Lab Answer Key: Module 7: Implementing DNS

Lab: Implementing DNS

Exercise 1: Installing and Configuring DNS

Task 1: Configure LON-SVR1 as a domain controller without installing the Domain Name System (DNS) server role

1. On LON-SVR1, in the Server Manager console, click Add roles and features.
2. On the Before you begin page, click Next.
3. On the Select installation type page, click Next.
4. On the Select destination server page, ensure that LON-SVR1.Adatum.com is selected, and then click Next.
5. On the Select server roles page, select Active Directory Domain Services.
6. When Add Roles and Features Wizard appears, click Add Features, and then click Next.
7. On the Select features page, click Next.
8. On the Active Directory Domain Services page, click Next.
10. On the Installation progress page, when the Installation succeeded message appears, click Close.
11. In the Server Manager console, on the navigation page, click AD DS.
12. On the title bar where Configuration required for Active Directory Domain Services at LON-SVR1 is visible, click More.
13. On the All Server Task Details and Notifications page, click Promote this...
server to a domain controller.

14. In the Active Directory Domain Services Configuration Wizard, on the Deployment Configuration page, ensure that Add a domain controller to an existing domain is selected, and then click Next.

15. On the Domain Controller Options page, deselect the Domain Name System (DNS) server check box, and leave the Global Catalog (GC) check box selected.

16. Type Pa$$w0rd in both text fields, and then click Next.

17. On the Additional Options page, click Next.

18. On the Paths page, click Next.


20. On the Prerequisites Check page, click Install.

21. On the You’re about to be signed out blue bar, click Close.

Note: The LON-SVR1 server automatically restarts as part of the procedure.

22. After LON-SVR1 restarts, sign in as Adatum\Administrator with the password Pa$$w0rd.

Task 2: Create and configure Contoso.com zone on LON-DC1

1. On the LON-DC1 virtual machine, in the Server Manager console, click Tools, and then click DNS.

2. Expand LON-DC1, right-click Forward Lookup Zones, and then select New Zone.

3. In the New Zone Wizard, on the Welcome to the New Zone Wizard page, click Next.
4. On the **Zone Type** page, deselect the **Store the zone in Active Directory** check box, and then click **Next**.

5. On the **Zone Name** page, type **Contoso.com**, and then click **Next**.

6. On the **Zone File** page, click **Next**.

7. On the **Dynamic Update** page, click **Next**.

8. On the **Completing the New Zone Wizard** page, click **Finish**.

9. Expand **Forward Lookup Zones**, and then select and right-click **contoso.com** zone and click **New Host (A or AAAA)**

10. In the New Host window, in the **Name** textbox type **www**.

11. In the **IP address** box type **172.16.0.100**.

12. Click **Add Host**.

13. Click **OK** and then click **Done**.

14. Leave **DNS Manager** console open.

**Task 3: Review configuration settings on the existing DNS server to confirm root hints**

1. On LON-DC1, in the DNS Manager console, click and then right-click **LON-DC1**, and then click **Properties**.

2. In the **LON-DC1 Properties** dialog box, click the **Root hints** tab. Ensure that root hints servers display.

3. Click the **Forwarders** tab. Ensure that the list displays no entries, and that the **Use root hints if no forwarders are available** option is selected.

4. Click **Cancel**.

5. Close the DNS Manager console.

6. In the taskbar, click the **Windows PowerShell** icon.
7. In Windows PowerShell, type the following cmdlets, pressing Enter after each, and observe the output returned:

```
Get-DnsServerRootHint
Get-DnsServerForwarder
```

Note that both cmdlets are the respective Windows PowerShell equivalents of the DNS Console actions performed in steps 2 and 3 above.

**Task 4: Add the DNS server role for the branch office on the domain controller**

1. On LON-SVR1, in the Server Manager console, click Add roles and features.
2. On the Before you begin page, click Next.
3. On the Select installation type page, click Next.
4. On the Select destination server page, ensure that LON-SVR1.Adatum.com is selected, and then click Next.
5. On the Select server roles page, select DNS Server.
6. When the Add Roles and Features Wizard appears, click Add Features, and then click Next.
7. On the Select Features page, click Next.
8. On the DNS Server page, click Next.
10. On the Installation progress page, when the “Installation succeeded” message appears, click Close.
Task 5: Verify replication of the Adatum.com Active Directory®–integrated zone

1. On LON-SVR1, in the Server Manager console, click **Tools**.
2. On the list of tools, click **DNS**.
3. In the DNS Manager console, expand **LON-SVR1**, and then expand **Forward Lookup Zones**.
   
   This container is probably empty.
4. Switch back to **Server Manager**, click **Tools**, and then click **Active Directory Sites and Services**.
5. In the **Active Directory Sites and Services** console, expand **Sites**, expand **Default-First-Site-Name**, expand **Servers**, expand **LON-DC1**, and then click **NTDS Settings**.
6. In the right pane, right-click the **LON-SVR1** replication connection, and select **Replicate Now**.
   
   ![Note: If you receive an error message, proceed to the next step, and then retry this step after 3-4 minutes. If this retry fails, wait a few more minutes, and then try again.]
7. In the navigation pane, expand **LON-SVR1**, and then click **NTDS Settings**.
8. In the right pane, right-click the **LON-DC1** replication connection, click **Replicate Now**, and then click **OK**.
9. Switch back to the DNS Manager console, right-click **Forward Lookup Zones**, and then click **Refresh**.
10. Ensure that both the _msdcs.Adatum.com and Adatum.com_ containers display.
11. Close DNS Manager.

Task 6: Use Windows PowerShell commands to test non-local resolution
1. On LON-SVR1, on the taskbar, click the Windows PowerShell icon.

2. In Windows PowerShell, type the following cmdlet, and then press Enter:

   Get-DnsClient

3. Note the entries labeled Ethernet in the InterfaceAlias column. In the Interface Index column, note the Interface Index number that is in the same row as Ethernet and IPv4. Write this number here: __________

4. In Windows PowerShell, type the following cmdlet, where X is the specific Interface Index number you wrote down in the last step, and then press Enter:

   Set-DnsClientServerAddress -InterfaceIndex X -ServerAddress 0.0.0.0

5. In Windows PowerShell, type the following, and then press Enter:

   Resolve-DNSName www.contoso.com

   You should see an error message.

6. In Windows PowerShell, type the following, and then press Enter:

   nslookup

7. At the nslookup > prompt, type the following and then press Enter:

   www.contoso.com
You should see the following reply: “*** Unknown can’t find www.contoso.com. No response from server.”

8. Type the following, and then press Enter:

   Exit

Leave the Windows PowerShell window open.

**Task 7: Configure Internet name resolution to forward to the head office**

1. At the Windows PowerShell prompt, type the following cmdlet, and then press Enter:

   Set-DnsServerForwarder -IPAddress '172.16.0.10' -PassThru

2. At the Windows PowerShell prompt, type the following cmdlet, and then press Enter:

   Restart-Computer

**Task 8: Use Windows PowerShell to confirm name resolution**

1. Sign in to LON-SVR1 as Adatum\Administrator with the password Pa$$w0rd.

2. On LON-SVR1, switch to a Windows PowerShell window.

3. Type the following cmdlet, and then press Enter:
Exercise 2: Creating Host Records in DNS

Task 1: Configure a client to use LON-SVR1 as a DNS server

1. On LON-CL1, sign in as Adatum\Administrator using the password Pa$$w0rd.
2. On the Start screen, type Control Panel, and then press Enter.
3. In Control Panel, click View network status and tasks.
4. Click Change adapter settings.
5. Right-click Ethernet, and then click Properties.
6. In the Ethernet Properties dialog box, click Internet Protocol Version 4 (TCP/Ipv4), and then click Properties.
7. In the preferred DNS server box, overwrite the IP address for preferred DNS server with 172.16.0.11, click OK, and then click Close.

Task 2: Create several host records for web apps in the Adatum.com domain

1. On LON-DC1, in the Server Manager console, click Tools, and then click DNS.
2. In the DNS Manager console, expand LON-DC1, expand Forward Lookup Zones, and then click Adatum.com.

3. Right-click Adatum.com, and then click New Host (A or AAAA).

4. In the New Host window, configure the following settings:
   - Name: www
   - IP address: 172.16.0.200

5. Click Add Host, and then click OK.

6. In the New Host window, configure the following settings:
   - Name: ftp
   - IP address: 172.16.0.201

7. Click Add Host, click OK, and then click Done.

Task 3: Verify replication of new records to LON-SVR1

1. On LON-SVR1, in the Server Manager console, click Tools, and then click DNS.

2. In the DNS Manager console, expand LON-SVR1, expand Forward Lookup Zones, and then click Adatum.com.

3. Ensure that both www and ftp resource records display. It might take several minutes for the records to display.

   Note: If the www and ftp resource records do not display within several minutes, right-click Adatum.com, and then click Refresh.

Task 4: Use the ping command to locate new records from LON-CL1
1. On LON-CL1, on the taskbar, right-click the **Windows** icon, and then click **Run**.

2. In the Run pop-up window, in the **Open** text box, type **cmd**, and then press Enter.

3. In the Command Prompt window, at a command prompt, type **ping www.adatum.com**, and then press Enter.

4. Ensure that the name resolves to **172.16.0.200**.

   ![Note: You will not receive replies.]

5. At a command prompt, type **ping ftp.adatum.com**, and then press Enter.

6. Ensure that name resolves to **172.16.0.201**. (You will not receive replies.)

7. Leave the Command Prompt window open.

**Results:** After completing this exercise, you should have configured DNS records.

**Exercise 3: Managing the DNS Server Cache**

**Task 1: Use the ping command to locate an Internet record from LON-CL1**

1. On LON-CL1, in the Command Prompt window, at a command prompt, type **ping www.contoso.com**, and then press Enter.

2. Ping does not work. Ensure that the name resolves to the IP address **172.16.0.100**.

3. Leave the Command Prompt window open.

**Task 2: Update an Internet record to point to the LON-DC1 IP address**
1. On LON-DC1, open **DNS Manager**.

2. In the DNS Manager console, expand **LON-DC1**, expand **Forward Lookup Zones**, and then click **contoso.com**.

3. In the right pane, right-click **www**, and then click **Properties**.

4. Change the IP address to **172.16.0.10**, and then click **OK**.

5. Switch back to LON-CL1.

6. In the Command Prompt window, at a command prompt, type the following, and then press Enter:

   ```
   ping www.contoso.com
   ```

   Note that ping does not work, and that the old IP address (which is 172.16.0.100) is still displayed.

**Task 3: Examine the content of the DNS cache**

1. Switch to LON-SVR1.

2. In the Server Manager console, click **Tools**, and then click **DNS**.

3. Click **LON-SVR1**, click the **View** menu, and then click **Advanced**.

4. Expand **LON-SVR1**, expand the **Cached Lookups** node, expand **. (root)**, expand **com**, and then click **contoso**.

5. In the right pane, examine the cached content and note that the **www** record has the IP address: **172.16.0.100**.


7. In the Command Prompt window, at a command prompt, type **ipconfig /displaydns**, and then press Enter.
8. Look for cached entries and notice that www.contoso.com is resolving to 172.16.0.100.

Task 4: Clear the cache, and retry the ping command

1. On LON-SVR1, on the taskbar, click the Windows PowerShell icon.
2. At the Windows PowerShell prompt, type Clear-DNSServerCache, and then press Enter.
3. Type y, and then press Enter.
4. Switch to LON-CL1.
5. In a Command Prompt window, at a command prompt, type ping www.contoso.com, and then press Enter.
   The result still returns the old IP address.
6. In the Command Prompt window, at a command prompt, type ipconfig /flushdns, and then press Enter.
7. In the Command Prompt window, type ping www.contoso.com, and then press Enter.
   Ping now should work on address 172.16.0.10.

Results: After completing this exercise, you should have examined the DNS server cache.

Prepare for the next module

After you finish the lab, revert the virtual machines to their initial state.
1. On the host computer, start **Hyper-V Manager**.

2. In the **Virtual Machines** list, right-click **20410C-LON-DC1**, and then click **Revert**.

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

4. Repeat steps 2 and 3 for **20410C-LON-SVR1** and **20410C-LON-CL1**.