Tutorial 7:
CONFIGURE DNS AND DHCP SERVICE

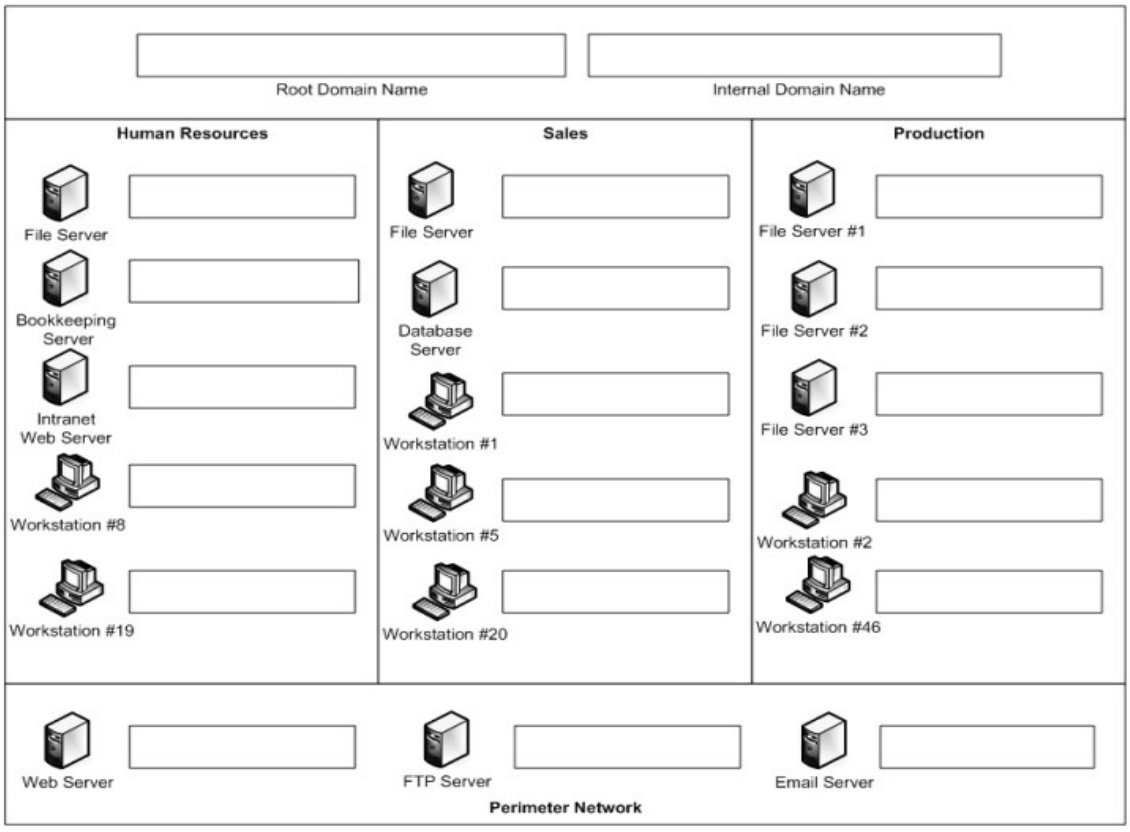
Exercise 7.1 Designing a DNS Namespace

Overview Your firm is launching a new division, which will have its own DNS namespace, and your first task is to design that namespace by specifying appropriate domain and host names for the computers in the division.
Mindset Why is it practical and necessary to have a policy in place for the naming of your organization's domains and hosts?
Completion time 20 minutes

1. Design a DNS namespace for your organization that conforms to the following guidelines.

- The root domain name for the organization is **adatum.com**. All of the additional domains you create must be subordinate to this domain.
- The internal network must be in a different domain from the external network.
- The organization consists of three internal divisions: **Sales, Human Resources**, and **Production.** Each division must be represented by a separate subdomain in the namespace.
- Each division has departmental servers performing various roles and as many as 200 workstations, only some of which are shown in the diagram. Your host names should identify the function of each computer.
- Three servers on an external perimeter network host the company's Internet services: Web, FTP, and e-mail. These servers must be in the domain adatum.com.

2. On the worksheet, write the domain names and the fully qualified domain names you have selected for the computers in the appropriate spaces



Lab Challenge Remote DNS Administration (Homework)

Overview To complete this challenge, you must configure SRV -C to manage the DNS server running on SVR-DC-A using the DNS console.
Completion time 10 minutes

List the steps you took to configure SVR-C and take a screen shot of the Connect to DNS Server dialog box, by pressing Alt+Prt Scr, and then paste the resulting images into a worksheet file.

End of exercise. You can leave the windows open for the next exercise.

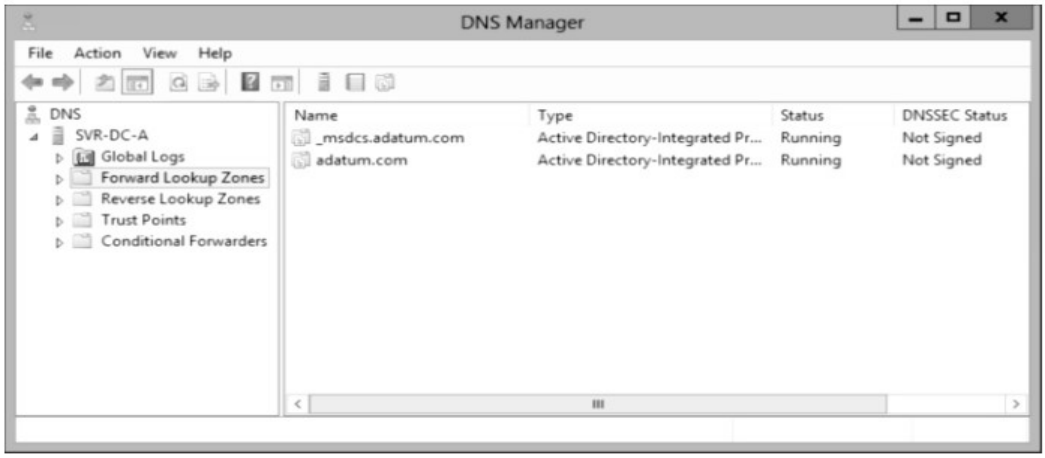
Exercise 7.2 Creating a DNS Zone

Overview The zone is the administrative division that DNS servers use to separate domains. The first step in implementing the DNS namespace you designed is to create a zone representing your root domain.
Mindset What is the relationship between DNS zones and DNS domains?
Completion time 10 minutes

1. Log on to the SVR-DC-A computer, using the domain Administrator account (ADATUM\Administrator) and the password **Pa$$w0rd.** In Server Manager, click Tools > DNS.

The DNS Manager console appears.

2. Expand the SVR-DC-A node and select the Forward Lookup Zones folder



Question 1	*Why is a zone for the root domain of your DNS namespace already present in the Forward Lookup Zones folder?*

3. Right-click the Forward Lookup Zones folder and, from the context menu, select New Zone. The New Zone Wizard appears.

4. Click Next to bypass the Welcome page. The *Zone Type* page appears.

5. Leave the *Primary Zone* option and the *Store the zone in Active Directory* check box selected and click Next.

6. The *Active Directory Zone Replication Scope* page appears.

Click Next to accept the default setting. The *Zone Name* page appears.

7. In the *Zone name* text box, type the internal domain name from the diagram you created in Exercise 1 (i.e, int.adatum.com) and click *Next*. The *Dynamic Update* page appears.

8. Select the *Allow both nonsecure and secure dynamic updates* option and click Next. The *Completing the New Zone Wizard* page appears.

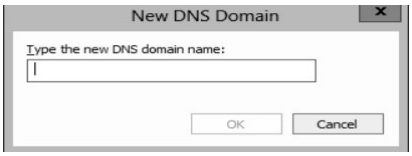
9. Click Finish. The new zone appears in the Forward Lookup Zones folder in the console.

Question 2	*What resource records appear in the new zone you created by default?*

End of exercise. You can leave the windows open for the next exercise.

Exercise 7.3 Creating DNS Domains

Overview A single zone on a DNS server can encompass multiple domains, as long as the domains are contiguous. In this exercise, you create the departmental domains you specified in your namespace design.
Mindset What is the difference between creating a second-level domain and a third-level domain?
Completion time 10 minutes



1. On SVR-DC-A, in the DNS Manager console, right-click the zone you created using the internal domain name from your namespace in Exercise 2 (i.e, *int.adatum.com*) and, from the context menu, select New Domain. The New DNS Domain dialog box appears, as shown in Figure shown.

2. In the *Type the new DNS domain name* text box, type the name of the Human Resources domain you specified in your namespace design (for example, *hr*) and click OK.

NOTE	*When you create a domain within a zone, you specify the name for the new domain relative to the zone name. For example, to create the hr.int.contoso.com domain in the int.contoso.com zone, you would specify only the hr name in the New DNS Domain dialog box.*

3. Repeat steps 1 to 2 to create the domains for the Sales and Production departments from your namespace design.

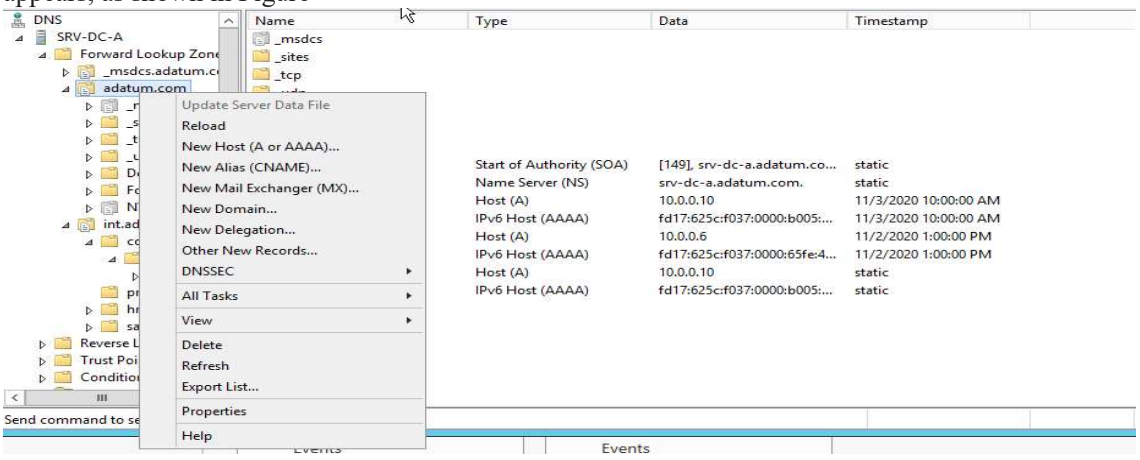
Question 3	*What resource records appear in the new domains you created by default?*

End of exercise. You can leave the windows open for the next exercise.

Exercise 7. 4 Creating DNS Resource Records

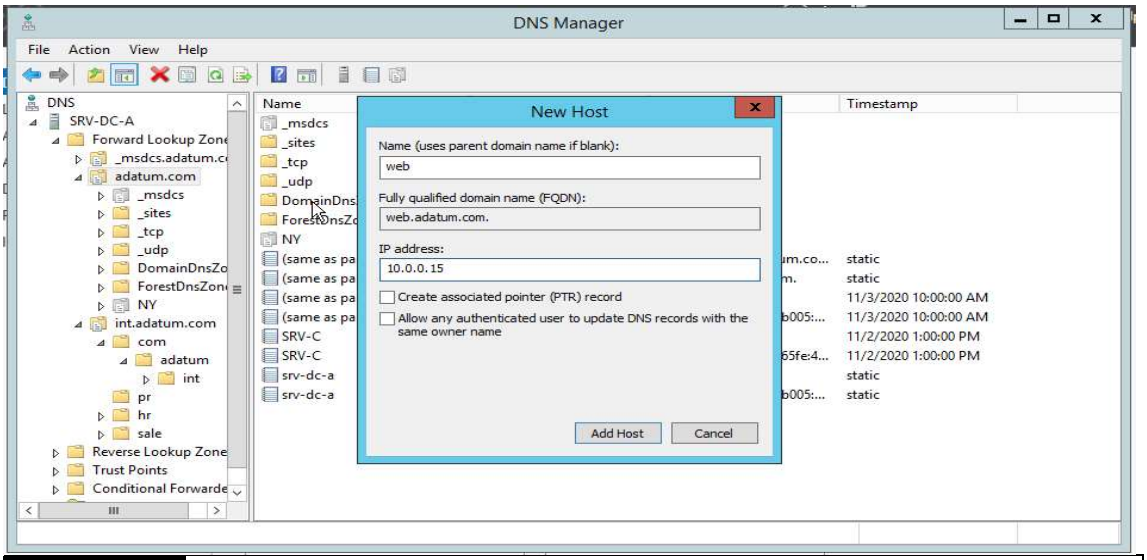
Overview Now that you have created the zones and domains for your namespace, you can begin to populate them with the resource records that the DNS server uses to resolve host names into IP addresses.
Mindset What good are zones and domains without resource records?
Completion time 20 minutes

1. On SVR-DC-A, in the DNS Manager console, expand and right-click your root domain zone (adatum.com) and, from the context menu, select New Host (A or AAAA). The New Host dialog box appears, as shown in Figure



2. In the Name text box, type the host name of the Internet web server you specified in your namespace design (for example, web.adatum.com).

3. In the IP Address text box, type **10.0.0.15** (IP of web server)



Question 4	*What must you do before you can select the Create associated pointer (PTR) record check box in the New Host dialog box?*

4. Click Add Host. A DNS message box appears, stating that the resource record was created.
5. Click OK. A new, blank Add Host dialog box appears.
6. Repeat steps 2 to 4 to create Host records for the Internet FTP and Internet e-mail servers in your namespace design, using the IP addresses 10.0.0.11 and 10.0.0.12, respectively.
7. In the three domains you created in Exercise 3, create Host resource records for all of the remaining computers in your namespace design, placing each computer within its appropriate subdomain; Human Resources, Sales, or Production, using the names you specified in your diagram and different IP addresses in the 10.0.0.10 to 10.0.0.30 range.

NOTE	*For the purposes of this exercise, the actual IP addresses you use when creating your resource records do not matter. In an actual DNS deployment, you must either specify an appropriate IP address for each host, based on the subnet to which the computer is connected, or rely on DHCP to create the resource records for the computers.*

8. Click Done to close the Add Host dialog box.
9. Close the DNS Manager console.
End of exercise. You can leave the windows open for the next exercise.

Lab Challenge Using Reverse Name Resolution (Homework)

Overview Reverse name resolution is when a resolver sends an IP address to a DNS server and receives a host name in return, rather than sending a host name and receiving an IP address.
Completion time 20 minutes

To complete this challenge, you must configure the DNS server on SVR-DC-A to perform reverse name resolutions for all of the resource records you created in Exercise 4. List the basic tasks you performed to complete the challenge and then take a screen shot of the DNS Manager console, showing the elements you created during the challenge, by pressing Alt+Prt Scr, and then paste the resulting image into the worksheet file.

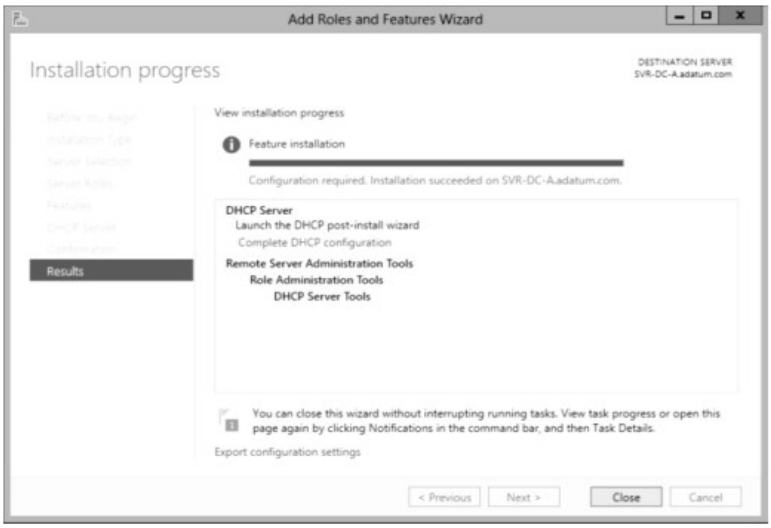
Exercise 7.5. Installing the DHCP Server Role

Overview In this exercise, you use the Add Roles and Features Wizard to install the DHCP Server role on your network domain controller components to a server running Windows Server 2012.
Mindset Is your domain controller capable of taking on the additional role of DHCP server? Check your available server resources and consider the number of DHCP clients on your network.
Completion time 10 minutes

1. Log on to the SVR-DC-A computer, which has its Server Manager console open, using the domain Administrator account and the password **Pa$$w0rd**. Select Manage > Add Roles and Features. The Add Roles and Features Wizard appears, displaying the Before you begin page.
2. Click Next. The *Select Installation Type* page appears.

3. Leave the *Role-based or feature-based installation* radio button selected and click Next. The *Select Destination Server* page appears.
4. Click Next to accept the default local server. The *Select Server Roles* page appears.

5. Select the DHCP Server check box. The *Add features that are required for DHCP Server?* page appears.
6. Click Add features.
7. Click Next. The *Select features* page appears.
8. Click Next. The *DHCP Server* page appears.
9. Click Next. The *Confirm installation selections* page appears.
10. Click Install. The *Installation progress* page appears as the wizard installs the selected roles and features



11. Click Complete DHCP Configuration. The DHCP Post-Install Configuration Wizard appears, displaying the Description page.
12. Click Next. The Authorization page appears.
13. Click Commit to use the default Authorization settings. The Summary page appears.
14. Click Close. The DHCP Post-Install Configuration Wizard closes.
15. Click Close. The Add Roles and Features Wizard closes.
End of exercise. Close any open windows before you begin the next exercise.

Exercise 7.6 Creating a DHCPv4 Scope

Overview A scope is a range of IP addresses that a DHCP server uses to supply clients on a particular subnet with IP addresses. In this exercise, you create a scope for IPv4 addresses on your DHCP server.
Mindset What IPv4 addressing policies does your organization have in place?
Completion time 15 minutes

1. On SVR-DC-A, in Server Manager, click Tools > DHCP. The DHCP console appears.

2. Expand the svr-dc-a.adatum.com node.
3. Expand and right-click the IPv4 node and, from the context menu, select New Scope. The New Scope Wizard appears.
4. Click Next to bypass the Welcome page. The Scope Name page appears.
5. In the Name text box, type **10.0.0.0** and click Next. The IP Address Range page appears.
6. In the Start IP address text box, type **10.0.0.1**.
7. In the End IP address text box, type **10.0.0.100**.

Question 1	*Notice that the wizard automatically adds a value to the Subnet mask text box. Where did this value come from?*

8. In the Subnet mask text box, key 255.255.255.0. Then click Next. The Add Exclusions and Delay page appears.
9. In the Start IP address text box, type 10.0.0.1.
10. In the End IP address text box, type 10.0.0.10.
11. Click Add. The address appears in the Excluded address range list.

Question 2	*Why is it necessary to exclude addresses from the range of addresses included in the scope?*

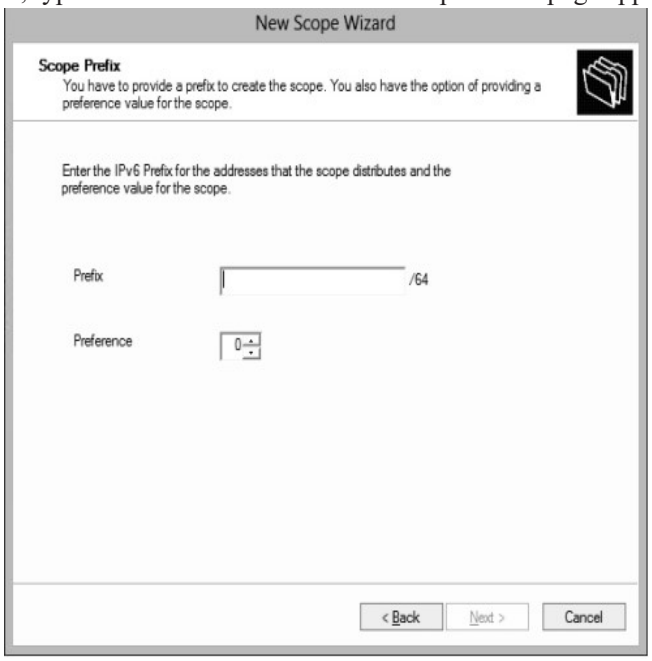
Question 3	*How would it be possible to leave the 10.0.0.1 address as part of the scope and still use it for the DHCP server?*

12. Click Next. The Lease Duration page appears.
13. Click Next to accept the default value. The Configure DHCP Options page appears.
14. Click Next to accept the Yes, I want to configure these options now option. The Router (Default Gateway) page appears.
15. In the IP address text box, key 10.0.0.1 and then click Add.
16. Click Next to continue. The Domain Name and DNS Servers page appears.
17. Click Next. The WINS Servers page appears.
18. Click Next to bypass the page. The Activate Scope page appears.
19. Click Next to accept the default Yes, I want to activate this scope now option. The Completing the New Scope Wizard page appears.
20. Click Finish. The scope is added to the console.
21. Expand the IPv4 node and the new scope, and then select the Address Pool folder.
End of exercise. You can leave the windows open for the next exercise.

Exercise 7.7. Creating a DHCPv6 Scope

Overview In this exercise, you create a DHCP scope to allocate IPv6 addresses to the computers on your network.
Mindset What IPv6 addressing policies does your organization have in place?
Completion time 15 minutes

1. On SVR-DC-A, in the DHCP console, expand and right-click the IPv6 node and, from the context menu, select New Scope. The New Scope Wizard for IPv6 addresses appears, displaying the elcome page.
2. Click Next. The *Scope Name* page appears.
3. In the Name text box, type **IPv6**. Then click Next. The Scope Prefix page appears



4. In the Prefix text box, type **fd00::** and click Next. The *Add Exclusions* page appears.
5. In the *Start IPv6 address* text box, type **0:0:0:1** and click Add. The address appears in the *Excluded address range* list.
6. Click Next. The *Scope Lease* page appears.
7. Click Next. The *Completing the New Scope Wizard* page appears.
8. Click Finish. The wizard creates the scope.
9. Expand the Scope [fd00:] IPv6 node you just created.
10. Click the Scope Options node, then right-click it, and, from the context menu, select Configure Options. The Scope Options dialog box appears.
11. Select the check box for the *DNS Recursive Name Server IPv6 Address List* option.
12. In the *New IPv6 address* text box, type **fd00::0:0:0:1** and click Add. Wait for DNS Validation to complete. The address appears in the *Current IPv6 address* list.

Question 4	*Where did the fd00::0:0:0:1 address that you supplied for the DNS Recursive Name Server IPv6 Address List option come from?*

13. Click OK to close the Scope Options dialog box.
End of lab.