Lab: Installing and Configuring the Hyper-V Role

Scenario

Based on the analysis of the current server environment, A. Datum Corporation has identified several servers that can be virtualized on Hyper-V. A. Datum is now ready to begin a pilot project to implement virtualization in one of their branch offices.

The first step in the implementation project is to deploy the Hyper-V hosts in the branch office. Technicians at the branch office have installed the hardware in the branch office, and have installed Windows Server 2012 R2 on the servers. You have already configured LON-HOST1 and you now need to install and configure Hyper-V on LON-HOST2.

Because all of the servers are located in a remote data center, you will use Windows 8.1 as an administrative workstation. To become familiar with the different options for managing the Hyper-V hosts, you will use both Server Manager and Windows PowerShell to manage the Hyper-V role remotely.

Objectives

After completing this lab, you will be able to:

- Install the Hyper-V role.
- Configure Hyper-V settings.
- Access and manage Hyper-V remotely.

Lab Setup

Estimated Time: 60 minutes

Virtual Machines: 20409B-LON-HOST1, 20409B-LON-HOST2, 20409B-LON-DC1, 20409B-LON-CL1, and 20409B-LON CL2

User name: **Adatum\Administrator**

Password: **Pa$$w0rd**

For this lab, you will use the available virtual machine environment. Before you begin the lab, you must complete the following steps:

1. Sign in to the LON-HOSTx computer as **Adatum\Administrator** with the password of **Pa$$w0rd**.
2. On LON-HOST1 start **Hyper-V Manager**.
3. In Microsoft Hyper-V Manager, click **20409B-LON-DC1**, and in the Actions pane, click **Start**.
4. In the Actions pane, click **Connect**. Wait until the virtual machine starts.
5. Sign in by using the following credentials:
    - User name: **Adatum\Administrator**
    - Password: **Pa$$w0rd**

 **Note:** Because you will be using the same virtual machines in the next lab, do not revert the virtual machines at the end of this lab. However, you can shut down all virtual machines after finishing this lab.

You will be working in pairs. Communicate clearly with your lab partner, and cooperate fully with each other during this lab.

Exercise 1: Installing the Hyper-V Role

Scenario

In this exercise, you will install the Hyper-V role. You can install Window Server roles in several different ways, and in this exercise, you will install the Hyper-V role by using Server Manager and Windows PowerShell. You will also verify changes on the server after you have installed the Hyper-V role.

The main tasks for this exercise are as follows:

1. Write down your LON-HOST number.
2. Verify that the LON-HOST2 computer does not have the Hyper-V role installed.
3. Install the Hyper-V role by using Server Manager.
4. Verify that the Hyper-V role was installed successfully.

▶ Task 1: Write down your LON-HOST number

Note: One of the students in a pair will be working on LON-HOST1, and the other student will be working on LON-HOST2.

- Write down your LON-HOST number on a piece of paper. If your LON-HOST number is 1, your partner's number will be 2, and vice-versa.

▶ Task 2: Verify that the LON-HOST2 computer does not have the Hyper-V role installed

1. On LON-HOST2, in Server Manager, confirm that the Hyper-V role is not installed.
2. In Windows PowerShell, use the **Get-WindowsFeature** cmdlet to confirm that neither **Hyper-V** nor **Hyper-V Management Tools** are installed.
3. In Windows PowerShell, use the **Get-Command –Module Hyper-V** cmdlet to verify that the Hyper-V module is not installed.
4. In Windows PowerShell, use **bcdedit.exe** to verify whether hypervisor is configured to start automatically.
5. Use Windows Search to confirm that no program that has the word **hyper** in the name is installed.
6. Confirm that there is no **Applications and Services Logs** node that starts with word **Hyper-V** in **Event Viewer**.
7. In Performance Monitor, confirm that there is only one counter available that starts with the word **Hyper-V, Hyper-V Dynamic Memory Integration Service**.
8. Confirm that there are no inbound **Windows Firewall** rules that start with the word **Hyper-V**.
9. Confirm that six services display that start with the word **Hyper-V**, but that **Hyper-V Virtual Machine Management** service is not present among the services on LON-HOST2.

▶ Task 3: Install the Hyper-V role by using Server Manager

1. On LON-HOST2, use Server Manager to install the Hyper-V role with default options, and select the option to restart the server automatically if required.
2. Wait until LON-HOST2 restarts, and then sign in with the user name **Adatum\Administrator** and the password **Pa$$w0rd**.

▶ Task 4: Verify that the Hyper-V role was installed successfully

1. On LON-HOST2, use Server Manager to confirm that the Hyper-V role is installed.
2. In Windows PowerShell, use the **Get-WindowsFeature** cmdlet to confirm that both **Hyper-V** and **Hyper-V Management Tools** are installed.
3. In Windows PowerShell, use the **Get-Command –Module Hyper-V** cmdlet to confirm that the Hyper-V module has been installed.
4. In Windows PowerShell, use the **bcdedit.exe** command to verify that hypervisor is configured to start automatically.
5. Confirm that the **Hyper-V Manager** and **Hyper-V Virtual Machine Connection** programs are installed.
6. In Event Viewer, confirm that multiple **Applications and Services Logs** nodes that start with the word **Hyper-V** display.
7. In Performance Monitor, confirm that multiple counters that start with the word **Hyper-V** are available.
8. In Performance Monitor, confirm that multiple inbound Windows Firewall rules that start with the word **Hyper-V** display.
9. In Performance Monitor, confirm that multiple services that start with the word **Hyper-V** display, including a service named **Hyper-V Virtual Machine Management**, which has a status of **Running**.
10. On LON-HOST2, run the following script: **C:\Labfiles\Mod02-LON-HOST2.ps1** to prepare the environment.

Note: This script will import three virtual machines: 20409B-LON-PROD2, 20409B-LON-TEST2, and 20409B-LON-CL2.

The script will ask for the drive letter on which the base images were extracted and the drive letter on which the course images were extracted. Theses drive letters will depend on the physical server configuration. If you are unsure about what are the drive letters, ask the instructor.

Results: After completing this exercise, you should have installed the Hyper-V role.

Exercise 2: Configuring Hyper-V Settings

Scenario

Before using the virtualization infrastructure, you should be familiar with and configure Hyper-V Settings. In this exercise, you will use Hyper-V Manager and Windows PowerShell to review and configure some of the settings, such as a default virtual hard disk location, NUMA spanning, and enhanced session mode policy.

The main tasks for this exercise are as follows:

1. Create a network share for storing virtual machines.
2. Configure a virtual hard disk location.
3. Configure Hyper-V settings by using Windows PowerShell and Hyper-V Manager.

▶ Task 1: Create a network share for storing virtual machines

Note: Complete the following task on both LON-HOST1 and LON-HOST2.

1. On LON-HOSTx, use Server Manager to create a share by using the **SMB Share – Applications** share profile.
2. Create a share on drive C. Name the share **VHDs**, and grant the **Domain Users** group **Full Control** permissions to the share.

▶ Task 2: Configure a virtual hard disk location

Note: Complete the following task on both LON-HOST1 and LON-HOST2.

1. On LON-HOSTx, in Hyper-V Manager, start the New Virtual Hard Disk Wizard, and confirm the default location for creating new virtual hard disks.
2. In Hyper-V Manager, confirm that the same location is set as the **Virtual Hard Disk** location **Hyper-V Setting**.
3. In Hyper-V Manager, set the **Virtual Hard Disk** location **Hyper-V Setting** to **C:\Users**, and confirm that this location is the default location when creating new virtual hard disks using the New Virtual Hard Disk Wizard.
4. In Windows PowerShell, use **Set-VMHost** cmdlet with the **VirtualHardDiskPath** parameter to set virtual hard disk location to **\\LON-HOSTy\VHDs**, where *y* is number of your partner's host. For example, if you are using HOST1, then *y* represents 2, and if you are using HOST2, then *y* represents 1.
5. Use Hyper-V Manager to confirm that the **Virtual Hard Disk** location **Hyper-V Setting** is successfully set to **\\LON-HOSTy\VHDs**.

▶ Task 3: Configure Hyper-V settings by using Windows PowerShell and Hyper-V Manager

Note: Complete the following task on both LON-HOST1 and LON-HOST2.

1. On LON-HOSTx, in Hyper-V Manager, confirm the following Hyper-V Settings:
   - Virtual Machines: **C:\ProgramData\Microsoft\Windows\Hyper-V**
   - NUMA Spanning: **Enabled**
   - Storage Migration: **2**
   - Enhanced Session Mode Policy: **Disabled**
2. In Windows PowerShell, use the **Set-VMHost** cmdlet with appropriate parameters to configure following settings:
   - Virtual Machines: **\\LON-HOSTy\VHDs** (where *y* is number of your partner's host)
   - NUMA Spanning: **Disabled**
   - Storage Migrations: **4**
   - Enhanced Session Mode Policy: **Enabled**

3. In Hyper V Manager, confirm that all settings that you set by using Windows PowerShell are present.
4. In Hyper V Manager, modify the following Hyper-V Settings:
   - NUMA Spanning: **Enabled**
   - Enhanced Session Mode Policy: **Disabled**

Results: After completing this exercise, you should have configured Hyper-V settings.

Exercise 3: Accessing and Managing Hyper-V Remotely

Scenario

Administrators typically administer Hyper-V remotely. In this exercise, you will enable Hyper-V Manager and Hyper-V Module for Windows PowerShell on a Windows 8.1 workstation, and then manage the Hyper-V host remotely.

The main tasks for this exercise are as follows:

1. Turn on the Hyper-V Management Tools feature.
2. Connect to the Hyper-V host and manage it remotely.

▶ Task 1: Turn on the Hyper-V Management Tools feature

Note: Complete the following task on both LON-HOST1 and LON-HOST2.

1. On LON-HOSTx, use Hyper-V Manager to start and connect to **20409B-LON-CLx**.
2. Sign in to LON-CLx with the user name **Adatum\Administrator** and the password **Pa$$w0rd**.
3. Use **Search** to confirm that no program with the word **hyper** in the name is installed on **LON-CLx**.
4. In Windows PowerShell, use the cmdlet **Get-Command** with the **Module** parameter to confirm that the Hyper-V module is not installed.
5. Use the **Turn Windows Features on or off** program to turn on the **Hyper-V Management Tools** feature.
6. In Windows PowerShell, use the cmdlet **Get-Command** with the **Module** parameter to confirm that the Hyper-V module is now installed.
7. Confirm that two programs containing word **hyper** are now installed: **Hyper-V Manager**, and **Hyper-V Virtual Machine Connection**.

▶ Task 2: Connect to the Hyper-V host and manage it remotely

Note: Complete the following task on both LON-HOST1 and LON-HOST2.

1. On LON-CLx, start Hyper-V Manager, and connect it to **LON-HOSTx**.
2. Review Hyper-V Settings for LON-HOSTx, and verify that the settings are configured as you configured them in the previous exercise:
   - Virtual Hard Disks: **HOSTy\VHDs**
   - Virtual Machines: **HOSTy\VHDs**
   - NUMA Spanning: **Enabled**
   - Storage Migrations: **4**
   - Enhanced Session Mode Policy: **Disabled**
3. Open Windows PowerShell and review the Hyper-V configuration of **LON-HOSTx** by using the **Get-VMHost** cmdlet.
4. Use the **Get-VMHost** cmdlet to set the **Storage Migrations** setting on **LON-HOSTx** to **3**.
5. Confirm the setting in Hyper-V Manager.

Note: Do not forget to Refresh the settings to view the updated settings in Hyper-V Manager.

Results: After completing this exercise, you should have accessed and managed Hyper-V remotely.