mobile device cannot be added are membership in protected groups and reaching the device limit.
Separate prompt for credentials during Autodiscover from non-domain joined devices	During Autodiscover, the user is prompted for an email address and password. If the email address is used as authentication credentials, then only a single step is required. For Exchange Server 2016, this means that the UPN for the user needs to match the users email address. Many organizations do not set the UPN to match the email address and a second prompt for credentials is required.

Lab Review Questions and Answers

Lab A: Deploying and configuring client access services on Exchange Server 2016

Question and Answers

Question: Why was it important to create the DNS records for mail.adatum.com?

Answer: When you select a namespace, you need to provide a way to resolve that namespace to the correct IP address. In this case, the IP address was for a single server, but the IP address could also be for a load balancer when implementing high availability.

Question: Which cmdlet is required to configure the Autodiscover URL for internal Outlook clients?

Answer: Unlike other Internal URLs, you need to use a cmdlet to configure the internal URL for Autodiscover on the SCP object. You use the **Set-ClientAccessServices** cmdlet.

Lab B: Deploying and configuring client access services on Exchange Server

Question and Answers

Question: Why might you want to use the Test E-mail Autoconfiguration option in Outlook?

Answer: The Test E-mail Autoconfiguration option in Outlook allows you to view the URLs are that are being provided by Autodiscover. You can use this when troubleshooting Outlook connectivity problems.

Question: Who should be notified when a mobile device is quarantined?

Answer: The notification should be sent to an administrator or group of administrators for evaluation. If the device should be allowed, then the administrator can allow it. If further information about the device is required, then the administrator can talk with the user.

Module 6

Managing high availability in Exchange Server 2016

Contents:

Lesson 1

High availability in Exchange Server 2016

Contents:

Question and Answers

Question: Which services do you need to deploy to use DAGS?

( ) AD DS

( ) Dynamic Host Configuration Protocol (DHCP)

( ) Failover clustering

( ) Network Load Balancing (NLB)

( ) MX records in DNS

Answer:

(√) AD DS

( ) Dynamic Host Configuration Protocol (DHCP)

(√) Failover clustering

( ) Network Load Balancing (NLB)

( ) MX records in DNS

Question: You can use Network Load Balancing to make Client Access services highly available.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: Exchange Server 2016 does not support the use of Windows NLB. You should use hardware-based load balancers.

Lesson 2

Configuring highly available mailbox databases

Contents:

Question and Answers

Question: What is the main purpose of Primary Active Manager?

> **Answer:** The Primary Active Manager is the Active Manager in a DAG that controls which copies are active and which are passive.

Question: On which service does DAG replication depend?

> **Answer:** DAG replication depends on the Microsoft Exchange Replication service.

Demonstration: How to create and configure a DAG

Demonstration Steps

1. On LON-DC1, in Server Manager, click **Tools**, and then click **Active Directory Users and Computers**.
2. In **Active Directory Users and Computers**, on the menu bar, click **View**, and then click **Advanced Features**.
3. In the left pane, expand **Adatum.com**, click **Computers**, right-click **Computers**, point to **New**, and then click **Computer**.
4. In the **New Object – Computer** dialog box, in the **Computer name** field, type **DAG1**, and then click **OK**.
5. Click **Computers**, in the right pane, right-click **DAG1**, and then click **Properties**.
6. In the **DAG1 Properties** dialog box, click the **Security** tab.
7. On the **Security** tab, click **Add**, and then in the **Enter the object names to select** field, type **Exchange Trusted Subsystem**.
8. Click **Check Names**, and then click **OK**.
9. On the **Security** tab, click **Add**, and then click **Object Types**.
10. In the **Object Types** dialog box, click **Computers**, and then click **OK**.
11. In the Select Users, Computers, Service Accounts, or Groups window, in the **Enter the object names to select field** box, type **LON-EX1$**, click **Check Names**, and then click **OK**.
12. On the **Security** tab, select **LON-EX1 (ADATUM\LON-EX1$)**, and then in the **Allow** column in the **Permissions for LON-EX1** list, click **Full control**.
13. On the **Security** tab, select **Exchange Trusted Subsystem (ADATUM\Exchange Trusted Subsystem)**, in the **Allow** column in the **Permissions for Exchange Trusted Subsystem** list, click **Full control**, and then click **OK**.
14. In the Active Directory Users and Computers window, in the right pane, right-click **DAG1**, and then click **Disable Account**.
15. In the warning window, click **Yes**, and then on the next information window, click **OK**. Close the Active Directory Users and Computers console.
16. Switch to LON-EX1. Double-click the **Exchange Administrative Center** shortcut on the desktop.
17. Sign in as **Adatum\administrator** with the password **Pa$$w0rd**.

 **Note:** If the EAC does not open, verify that all Exchange services on LON-EX1 are running, and then try again.

18. In the EAC, in the Feature pane, click **servers**.

19. On tabs, click **database availability groups**, and then on the toolbar, click **New**.
20. In the new database availability group window, in the **Database availability group name** field, type **DAG1**, and then type **LON-DC1** in the **Witness server** field. In the **Witness directory** field, type **C:\FSWDAG1**, click **Enter an IP address**, and then in **Database availability group IP addresses** field, type **172.16.0.33**. Click **Add**, and then click **Save**.
21. In the list view, click **DAG1**, and on the toolbar, click **Manage DAG membership**.
22. In the manage database availability group membership window, click **Add**.
23. In the Select Server window, click **LON-EX1**, click **add**, click **LON-EX2**, click **add**, and then click **OK**.
24. In the manage database availability group membership window, click **Save**. Note: If you get an error, click **Close** and then **Save** again.
25. In the Saving completed successfully window, click **Close**.

Note: It might take a few minutes to complete this task. You can monitor the tasks being performed in the window.

26. In the EAC on LON-EX1, in tabs, click **databases**, click **Mailbox Database 1**, on the toolbar, click **More**, and then click **Add database copy**.
27. In the add mailbox database copy window, click **Browse**.
28. In the Select Server window, click **LON-EX2**, and then click **OK**.
29. Ensure that the **Activation preference number** field is set to **2**.
30. Click **More options**.
31. Review options for Replay lag time and seeding postpone, but do not make any changes.
32. In the add mailbox database copy window, click **Save**.
33. Wait until the saving completes successfully, then click **Close**.

Note: It might take a few minutes for the process of seeding to complete.

34. In tabs, click **Refresh**, and then wait until the details pane shows **Mailbox Database 1\LON-EX2** as **Passive Healthy**.

Note: Explain that this might take several minutes depending on the size of the database. Explain that this process is called seeding.

Demonstration: Monitoring replication health

Demonstration Steps

1. On LON-EX1, in the EAC, in the Feature pane, click **servers**.
2. On tabs, click **databases**, and then in the list view, click **Mailbox Database 1**.
3. In the Details pane, under **Mailbox Database 1\LON-EX1**, click **View details**.
4. In the Edit database copy window, explain the status, which could be **Healthy**, **Initializing**, **Failed**, **Mounted**, **Dismounted**, **Disconnected**, **Suspended and Failed**, **Suspended**, **Resynchronizing**, or

Seeding. In addition, describe the Content index state, copy queue length (logs), and replay queue length (logs). Click **cancel**.

5. Click to the **Start** screen, and then click **Exchange Management Shell**.
6. At the Exchange Management Shell prompt, type the following cmdlet, and then press Enter:

```
Test-ReplicationHealth
```

Note: This cmdlet performs a variety of tests and reports back the status for the replication components. Mention that the ***FAILED*** result occurs because one database is not replicated to other servers.

7. At the Exchange Management Shell prompt, type the following prompt, and then press Enter:

```
Get-MailboxDatabaseCopyStatus –Server LON-EX1
```

Note: This cmdlet shows status information about all database copies on the server defined.

8. At the Exchange Management Shell prompt, type **CD "C:\Program Files\Microsoft\Exchange Server\V15\Scripts"**, and then press Enter.
9. At the Exchange Management Shell prompt, type the following cmdlet, and then press Enter:

```
.\CheckDatabaseRedundancy.ps1 –MailboxDatabaseName "Mailbox Database 1"
```

Note: The Current Status should be green to indicate that all databases are healthy and that the database is mounted on the server with the lowest activation preference number.

Lesson 3

Configuring high availability of Client Access services

Contents:

Question and Answers

Question: If you want to use a Layer 4 load balancer with a health check for each service, what should you implement?

( ) Session affinity

( ) DNS round robin

( ) Another Layer 7 load balancer

( ) Single namespace

( ) Multiple namespaces

Answer:

( ) Session affinity

( ) DNS round robin

( ) Another Layer 7 load balancer

( ) Single namespace

(√) Multiple namespaces

Question: What are the key components of the Exchange Managed Availability feature?

Answer: Managed Availability uses Probes, Monitors, and Responders as components that work together. These components test, detect, and try to resolve possible problems.

Demonstration: Configuring a Layer 4 load balancer for Client Access services

Demonstration Steps

1. On LON-DC1, open Internet Explorer, and then navigate to **https://172.16.0.2:444**.
2. Click **Continue to this web site (not recommended).**
3. In the Windows Security window, sign in as **admin** with the password **Pa$$w0rd**.
4. In the Load Balancer Community Edition window, click **Settings**, and then click **Interfaces**.
5. In the Settings::Interfaces window, in the **Actions** section, click the third icon (**add virtual network interface**).
6. In the **eth0:** line, in the **Name** column, type **1**, and then type **172.16.0.100** in the **Addr** column. Then in the **Actions** section, click the first icon (**save virtual interface**).
7. Click the **Manage** menu, and then click **Farms**.
8. In the Manage:Farms window, type **ExchangeOWA** in the **Farm Description Name** field, select **TCP** in the **Profile** dropdown list, and then click **Save & continue**.
9. In the **Virtual IP:** dropdown list, select **eth0:1->172.16.0.100**, and then in **Virtual Port(s):**, type **443**.
10. Click **Save**.
11. In the Manage::Farms::ExchangeOWA window, in the **Actions** section, click **Edit the ExchangeOWA Farm**.
12. In the Manager:Farms:tcp:ExchangeOWA window, clear the **Enable client ip address persistence through memory** checkbox, and then click **Modify**.
13. Scroll down to the **Edit real IP servers configuration** section, and then click **Add Real Server**.

14. In the **Server 0** line, type **172.16.0.14** in the **Address** field, type **443** in the **Port** field, type **0** in the next three fields, and then click **Save Real Server 0**.
15. Click **Add Real Server**.
16. In the **Server 1** line, type **172.16.0.15** in the **Address** field, type **443** in the **Port** field, type **0** in the next three fields, and then click **Save Real Server 1**.
17. Scroll up and click **Monitoring**, and then click **Conns stats**.
18. In the Monitoring::Conns stats window, in the **Actions** section, click **View ExchangeOWA backends status**.
19. In the Manage::Farms::tcp::ExchangeOWA window, ensure that both servers have the green icon in the **Status** column.
20. In the **Refresh stats every** dropdown list, select **30**.
21. Close Internet Explorer.

Module Review and Takeaways

Best Practices

- Always use DAGs to provide high availability in your Exchange environment
- Create at least two copies of each database in a DAG, if possible.
- Use lagged mailbox copies only if you have three or more copies of the same database.
- Leverage the Managed Availability features when configuring load balancer health checks.

Review Question(s)

Question: What is a lagged database copy, and why should you use it?

Answer: A lagged mailbox database copy is a database that uses a delayed replay lag time to commit the log files to the database. This allows you to go back to a point in time (to a maximum of 14 days). By delaying the replay of logs into a database, you have the capability to recover it to a point in the past.

Question: When can you say that you have a site-resilient Exchange environment?

Answer: A site-resilient Exchange environment is one which you have deployed in two or more datacenters and which you have designed to remain functional even if one or more sites are offline.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
DAG cannot be created	If you cannot create a DAG, check the following: • Permissions to create or manage computer objects in AD DS • Permissions to access the location where File Share Witness resides • Permissions on Exchange Server

Lab Review Questions and Answers

Lab A: Implementing DAGs

Question and Answers

Question: After creating a DAG, you added LON-EX1 and LON-EX2 to the DAG. What tasks did the wizard perform when you added these servers to the DAG?

Answer: During the process of adding servers to the DAG, the wizard installed the failover clustering feature on both servers, configured a Cluster Name Object for DAG1, and configured a file share witness for the cluster.

Question: Will DAG implementation provide you with high availability of Client Access services, such as Microsoft Outlook on the web?

Answer: No, not directly. DAG provides high availability of the mailboxes that users access through the Outlook on the web interface, but it does not provide high availability for the Outlook Web App service itself.

Lab B: Implementing and testing high availability

Question and Answers

Question: In the lab, one mailbox server failed. How did the other mailbox server achieve a quorum?

Answer: Exchange Server 2016 DAGs use the node and file share majority quorum mode. This requires that more than half of the votes be available. In the lab, when one mailbox server failed, the witness server and one mailbox server were still available, thus two of three nodes were available. For that reason, the cluster achieved quorum and took over the failure.

Question: Why did you not import the certificate to the load balancer, but only to Exchange Servers?

Answer: The load balancer configured in the lab is a Layer 4 load balancer, and it does not terminate Secure Sockets Layer (SSL) connections on itself. Because of that, it does not need a certificate.

Module 7

Implementing disaster recovery for Exchange Server 2016

Contents:

Lesson 1

Implementing Exchange Server 2016 backup

Contents:

Question and Answers

Question: What data loss mitigation features are in Exchange Server 2016?

Answer: Exchange Server 2016 data loss mitigation features include:

- Deleted items recovery
- Single-item recovery
- In-Place Hold
- Deleted mailbox retention
- Database availability group (DAG)
- Shadow redundancy

Demonstration: Backing up Exchange Server 2016

Demonstration Steps

Populate a mailbox by using Microsoft Outlook on the web

1. On LON-EX1, open Internet Explorer. In the address bar, type **https://LON-EX1.Adatum.com/owa**, and then press Enter.
2. Sign in as **Adatum\michael** with the password **Pa$$w0rd**.
3. On the **Language and Time zone** page, select **(UTC-08:00) Pacific Time (US & Canada)**, and click **Save**.
4. Click **New**.
5. In the **To** text box, type **Mark Bebbington**, in the subject line, type **Message before backup**, and then click **Send**.
6. Sign out of Outlook on the web.
7. Sign in again as **Adatum\Mark** with the password **Pa$$w0rd**.
8. On the **Language and Time zone** page, select **(UTC-08:00) Pacific Time (US & Canada)**, and click **Save**.
9. Check that the message was received.
10. Sign out of Outlook on the web.
11. Close Internet Explorer.
12. Switch to **Exchange Management Shell**. If it is not running, on the taskbar, click **Exchange Management Shell**.
13. Type the following command, and then press Enter.

```
Get-Mailbox mark@ADatum.com |fl name,database,guid
```

    Note the name and the globally unique identifier (GUID) of the Mailbox Database. You need this information for the restore.

14. Close the Microsoft Exchange Management Shell.

Install Windows Server Backup

1. On LON-EX1, on the taskbar, click **Server Manager**.
2. On the dashboard, click **Add roles and features**. The Add Roles and Features Wizard opens.

3. On the **Before you begin** page, click **Next**.
4. On the **Installation Type** page, select **Role-based or feature-based installation**, and then click **Next**.
5. On the **Server Selection** page, click **Select a server from the server pool**, in the Server Pool click **LON-EX1.Adatum.com**, and then click **Next**.
6. On the **Server Roles** page, click **Next**.
7. On the **Features** page, scroll down in the **Features** list, select **Windows Server Backup**, and then click **Next**.
8. On the **Confirmation** page, do not select the **Restart the destination server automatically if required** option, and then click **Install**.
9. On the **Results** page, click **Close**.
10. Switch to LON-DC1.
11. On the taskbar, click **File Explorer**, and then create a folder named **Backup** on drive C.
12. Right-click the **Backup** folder, select **Share with**, and then select **Specific people**.
13. Check that the Administrator account has Read/Write permissions, click **Share**, and then click **Done**.
14. Close File Explorer.

Use Windows Server Backup to back up Exchange Server 2016

1. Switch to LON-EX1.
2. On LON-EX1, on the taskbar, click **Server Manager**.
3. In Server Manager window, click **Tools**, and then click **Windows Server Backup**.
4. In the navigation pane, select **Local Backup**.
5. In the Actions pane on the right side, click **Backup Once**.
6. In the Backup Once Wizard, on the **Backup Options** page, select **Different options**, and then click **Next**.
7. On the **Select Backup Configuration** page, select **Full server (recommended)**, and then click **Next**.
8. On the **Specify Destination Type** page, select **Remote shared folder**, and then click **Next**.
9. On the **Specify Remote Folder** page, under Location, type **\\LON-DC1\Backup**, under Access control, select **Do not inherit**, and then click **Next**.
10. In the Windows Security pop-up window, enter **Administrator** as the user name and **Pa$$w0rd** as the password, and then click **OK**.
11. On the **Confirmation** page, click **Backup**. Wait for the backup to finish.
12. On the **Backup Progress** page, click **Close**.
13. Close Windows Server Backup.
14. In Administrative Tools, double-click **Event Viewer**.
15. In Event Viewer, expand **Windows Logs**, and then click **Application**.
16. In Event Viewer, in the Application log, locate the event items labeled **Source MSExchangeRepl** with **EventID 2110** and **EventID 2021**.

Lesson 2

Implementing Exchange Server 2016 recovery

Contents:

Question and Answers

Question: In Exchange Server 2016, what are the options to recover mailbox data, databases, and servers?

Answer: Exchange Server 2016 has the following options to recover mailbox data, databases, and servers:

- Item recovery
- Database restore
- Recovery database
- Database portability
- Dial-tone recovery
- Server recovery
- DAG recovery
- Database corruption recovery

Demonstration: Recovering data by using a recovery database

Demonstration Steps

Note: The backup activity from the previous demonstration must be complete before you can proceed.

Delete a message in a mailbox

1. On LON-EX1, open Internet Explorer. In the address bar, type **https://LON-EX1.ADatum.com/owa**, and then press Enter.
2. Sign in as **Adatum\Mark** with the password **Pa$$w0rd**.
3. Delete the message received from Michael.
4. Empty the Deleted Items folder.
5. Right-click the **Deleted Items** folder, and then select **Recover deleted items**.
6. In the recover deleted items window, select the message received from Michael, and then click **Purge**.
7. To confirm the purge action on the selected item, click **OK**.
8. Close the recover deleted items window.
9. Sign out of Outlook on the web.

Create a recovery database

1. On LON-EX1, in Server Manager, click **Tools**, and then click **Windows Server Backup**.
2. In Windows Server Backup, in the Actions pane, click **Recover**.
3. In the Recovery Wizard, on the **Getting Started** page, select **This Server (LON-EX1)**, and then click **Next**.
4. On the **Select Backup Date** page, click **Next**.
5. On the **Select Recovery Type** page, select **Applications**, and then click **Next**.
6. On the **Select Application** page, select **Exchange**, and then click **Next**.

7. On the **Specify Recovery Options** page, click **Recover to another location**, click **Browse**, expand **Computer**, click **Local Disk (C:)**, click **Make New Folder**, type **Restore**, click **OK**, and then click **Next**.
8. On the **Confirmation** page, click **Recover**.
9. On the **Recovery Progress** page, wait until the recovery process finishes, and then click **Close**.

Restore data to the recovery database

1. On LON-EX1, on the Start screen, click **Exchange Management Shell**.
2. In the Exchange Management Shell, run the following command.

Note: This command identifies the Mailbox Database 1 globally unique identifier (GUID), in addition to the locations for the database and transaction log files.

```
Get-MailboxDatabase –ID “Mailbox Database 1” | fl name, guid, edbfilepath,
logfolderpath
```

3. In the Exchange Management Shell, type the following command to create the recovery database, and then press Enter; verify that the GUID, database, and transaction log names match the output from the previous command.

Note: In the command below, you should type the GUID listed in the previous command.

```
New-MailboxDatabase –Recovery –Name RecoveryDB –EdbFilePath
“C:\Restore\GUID\C_\Program Files\Microsoft\Exchange Server\V15\Mailbox\Mailbox
Database 1\Mailbox Database 1.edb” –LogFolderPath “C:\Restore\GUID\C_\Program
Files\Microsoft\Exchange Server\V15\Mailbox\Mailbox Database 1” –Server LON-EX1
```

4. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

```
Restart-service msexchangeis
```

5. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

Note: In the command below, you should type the GUID listed in Step 2.

```
CD “C:\Restore\GUID\C_\Program Files\Microsoft\Exchange Server\V15\Mailbox\Mailbox
Database 1”
```

6. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

```
Eseutil /r E01 /d
```

7. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

```
Mount-Database RecoveryDB
```

8. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

Note: This cmdlet displays all mailboxes within the recovery database.

```
Get-MailboxStatistics -Database RecoveryDB
```

Create a new MailboxRestoreRequest

1. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

```
New-MailboxRestoreRequest –SourceDatabase RecoveryDB –SourceStoreMailbox “Mark
Bebbington” –TargetMailbox mark@adatum.com
```

2. At the Exchange Management Shell command prompt, type the following command, and then press Enter.

Note: This command reports on the status of the mailbox restore request.

```
Get-MailboxRestoreRequest
```

Module Review and Takeaways

Best Practices

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

- Whenever possible, use a DAG to protect mailbox databases. DAG recovery is faster and easier than backup recovery.
- When you lose a database, use a dial-tone database to recover basic messaging functionality quickly.
- Use a recovery database to retrieve specific items from a backup.
- Allocate disk space for a recovery database when you are designing server storage.
- Use single item recovery to prevent users from purging messages before the messages reach the item retention limit.

Review Question(s)

Question: What are possible data loss scenarios?

Answer: Possible loss scenarios include lost items, lost mailboxes, lost databases, and lost servers.

Question: What are the required steps in the process of recovering data by using a recovery database?

Answer: Perform the following steps to restore the database that you want to recover:

- Create a new recovery database and then configure it to use the restored files.
- Put the database into a clean shutdown state.
- Mount the recovery database and then merge or extract the data from the recovery database to its destination.

Question: Which cmdlet do you use to repair database corruption?

Answer: To repair database corruption, use the **New-MailboxRepairRequest** cmdlet.

Question: What options do you have to recover mailbox data?

Answer: Options to recover mailbox data:

- Recovery database
- Database portability
- Dial-tone recovery
- DAG recovery

Tools

The following table includes the tools that are mentioned in this module.

Tool name	Used for	Where located
Exchange admin center	Web-based console for administering and managing Exchange Server 2016.	In a web browser, browse to https://*servername*/ecp and then provide administrative credentials.
Exchange Management Shell	Windows PowerShell console for administering and managing Exchange Server 2016 by using cmdlets in the Windows PowerShell command-line	In Exchange Server 2016, on the Start screen, type **Exchange Management Shell**. On other domain computers, use the Windows PowerShell command

Tool name	Used for	Where located
	interface.	prompt to connect to Exchange Server 2016 remotely and then provide administrative credentials.
Windows Server Backup	Back up and restore Exchange Server 2016 data.	On Exchange Server 2016, start Server Manager, and then from the **Tools** menu, select **Windows Server Backup**.
Microsoft System Center 2012 R2 Data Protection Manager	Software for backing up and restoring Exchange Server 2016 data and other Microsoft applications and operating systems.	Microsoft System Center 2012 R2.

Lab Review Questions and Answers

Lab A: Backing up Exchange Server 2016

Question and Answers

Question: Which feature do you need before you can run a local backup on Exchange Server 2016 with the Mailbox role installed?

Answer: he Windows Server Backup feature needs to install on the server that is running Exchange Server 2016.

Question: When performing Exchange Server backup by using Windows Server Backup, which drives should you include in the backup?

Answer: When performing Exchange Server backup by using Windows Server Backup, you should backup all drives on which Exchange Server databases and transaction logs are located.

Lab B: Implementing disaster recovery for Exchange Server 2016

Question and Answers

Question: Which tool do you need to create a recovery database in Exchange Server 2016?

Answer: You need the Exchange Management Shell to create a recovery database in Exchange Server 2016.

Question: What steps should you perform to restore a lost server?

Answer: To restore a lost server:

1. Install a new server with the same operating system version and edition as the server that was lost.
2. In AD DS, reset the computer account that belonged to the lost server.
3. Rename the new server with the same name and IP address that belonged to the lost server, and then join the new server to the same domain where the lost server was a member.
4. Locate Exchange installation files, and at a command prompt, run the following command:

   Setup /m:RecoverServer /IacceptExchangeServerLicenseTerms
5. Reconfigure any custom settings, such as importing the same certificate for client access services that was assigned to the lost server.
6. If the recovered server was not a DAG member, restore the databases from a backup.
7. If the recovered server was a DAG member, restore the database copies by performing a database reseed from other DAG members.

Module 8

Configuring and managing message transport

Contents:

Lesson 1

Overview of message transport

Contents:

Question and Answers

Question: You can place messages directly into the submission queue for processing.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: There are several ways that you can submit messages to Exchange server for processing, but you do not directly place messages into the submission queue. You can send a message by using a receive connector or from an email client. You can also place a properly formatted message in the Pickup directory.

Question: You have recently implemented Exchange Server 2016 for your organization, and the users have been very pleased with the service until today. Today email seems to be flowing slowly through the Exchange organization and in from the Internet. You haven't made any changes to the Exchange servers. What is the most likely cause of the slowdown?

Answer: The most likely cause of the slowdown is back pressure due to resource shortages. Even though you have not made any changes, Exchange 2016 continues to use resources. In some cases, the resource utilization is temporary during a busy period. However, many new implementations have a high volume of logging information that is stored in the installation directories. If the installation directories are stored on the same drive as the transport queues, this often causes back pressure that slows down message processing due to a shortage of free disk space. To avoid this, host transport queues on their own disk, and monitor disk utilization.

Resources

What are transport agents?

Additional Reading: For additional information about creating custom transport agents see How to write an Exchange 2013 transport agent: http://aka.ms/l1sxqx

Tools for troubleshooting SMTP message delivery

Additional Reading: To learn more about back pressure, see "Understanding back pressure": http://aka.ms/Gp7lqr

Demonstration: Troubleshooting SMTP message delivery

Demonstration Steps

1. On LON-EX1, click **Exchange Toolbox**.
2. In the Toolbox pane, double-click **Queue Viewer**.

Note: Explain that the Queue Viewer tool looks into the local-server message queues. Therefore, you will see immediately if a message is not delivered correctly. It is helpful to have a mail message in the queue so that you can show the students both the error message and the properties, such as retry.

3. Right-click **Submission** queue, and then click **Suspend**. This prevents the server from processing messages for delivery.
4. On LON-DC1, from the task bar, open **Windows PowerShell**.
5. At the Windows PowerShell prompt, type **Telnet LON-EX1 25**, and then press Enter.

Note: When the Exchange server responds, explain to the students that the connection is working, and that the server responds to the request. That means that there is no firewall problem. You also can tell the students that if the response does not include the information shown, something is wrong. Most likely, it is either a firewall issue or the possibility that the Microsoft Exchange Transport service is not started on the Exchange server.

6. At the Windows PowerShell prompt, type **helo**, and then press Enter.
7. At the command prompt, type **help**, and then press Enter.

Note: Explain that the students can see the services that the Exchange Server offers. For example, the STARTTLS indicates that Transport Layer Security (TLS) is available for secure communication.

8. Type **mail from: fake@contoso.com**, and press Enter.
9. Type **rcpt to: administrator@adatum.com**, and press Enter.
10. Type **data**, and press Enter.
11. Type **Subject: Test Message** and press Enter.
12. Type **This is the test message**, and press Enter.
13. Type **.**, and press Enter.
14. After the message is displayed that indicates the message is queued for delivery, type **quit**, and press Enter.
15. Close the Windows PowerShell prompt.
16. On LON-EX1, in Queue Viewer, verify that the message from fake@contoso.com is present in the Submission queue.
17. Right-click **Submission** queue, and then click **Resume**.
18. Verify that the message from fake@contoso.com is no longer in the submission queue, and that a mailbox database queue has been created. This queue was used for delivery to the mailbox.
19. On LON-DC1, from the Start screen, open **Internet Explorer**, and in the address bar type **https://LON-EX1.Adatum.com/owa**, and then press Enter.
20. Sign in as **Adatum\Administrator** with the password **Pa$$w0rd**.
21. After you log on to **Outlook Web App**, send an email message to **Amr@adatum.com**. After that, send another message to **Amr@contoso.com**.
22. Sign out from **Outlook Web App**.
23. On LON-EX1, open **Internet Explorer**, and in the address bar, type **https://LON-EX1.Adatum.com/ecp**, and then press Enter.
24. Sign in to the EAC as **Adatum\Administrator** with the password **Pa$$w0rd**.

25. In EAC, click **mail flow**, and then click **delivery reports**.
26. In **Mailbox to search** field, click **browse**, select **Administrator**, and then click **OK**.
27. In the **Search for messages sent to:** field, click **select users**, select **Amr Zaki**, click **add->**, and then click **OK**.
28. Click **search**.
29. Double-click the message that appears in **Search results** pane.
30. Review the report, and make sure that the message is delivered successfully. Click **close**.
31. In the **Search for messages sent to:** box, to remove Amr Zaki, and click the **X**.
32. To open the Select Members - Windows Internet Explorer, click **select users**.
33. In the **check names** box, type **Amr@contoso.com**, and then click **OK**.
34. Click **Search**.
35. Double-click the message that appears in Search Results pane.
36. Review the report, and show that the message is not delivered. Click **close**.
37. In Queue Viewer, review the error message for the **contoso.com** queue.
38. Close Queue Viewer.
39. Close Exchange Toolbox.

 **Note:** If you are connected to ECP by using the name localhost, viewing delivery reports fails. You must be connected to ECP by using the server name.

Lesson 2

Configuring message transport

Contents:

Question and Answers

Question: Your organization, A. Datum, has recently purchased a competitor named Contoso. Until Contoso's IT organization can be merged with yours, the email domain for Adatum.com needs to be used for both Exchange organizations. Which type of domain should be configured in your organization to allow email addresses for adatum.com to exist in both organizations?

( ) Remote domain

( ) Accepted domain

( ) Internal relay domain

( ) External relay domain

( ) Authoritative domain

Answer:

( ) Remote domain

( ) Accepted domain

(√) Internal relay domain

( ) External relay domain

( ) Authoritative domain

Feedback: An internal relay domain is one that has mailboxes in the local Exchange organization and a remote email system. If the recipient is not in the local Exchange organization, then the message is delivered through a send connector to the remote email system.

Question: You have just completed an installation of Exchange Server 2016 for your organization. The send and receive connectors are using the default maximum message sizes of 35 MB. However, when you attempt to send a message with a 15 MB attachment, you get an error indicating that the message is too large. What is the most likely reason that the message is being blocked?

Answer: The message size limits in the Exchange transport pipeline must all be large enough to accommodate the message size. At the organizational level, the default maximum message size is 10 MB. You should increase this to 35 MB to match the send and receive connectors.

Resources

Configuring message transport options

Additional Reading: To learn more about message size limits in Exchange Server 2016, see Understanding message size limits: http://aka.ms/Ty57ut

Demonstration: Configuring transport settings

Demonstration Steps

1. On LON-EX1, on the taskbar, click Exchange Management Shell.
2. In EMS, type **Get-TransportConfig**, and press Enter.
3. Scroll through the data displayed to provide a quick overview of the settings.
4. Type **Get-TransportConfig | FL *max***, and press Enter.

5. Specifically point out the values for **MaxRecieveSize**, **MaxRecipientEnvelopeLimit**, and **MaxSendSize**.
6. Type **Set-TransportConfig -MaxSendSize 20MB -MaxReceiveSize 20MB**, and press Enter.
7. Close EMS.
8. In EAC, click **mail flow**, and then click the **receive connectors** tab.
9. Click **More**, and then click **Organization transport settings**.
10. In the organization transport settings window, note that the limits tab contains the settings defined in EMS.
11. Click the **delivery** tab, and in the **Specify the external postmaster address** box, type **postmaster@adatum.com** and click **Save**.
12. Close EAC.

Demonstration: Configuring accepted and remote domains

Demonstration Steps

1. On LON-EX1, open **Internet Explorer**, in the address bar, type **https://LON-EX1.Adatum.com/ecp**, and then press Enter.
2. Sign in to the EAC as **Adatum\Administrator** with the password **Pa$$w0rd**.
3. In EAC, click **mail flow** and click the **accepted domains** tab.
4. Click **New**.
5. In the new accepted domain window, in the **Name** box, type **Tailspintoys**, and in the **Accepted domain** box, type **tailspintoys.com**.
6. Click **Internal Relay: Email is delivered to recipients in this Exchange organization or relayed to an email server at another physical or logical location**.
7. Click **Save**.
8. On LON-EX1, on the taskbar, click **Exchange Management Shell**.
9. In EMS, type **Get-RemoteDomain**, and press Enter. Ensure that you have only one remote domain with DomainName "*". Explain that this covers all domains.
10. Type **New-RemoteDomain –Name Contoso –DomainName Contoso.com**, and press Enter.
11. Type **Get-RemoteDomain Contoso | FL**, and press Enter.
12. Review the settings for the Contoso remote domain.
13. Type **Set-RemoteDomain Contoso –AutoForwardEnabled $false –DeliveryReportEnabled $false**, and press Enter.
14. Type **Get-RemoteDomain Contoso | FL**, and press Enter.
15. Ensure that you changed settings for **AutoForward** and **DeliveryReport**.

Demonstration: Configuring SMTP send and receive connectors

Demonstration Steps

1. On LON-EX1, on the taskbar, click **Exchange Management Shell**.

2. In EMS, type **New-SendConnector –Name "Send to Internet" –AddressSpace * -SourceTransportServers LON-EX1,LON-EX2**, and press Enter. Explain to the students that this creates a connector to send messages to the Internet.
3. Open **Internet Explorer**, in the address bar type **https://LON-EX1.Adatum.com/ecp**, and then press Enter.
4. Sign in to the EAC as **Adatum\Administrator** with the password **Pa$$w0rd**.
5. In EAC, click **mail flow**, and click on the **send connectors** tab.
6. Ensure that the connector is created, and then select it and click **Edit**.
7. Show options that are configured on this connector. Point out that proxy through Client Access server is not selected.
8. Click **Cancel**.
9. In EAC, click **New**.
10. In the new send connector window, in the **Name** box, type **Secure to Contoso**.
11. Click **Internal (For example, to route mail to send intranet mail)** and click **Next**.
12. Under Network settings, click **Add**, type **172.16.0.10**, click **Save**, and click **Next**.
13. Under Smart host authentication, click **Basic authentication**, and select the **Offer basic authentication only after starting TLS** check box.
14. In the **User name** box, type **Contoso\partner**.
15. In the **Password** box, type **Pa$$w0rd**, and then click **Next**.
16. Under Address space, click **Add**.
17. In the add domain window, in the **Full Qualified Domain Name (FQDN)** box, type **contoso.com**, and click **Save**
18. In the new send connector window, click **Next**.
19. Under Source server, click **Add**, click **LON-EX1**, click **add**, and then click **OK**.
20. Click **Finish**.
21. Click the **receive connectors** tab.
22. In the Select server box, click **LON-EX1.Adatum.com** and then click **New**.
23. In the **new receive connector** window, in the **Name** box, type **AppClient**.
24. Under Role, click **Frontend Transport**.
25. Under Type, click **Client**, and then click **next**.
26. Under Remote network settings, click **Remove** to remove scope **0.0.0.0 – 255.255.255.255**.
27. Click **Add**.
28. In the add IP address window, type **172.16.0.10**, and click **save**.
29. In the new receive connector window, click **Finish**.
30. Click **AppClient**, and then click **Edit**.
31. On the **general** tab, under Protocol logging level, click **Verbose**.
32. On the **security** tab, under Permission groups, select the **Anonymous users** check box, and then click **Save**.

Lesson 3

Managing transport rules

Contents:

Question and Answers

Question: By implementing DLP policies, you can guarantee that sensitive information is never sent outside your organization.

( ) True

( ) False

Answer:

( ) True

(√) False

Feedback: DLP policies use sensitive information types to identify data that is likely to be important. However, no set of rules can guarantee that no sensitive information is sent outside the organization. You should implement policies and also educate your users.

Question: Your organization is planning to implement a standard signature for all email messages that are sent outside the organization. This signature needs to include user-specific information, company information, and a disclaimer. This signature needs to be applied regardless of the email client used. What is the simplest way to implement this for all users?

( ) Create a snippet of HTML for users to copy and customize in Outlook.

( ) Create one transport rule for each user that applies the appropriate signature.

( ) Create a single transport rule that uses variables to customize a disclaimer added to the messages.

( ) Purchase non-Microsoft software with a transport agent that adds customized signatures to messages.

( ) This is not possible.

Answer:

( ) Create a snippet of HTML for users to copy and customize in Outlook.

( ) Create one transport rule for each user that applies the appropriate signature.

( ) Create a single transport rule that uses variables to customize a disclaimer added to the messages.

(√) Purchase non-Microsoft software with a transport agent that adds customized signatures to messages.

( ) This is not possible.

Feedback: The simplest way to implement customized signatures is by implementing a non-Microsoft product that is designed for the task. These products implement a transport agent to process each message and add the appropriate signature. It is also possible to build transport rules with disclaimers and variables, but this is a relatively complex option by comparison.

Resources

Configuring transport rules

 **Additional Reading:** To read more about transport rule conditions in Exchange Server 2016, see "Transport rule conditions (predicates) in Exchange 2016": http://aka.ms/Ygrqs7
To read more about transport rule actions in Exchange Server 2016, see "Transport rule actions in Exchange 2016": http://aka.ms/Wogaya

What are data loss prevention policies?

Additional Reading: To read more about sensitive information types in Exchange Server 2016, see "Sensitive information types inventory in Exchange 2016": http://aka.ms/Fz77d8

Demonstration: Configuring and using transport rules

Demonstration Steps

1. On LON-EX1, open **Internet Explorer,** in the address bar, type **https://LON-EX1.Adatum.com/ecp**, and then press Enter.
2. Sign in to the EAC as **Adatum\Administrator** with the password **Pa$$w0rd**.
3. In EAC, click **mail flow**, and click the **rules** tab.
4. Click **New**, and then click **Create a new rule**.
5. In the new rule window in the **Name** box, type **Test Transport Rule**.
6. In the **Apply this rule if** drop-down box, select **The subject or body includes**.
7. In the specify words or phrases window, in the text box, type **password**, click the + **sign**, and then click **OK**.
8. In the new rule window, in the **Do the following** drop-down box, select **Redirect the message to**.
9. In the Select Members window, select **Administrator**, and click **add->**. Then click **OK**.
10. Ensure that **Enforce** is selected.
11. Click **More options** and describe the additional options.
12. Click **Save**.
13. On LON-DC1, open **Internet Explorer**, in the address bar type **https://LON-EX1.Adatum.com/owa**, and then press Enter.
14. Sign in to OWA as **Adatum\Alex** with the password **Pa$$w0rd**.
15. In the Time zone box, select **(UTC -0800) Pacific Time (US & Canada)**, and click **Save**.
16. Click **New**.
17. In the **To** field, type **amr@adatum.com**.
18. In the **Subject** field, type **Rule Test**.
19. In the message body, type **My password is Pa$$word**, and click **Send**.
20. On LON-EX1, in **Internet Explorer**, open a new tab in the address bar, type **https://LON-EX1.Adatum.com/owa**, and then press Enter. You will be signed in automatically as Adatum\Administrator.
21. In OWA, ensure that you received an email from Alex, and that the original message that Alex sent to Amr is included.
22. Sign out from OWA.

Demonstration: Configuring and using a data loss prevention policy

Demonstration Steps

1. On LON-EX1, open **Internet Explorer**, and in the address bar, type **https://LON-EX1.Adatum.com/ecp**, and then press Enter.
2. Sign in to the EAC as **Adatum\Administrator** with the password **Pa$$w0rd**.
3. In EAC, click **compliance management**, and click the **data loss prevention** tab.
4. Click an arrow next to the + sign, and click **New custom DLP Policy**.
5. In the **new custom DLP policy** window, in the **Name** box, type **IP address block**.
6. Click **Enforce**, and then click **Save**.
7. Select the **IP address block** policy, and then click **Edit**.
8. In the IP address block window, click **rules**.
9. Click an arrow next to the **+** sign, and then select **Block messages with sensitive information**.
10. In the **new rule** window, click **Outside the organization**.
11. In the select recipient location window, select **Inside the organization** and click **OK**.
12. Click **Select sensitive information types**.
13. In the sensitive information types window, click **Add**.
14. Scroll down the list, select **IP Address**, click **add->**, and then click **OK** two times.
15. In the new rule window, in the **Do the following** drop-down box, select **Generate incident report and send it to**, and then click **Select one**.
16. In the list, select **Administrator**, and click **OK**.
17. Click **Custom content**.
18. In the **Include message properties** windows, select the **sender**, **recipient**, **subject** and **matching content** check boxes, and click **OK**.
19. Click **Block the message**.
20. In the **notify the sender with a Policy Tip** windows, in the **Enter the message for the NDR that users will receive** text box, type **Your message is blocked because of IP address**, and then click **OK**.
21. In the **Choose a mode for this rule** section, select **Enforce**, and then click **Save**.
22. In the **IP address block** window, click **Save**.

Module Review and Takeaways

Review Question

Question: Does allowing anonymous authentication on a receive connector mean that your Exchange server functions as an open relay?

Answer: No. Anonymous authentication on a receive connector allows unauthenticated senders to connect to the receive connector and send messages to the Exchange organization. By itself, allowing anonymous authentication on a receive connector does not make an Exchange server an anonymous relay.

Tools

The following table includes the tools that are mentioned in this module.

Tool	Use to	Where to find it
Telnet client	Verify connectivity to an Exchange server for message transport	Can be installed as a Windows feature, or non-Microsoft clients can be downloaded from the Internet
Delivery reports	Verify that messages were delivered properly	In EAC
Message tracking logs	Review detailed information about message delivery on a single server	Use Get-MessageTrackingLog in EWS
Queue Viewer	Use to identify delivery issues to specific locations. Review queue error messages	In Exchange Toolbox
Protocol logs	Review SMTP commands used during communication between clients and Exchange Server 2016	Browse to C:\Program Files\Microsoft\Exchange Server\V15\TransportRoles\Logs\. The Frontend logs are in FrontEnd\ProtocolLog and the Hub logs are in Hub\ProtocolLog
Remote Connectivity Analyzer	Test external connectivity to the Exchange organization	http://aka.ms/uyt3su

Lab Review Questions and Answers

Lab: Configuring message transport

Question and Answers

Question: Why did the CRM Relay connector need to be configured as a front-end transport connector?

Answer: A transport connector and a front-end transport connector cannot share the same TCP port. Since the default receive connector for front-end transport is already using port 25, you need to configure the CRM Relay connector to be a front-end transport connector to use port 25. If you chose an alternative unused port, it could have been a hub transport connector instead.

Question: A disclaimer rule allows you to use HTML to format the disclaimer. Can you insert an image in the disclaimer?

Answer: You cannot insert an image directly in the disclaimer, but you can provide a link to an image that is hosted on a web server. The image in the disclaimer will not be visible unless the recipient displays images in the message, which often is not enabled by default. You can use non-Microsoft products to embed images in disclaimers and signatures that are automatically applied at the Exchange server.

Module 9

Configuring antivirus, antispam, and malware protection

Contents:

Lesson 1

Deploying and managing an Edge Transport server for message security

Contents:

Question and Answers

Overview of the Edge Transport server role

Question: Is it a viable solution to install an Edge Transport server role as a member of the internal AD DS?

> **Answer:** No, you should never install an Edge Transport server role on a computer that is a member of the internal AD DS.

Demonstration: Configuring EdgeSync

Demonstration Steps

Enable EdgeSync

1. On LON-EDGE1, click **Start**, type **Exchange Management Shell**, and then press Enter.
2. In Exchange Management Shell, at the command prompt, type the following command, and then press Enter:

```
New-EdgeSubscription -FileName “c:\LON-EDGE1.xml”
```

3. At the confirmation prompt, type **Y**, and then press Enter.
4. On the taskbar, click **File Explorer**.
5. Navigate to C:\ and locate **c:\LON-EDGE1.xml**.
6. Right-click **LON-EDGE1.xml** and then click **Copy**.
7. In the address bar, type **\\LON-EX1\c$** and press Enter.
8. Right-click an area of free space and click **Paste**.

 **Note:** Remember that in real-world scenarios, copying the Edge subscription file directly from the Edge Transport server to the internal Exchange server would be a security violation. Normally, you should use a USB device or other means to copy the file.

9. On LON-EX1, click **Start**, type **Exchange Management Shell**, and then press Enter.
10. In Exchange Management Shell, at the command prompt, type the following command, and then press Enter:

```
New-EdgeSubscription -FileData ([byte[]]$(Get-Content -Path "C:\LON-EDGE1.xml" -
Encoding Byte -ReadCount 0)) -Site "Default-First-Site-Name”
```

Test EdgeSync

1. On LON-EX1, in Exchange Management Shell, at the command prompt, type the following command, and then press Enter:

```
Start-EdgeSynchronization
```

   Verify that the synchronization was successful.

2. In Exchange Management Shell, at the command prompt, type the following command, and then press Enter:

```
Test-EdgeSynchronization -FullCompareMode
```

3. On LON-EDGE1, in the Exchange Management Shell, type the following command prompt, and then press Enter:

```
Get-ReceiveConnector
```

4. Confirm that no new Receive connectors have been added. The default connector is configured to receive email from all source addresses on port 25.
5. Type the following command prompt, and then press Enter:

```
Get-SendConnector
```

6. Confirm that a new connector named **EdgeSync – Default-First-Site-Name to Internet** was created. If the command doesn't show any send connectors, wait a minute and run the command again.
7. On the **AddressSpace** row, confirm that an address space of **smpt:*** is configured.
8. Type the following command prompt, and then press Enter:

```
Get-AcceptedDomain
```

9. Confirm that the internal domains are listed as authoritative domains.
10. Switch to LON-EX1. Open Internet Explorer and connect to **https://lon-ex1.adatum.com/ecp**.
11. Sign in as **Adatum/Administrator** using the password **Pa$$w0rd**.
12. In the Exchange admin center, in the left pane, click **mail flow**, and then click the **send connectors** tab.
13. On the **send connectors** tab, confirm that the **EdgeSync – Default-First-Site-Name to Internet** connector displays.
14. Double-click the **EdgeSync – Default-First-Site-Name to Internet** connector.
15. In the left pane, click **scoping**.
16. In the **Source server** pane, confirm that LON-EDGE1 is listed as the source server, and then click **Save**.

Lesson 3

Implementing an antispam solution for Exchange Server 2016

Contents:

Demonstration: Configuring antispam features in Exchange Server 2016

Demonstration Steps

Enabling antispam features on LON-EX1

1. Switch to **LON-EX1**.
2. In the Exchange Management Shell, type the following command, and press Enter.

```
CD "\Program Files\Microsoft\Exchange Server\V15\Scripts"
```

3. Install the antispam agents by typing the following script, and then press Enter:

```
.\Install-AntiSpamAgents.ps1
```

4. In the Exchange Management Shell, restart the Microsoft Exchange Transport Service by typing the following cmdlet, and then press Enter.

```
Restart-Service MSExchangeTransport
```

5. In the Exchange Management Shell, type the following cmdlet to specify that the IP addresses of the internal SMTP servers **LON-EX1** and **LON-EX2** should be ignored by the Sender ID agent, and then press Enter:

```
Set-TransportConfig -InternalSMTPServers @{Add="172.16.0.14","172.16.0.15"}
```

6. In the Exchange Management Shell, list installed transport agents by typing the following cmdlet, and then press Enter:

```
Get-TransportAgent
```

7. Verify that the following antispam agents are listed:
   - **Content Filter Agent**
   - **Sender ID Agent**
   - **Sender Filter Agent**
   - **Recipient Filter Agent**
   - **Protocol Analysis Agent**
8. Verify that the status of antispam agents is **Enabled True**.

Configuring content filtering on LON-EX1

1. In the Exchange Management Shell, verify that content filtering is enabled by typing the following cmdlet, and then press Enter:

```
Get-ContentFilterConfig | Format-List Enabled
```

   Verify that **Enabled:True** displays.

2. In the Exchange Management Shell, configure the blocked phrase **Poker results** by typing the following cmdlet, and then press Enter:

```
Add-ContentFilterPhrase -Influence BadWord -Phrase "Poker results"
```

3. In the Exchange Management Shell, configure the allowed phrase **Report document** by typing the following cmdlet, and then press Enter:

```
Add-ContentFilterPhrase -Influence GoodWord -Phrase "Report document"
```

4. In the Exchange Management Shell, verify that the phrases have been added correctly by running the following cmdlet:

```
Get-ContentFilterPhrase
```

Module Review and Takeaways

Best Practice

When configuring an antispam and antivirus solution, always follow the vendor's technical documentation on how to deploy, manage, and maintain those solutions. Internet threats are changing every day, so Exchange administrators and security administrators must be regularly educated and aware of the latest security threats. As security threats change, an organization's antispam and antivirus solutions and management best practices might also change.

Review Question

Question: What strategy for antispam and antimalware protection are you going to suggest for your organization?

Answer: Answers might vary. Small organizations might have antispam and antimalware protection installed only on- premises, or hosted in the cloud. Medium-sized and large organizations might choose to have multi-layer protection for both antispam and antimalware protection. Multi-layer protection can be configured with two solutions:

- One antispam and antimalware protection solution on premises.
- Another antispam and antimalware protection solution installed on the SMTP gateway or hosted in the cloud, such as Exchange Online Protection.

We also recommend that the solution on-premises incorporate antimalware agents that differ from the SMTP gateway solution or the cloud solution.

Real-world Issues and Scenarios

Your employees often complain about email being blocked as spam or malware, when the email was neither spam nor malware. Such false-positive email is one of the biggest issues in antispam and antimalware protection. False positive means that an email has been blocked due to antispam or antimalware scanning, but the email is actually not spam and does not contain malware.

To address the issue, contact security administrators to investigate the reasons why those emails have been identified as spam or malware. Re-evaluate your antispam and antimalware protection settings, and edit the settings if necessary.

Tools

- Exchange admin center. Use for configuring anti-malware policy.
- Exchange Management Shell. Use for configuring antimalware policy, antimalware settings, and antispam settings.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
You have configured antispam content filtering, but employees complain that they still receive spam email.	Edit antispam content filtering and increase SCL values with the following parameters: *SCLDeleteThreshold 9*, *SCLRejectThreshold 8*, *SCLQuarantineThreshold 7*. Ask the employees after one day if the amount of spam received has changed.
You have configured antispam content filtering, but employees complain that they	Configure antispam content filtering with a quarantine mailbox. Check the quarantine

Common Issue	Troubleshooting Tip
do not receive email from business partners.	mailbox for messages from the business partners. Forward the messages from business partners to the employees who reported the problem. Evaluate your content-filtering policy to determine if the policy needs to be edited with lower SCL threshold values.
One employee complained that when they received an email, the attachment was missing, and was replaced with another attachment with a warning about malware.	Investigate the sender of the email. If the sender was another employee from your organization, alert the security administrators that malware is present in the network. Security administrators should locate and delete the malware. Configure the default antimalware policy to notify both internal and external senders when malware is detected.

Lab Review Questions and Answers

Lab: Configuring message security

Question and Answers

Question: What antispam agents are available on an antispam enabled Exchange server in the Exchange organization?

Answer: The antispam agents are Content Filter, Sender ID, Sender Filter, and Recipient Filter.

Question: What is the purpose of the SCL threshold?

Answer: The SCL threshold establishes a value that specifies whether a message is perceived as spam, or as a valid message. The lower the number, the greater the likelihood that the email message is not spam. The higher the number, the more likely it is that the message is spam.

Module 10

Implementing and managing Exchange Online deployments

Contents:

Lesson 1

Overview of Exchange Online and Office365

Contents:

Resources

What is Office 365?

 **Additional Reading:** For more information about Office 365 Service Descriptions, refer to: http://aka.ms/ozc45n

Lesson 2

Managing Exchange Online

Contents:

Demonstration: Creating an Office 365 trial tenant

Demonstration Steps

1. In the host computer, open Internet Explorer, browse to the Office 365 Enterprise E3 business software link: **http://aka.ms/jsn2ec**
2. Select the **Free trial** option.
3. Select your country/region and enter your data. If your country/region is not listed, select **United States**.
4. Type in your **First name** and **Last name**, enter an **email address** you have access to, type **123-123-1234** as business phone number, and use **A. Datum Corporation** as the company name. Choose **51-150** for the organization size, and then click **Next**.
5. On the **Create your user ID** page, type your user name (for example, the first letter of your last name and your first name), and then choose a company domain name. Type the company domain name in the following format: AdatumDATEYourInitials.onmicrosoft. (for example, adatum2601sj.onmicrosoft.com)
6. Configure **Pa$$w0rd!** as the password, and then click **Next**.
7. Provide your mobile phone number for verification, and then click **Text me**.

 **Note:** You must type your working mobile phone number.

8. Type the text code that you received on your mobile phone in the **Enter your verification code** dialog box, then click **Create my account**.
9. Review the available options on the Office 365 dashboard, and note your user ID.

 **Note:** Make sure that you write down your user ID, because you will use it later for signing in.

10. Do not close the browser window.

Demonstration: Overview of the Office 365 admin center

Demonstration Steps

Office 365 admin center

1. In the host machine, in Internet Explorer, click **Start InPrivate Browsing**, and then browse to **https://portal.office.com**.
2. Log on with your previously created UserID and the password **Pa$$w0rd!**
3. Click **Admin**. On the don't lose access to your account! page, click **cancel**.
4. If you are connected to the previous Office 365 admin center, click the banner at the top of the page to connect to the new Office 365 admin center.
5. On the left navigation menu, scroll down to explore all available items.
6. On the left navigation menu, click **Users**, and then click **Active Users**.
7. Review the users list.
8. On the left navigation menu, click **Settings**, and review the options listed.

9. Click each option, and discuss the configuration options.
10. On the left navigation menu, click **Health**, and review the options listed.
11. Click each option, and discuss the configuration options.
12. Do not close the browser window.

Demonstration: Provisioning Users, Groups, and Mailboxes in Office 365

Demonstration Steps

Provision users and mailboxes

1. In the host machine, in Internet Explorer, in the Office 365 admin portal, on Home page, click **Users**, and then click **Active users**.
2. Above the list of users, click the **Add a user** button.
3. On the **New user** page, enter the following information, and then click **Save**:
    a. First name: **Beth**
    b. Last name: **Burke**
    c. Display name: **Beth Burke**
    d. User name: **Beth**
    e. Auto-generate password.
    f. Make this user change their password when they first sign in: **Selected**
    g. Product licenses: **Office 365 Enterprise E3**
    h. Click **Save**
4. Ensure that the **Send password in email** check box is selected, click **Send email and close**, and then repeat steps 2-3 to add the following additional users:
    a. Annete Auzina
    b. Fay Gibbs
5. In the Office 365 admin console, in the left navigation pane, click **Admin centers**, and then click **Exchange**.
6. In the Exchange admin center, click **recipients**.

 **Note:** It might take a few minutes for the mailboxes to appear. Click the refresh icon periodically until they do.

Provision groups and assign mailboxes

1. In Exchange admin center, in recipients, click the **groups** tab.
2. Click **New**, and then click **Distribution group**.
3. In the new distribution group window fill in the following information:
    a. Display name: **IT**
    b. Alias: **IT**
    c. Email address: accept the default

4. Under Members, click **add**. Click **Beth Burke**, click **add**, and then click **OK**.
5. Click **Save**.
6. Repeat steps 2-5 to create a group with the name **Sales** and add **Fay Gibbs** to it.

Demonstration: Connecting to Exchange Online by using Windows PowerShell

Demonstration Steps

1. On your host computer, open **Windows PowerShell** as an administrator.
2. If a User Account Controller dialog box appears, click **Yes**.
3. In Windows PowerShell, change the execution policy by running the following cmdlet, and then press Enter.

```
Set-executionpolicy unrestricted -force
```

4. Get login credentials by running the following cmdlet , and then press Enter:

```
$cred = Get-Credential
```

5. In the **Login to Windows PowerShell** dialog box, type your previously created **UserID** as user name and **Pa$$w0rd!** as the password, then click **OK**.
6. Create a session to Exchange Online PowerShell by running the following cmdlet, and then press Enter:

```
$exo = New-PSSession -ConfigurationName Microsoft.Exchange -ConnectionUri
https://outlook.office365.com/powershell-liveid/ -Credential $cred -Authentication
Basic -AllowRedirection
```

7. Import all Exchange Online PowerShell cmdlets by running the following cmdlet, and then press Enter:

```
Import-PSSession $exo
```

8. Get an overview of Exchange Online mailboxes available by running the following cmdlet, and then press Enter:

```
Get-Mailbox
```

9. Get an overview of Exchange Online distribution groups available by running the following cmdlet, and then press Enter:

Module Review and Takeaways

Review Question(s)

Question: How can you deploy Exchange Online?

> **Answer:** You can use Exchange Online only, Exchange Server on-premises only, or a hybrid deployment that connects Exchange Server on-premises and Exchange Online.

Question: How can you manage users and mailboxes in Office 365? Which portals can you use?

> **Answer:** You can use Office 365 admin center to create and delete users including their mailboxes. You need to use Exchange Online admin center to manage mailbox-specific settings such as email addresses or mailbox features.

Question: You created a new mailbox in Exchange Online, and now the on-premises users complain that they cannot see the new mailbox. What can you do?

> **Answer:** You cannot make the new mailbox visible to viewers, because there is no way to synchronize Exchange Online mailboxes or accounts to the on-premises environment. To correct this problem, you need to delete and then re-create the mailboxes in the on-premises Active Directory Domain Services (AD DS) by using the Exchange admin center or Exchange Management Shell. Then you need to wait for the directory synchronization tool to synchronize the mailbox to Exchange Online.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Moving mailboxes between Exchange Online and on-premises fails. You also recognize that access to these on-premises mailboxes is not possible.	Make sure that the on-premises database has all copies mounted and that the copies are healthy. If one is not healthy, the Mailbox Replication Service proxy does not allow mailboxes to move to this database

Lab Review Questions and Answers

Lab: Managing Exchange Online

Question and Answers

Question: Where in Office 365 do you manage recipient objects such as recipients or groups?

Answer: You can use the Exchange Online admin center to manage recipients and groups.

Question: What options do you have to manage Exchange Online?

Answer: You can use Exchange Online admin center or Windows PowerShell to remotely connect to Exchange Online. You also can use the Office 365 admin center to create users and mailboxes, but you cannot manage mailboxes in the Office 365 admin center.

Module 11

Monitoring and troubleshooting Microsoft Exchange Server 2016

Contents:

Lesson 1

Monitoring Exchange Server 2016

Contents:

Question and Answers

Question: The Performance Monitor allows you to group different performance counters into _____ that organize multiple data points into a single component for easier viewing and analysis.

( ) Resource groups

( ) Counter collections

( ) Data Collector Sets

( ) Performance sets

( ) Counter sets

Answer:

( ) Resource groups

( ) Counter collections

(√) Data Collector Sets

( ) Performance sets

( ) Counter sets

Feedback: Data Collector Sets are the primary element you will use for performance monitoring and reporting. Data Collector Sets can contain performance counters, event trace data, and system configuration data (registry values).

Question: When should you reestablish a performance baseline for Exchange Server?

( ) After applying an Exchange Server cumulative update

( ) After modifying hardware resources, such as the processor, disk, or memory

( ) After installing third-party software

( ) Before redistribution of user mailboxes

( ) After redistribution of user mailboxes

Answer:

(√) After applying an Exchange Server cumulative update

(√) After modifying hardware resources, such as the processor, disk, or memory

(√) After installing third-party software

( ) Before redistribution of user mailboxes

(√) After redistribution of user mailboxes

Feedback: It is a good idea to reestablish a performance baseline after hardware upgrades, changes in user mailbox distribution through servers, software updates, or new software installation, such as antivirus or backup software. You do not need to reestablish a performance baseline before redistributing user mailboxes, unless you did not establish one initially.

Lesson 2

Troubleshooting Exchange Server 2016

Contents:

Question and Answers

Question: Which of the following statements are true regarding Exchange Server 2016 virtualization?

( ) A virtualized environment supports only the Edge Transport role.

( ) The use of dynamic memory on virtual machines that are running Exchange Server 2016 is not supported.

( ) The maximum supported ratio of physical cores to virtual processors on a virtual host is 1 to 1.

( ) The maximum supported ratio of physical cores to virtual processors on a virtual host is 2 to 1.

( ) A virtualized environment supports only the Mailbox Server role.

Answer:

( ) A virtualized environment supports only the Edge Transport role.

(√) The use of dynamic memory on virtual machines that are running Exchange Server 2016 is not supported.

( ) The maximum supported ratio of physical cores to virtual processors on a virtual host is 1 to 1.

(√) The maximum supported ratio of physical cores to virtual processors on a virtual host is 2 to 1.

( ) A virtualized environment supports only the Mailbox Server role.

Feedback: All Exchange Server 2016 roles are supported when they are running in a virtualized environment. However, the use of dynamic memory technology is not supported. The maximum supported ratio of physical cores to virtual process on a virtual host is 2 to 1, although we recommend a ratio of 1 to 1 for optimal performance.

Question: When viewing the status of a transport queue, what does the velocity property indicate?

( ) The rate at which messages are entering the transport queue.

( ) The rate at which messages are exiting the transport queue.

( ) How efficiently a transport queue is draining messages.

( ) The latency of the transport queue connection to the NextHopDomain.

( ) The speed at which messages are categorized in the submission queue.

Answer:

( ) The rate at which messages are entering the transport queue.

( ) The rate at which messages are exiting the transport queue.

(√) How efficiently a transport queue is draining messages.

( ) The latency of the transport queue connection to the NextHopDomain.

( ) The speed at which messages are categorized in the submission queue.

Feedback: The velocity property of a transport queue is a measure of how effectively a queue is draining messages. You can calculate this by subtracting the rate of messages entering the queue (IncomingRate) from the rate of messages exiting the queue (OutgoingRate). A positive velocity rate indicates that messages are leaving faster than they are entering. A negative velocity rate indicates that messages are entering faster than they are leaving. However, a negative velocity

rate does not always indicate a problem. If the rate is near zero and the message count in the queue is low, this generally requires no troubleshooting.

Question: Why is it important for you to identity an issue's scope before you begin troubleshooting? Consider the following scenario, and explain what information you must know before you troubleshoot the issue. Additionally, explain how that information might affect your troubleshooting steps.

Scenario

You are the Exchange Server administrator at A. Datum Corporation. A user from the Accounting department calls the help desk and reports that they receive a certificate error every time they open Outlook.

Answer: Before you troubleshoot any issue, it is always important to understand the overall scope and effect of the issue on your organization. Whether it affects a single user, multiple users, or your entire organization can provide insight on where to start troubleshooting.

In the scenario, you do not know whether the Accounting user is the only user that is affect. Therefore, the cause of the issue could be client-based or server-based. Knowing the exact error message that the user is receiving provides you with additional troubleshooting information. For example, if only a single user is affected, and the certificate error is referring to an untrusted certificate, you first should check that the user's system contains the necessary trusted root certificate. However, if multiple users are affected, and they all are receiving a certificate error regarding a name mismatch, you likely would conclude that you need to update the certificate that you have installed on one or more of your Exchange servers.

Resources

Troubleshooting database replication

Additional Reading: For more information, refer to Monitoring DAGs at: http://aka.ms/nf3vz4
Note: The context in the above website references Exchange Server 2013. However, it is applicable to Exchange Server 2016.

Troubleshooting performance issues

Additional Reading: For more information, refer to Running Windows antivirus software on Exchange 2016 servers: http://aka.ms/bcznvz

Troubleshooting transport components

Additional Reading: For more information, refer to Understanding back pressure: http://aka.ms/l6auu9

Additional Reading: For more information, refer to Edge Subscriptions: http://aka.ms/lak2a5

Additional Reading: For more information, refer to Connectors: http://aka.ms/f9sy9f

Additional Reading: For more information, refer to Antispam protection in Exchange 2016: http://aka.ms/ogtpwy

Additional Reading: For more information, refer to Queues: http://aka.ms/ie6c0f

 **Additional Reading:** For more information, refer to Message tracking: http://aka.ms/d5xddx

 **Additional Reading:** For more information, refer to Use Telnet to test SMTP communication on Exchange servers: http://aka.ms/f8u4ey

 **Additional Reading:** For more information, refer to Pipeline tracing: http://aka.ms/njc4gw

Note: Although the content in this website references Exchange Server 2013, it is applicable to Exchange Server 2016.

Module Review and Takeaways

Best Practices

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

- Follow the same steps each time you troubleshoot a problem. This helps you become adept at making informed decisions and finding the answers quickly.
- Be diligent about separating the facts about the issue from any subjective information. A single person's subjective observation could cause you to troubleshoot the wrong problem and delay resolution of the actual issue.
- Ask several questions about the problem before you begin troubleshooting. If you have not defined the problem properly, you cannot identify your troubleshooting steps properly.

Review Question

Question: Which of the following are possible reasons for an external mail server to quarantine or discard an email that originates from your Exchange organization?

( ) A missing or improperly configured Sender Provider Framework (SPF) record in your external DNS.

( ) You have disabled the antispam transport agents on your Mailbox and Edge Transport servers.

( ) You have enabled several data loss prevention (DLP) policies in your Exchange organization to protect sensitive information.

( ) Your Edge Transport server, which relays mail to other Internet-facing mail hosts, has been added to several public blacklists inadvertently.

( ) The malware engine signatures on your Edge Transport server are out-of-date.

Answer:

(√) A missing or improperly configured Sender Provider Framework (SPF) record in your external DNS.

( ) You have disabled the antispam transport agents on your Mailbox and Edge Transport servers.

( ) You have enabled several data loss prevention (DLP) policies in your Exchange organization to protect sensitive information.

(√) Your Edge Transport server, which relays mail to other Internet-facing mail hosts, has been added to several public blacklists inadvertently.

( ) The malware engine signatures on your Edge Transport server are out-of-date.

Feedback: The only valid reasons for an external mail server to quarantine or discard email from your Exchange organization would be a missing or invalid SPF record or the presence of your Edge Transport server on one or more public blacklists. Antispam protection only protects your Exchange organization from inbound messages that are classified as spam, so disabling the associated transport agents would have no impact on outbound email. DLP policies protect sensitive information from leaving your Exchange organization, but they would have no impact to quarantine actions taken by external mail server. Malware engine signatures on your Edge Transport server should not matter to an external mail server, because the external server most likely has its own malware agent used to scan messages.

Tools

Tool name	Description

Tool name	Description
Microsoft Remote Connectivity Analyzer	Use this web-based tool to simulate external client connections to the Exchange Server infrastructure: http://aka.ms/tqjejb
Microsoft Remote Connectivity Analyzer Tool	Use this client program to simulate internal client connections to Exchange Server infrastructure: http://aka.ms/tqjejb
ADSI Edit (adsiedit.msc)	Use for low-level editing of Active Directory objects and attributes. On Windows Server 2012 R2, it is installed as part of the Remote Server Administration Tools.
Event Viewer (eventvwr.msc)	Use this MMC snap-in to view logged events such as errors and warnings.
Performance Monitor	Use this tool to monitor the performance of hardware components, the operating system, and applications.
Microsoft Exchange Diagnostics Service	A background process that continually gathers and stores applicable Exchange Server performance counters automatically. By default, up to 5GB of stored data is retained for seven days, which allows you to immediately troubleshoot performance issues without the need for manual data collection.
Task Manager	Use this tool to review which services are running and how much resources they utilize.
Exchange Server Database Utilities (Eseutil.exe)	Use this tool to perform offline database procedures, such as defragmentation and recovery.
Process Monitor (procmon.exe)	Use this tool to monitor real-time file system, registry, and process/thread activity.
Test-OutlookConnectivity	Use this cmdlet to confirm Outlook Anywhere connectivity
Test-MAPIConnectivity	Use this cmdlet to confirm server functionality by logging in to a mailbox you specify. If you do not specify a mailbox, the cmdlet attempts to log on to the SystemMailbox of the database you specify.
CollectOverMetrics.ps1	Use this script to report on database activities such as failovers and moves over a specific period.
CollectReplicationMetrics.ps1	Use this script to collect real-time data from performance counters related to database replication and then generate a report across all of the collected data.
Telnet (telnet.exe)	Use this tool to troubleshoot Exchange Server mail flow.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Multiple A. Datum end users have been reporting to the help desk that email	To isolate the source of routing delays quickly, retrieve a copy of one of the delayed messages from an A.

Common Issue	Troubleshooting Tip
messages from Contoso personnel have not been arriving until as long as two hours after they were sent. The Contoso IT department claims there is nothing wrong with their messaging environment. What is the first step you should take to determine the source of the delays?	Datum end user. You should have the end user forward the delayed message to you as an attachment in order to preserve the message headers. If they forward the message to you instead, the message headers will only reflect the routing information from the forwarding action, but will not reflect the routing information that pertains to the delayed message. Open the copy of the delayed message in Outlook, and then copy the Internet headers. Use the Message Analyzer function of the Remote Connectivity Analyzer tool to determine how much time lapsed during each routing hop between the A. Datum Exchange organization and the Contoso mail servers from which the message originated. The routing hop with the lengthiest delay should indicate where the problem is most likely occurring.
An Exchange Server cumulative update was released recently, and A. Datum has decided to deploy it. As the Exchange administrator, what steps should you take when deploying to production so that you minimize the risk of a performance impact?	Review release notes for the cumulative update, and then verify through community-feedback channels if there are any undocumented issues with the update. Deploy the cumulative update in a lab environment that mimics your production environment. Verify interoperability of the update with any third-party software. Pending a successful deployment to your lab environment, schedule deployment of the cumulative update to your production environment. Pending a successful production deployment gather new performance data on each updated server and compare it to your performance baselines.

Lab Review Questions and Answers

Lab: Monitoring and troubleshooting Exchange Server 2016

Question and Answers

Question: Rather than creating a new Data Collector Set in Performance Monitor, what other tool could you use to retrieve performance data for Exchange?

( ) Microsoft Remote Connectivity Analyzer

( ) Queue Viewer

( ) Collect-PerformanceData.ps1

( ) Message tracking logs

( ) Microsoft Exchange Diagnostics Service

Answer:

( ) Microsoft Remote Connectivity Analyzer

( ) Queue Viewer

( ) Collect-PerformanceData.ps1

( ) Message tracking logs

(√) Microsoft Exchange Diagnostics Service

Feedback: The Microsoft Exchange Diagnostics Service continually gathers and stores applicable Exchange Server performance counters automatically, up to seven days or 5 GBs, whichever is reached first.

The Microsoft Exchange Diagnostics Service will generate .blg files in C:\Program Files\Microsoft\Exchange Server\V15\Logging\Diagnostics\DailyPerformanceLogs, which you can open in the Performance Monitor.

Module 12

Securing and maintaining Exchange Server 2016

Contents:

Lesson 1

Securing Exchange Server with RBAC

Contents:

Question and Answers

Question: When using RBAC, you should assign administrative roles by using _____.

( ) Management role groups

( ) Management role entries

( ) Management role assignment policies

( ) Split permissions

( ) Direct role assignment

Answer:

(√) Management role groups

( ) Management role entries

( ) Management role assignment policies

( ) Split permissions

( ) Direct role assignment

Feedback: Although you can technically assign administrative roles by using direct role assignment, we do not recommend this method. You should assign administrative roles by using management role groups.

Question: To modify the default role assignment policy for all new and existing mailboxes, you can _____:

( ) Create new custom management roles that start with the prefix My.

( ) Add or remove management roles on the existing default role assignment policy.

( ) Place users in the management role groups that correspond to the user roles they should be assigned.

( ) Define a new role assignment policy and make it the default policy.

( ) Define a new role assignment policy and make it the default policy. Use the Set-Mailbox cmdlet to configure all previously created mailboxes to use the new policy.

Answer:

( ) Create new custom management roles that start with the prefix My.

(√) Add or remove management roles on the existing default role assignment policy.

( ) Place users in the management role groups that correspond to the user roles they should be assigned.

( ) Define a new role assignment policy and make it the default policy.

(√) Define a new role assignment policy and make it the default policy. Use the Set-Mailbox cmdlet to configure all previously created mailboxes to use the new policy.

Feedback: To modify the default role assignment policy for all new and existing mailboxes, you can add or remove management roles on the existing default role assignment policy or create a new role assignment policy and make it the default policy for new mailboxes. However, if you choose to make a new role assignment policy, you must manually configure all previously created mailboxes to use the new default policy by using the Set-Mailbox cmdlet.

What is role-based access control?

Question: What requirements does your organization have for assigning Exchange Server permissions? Does your organization use a centralized or decentralized administration model? What special permissions will you need to configure?

> **Answer:** Answers will vary. In most organizations, a central team of Exchange Server administrators maintains full control of the Exchange Server environment, while another team may need permissions to create mailboxes. Other organizations may have complex administrative scenarios in which different groups need many different permission levels.

Managing permissions using the built-in role groups

Question: Which of the built-in role groups are you using or planning to use in your organization?

> **Answer:** Answers will vary. Small or medium-sized organizations in which one set of administrators is the only group that performs any recipient management or Exchange Server management tasks may use only the Organization Management role group. Organizations with decentralized administrative processes are much more likely to use other management roles to delegate permissions.

Configuring custom role groups

Question: Will you implement custom management roles in your organization? If so, how will you configure the management roles?

> **Answer:** Answers will vary. Most organizations probably do not need custom management roles. Large organizations that have complex administrative processes may require several custom management roles.

Resources

What are split permissions?

 **Additional Reading:** For more information, refer to Understanding split permissions: http://aka.ms/pr8k5w

Demonstration: Managing permissions using the built-in role groups

Demonstration Steps

1. On LON-DC1, on the taskbar, click **Server Manager**, click **Tools**, and then click **Active Directory Users and Computers**.
2. Expand **Adatum.com**, click **Microsoft Exchange Security Groups**, and then in the right pane, double-click **Recipient Management**.
3. In the **Recipient Management Properties** dialog box, click the **Members** tab.
4. On the **Members** tab, click **Add**.
5. In the **Enter the object names to select** text box, type **Tony**, and then click **OK** twice.
6. In the left pane, select **Users**, and then double-click **Domain Admins**.
7. In the **Domain Admins Properties** dialog box, click the **Members** tab.
8. On the **Members** tab, click **Add**.
9. In the **Enter the object names to select** text box, type **Tony**, and then click **OK** twice.

10. Switch to LON-EX1 and sign in using the user name as **Adatum\Tony** and the password as **Pa$$w0rd**.
11. On LON-EX1, click **Start**, then click **Internet Explorer**, and in the address bar, type **https://lon-ex1.adatum.com/ecp**, and then press Enter.

Note: If prompted to set up Internet Explorer 11, select **Use recommended security and compatibility settings**, and then select **OK**.

12. In the Exchange Administration Center, sign in as **Adatum\Tony** with the password as **Pa$$w0rd**.
13. In the Exchange Administration Center, in the feature pane, click **servers**. Point out that Tony has read access to the Exchange Server organization configuration because, by default, the Recipient Management group has implicit Read permission to the organization.
14. In the feature pane, click **permissions**. Point out that there are no tabs for admin roles or user roles available for Tony. The only tab available is **Outlook Web App** policies.
15. In the feature pane, click **recipients**.
16. In the **List** view, double-click **Administrator**.
17. In the **User Mailbox** dialog box, click **organization**, verify that you can modify the user properties, and then click **cancel**. Close Internet Explorer.
18. Click the Start screen and then click the all apps down arrow. Click **Exchange Management Shell**.
19. In the Exchange Management Shell window, type the following command, and then press Enter.

```
Get-ExchangeServer | Fl
```

Note: Note that Tony has Read permission to the Exchange Server information.

20. In the Exchange Management Shell window, type the following command, and then press Enter.

```
Set-User Adam -Title Manager
```

Note: Note that Tony also has permission to modify the Active Directory account.

21. Sign out of LON-EX1.

Demonstration: Configuring custom role groups

Demonstration Steps

1. On LON-EX1, click **Start**, and then click **Internet Explorer**. In the address bar, type **https://LON-EX1.adatum.com/ecp**, and then press Enter.
2. Sign in as **Adatum\Administrator** using the password as **Pa$$w0rd**.
3. In the **Time zone** list, click **(UTC-08:00) Pacific Time (US & Canada)** and then click **Save**.
4. In the Exchange Administration Center, in the feature pane, click **permissions**.
5. On the **admin roles** tab, click **New**.
6. In the **new role group** dialog box, fill in the following information:

- Name: **MarketingAdmins**
- Write scope: Click **Organizational Unit**, and type **adatum.com/Marketing**
- Roles: Click **Add**. On **Select a Role** page, double-click **Mail Recipients** and **Mail Recipient Creation**. Click **OK**.
- Members: Click **Add**. On the **Select Members** page, double-click **Brad Sutton**. Click **OK**, and then click **Save**.

7. Open Server Manager, click **Tools**, and then click **Active Directory Users and Computers**.
8. Expand **Adatum.com**, and in the left pane, click **Microsoft Exchange Security Groups**, and then verify that the **MarketingAdmins** group was created and that **Brad** is a member of the group.
9. Sign out of the Exchange Administration Center.
10. In the Internet Explorer, in the address bar, type **https://LON-EX1.adatum.com/ecp**, press Enter, and then sign in as **Adatum\Brad** using the password as **Pa$$w0rd**.
11. In the feature pane, click **recipients**.
12. In the list view, double-click **Administrator**.

 **Note:** Note that all fields are unavailable, and you do not have permissions to change this user because the user is not in the Marketing organization unit (OU).

13. Click **Cancel**.
14. Click the **New** tab, and then click **User Mailbox**. In the **User Mailbox** dialog box, ensure that **Existing User** is selected, and then click **Browse**.
15. In the list, click **Aidan Delaney**, and then click **OK**. In the **User Mailbox** dialog box, click **Save**.

 **Note:** Note that Aidan Delaney is not within your write scope.

16. Click **OK**.
17. Click **Browse** again and click **Andrew Dixon**. Click **OK**, and click **Save**.
18. Verify that a mailbox is successfully created for Andrew Dixon.

Demonstration: Configuring management role assignment policies

Demonstration Steps

Use Outlook on the web with default user permissions

1. On LON-EX1, open Internet Explorer, and in the address bar, type **https://LON-EX1.adatum.com/ECP** and then press Enter. Sign in as **Adatum\Andrew** with the password as **Pa$$w0rd**.
2. In the details pane on the right, under **my account**, click **Edit information**.
3. In the Account Information window, in the feature pane, click **contact location**.
4. In the details pane on the right, in the **Street** text box, type **Mail Street 1**, in the **City** text box, type **Oxford**, and then click **save**. By default in Microsoft Exchange Server 2016, all users can change their contact information.
5. In the feature pane, click **groups**.

Note: Notice that Andrew belongs to only one group, named **Marketing**. He cannot manage it.

6. Sign out of Exchange Administration Center.

Change the default role assignment policy

1. Open Internet Explorer, and in the address bar, type **https://LON-EX1.adatum.com/ECP**, and then press Enter. Sign in as **Adatum\Administrator** with the password as **Pa$$w0rd**.
2. In the Exchange Administration Center, in the feature pane, click **permissions**.
3. Click the **user roles** tab, and then click **Edit**.

Note: In the Role Assignment Policy window, notice the options that are available to configure end-user permissions for Outlook Web App.

4. In the Role Assignment Policy window, under **Contact information**, clear the **MyContactInformation** check box.

Note: The user no longer has permission to modify their contact information in Outlook on the web.

5. Under **Distribution groups**, click **MyDistributionGroups**.

Note: With this permission, the users can create groups and manage them.

6. Click **save**, and then in the **warning** dialog box, click **yes**.
7. Sign out of Exchange Administration Center.

Verify the changed user permission with Outlook on the web

1. Open Internet Explorer, and in the address bar, type **https://LON-EX1.adatum.com/ECP**, and then press Enter. Sign in as **Adatum\Andrew** with the password as **Pa$$w0rd**.
2. In the details pane on the right, under **my account**, click **Edit information**.
3. In the Account Information window, in the feature pane, click **contact location**.

Note: Notice that you cannot change the **Street** or **City** fields.

4. Click **cancel**.
5. In the feature pane, click **groups**.

Note: Notice that you now have an additional pane, named **distribution groups I own**. With the permission assigned by using the Default Role Assignment Policy, all users can now create their own groups in Outlook on the web settings.

6. In the **distribution groups I own** pane, on the toolbar, click **New**.

7. In the **New Distribution Group** dialog box, in the **Display name** text box, type **Marketing Supervisors**.
8. In the **Alias** text box, type **mktgsupervisors**, and under **Choose whether owner approval is required to join the group**, click **Owner approval: All requests are approved or rejected by the group owners**, and then click **save**.

Lesson 2

Configuring audit logging on Exchange Server 2016

Contents:

Question and Answers

Question: Which one of the following cmdlets must you use to enable mailbox audit logging?

( ) Enable-MailboxAuditLog

( ) New-MailboxAuditLog

( ) Set-Mailbox

( ) Set-AdminAuditLogConfig

( ) Enable-AdminAuditLog

Answer:

( ) Enable-MailboxAuditLog

( ) New-MailboxAuditLog

(√) Set-Mailbox

( ) Set-AdminAuditLogConfig

( ) Enable-AdminAuditLog

Feedback: Set-Mailbox is the only way to enable mailbox audit logging. You can enable it by setting the – **AuditEnabled** parameter to **$true** and you can disable it by setting the parameter to **$false.**

Demonstration: Configuring audit logging

Demonstration Steps

1. On LON-EX1, click the Start screen, and then open the Exchange Management Shell.
2. In the Exchange Management Shell window, type **Get-AdminAuditLogConfig**, and then press Enter.
3. In the results list, ensure that **AdminAuditLogEnabled** has the value **True**.

Note: Note that **TestCmdletLoggingEnabled** is false, and that all cmdlets are being logged with all parameters. Note the property values for **AdminAuditLogCmdlets** and **AdminAuditLogParameters**.

4. Open Internet Explorer, type **https://lon-ex1.adatum.com/ecp**, and then press Enter.
5. In the Exchange Administration Center, sign in as **Adatum\Administrator** with the password as **Pa$$w0rd**.
6. In the Exchange Administration Center, in the feature pane, click **recipients**.
7. In the list view, double-click **Andrew Dixon**.
8. In the **User Mailbox** dialog box, in the left pane, click **mailbox delegation**.
9. In the right pane, under **Send As**, click **Add**.
10. In the **Select Send-As** dialog box, click **Administrator**, click **add**, and then click **ok**.
11. In the **User Mailbox** dialog box, click **Save**.
12. Switch to the Exchange Management Shell, type the following command, and then press Enter:

```
Search-AdminAuditLog -Cmdlets Add-ADPermission
```

Review the results, and ensure that the change made to Andrew's mailbox is logged. Also, mention that you can run **Search-AdminAuditLog** without any parameters to list all log entries.

Note: If no results are returned when you search the administrator audit log, wait a few minutes and repeat this task. It can take up to 5 minutes for the change to appear in the audit log.

13. In the Exchange Management Shell, type the following command, and then press Enter.

```
Set-Mailbox -Identity "Andrew Dixon" -AuditDelegate SendAs,SendOnBehalf -AuditEnabled
$true
```

14. Switch to Outlook on the web by browsing to **https://LON-EX1.adatum.com/owa** in the current Internet Explorer window. You should still be signed in as **Adatum\Administrator**.
15. Click **new mail** to create a new message, click **more options**, and then click **show from**.
16. Right-click the **From** field, click **remove**, and then type **Andrew@adatum.com**.
17. In the **To** text box, type **Administrator**, and in the **Subject** text box, type **Testing Send As logging**.
18. In the message body, enter some text, and then click **Send**. Verify that the message is sent once it shows up in the Inbox under the Administrator mailbox.
19. Switch to Exchange Administration Center by browsing to **https://LON-EX1.adatum.com/ECP** in the current Internet Explorer window. You should still be signed in as **Adatum\Administrator**.
20. In the feature pane, click **compliance management**.
21. Click the **auditing** tab.
22. Click **Run a non-owner mailbox access report**.
23. In the **search for mailboxes accessed by non-owners** window, leave the start date as it is, and then set the end date to tomorrow's date.
24. In the **Search for access by** drop-down box, click **All non-owners**, and then click **Search**.
25. In the search results, click **Andrew Dixon**, and the view the report that shows that Administrator performed a SendAs operation against Andrew's mailbox.

Note: If no results are returned when you run the report, wait a few minutes and start over from step 24.

26. Click **Close**, and close Internet Explorer.

Lesson 3

Maintaining Exchange Server 2016

Contents:

Question and Answers

Question: When performing maintenance on an Exchange Server 2016 Mailbox server, you should _____: (Select all that apply.)

( ) Use the Exchange Management Shell commands to enable the maintenance mode.

( ) Use the StartDagServerMaintenance.ps1 script to enable the maintenance mode.

( ) Restart or shut down the server and let the Primary Active Manager handle database failover automatically.

( ) Use the Exchange Management Shell commands to disable the maintenance mode.

( ) Use the StopDagServerMaintenance.ps1 script to disable the maintenance mode.

Answer:

(√) Use the Exchange Management Shell commands to enable the maintenance mode.

( ) Use the StartDagServerMaintenance.ps1 script to enable the maintenance mode.

( ) Restart or shut down the server and let the Primary Active Manager handle database failover automatically.

(√) Use the Exchange Management Shell commands to disable the maintenance mode.

( ) Use the StopDagServerMaintenance.ps1 script to disable the maintenance mode.

Feedback: When enabling or disabling maintenance mode, use the Exchange Management Shell commands provided in the student manual and either run them manually or include them in a shell script suitable for your organization. Do not rely on automatic database failover if you want to ensure a lossless switchover of databases. Do not use the StartDagServerMaintenance.ps1 or StopDagServerMaintenance.ps1 scripts, because these were written for Exchange Server 2010 and do not satisfy the requirements for Exchange Server 2016 or Exchange Server 2013.

Question: Which of the following statements regarding Exchange Server cumulative updates are true? (Select all that apply.)

( ) They replaced update rollups as part of the new servicing strategy introduced with Exchange Server 2010.

( ) They are released on a quarterly basis.

( ) They contain the identical code used to host Exchange Online on Office 365.

( ) You can use them to perform a full installation of Exchange Server 2016 or an upgrade from a previous release.

( ) They may contain schema updates for AD DS.

Answer:

( ) They replaced update rollups as part of the new servicing strategy introduced with Exchange Server 2010.

(√) They are released on a quarterly basis.

(√) They contain the identical code used to host Exchange Online on Office 365.

(√) You can use them to perform a full installation of Exchange Server 2016 or an upgrade from a previous release.

(√) They may contain schema updates for AD DS.

Feedback: Cumulative updates replaced update rollups as part of a new servicing strategy; however, they were introduced with Exchange Server 2013, not Exchange Server 2010. All of the other statements regarding Exchange Server cumulative updates are true.

Module Review and Takeaways

Best Practices

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

- When you configure permissions in the Exchange Server organization, ensure that the users have the minimal permissions required for them to perform their tasks. Add only highly trusted users to the Organization Management role group, because this group has full control of the entire organization.
- Whenever possible, use the built-in role groups to assign permission in the Exchange Server organization. Creating custom role groups with customized permissions is more complicated, and it may lead to users having too many, or too few, permissions.
- Enable administrative audit logging on shared mailboxes.
- Do not enable RBAC or Active Directory split permissions if you do not have a usage scenario to support these permissions models.
- Ensure that you document all permissions that you assign in the Exchange Server organization. If users are unable to perform required tasks, or if users are performing tasks to which they should not have access, you should be able to identify the reason by referring to your documentation.
- Ensure that you place servers in maintenance mode when applying cumulative updates, operating system updates, or performing hardware maintenance. When in a DAG configuration, do not rely on automatic failover to move databases when you are performing maintenance or need to restart a Mailbox server that is hosting active databases.

Review Question(s)

Question: In which scenario should you implement Active Directory split permissions in your Exchange Server 2016 organization?

> **Answer:** You should implement Active Directory split permissions in your Exchange Server 2016 organization if you want to split the creation of AD DS security principals and mailbox objects from Exchange Server management tools.

Question: You need to enable members of the HR department to configure user mailboxes for the entire organization. What should you do?

> **Answer:** In most cases, you can accomplish this by simply adding the members of the Human Resources department to the Recipient Management role group in AD DS. If the Recipient Management role group has more permissions than necessary, you may need to create a custom role group.

Question: How can you identify whether someone is accessing another user's mailbox?

> **Answer:** You can identify whether someone is accessing another user's mailbox by enabling mailbox audit logging.

Common Issues and Troubleshooting Tips

Common Issue	Troubleshooting Tip
Your Exchange Server mailbox administrators are not able to create user accounts when creating a mailbox.	You would have enabled Active Directory split permissions, which causes Exchange to not create security principals in Active Directory anymore. If you want this group to create users, you need to assign them the appropriate Active Directory permissions or disable Active Directory split permissions.

Common Issue	Troubleshooting Tip
An administrator is able to sign in to Exchange Server and start Exchange Management Shell, but cannot run the cmdlets to manage recipient objects.	The administrator does not have the appropriate RBAC permissions configured. If you do not have the right permissions, you do not see the cmdlets or parameters, and thus cannot run them. To solve this issue, you need to assign appropriate RBAC permissions to your administrator.

Lab Review Questions and Answers

Lab: Securing and maintaining Exchange Server 2016

Question and Answers

Question: You have a shared mailbox that requires logging any activity other users send on behalf of this mailbox. What do you need to do to achieve this?

Answer: You need to enable mailbox audit logging for that specific mailbox.

Question: Your compliance officer requires permission to configure and manage compliance settings in your Exchange Server organization. You want to make sure that the compliance officer has the least amount of permissions necessary for performing their job. What built-in management role group would you use?

Answer: The Compliance Management role group.