**Lab 2 – Configure the Hyper-V Server**

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| Setting up the Hyper-V Server – Initial configuration | |
| Login to this Server | 1. Logon to this server, Launch Server Manager from the start menu. |
| Change the Servers Name | 1. In Pane on the Left Side, Choose **Local Server.** 2. Click on the blue **“WorkGroup”** 3. Click the **Change** Button 4. Enter **WSUG-HyperV01** into the Dialog box   We Will reboot when Necessary for later   1. Click **OK** 2. Click **OK** on the Computer name reboot window 3. Click **Close** 4. Click **Restart Later** |
| Change IP address to 192.168.1.10 | 1. Click on “**Ipv4 address assigned by DHCP**” 2. You will see the network connections window 3. Right Click on **Ethernet** and choose P**roperties** 4. Right click on **Internet Protocol Version 4 (TCP/IPv4)** and click the **Properties** button. 5. Choose” **use the following IP address”** and enter the following.  |  |  | | --- | --- | | IP address | **192.168.1.10** | | Subnet Mask | **255.255.255.0** | | Default gateway | **192.168.1.1** |  1. Do not enter DNS at this time. 2. Click **OK** 3. Click **Close** 4. Close the Network Connections window |
| Time zone | 1. Change the time zone to EST |

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| PowerShell |
| $Computername = Get-WMIObject Win32\_ComputerSystem  $computername.Rename(‘WSUG-HyperV01’,$(get-credential))  $wmi = Get-WmiObject win32\_networkadapterconfiguration -filter “ipenabled = ‘true'”  $wmi.EnableStatic(“192.168.1.10”, “255.255.255.0”)  $wmi.SetGateways(“192.168.1.1”, 1) |

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| Setting up the Hyper-V Server – Install Hyper-V | |
| Add roles and Features Wizard  We adjust these later. | 1. From Server Manager, click on Dashboard 2. Click **add roles and features** 3. Click **Next** on the “Select installation type” page 4. Click **Next** for the “Select Destination server” 5. Place **Checkmark** in front of Hyper-V on the “Server Roles” page. 6. Press the **Add Features** button on the “Add features that are required for Hyper-V” window. 7. Click **Next** on the “Select Server Roles” page 8. Click **Next** on the “Select features” page 9. Click **Next** on the “Hyper-V” page 10. Click **Next** on the “Create Virtual Switches” page 11. Click **Next** on the “Virtual Machine Migration” page 12. Click **Next** on the “Default Stores” page 13. Click **Install** on the “confirm installation selections” page 14. When the installation has been completed. Click **Close** on the “Installation progress” page   **Restart your machine now.** |

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| PowerShell |
| Install-WindowsFeature Hyper-V -IncludeAllSubFeature -IncludeManagementTools |

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| Setting up the Hyper-V Server – Settings | |
| Default location for Hard Disks | 1. From Server Manager, Using the Menu Tools->Hyper-V Manager 2. From the Actions Pane, choose **Hyper-V Settings** 3. Specify the default folder to store virtual Hard Disks (Suggest C:\Hyper-V) |
| Default location for configuration files. | 1. Specify the default folder to store virtual Machines (suggest C:\hyper-V) |
| Enable Replica’s | 1. In Hyper-V Settings Choose **“Replication Configuration”.** 2. Check “**Enable this computer as a replica server**” 3. Check “**Use Kerberos (HTTP)**” 4. Check “**Allow replication from any authenticated server**” 5. Specify **c:\Hyper-V\replica** as the default location to store replica files. |

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| PowerShell |
| # Default location for hard disks Set-VMHost -VirtualHardDiskPath <Desired path>  # Default location for configuration files Set-VMHost -VirtualMachinePath <Desired path>  # Enable Replicas Set-VMReplicationServer -ReplicationEnabled $true `  -ReplicationAllowedFromAnyServer $true `  -DefaultStorageLocation c:\Hyper-V\replica |

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| Setting up the Hyper-V Server – Virtual Switch Manager. | |
| Create a new Switch | 1. From Server Manager, Using the Menu Tools->Hyper-V Manager 2. From the Actions Pane, choose **Virtual Switch Manager** 3. Make sure **External** is highlighted. 4. Press the “**Create Virtual Switch Button**” 5. Give this a standard name. (I used Wired) 6. Choose an External Network and an appropriate network adapter. 7. Enable **Single-root I/O Virtualization (SR-IOV)** (if possible) 8. Choose **OK** 9. Choose **Yes** to apply changes |

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| PowerShell |
| # Create a new Switch  # change ‘ethernet’ to the name of your network adapter.  $ethernet = Get-NetAdapter -name ‘ethernet’ New-VMSwitch `  -Name ‘Wired’ `  -NetAdapterName $ethernet.Name `  -EnableIov $true |

So what is SR-IOV? The short answer is that SR-IOV is a specification that allows a PCIe device to appear to be multiple separate physical PCIe devices

SR-IOV requires support in the BIOS as well as in the operating system instance or hypervisor that is running on the hardware.

SR-IOV enables network traffic to bypass the software switch layer of the Hyper-V virtualization stack. Because the VF is assigned to a child partition, the network traffic flows directly between the VF and child partition. As a result, the I/O overhead in the software emulation layer is diminished and achieves network performance that is nearly the same performance as in nonvirtualized environments.

Overview of Single Root I/O Virtualization <http://msdn.microsoft.com/en-us/library/windows/hardware/hh440148(v=vs.85).aspx>