Microsoft IT Camp

Hands-On Lab

Windows Server 2012: Getting Started

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This Lab Guide can be downloaded from:

Lab Guide – Windows 2012 RTM Install and Configure Windows and Hyper-V

Word Version: http://aka.ms/tplabguideword

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Overview

Objectives

In this series of exercises, you will explore the following:

- Install Hyper-V
- Modify Hyper-V Settings.
- Create Virtual Machines and Differencing Disks.
- Modify Settings for Virtual Machines.
- Create Domain
- Get connectivity working between guest machines
- Add computer to domain

Prerequisites

- Knowledge of Windows Server, Hyper-V and Virtualization
- Computer running Windows 7 or Windows Server 2008 R2 or later
    - At least 40 GB of free disk space (75 GB preferred)
    - 4gb memory (8gb preferred)
    - x64 compatible processor with hardware assisted virtualization (Intel VT or AMD-V technology)
    - At least one disk without encryption technology (Bitlocker or 3rd party)
    - Drives Configure as Basic Disks (Not Dynamic)
    - One Network Patch Cable

NOTE: Before beginning this lab, please confirm that your computer is configured with hardware virtualization technology and hardware memory protection BOTH ENABLED. To confirm these settings, you may need to shutdown and reboot your computer into BIOS Setup.

Lab 1 – Prepare Dual Boot Windows Server 2012 using Native Boot to VHD

Tasks in this lab module

- Create Directory Structure for Virtual Machine Use and Copy Files
- Configure Dual Boot (uses AutoBootVHD8.cmd)

1) **Create a Directory Structure for Virtual Machine Use and copy files**
   1. Log on to **your server** as **Administrator** account
   2. Open **Windows Explorer.**
   3. Create the following Directory Structure at the root of Drive C: or D: [use the one with the most space]
      A. Images
      B. Images\Base
   4. Copy AutoBootVHD8.cmd to \Images (.TXT version also available if trouble downloading; rename it to .CMD)
   5. **Copy** either **Server2012RTM.zip (18gb VM – Limited Space)** or **vhd_server_serverdatacentereval_en-us.exe (40gb VM)** to \Images
      A. Extract VHD file from ZIP or .EXE to **\images** folder and **rename** to **Server2012RTM.vhd**
      B. This will be used for Boot2VHD
   6. Open elevated Command Prompt **Start** | type **cmd** | Right-click **cmd** (top of menu) | **Run as Administrator**
   7. Change to drive you extracted files to by typing the drive letter followed by a colon (eg. D: }
   8. Change to the images folder: CD \images
   9. If using **.EXE** version of VHD:
      A. Copy Server2012RTM.VHD to \Images\base {this will be used for guests}
      B. **Create Boot Loader**: Run the AutoBootVHD8.cmd file by typing {change drive letter as needed}
         i. AutoBootVHD8.cmd D:\images\Server2012RTM.VHD -upgrade
         ii. **Check for errors**, Alert lab monitors if any errors
   10. If using Older **.ZIP** version of VHD:
      A. AutoBootVHD8.cmd D:\images\Server2012RTM.VHD -upgrade
      B. **Check for errors**, Alert lab monitors if any errors
      C. **C:\windows\system32\bcdboot E:\windows /s E:**
         Replace E: above with the drive letter of your mounted VHD
      D. **Check for errors**, Alert lab monitors if any errors
      E. **Eject Drive**
         i. **Win8/2012** Open Windows Explorer – **Right-Click** on the **VHD Drive** [E:] and select **Eject**
         ii. **Win7/2008r2 Right-Click My Computer – Manage – Storage – Disk Management – Click E:** (Mounted drive) {bottom} select **Detach VHD**
      F. Copy **\Images\Server2012RTM.VHD** to **\Images\Base\Server2012RTM.VHD** {this will be used for Guests)
   11. Optional: When finished, type msconfig <ENTER> - click **Boot tab** = to see the new boot option Click **OK**
   12. **Restart** computer and let it **boot into Windows Server 2012**
      A. An Automatic second reboot will be done after installing drivers
      B. **Accept** the license agreement {turn on checkbox; click Accept}
      C. Regional settings Click **Next**
      D. Type in a password {**P@ssword**} and confirm in the second box – Click **Finish**.
      E. CTRL-Alt-Delete to Login – enter your password **P@ssword**

Lab 2 – Install & Configure Hyper-V

Tasks in this lab module

- Create Directory Structure for Virtual Machine Use and Copy Files
- Modify Hyper-V Settings
- Create a Virtual Network Switch

2) **Install Hyper-V**
   a. In Server Manager click "**Add roles and features**"
   b. Before You Begin: **Next**
   c. Installation Type: "**Roll-based feature-based installation**"; click **Next**
   d. Server Selection: Click **Next**
   e. Server Roles: Click the checkbox next to **Hyper-V** ; In the popup, click **Add Features** ; Click **Next**
   f. Features; Enable **Wireless LAN Service**; Click **Next**
   g. Hyper-V Click **Next**
   h. Hyper-V – Virtual Switches; We will manually add the switch later; just click **Next**
      i. (if you do not have a network adapter listed that means you need to install a NIC driver; we can do that later)
   i. Migration click Next (we will enable this later)
   j. Default Stores; Click **Next**
   k. Confirmation: Turn on checkbox to "**Restart destination server automatically if required**" ; in the popup; click **Yes** to restart automatically; then click **Install**
   l. After **Reboots**, Login to server {password = **P@ssword**}
   m. Click **Close** on Installation Progress Page (may take a min or two for the box to come up}

3) **Modify Hyper-V Settings**
   1. Open **Hyper-V Manager**. {**Start** Keyboard Button – **Hyper-V Manager}**
   2. Click on your **server name** in the left pane
   3. In Actions Pane, click **Hyper-V Settings**.
   4. In left Pane click **Virtual Hard Disks** enter **D:\images\Hyper-V** [substitute your drive letter]
   5. In left Pane click **Virtual Machines** enter **D:\images\Hyper-V** and click **OK** [substitute your drive letter]

4) **Create a Virtual Network Switch**
   1. In the Actions Pane, click **Virtual Switch Manager**.
   2. In the Create virtual switch pane, click Internal and then click **Create Virtual Switch**.
   3. Enter **IT Camp Lab** for the Name and click **OK**.
   4. Create one more virtual switch with following information:
      A. Type: Internal
         Name: **IT Camp Heartbeat**
   5. Later, you will want to come back in here to create an External network that will be linked to your physical NIC. But, let's **not** do that now.

Lab 3 – Create Virtual Machines

Tasks in this lab module

- Create Virtual Machines (VM)
- Create Differencing Hard Disks for use by Virtual Machines
- Associate Hard Disks with Virtual Machines

5) **Create Virtual Machines**
   1. Log on to **Server** as **Administrator** account.
   2. Open **Hyper-V Manager. Click** the **Server Name** in the left pane
   3. In Actions Pane, Click New -> Virtual Machine
      A. Before You Begin screen: Click **Next**
      B. Specify Name Type: **DC** Click **Next**
      C. Check **Store the virtual machine in a different location** option and click **Next**
      D. Assign Memory [Optional: Turn on checkbox Use Dynamic Memory for this virtual machine] Click **Next**
      E. Configure Networking, Set Connection to **IT Camp Lab** click **Next**
      F. For Connect Virtual Hard Disk setting, select **Attach a virtual hard disk later** and click **Finish**
6) **Create Differencing Hard Disks for Use by Virtual Machines**
   1. In Actions Pane, click **New** -> **Hard Disk**
      a. Before You Begin; Click **Next**
      b. Choose Disk Format: **VHD**
      c. Choose Disk Type: **Differencing**
      d. Specify Name and Location:
         i. Name: **DC.vhd**
         ii. Location: **D:\Images\Hyper-V\DC**
      e. Configure Disk: **D:\Images\Base\Server2012RC.vhd** click **Finish**
7) **Associate Hard Disks with Virtual Machines**
   1. Right Click **DC** and choose **Settings**.
   2. Click **IDE Controller 0** and click **Add**.
   3. Click Browse and navigate directory structure to **D:\Images\Hyper-V\DC\DC.vhd** and click **Open**.
   4. Click **OK**.

8) **Start DC**. {Right-Click **DC** – Select **Start**} -- For the sake of saving time, **skip down to lab 4 to keep the DC moving**

9) **Repeat** Step 5 and create the following additional Virtual Machines
   A. Storage, Cluster1, Cluster2

10) **Repeat** Step 6 to create additional Hard Disks
   A. Name: **Storage.vhd**; Location: **D:\Images\ Hyper-V \Storage**
   B. Name: **Cluster1.vhd**; Location: **D:\Images\ Hyper-V \Cluster1**
   C. Name: **Cluster2.vhd**; Location: **D:\Images\ Hyper-V \Cluster2**

11) **Repeat** Step 7 to Attach Hard Disks (**IDE Controller 0**) for the following Virtual Machines:
   B. Storage = **D:\Images\Storage\Storage.vhd**
   C. Cluster1 = **D:\Images\Cluster1\Cluster1.vhd**
   D. Cluster2 = **D:\Images\Cluster2\Cluster2.vhd**

Lab 4 – Configure Virtual Machines

Tasks in this lab module

- Configure Virtual Machines (VM)

12) **Configure Virtual Machines**

1. Configure DC.
   A. Start **DC**. {Right-Click – Select Start}
   B. When Server has finalized configuring devices, finish the setup and log in to the server.
      i. Skip through Pre-Installation Environment adjusting settings as desired
      ii. Use **P@ssword** as the password – Click **Finish**
      iii. Double-Click title bar to get into full screen mode
      iv. CTRL-ALT-End to get login screen in full screen mode
   C. Configure IP with the following settings:
      i. **Start** – Type **Network** – Click **Settings** – Click **Network and Sharing Center**
      ii. Click **Change Adapter Settings** (Left Pane)
      iii. **Right Click Ethernet** – Select **Properties**; Click **TCP/IP v4** – Select **properties; Use the following IP Address**:
         IP Address: 192.168.1.10
         Subnet Mask: 255.255.255.0
         Default Gateway: <Leave Blank>
         Preferred DNS: 127.0.0.1
      iv. **OK; Close; close** network Connections; **close** network and Sharing center
   D. Change Computer Name to **DC**.
      i. **Start** – Right-Click **Computer** – Select **Properties;** click **Change settings**; click **change**; type **DC** under Computer Name; **OK**; OK; Close; **Restart Now**;
      ii. **Login** to server (CTRL-ALT-End Administrator: **P@ssword**)
   E. Add Active Directory Domain Services and make this a Domain Controller (pick your own domain name) Login using administrator [Note: Ctrl-Alt-End from a Guest window will perform Ctrl-Alt-Delete on the guest]
      i. Shortcut: **Start**; Windows **Powershell**;
         - Install Active Directory Domain Services
            a. **Add-windowsfeature Ad-Domain-Services**
            b. **While running**, this is a good time go back and **finish lab 3**
         - Create forest and Promote to Domain Controller
            a. Install-ADDSForest –domainname "corp.contoso.loc"
               i. Ok to use different domain name if you like ☺
               ii. Enter password **P@ssword** {recovery password}
               iii. Re-enter password **P@ssword**
               iv. A <ENTER> (for – Yes To All)
               v. Log back into server **P@ssword** – You are now logged into the domain
            b. If you did not **Finish Lab 3**, now is a good time to do it.
            c. If done with Lab 3- **Move on to Step 2 below** {while domain creation runs}
      ii. Long Way: online **http://go.microsoft.com/fwlink/?linkid=220921**
         - Note: DCPromo No longer exists

2. **Configure Storage**
    A. Start **Storage**.
    B. When Server has finalized configuring devices, finish the setup and log in to the server.
        i. Skip through Pre-Installation Environment adjusting settings as desired
        ii. Use **P@ssword** as the password – Click **Finish**
    C. Configure IP with the following settings: (See Lab 4: 12.1 above for step-by-step)
        i. **Start** – Type **Network** – Click **Settings** – Click **Network and Sharing Center**; Click **Change Adapter Settings** (Left Pane)
        ii. **Right Click Ethernet** – Select **Properties**; Click **TCP/IP v4** – Select **properties; Use the following:**
        iii. IP Address: 192.168.1.11
        Subnet Mask: 255.255.255.0
        Default Gateway: <Leave Blank>
        Preferred DNS = 192.168.1.10
    D. Change Computer Name to **Storage** and Join **corp.contoso.loc** Domain
        i. **Start** – Right-Click **Computer** – Select **Properties;** click **Change settings**; click change;
            1. type **Storage** under Computer Name;
            2. Select Member of **Domain** Type **corp.contoso.loc** under Domain Click **OK** - In the popup use **Adminstrator** and **P@ssword** for credentials – Click OK on the welcome dialog; Click **OK** on Restart dialog; click close on system properties
        ii. Click **Restart Now**;
        iii. Click the **left arrow** and select "**Other User**"; Type **corp\administrator** for user name and **P@ssword** for the password then press <Enter>
        iv. You are now logged into the domain

Lab 5 – Snapshot

Tasks in this lab module

- Create Snapshot of all Virtual Machines

1) In Hyper-V Manager, highlight all VMs (DC, Storage, Cluster1, and Cluster2).
    a) You can select multiple VMs by holding down the CTRL key while selecting VMs.
2) Right Click and select **Snapshot**.

End of Lab…

Post Lab Configuration

Tasks in this lab module

- Configure more Virtual Machines (VM)

When you get home/office, you can finish setting up the other two machines…

3. **Configure Cluster1**
   A. Start **Cluster1**.
      i. When Server has finalized configuring devices, finish the setup and log in to the server.
      ii. Use **P@ssw0rd** as the password**.**
   B. Configure IP with the following settings:
      i. IP Address: 192.168.1.21
         Subnet Mask: 255.255.255.0
         Default Gateway: <Leave Blank>
         Preferred DNS = 192.168.1.10
   C. Change Computer Name to **Cluster1** and Join **corp.contoso.loc** Domain
      i. **Start** – Right-Click **Computer** – Select **Properties;** click **Change settings**; click change;
         1. type **Cluster1** under Computer Name;
         2. Select Member of **Domain** Type **corp.contoso.loc** under Domain Click **OK** - In the popup use **Adminstrator** and **P@ssword** for credentials – Click OK on the welcome dialog; Click **OK** on Restart dialog; click close on system properties; Click **Restart Now**;
      ii. Click the **left arrow** and select "**Other User**"; Type **corp\administrator** for user name and **P@ssword** for the password then press <Enter>
4. **Configure Cluster2**
   A. Start **Cluster2**.
      i. When Server has finalized configuring devices, finish the setup and log in to the server.
      ii. Use **P@ssw0rd** as the password**.**
   B. Configure IP with the following settings:
      i. IP Address: 192.168.1.22
         Subnet Mask: 255.255.255.0
         Default Gateway: <Leave Blank>
         Preferred DNS = 192.168.1.10
   C. Change Computer Name to **Cluster1** and Join **corp.contoso.loc** Domain
      i. **Start** – Right-Click **Computer** – Select **Properties;** click **Change settings**; click change;
         1. type **Cluster2** under Computer Name;
         2. Select Member of **Domain** Type **corp.contoso.loc** under Domain Click **OK** - In the popup use **Adminstrator** and **P@ssword** for credentials – Click OK on the welcome dialog; Click **OK** on Restart dialog; click close on system properties
      ii. Click **Restart Now**;
   D. Click the **left arrow** and select "**Other User**"; Type **corp\administrator** for user name and **P@ssword** for the password then press <Enter>

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