VM Setup Guide for SharePoint Server 2010 IT Pro Training

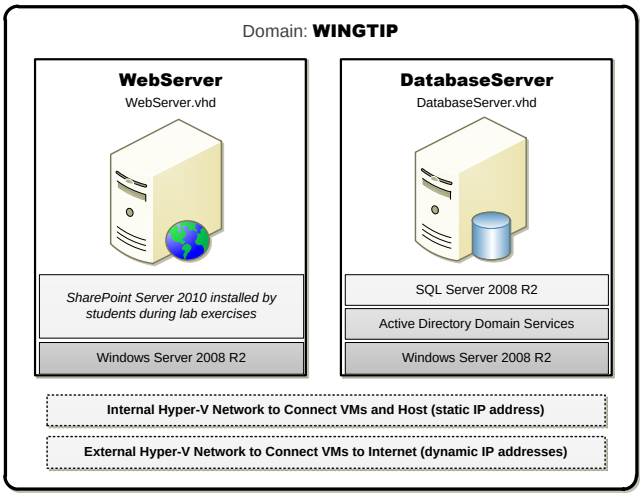
This set up guide should be used to build VMs for the following Critical Path Training classes

- **SSC2010: SharePoint 2010 Administrators Survival Camp**
- **SPA2010: Professional SharePoint Server 2010 for Administrators**
- **WC-SPA2010: Professional SharePoint 2010 for Administrators Webcast**

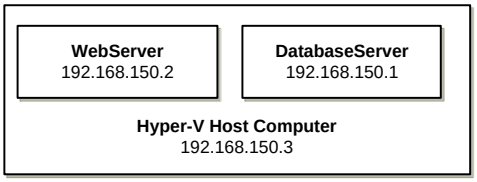
Overview: This document provides links to Internet resources and step by step instructions for building two Virtual Machine (VMs) for the Critical Path Training IT Pro courses on SharePoint Server 2010 Administration.

This setup guide will instruct you to download and use Microsoft's free trial software so you can build the VMs for this class without supplying your own product keys. The software products that require product keys include Windows Server 2008 R2, SQL Server 2008 R2 Enterprise and SharePoint Server 2010. You can alternatively install Windows Server 2008 R2, SQL Server 2008 R2 Enterprise and SharePoint Server 2010 using your own product key so you do not have to worry about the operating system on the VM expiring after a certain amount of time.

This setup guide takes you step by step to build two virtual machines named **WebServer** and **DatabaseServer** that will be used as the starting point for the class lab exercises. Both VMs will be running a 64-bit edition of Windows Server 2008 R2 as their operating system. The VM named **DatabaseServer** will be configured as an Active Directory domain controller with a domain named **WINGTIP**. The VM named **DatabaseServer** will also have an installation of SQL Server 2008 R2. You will configure the VM named **WebServer** with a standard installation of Windows Server 2008 R2 and you will also to add this computer to the **WINGTIP** domain.



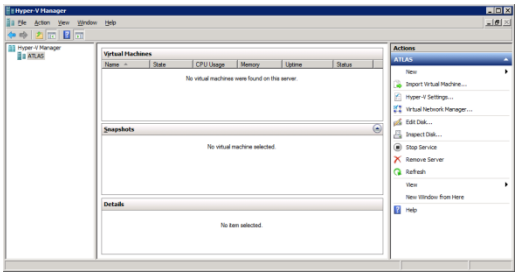
For your reference you should note the following static IP address values that you will assign the two VMs and to the host computer in the internal Hyper-V network.



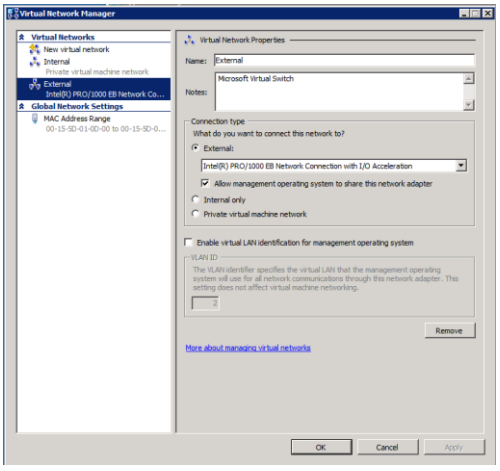
Part1: Configure Hyper-V

In this part you are going to configure Hyper-V to create an internal virtual network that will allow communication between the host and the different virtual machines.

1. Ensure your computer hardware and software meet the following requirements.
    a. Your computer is running a 64-bit installation of Windows Server 2008 R2
    b. Your computer has a wired (non-wireless) connection to the Internet
    c. Your computer has at least 8GB of RAM
    d. Your computer has at least 120GB of free disk space.
    e. Your computer supports virtualization and has Hyper-V Services enabled.
    f. If you need more information on how to install and configure Hyper-V, you can read more at http://www.microsoft.com/windowsserver2008/virtualization/install.mspx.
2. Launch the Hyper-V Manager from the Windows Start menu.
    a. **Start > Administrative Tools > Hyper-V Manager**. If you are using Hyper-V for the first time there will be no existing VMs in the Virtual machines section.

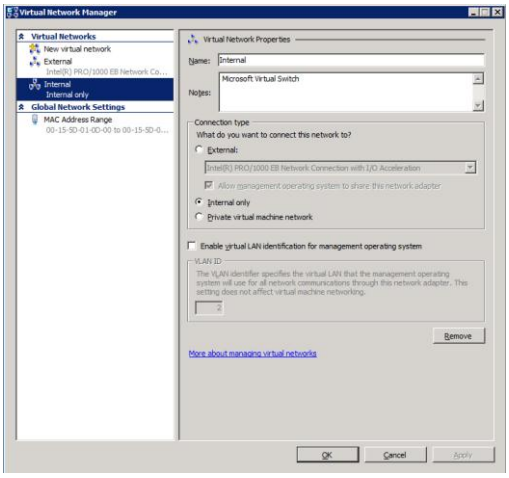


3. Create a new Virtual Network named **External** to connect to the Internet.
    a. In the Actions pan on the right-hand side of the screen, click **Virtual Network Manager**.
    b. In the Virtual Network Manager dialog, create a new virtual network named **External.**
    c. Make sure the **Connection type** of the new virtual network is configured with a setting of **External** and point it to a network card on the host computer connected to the Internet.



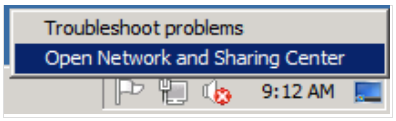
4. Create a new Virtual Network named **Internal** to connect to the Internet.
    a. In the Actions pan on the right-hand side of the screen, click **Virtual Network Manager**.
    b. In the Virtual Network Manager dialog, create a new virtual network named **Internal.**

c. Make sure the **Connection type** of the new virtual network is configured with a setting of **Internal Only**.



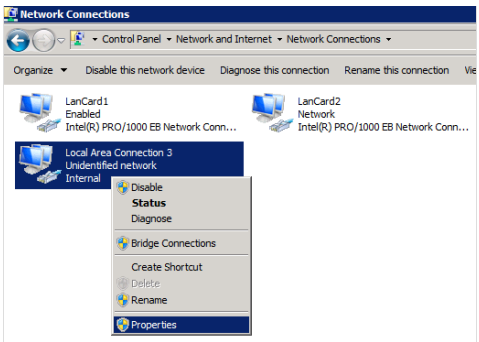
5. In the previous step you created a new private virtual network named **Internal**. When you create an internal network in Hyper-V, a new virtual network card appears on the host computer. You will configure this virtual network card with a static IP address so that host machine can connect to the VMs you will be building.

a. Right click the Network icon in the right corner of the task bar and **choose Open Network and Sharing Center**.

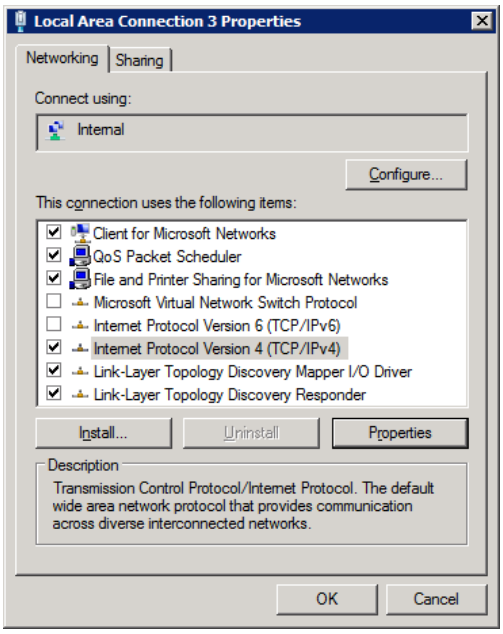


b. In the **Network and Sharing Center**, select the **Change adapter settings** hyperlink.

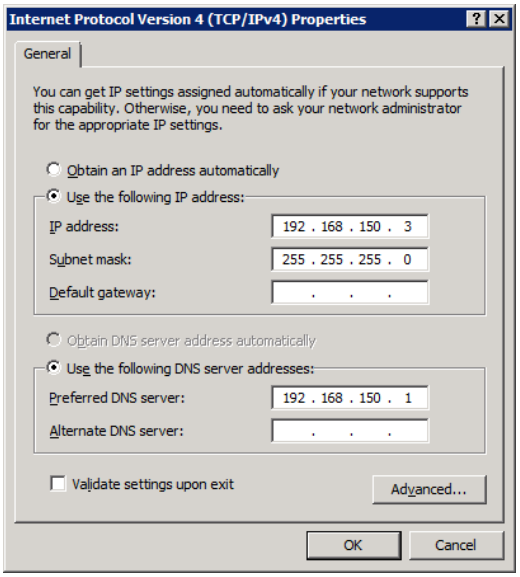
c. Right-click the virtual network and choose **Properties**.



d. Uncheck the option for **Internet Protocol Version 6 (TCP/IPv6)** to disable this protocol. Now select the checked option for **Internet Protocol Version 4 (TCP/IPv4)** and click the **Properties** button to configure a static IP address.



e. For that static IP address enter a value of **192.168.150.3** as shown in the following screenshot. Also ensure to set the Subnet mask to **255.255.255.0** and the Preferred DNS server to **192.168.150.1**. Note that the static IP address of to **192.168.150.1**will be used to configure the static IP address of the **DatabaseServer** VM which will be configured as an Active Directory domain controller as well as a DNS server.



Part 2: Creating the WebServer Virtual Machine

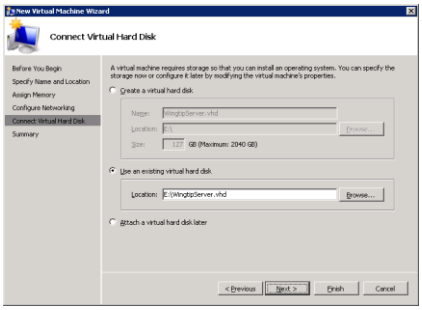
Now you will install Windows Server 2008 R2 Enterprise Evaluation (Full Edition)

6. Download the trial VHD for the **Windows Server 2008 R2 Enterprise Evaluation** from the URL below. Make sure you download the **Full Edition** instead of the **Server Core** edition.

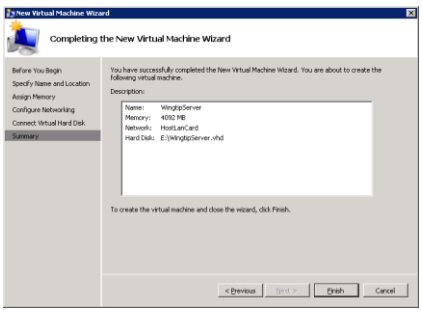
   http://www.microsoft.com/downloads/details.aspx?FamilyId=9040a4be-c3cf-44a5-9052-a70314452305&displaylang=en

   After you have completed the download, you should have an EXE file on your local hard drive named **Windows Server 2008 R2 Enterprise Evaluation (Full Edition).exe**

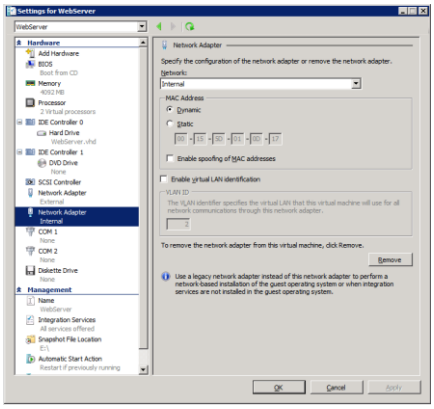
7. Extract VM image from **Windows Server 2008 R2 Enterprise Evaluation (Full Edition).exe**
   a. Double click the EXE for to begin the extraction. This will extract the VHD file named **Windows Server 2008 R2 Enterprise Evaluation (Full Edition).vhd**.
   b. Rename the VHD file to **WebServer.vhd**
   c. Move or copy **WebServer.vhd** to the location on a local hard drive from which the Hyper-V service will run it. If possible, copy the VHD files to a solid state hard drive because this will significantly increase VM performance.
8. Use The Hyper-V Manager to create a new Virtual Machine to run **WebServer.vhd**
   a. Launch the Hyper-V Manager from Administrative Tools
   b. Start the New Virtual Machine Wizard by right-clicking the server and choosing **New** > **Virtual Machine**.
   c. When the wizard prompts you for the machine name, enter **WebServer**.
   d. When the wizard prompts you to assign memory, enter **4092 MB** (4GB)
   e. When the wizard prompts you for a network connection, select the virtual connection named **External** you defined in the previous section.
   f. When the wizard prompts you to **Connect Virtual Hard Disk**, choose **Use an existing virtual hard drive** and browse to select **WebServer.vhd**.



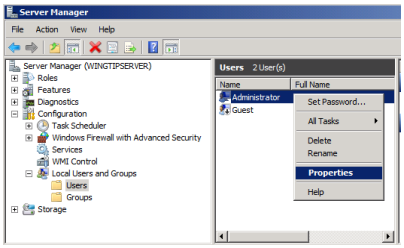
   g. When you complete the New Virtual Machine Wizard as shown below, Click **Finish**.



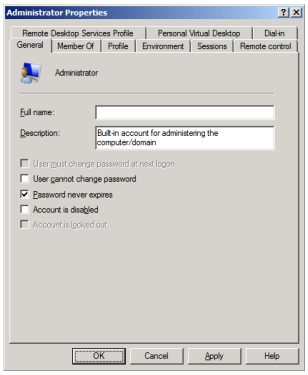
9. Configure the new VM.
    a. Before starting the VM, inspect its settings page using Hyper-V Manager
    b. By default, the number of processors is set to 1. If your hardware allows, increase the number of processors to 2.
    c. Also add a second network adapter for the **Internal** virtual network. At this point, your VM should be configured to use both the **External** virtual network as well as the **Internal** virtual network.



10. Start up the **WebServer** VM in Hyper-V
    a. Connect to the VM through the Hyper-V console and wait to the boot process to complete
11. Login to the VM and change the computer name
    a. Login with User name of **Administrator** and password of **Pass@word1**. Note that this is the password that comes with the free trial VM. In just a bit, you will change the password to an easier password to type which is **Password1**.
    b. After you log in, Windows Server displays the **Initial Configuration Tasks** window. Click the check box with the caption **Do not show this window at logon** and then click the **Close** button. After you close this window, Windows Server will display the **Server Manager**. If the Server Manager is not open, Launch it from the Windows Start menu using **Start > Administrative Tools > Server Manager**.
    c. In this step you will configure the Administrator account so that its password does not expire. Inside the **Configuration** node of the Server Manager, navigate the **Users** folder inside the **Local Users and Groups** node (as shown below) and locate the local **Administrator** account. Right-click on the **Administrator** account and click **Properties**.

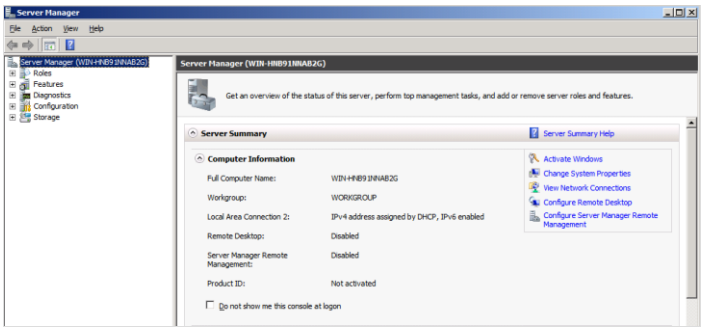


    d. In the **Administrator Properties** dialog, unselect the option for **User must change password at next logon** and select the option for **Password never expires**. Click the **OK** button to save your changes and close the dialog box.

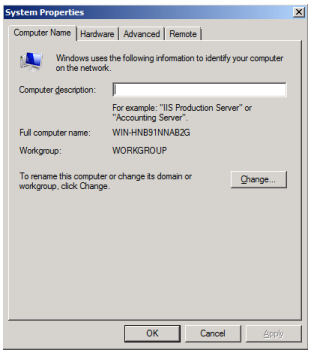


e. Now right-click on the **Administrator** account and click **Set Password**. Assign a new password value of **Password1**.

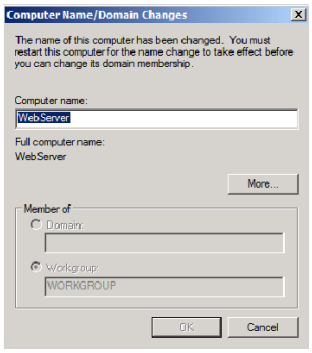
f. Now rename the computer name of the VM. In the **Server Manager**, navigate to the top-level node to display the **Server Summary** page. Click **Change System Properties**.



g. On the **Computer Name** tab of the **System Properties** dialog, click the **Change** button.



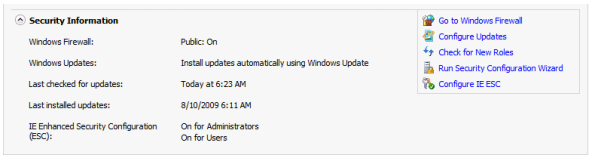
h. Enter a new computer name of **WebServer** and click **OK**.



i. After changing the computer name you will be prompted to restart the VM. Choose **OK** to restart. After the VM has restarted, log in again using the same credentials as before.

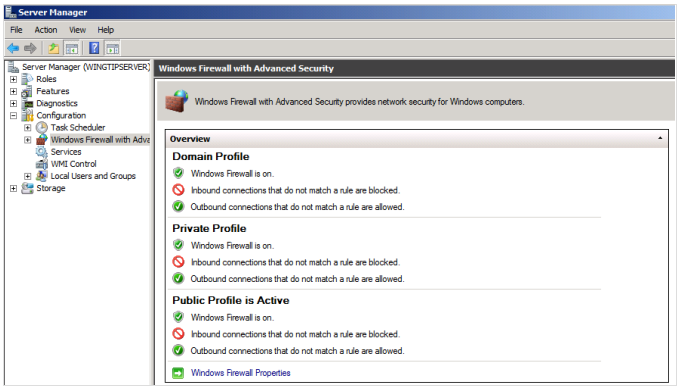
12. Disable Windows Firewall and Enhanced Security Configuration

a. In the Server Manager, navigate to the top-level node to display the **Server Summary** page. Inside the **Security Information** section locate the links for **Go to Windows Firewall** and **Configure IE ECS**.

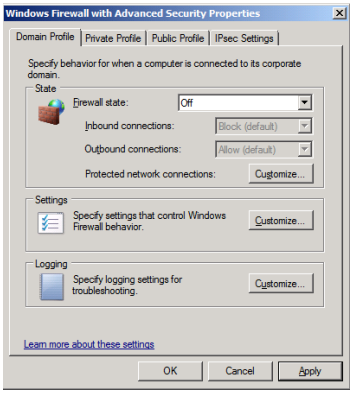


b. Click on Configure **IE ECS** link. Disable Enhanced Security Configuration for both Administrators and Users and click OK.

c. Now click the **Go to Windows Firewall** link to display the page for the Windows Firewall. Click on the **Windows Firewall Properties** link at the bottom of the **Overview** section.



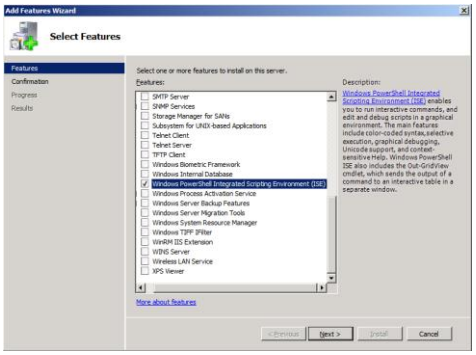
d. In the **Domain Profile** tab of the Windows Fire dialog, change the **Firewall state** property setting from **On** to **Off**. Click to **Apply** button to save your changes. Once you have turned off the firewall in the Domain Profile tab, go to the Private profile tab and the Public profile tab and follow the same steps to disable the firewall for these profiles as well. Click **OK** to dismiss the Windows Firewall dialog once you have turned off the firewall for all three profiles.



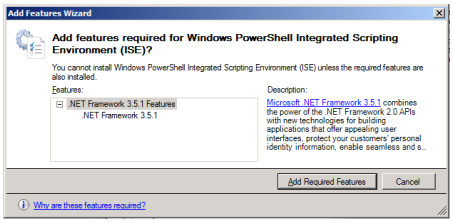
13. Enable the **Windows Server Feature** for the **PowerShell Integrated Scripting Environment(ISE).**

a. In **Server Manager**, right-click the **Features** node and choose **Add Feature**.

b. Select the feature **Windows PowerShell Integrated Scripting Environment (ISE)**



c. Note when you first click the checkbox for the **Windows PowerShell Integrated Scripting Environment (ISE)**, the wizard will prompt you with the following dialog to add support for .NET Framework 3.5.1 Features. Click the **Add Required Features** button to continue.



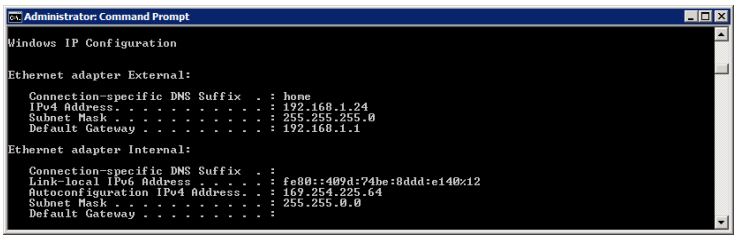
d. Now that you have selected these two features for installation, click the **Next** button on the **Add Features Wizard dialog** to continue with the install. The next screen you will ask you to Confirm Installation Selections. Click the **Install** button.

e. When you see the **Installation Results** screen, the **Add Features** Wizard informs you the feature has been added. Click **Close** button to dismiss this dialog.

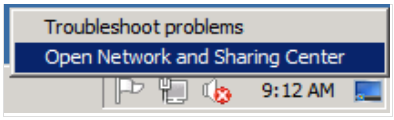
14. Configure a static address for the **WebServer** VM.

a. Make sure you are logged into the WebServer VM

b. Bring up a command prompt and run the IPCONFIG command to see how the two network cards are configured. The one based on the **External** virtual network should have a dynamic IP address assigned by a DHCP service running in your network. The **Internal** virtual network likely has a private IP address that you will reconfigure with a static IP address.

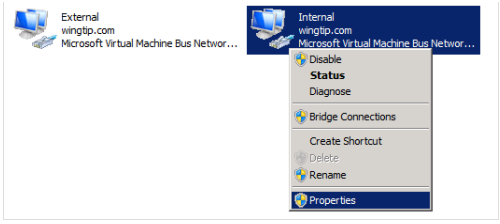


c. Right click the Network icon in the right corner of the task bar and **choose Open Network and Sharing Center**.

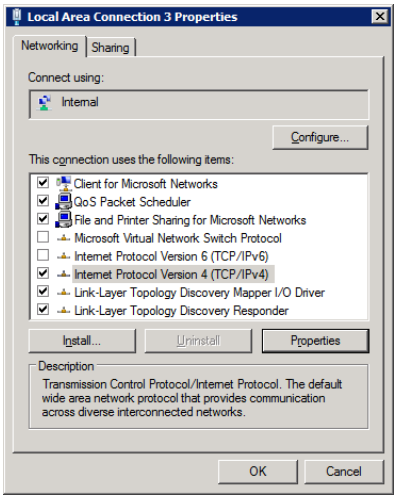


d. In the **Network and Sharing Center**, select the **Change adapter settings** hyperlink.

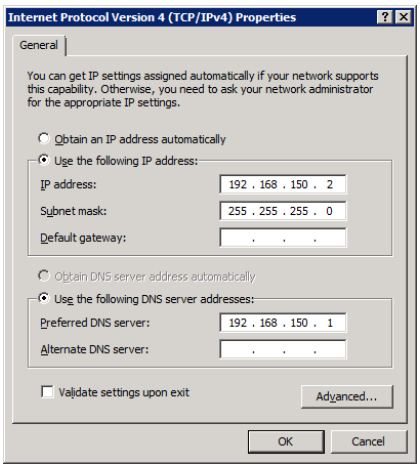
e. Right-click the **Internal** virtual network and choose **Properties**.



f. Uncheck the option for **Internet Protocol Version 6 (TCP/IPv6)** to disable this protocol. Now select the checked option for **Internet Protocol Version 4 (TCP/IPv4)** and click the properties button to configure a static IP address.

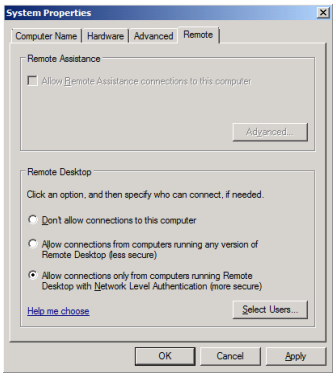


g. For that static IP address enter a value of **192.168.150.2** as shown in the following screenshot. Also ensure to set the Subnet mask to **255.255.255.0** and the Preferred DNS server to **192.168.150.1**. Note that the static IP address of to **192.168.150.1**will be used to configure the static IP address of the **DatabaseServer** VM which will be configured as an Active Directory domain controller as well as a DNS server.

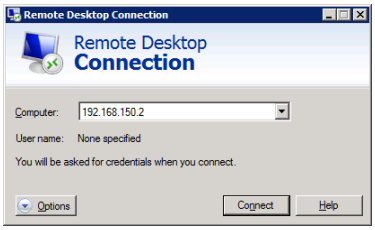


15. Enabled Remote Desktop for your VM

a. In the **Server Manager**, navigate to the top-level node to display the **Server Summary** page. Inside the **Computer Information** section, locate and click the link for **Configure Remote Desktop**. In the Remote tab of the **System Properties** dialog, select the last option for Allow connections only from computers running **Remote Desktop with Network Level Authentication**. Click **OK** to save changes and dismiss the **System Properties** dialog.



b. Now you should be able to connect through an RDP session. Many people prefer an RDP connection instead of the Hyper-V console. If you want to connect to this VM through an RPD connection, use the IP address of 192.168.150.2.



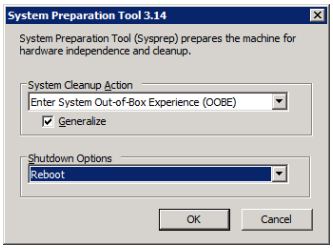
c. You will get this screen.

d.

16. Now, it's time to run **Windows Update** to ensure you have the most up-to-date system files.
    a. In the Server Manager, navigate to the top-level node to display the **Server Summary** page. Inside the **Security Information** section click the link **Configure Updates**.
    b. Disable Windows Update from running automatically by clicking the link **Change Settings**. Under the **Important Updates** list, select **Never check for updates (not recommended)**. This isn't what you would do in a production environment, but for a development machine it is ok.
    c. Click the **OK** button to dismiss the dialog.
    d. Now update the server by selecting the **Check for Updates** link. Windows Update will report how many updates are available. Click the **Install Updates** button. If prompted, select **I accept the license terms for any updates that require it**.
    e. When **Windows Update** completes, it's a good idea to go ahead and reboot. Once the server has rebooted, login again as **Administrator**.
17. Now complete you work by shutting down the VM. You need to do this because in the next part of the setup you will be copying **WebServer.vhd** to create a new virtual hard disk named **DatabaseServer.vhd**.

Part 3: Creating the DatabaseServer Virtual Machine

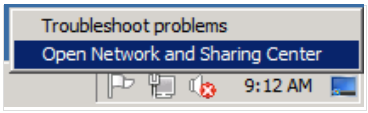
1. Using the Windows Explorer, locate the virtual hard disk file named **WebServer.vhd** and copy it to create a second virtual hard disk named **DatabaseServer.vhd**.
2. Create a new virtual machine named **DatabaseServer** which uses the virtual hard disk file named **DatabaseServer.vhd**. Allocate at least 2048 MB memory to this new VM.
3. Start the virtual machine named **DatabaseServer** from within Hyper-V**.**
4. Log into **DatabaseServer** using a user name of **Administrator** and a password of **Password1**.
5. In this next step you will run **sysprep** utility to reinitialize some of the machines-level settings for the **DatabaseServer** VM. The main reason this step is included is that the two virtual machines current have the Security ID (SID) and therefore cannot be added to the same domain. You going to run the run **syssprep** utility to ensure the two VMs have different SIDs. This is required in order to add them into the same domain.
    a. Locate the **sysprep.exe** in **c:\Windows\System32\sysprep** directory and double-click it to run **sysprep**. Make sure to check the **Generalize** option because that is what will generate a new SID.



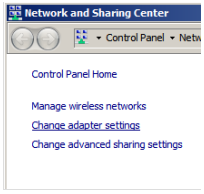
6. After **sysprep** runs, you have to reboot the VM. This will take a while.
    a. When Windows Server 2008 R2 starts up, you will have to specify **Regional** and **Keyboard** settings. Accept the defaults and click **Next**.
    b. You will also receive a message that you will have to change the password of the **Administrator** account before logging in. You can set it to **Password1**, which is the same password as the **WebServer** VM.
    c. If you see the login screen again, click the **Other User** button and enter

        User: Administrator

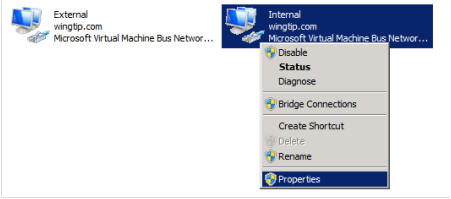
        Password: Password1
7. Change the static IP address for the **Internal** virtual network.
    a. Right click the Network icon in the right corner of the task bar and **choose Open Network and Sharing Center**.



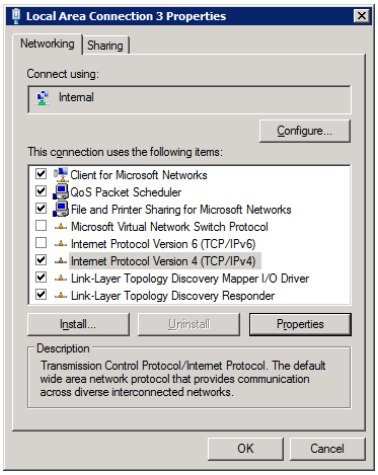
    b. In the **Network and Sharing Center**, select the **Change adapter settings** hyperlink.



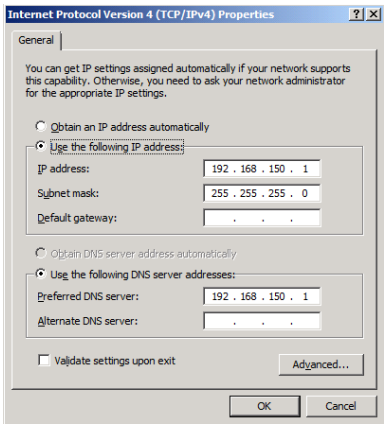
c. Right-click the **Internal** virtual network and choose **Properties**.



d. Uncheck the option for **Internet Protocol Version 6 (TCP/IPv6)** to disable this protocol. Now select the checked option for **Internet Protocol Version 4 (TCP/IPv4)** and click the properties button to configure a static IP address.

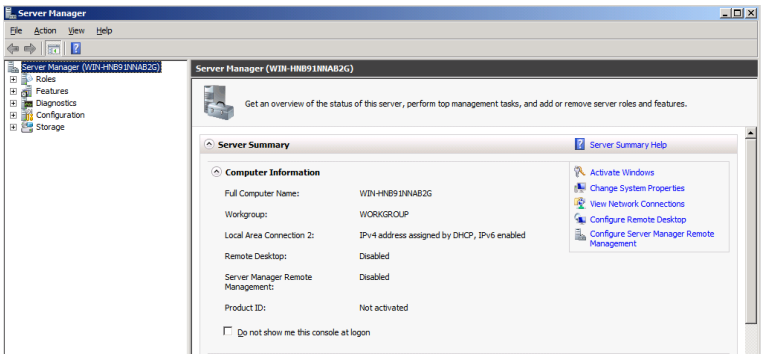


e. For that static IP address enter a value of **192.168.150.1** as shown in the following screenshot. Also ensure to set the Subnet mask to **255.255.255.0** and the Preferred DNS server to **192.168.150.1**. Note that this machine will be a domain controller so it has a static IP address of to **192.168.150.1**that is also used as the IP address of the **Preferred DNS Server** setting.

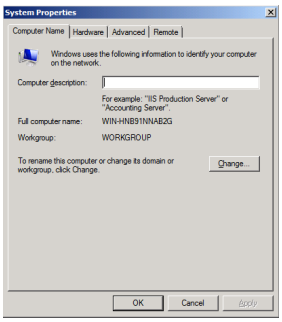


8. Change the computer name to **DatabaseServer**.

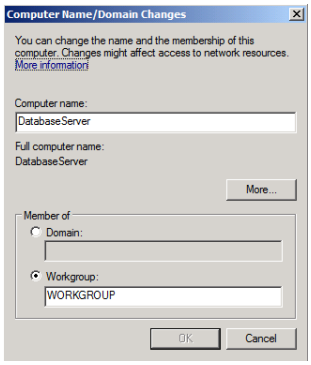
a. In the **Server Manager**, navigate to the top-level node to display the **Server Summary** page. Click **Change System Properties**.



b. On the **Computer Name** tab of the **System Properties** dialog, click the **Change** button.



c. Enter a new computer name of **DatabaseServer** and click **OK.**



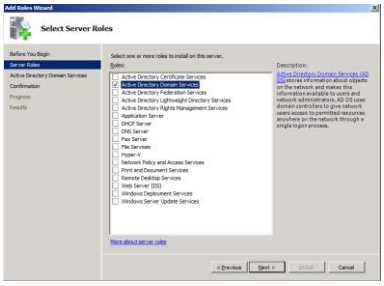
d. After changing the computer name you will be prompted to restart the VM. Choose **OK** to restart. After the VM has restarted, log in again using the same credentials as before.

9. After renaming the VM, reboot again.

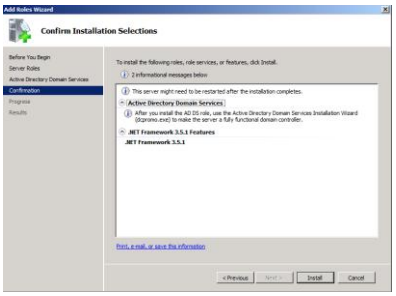
Now you will promote the DatabaseServer VM to a domain controller and create a new domain named **wingtip.com**

10. Add and configure the role for Active Directory Domain Services
    a. Launch **Server Manager** and select the **Roles** node. You should see there are no roles have been installed.
    b. Click the **Add Roles** link to start the **Add Roles Wizard**.
    c. On the **Before you begin** page, click **Next.**

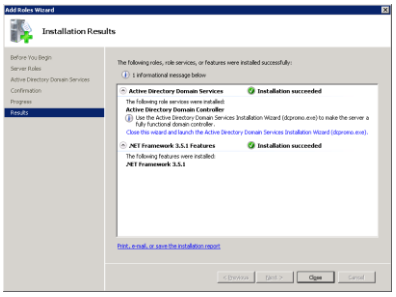
d. On the **Server Roles** page, select **Active Directory Domain Services**. If you are prompted with a dialog which asks to install **Microsoft .NET Framework 3.5.1**, click the **Add Required Features** button to dismiss this dialog. Click **Next** to advance the **Add Roles Wizard**.



e. On the next page of the wizard, click **Next** which will bring you to the **Confirm Installation Selections** page. Click **Install**.



f. After the **Active Directory Domain Services** feature has been installed, you will see the **Installation Results** page in the **Add Roles Wizard** as shown below. Click on the link with the big long caption of **Close this wizard and launch the Active Directory Domain Services Installation Wizard (dcpromo.exe)**.



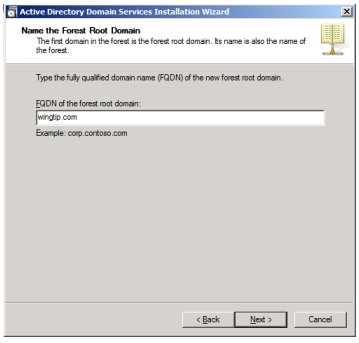
g. On the first page of the **Active Directory Domain Services Installation Wizard**, select the **Use advanced Mode installation** check box and click **Next**.

h. When the wizard opens, return to the Server Manager to add another Active Directory role: the **Active Directory Lightweight Directory Service (AD LDS)**.

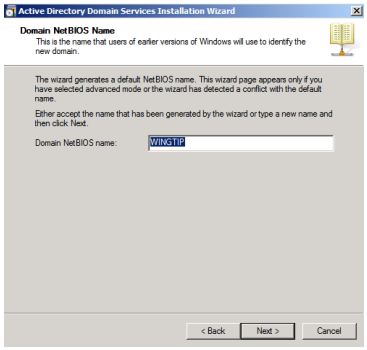
i. When this role is installed, return to the **Active Directory Domain Services Installation Wizard** and click the **Next** button on the **Operating System Compatibility** page.

j. The next page asks you to **Choose a Deployment Configuration**, select the option to **Create a new domain in a new forest** and click **Next**.

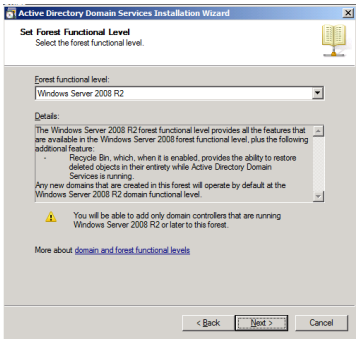
k. The next page asks you to **Name the Forrest Root Domain**. Enter **wingtip.com** into the textbox for the root domain and click **Next**.



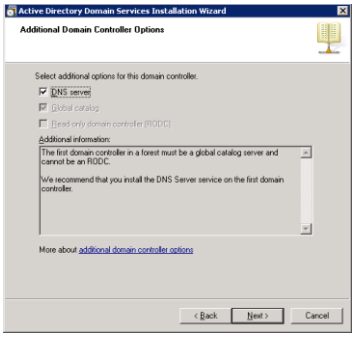
l. The next step asks you to define a **Domain NetBIOS name**. Accept the default **WINGTIP** by clicking the **Next** button.



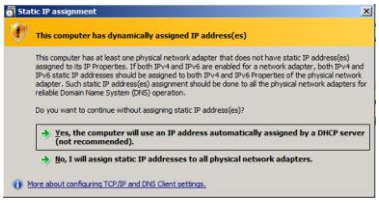
m. The next page asks you to **Set Forest Functional Level**. Using the dropdown list, change the setting to **Windows Server 2008 R2** and click **Next**.



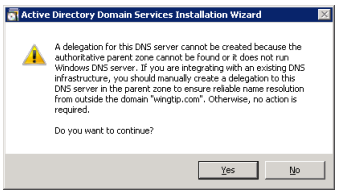
n. The next page asks you to set **Additional Domain Controller Options**. You should be able to accept the default options as shown below. Click **Next**.



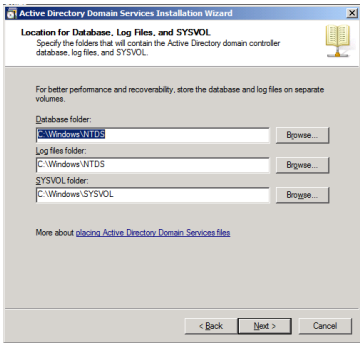
o. You might be prompted with the dialog shown below providing a warning that **This computer has dynamically assigned IP address(es)**. This is not a problem when you are running your development environment on a domain controller. Click **Yes** to dismiss the dialog.



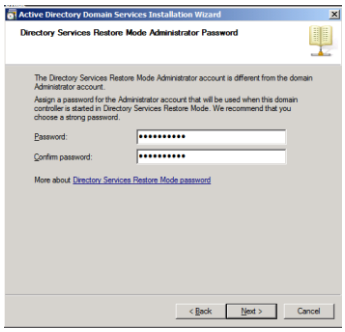
p. At this point the wizard will prompt you with a dialog informing you a delegation for the DNS Server cannot be created because it cannot find the authoritative parent zone. This is not a problem because the wizard will automatically configure the DNS of the VM to point to itself. Click on the **Yes** button to dismiss this dialog.



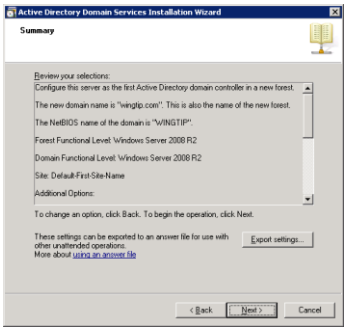
q. The next page asks you to set values for **Location for Database Log Files and SYSVOL**. Accept all the default values by clicking **Next**.



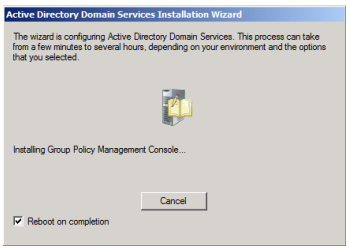
r. The next page asks you to provide and confirm a password for **Directory Services Restore Mode Administrator Password**. Add a password of **Password1** and click **Next**.



s. The next page is the **Summary** page which should show the values below. Click **Next** to start the process of configuring the new Active Directory domain.



t. The wizard will display the dialog below to show you the progress of the configuration process. You will be required to reboot when the configuration has been completed. Check the option for **Reboot on completion** and then wait for the configuration to complete and the machine to reboot.



u. After the VM reboots, you should logon using the domain account **WINGTIP\Administrator**. The password should still be **Password1**.

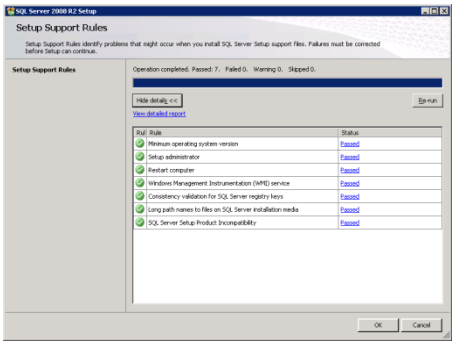
In this section, you will install the trial version of SQL Server 2008 R2 Enterprise on the **DatabaseServer** VM. Below we provide a link which will allow you to download a free trial version which will expire after 180 days. If you have a licensed version of SQL Server 2008 R2, you can alternatively install that so that the software does not expire after 180 days.

11. Follow these steps if you plan on using the free trial version of SQL Server 2008 R2. Note that this free trial version is set to expire in 180 days after installation. If you have a registered version of SQL Server 2008 R2 through a subscription to MSDN or TechNet or by other means, you can install that instead of the free trial version in order to having the software expire.
    a. In the browser, navigate to the page at the link below.

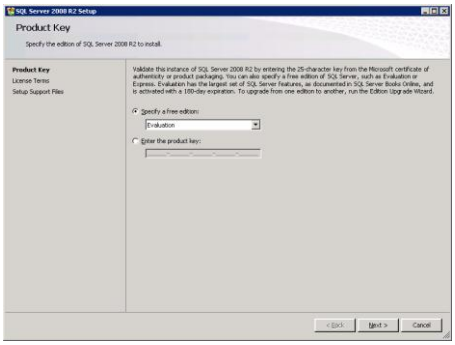
    ```
    http://www.microsoft.com/sqlserver/2008/en/us/trial-software.aspx
    ```

    b. Follow the instructions and download process to download the 64-bit edition of SQL Server 2008 R2. The download is a self-extracting file named **SQLFULL_x64_ENU.exe**.
    c. Once downloaded, double click **SQLFULL_x64_ENU.exe** to begin the extraction process**.**
12. After downloading, double-click the **SETUP.EXE** file.
13. The setup process should now show the following window. Click the **Installation** link on the left-hand side of the window and then click the link which reads **New stand-alone installation or add features to an existing installation**.

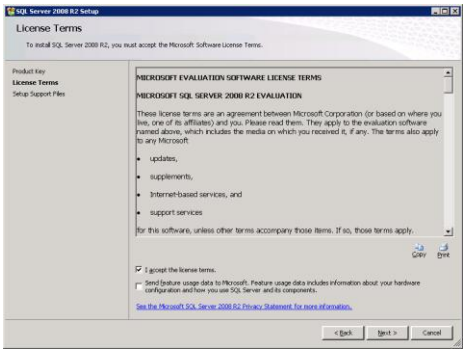
14. The setup program will then check to make sure there were no problems with the setup rules. Once passed, click **OK**.



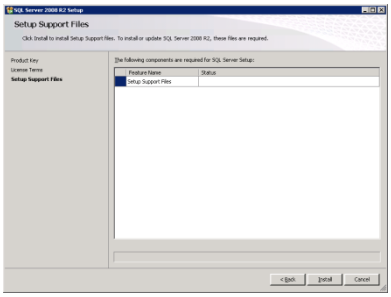
15. There are several windows at the beginning of the installation process that you should click **Next** to advance the installation process. At the **Product Key** page, select the **Evaluation** and click **Next** to continue.



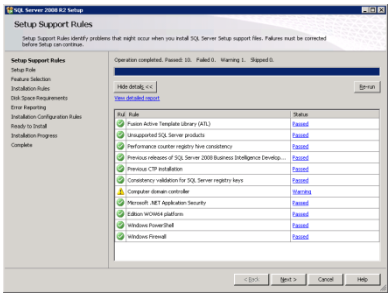
16. When prompted on the **License Terms** dialog, click **I accept the license terms** and click **Next**.



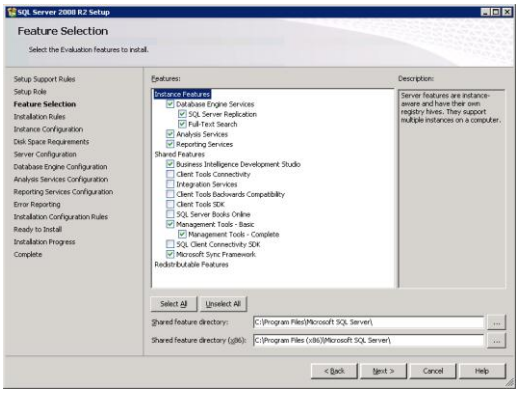
17. The next page is the **Setup Support Files** page. Click **Install** to continue.



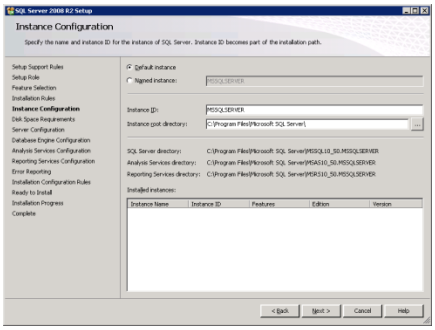
18. When you get to the **Setup Support Roles** page of the setup wizard, the installation process runs tests to make sure your VM meets the requirements. Your VM should pass all tests and the only warning you should receive is that you are installing SQL Server 2008 on a domain controller. Click **Next** to continue.



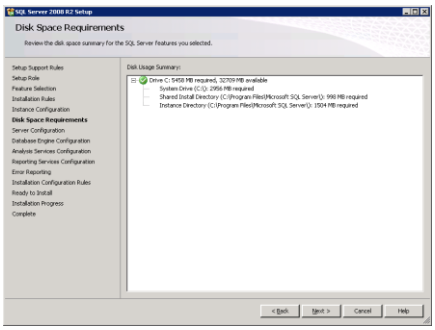
19. When you get to the **Feature Selection** page, select the following features and click **Next** to continue:
    a. Database Engine Services
        i. SQL Server Replication
        ii. Full-Text Search
    b. Analysis Services
    c. Reporting Services
    d. Business Intelligence Development Studio
    e. Management Tools – Basic
        i. Management Tools - Complete
    f. Microsoft Sync Framework



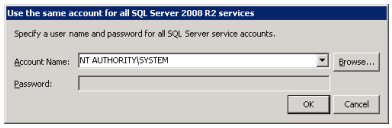
20. There is nothing to change on the **Instance Configuration** page. Click **Next** to continue.



21. Click **Next** on the **Disk Space Requirements** dialog.

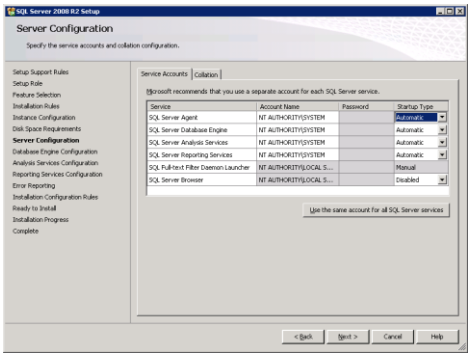


22. The next page is the **Server Configuration** page. Change the **StartUp Type** setting for the SQL Server Agent to be **Automatic**. Click the button with the caption of **Use the same account for all SQL Server instances**. When the dialog appears to select a user account, select the System account (**NT AUTHORITY\SYSTEM**) and click **OK**.

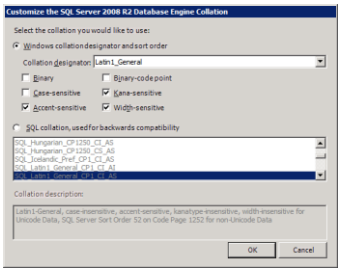


NOTE: In a real production environment, SQL Server 2008 R2 processes should be configured to run under a dedicated service account and not under the System account.

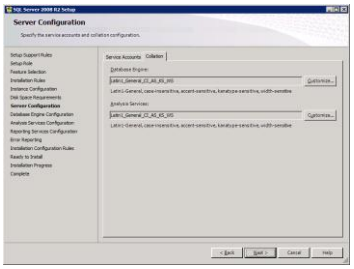
23. After you have completed the previous step, the **Server Configuration** page should appear like the one shown below.



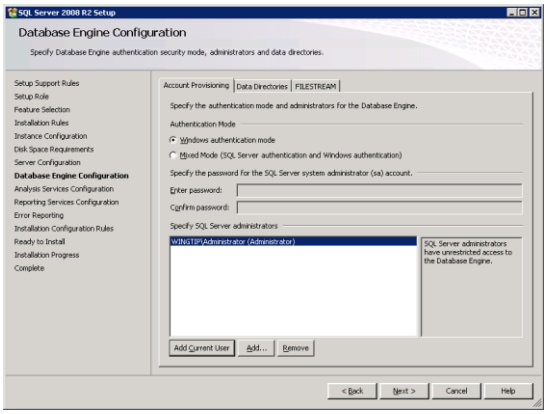
24. Now click on the **Collation** tab. On the **Collation** tab, you will see default collation settings for both the **Database Engine** and for **Analysis Services**. Each setting has a **Customize...** button to its right. Click the **Customize...** button for each of these two settings and fill out the resulting dialog with the collation setting shown in the screenshot below. This step ensures you have the best collation setting for SharePoint 2010 which is **LATIN1_General** with the options for **Case Insensitive (CI)**, **Accent-sensitive (AS)**, **Kana-sensitive (KS)** and **Width-sensitive (WS)**.



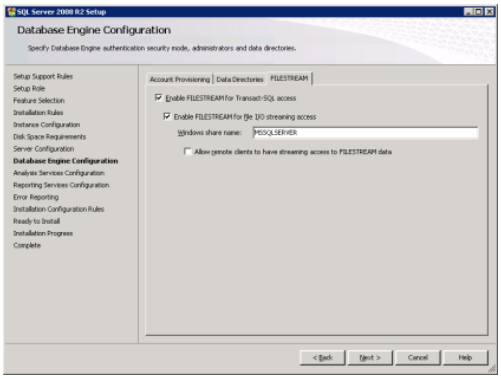
25. Once you have changed the collation, the **Server Configuration** dialog should look like the one below.



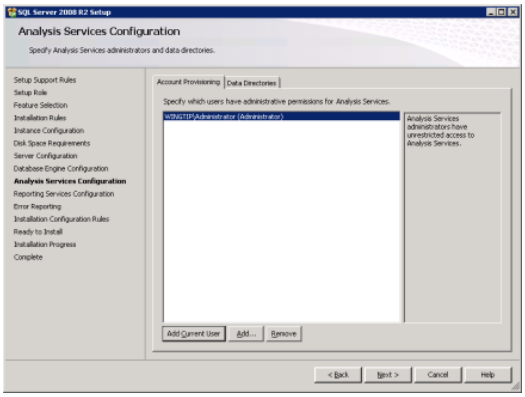
26. Click **Next** to continue.
27. The next page is the **Database Engine Configuration** page. Specify **WINGTIP\Administrator** as a SQL Server administrator by clicking the **Add Current User** button at the bottom of the page. The page should look as below.



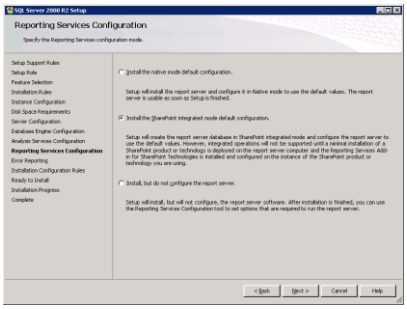
28. Click on the **FILESTREAM** tab so that you can make changes there. On the **FILESTREAM** tab of the **Database Engine Configuration** page, select the options for **Enable FILESTREAM for Transact-SQL access** and **Enable FILESTREAM for file I/O streaming access**. Click **Next** to continue.



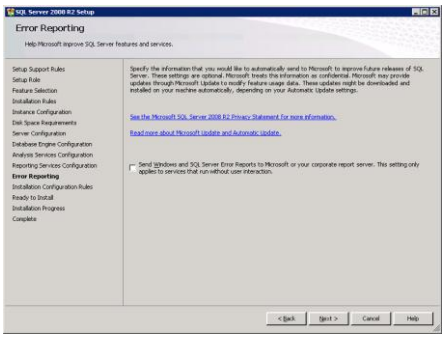
29. On the **Analysis Services Configuration** page, specify **WINGTIP\Administrator** as an Analysis Services administrator by clicking the **Add Current User** button at the bottom of the page. Click **Next** to continue.



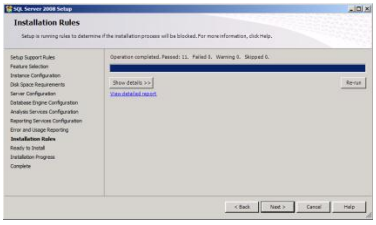
30. On the **Reporting Service Configuration** page, select the option for **Install the SharePoint integrated mode default configuration**. Click **Next** to continue.



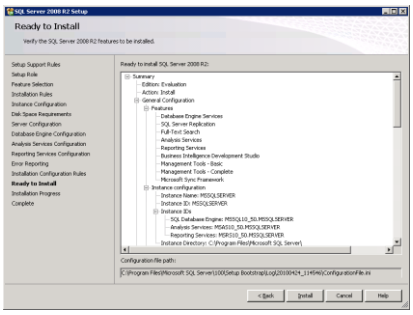
31. No changes are required on the **Error Reporting** page. Click **Next** to continue.



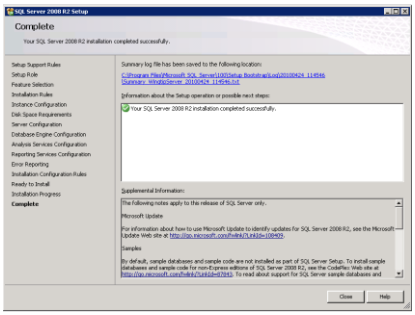
32. At the **Installation Rules** page, verify that your VM passes all tests. Click **Next** to continue.



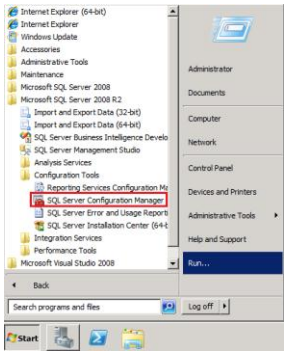
33. On the **Ready to Install** page, click **Install** to begin the installation. The installation will take somewhere between 5 and 30 minutes depending on your hardware performance.



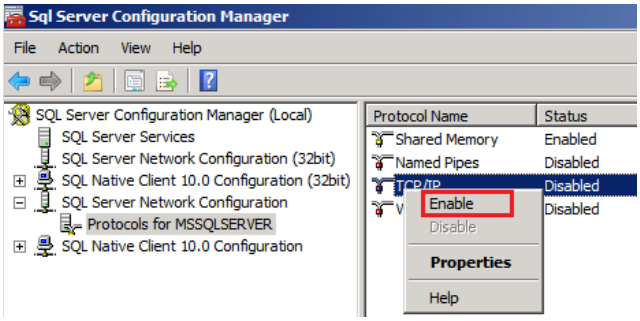
34. When you get the **Installation Progress** page indicates that the installation is complete, click the **Next** button.
35. When you get to the **Complete** page you are finished with the installation. Click the **Close** button to dismiss the installation wizard.



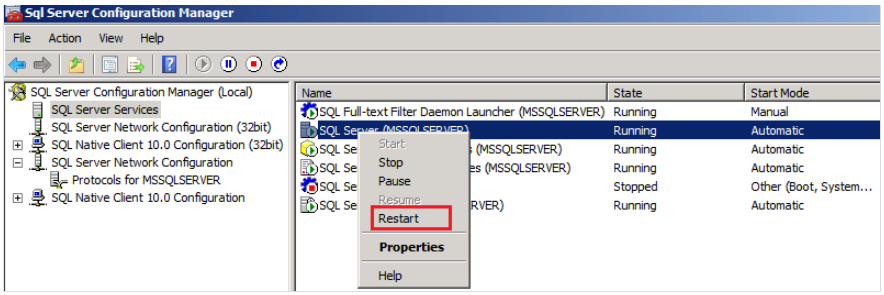
36. The last step is to configure SQL Server for TCP/IP access. This is mandatory when you want to install SharePoint 2010 on another server than the server on which SQL Server is installed.
    a. Open the **SQL Server Configuration Manager** from the **Start** menu.



    b. Expand the **SQL Server Configuration Manager** node.
    c. Expand the **SQL Server Network Configuration** node.
    d. Click the **Protocols for MSSQLSERVER** node.
    e. Right-click **TCP/IP** and choose to enable.



    f. You will receive a message box explaining that the changes will only take effect after having restarted the service. Click the **OK** button to dismiss the message box.
    g. Select the **SQL Server Services** node.
    h. Right-click **SQL Server (MSSQLServer)** and choose **Restart**.



The final steps in setting up the **DatabaseServer** VM is to install the Adventure Works sample databases.

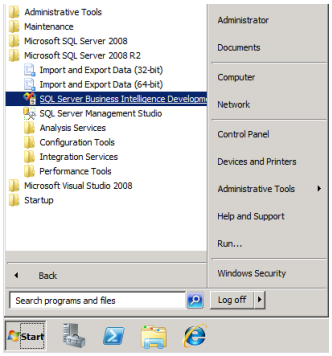
37. Go to the Adventure Works sample download page on CodePlex at either of the following URLs

```
http://msftdbprodsamples.codeplex.com/releases/view/45907

http://bit.ly/blSbXT
```

    a. Download the installation program named **AdventureWorks2008R2_RTM.exe**.
    b. Once you have downloaded **AdventureWorks2008R2_RTM.exe** to a local drive, run the program by double clicking on it.
    c. When prompted to select which databases to install, accept all defaults which installs everything and has a few manual deployment steps post install.
    d. Once the installer completes you will need to build Adventure Works Cube using SQL Server Business Intelligence Development Studio. This is covered in the next step.

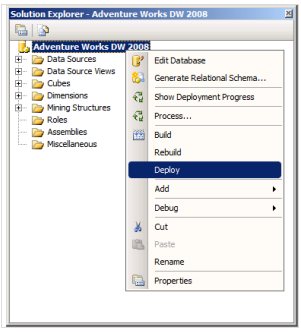
38. Launch SQL Server BI Development Studio by using the shortcut in the Windows start menu: Start > All Programs > Microsoft SQL Server 2008 R2 > SQL Server Business Intelligence Development Studio.



    a. From within Business Intelligence Development Studio, you the **File** > **Open Project** menu command to open the project at the following location.

```
C:\Program Files\Microsoft SQL Server\100\Tools\Samples\AdventureWorks 2008 Analysis Services Project\enterprise\Adventure Works.sln
```

    b. With the project open, right click on **Adventure Works DW 2008** project node and execute the **Deploy** command. The deployment process will take a minute or two to build out the Adventure Works data warehouse cube. You will receive a deployment success message after the deployment process completes.



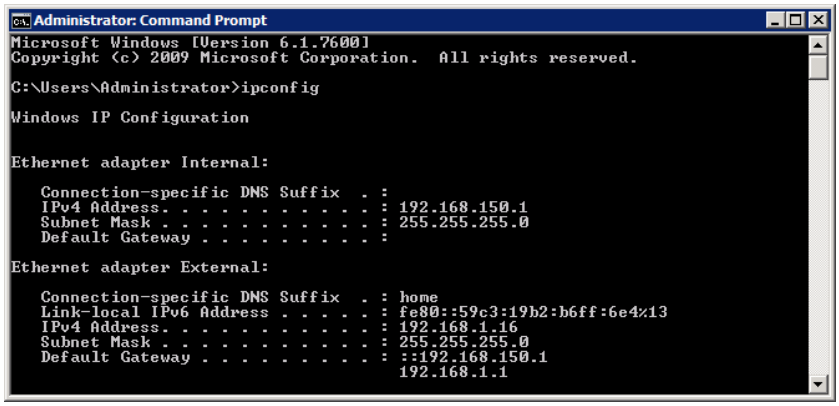
39. You should see a success message at the end of the deployment process.
40. Close any open programs on the **DatabaseServer** VM.
41. Ensure you keep the **DatabaseServer** VM running through the next set of steps.

You are now done setting up the **DatabaseServer** VM. Now you will complete the VM setup by returning to the **WebServer** VM and adding it to the new **WINGTIP** domain.

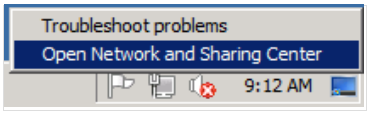
Part 4: Complete the WebServer configuration

In this section, you will make both virtual machines talk to each other.

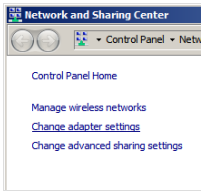
1. In the **DatabaseServer** virtual machine, open a command prompt and type **ipconfig** to see the two IP addresses assigned to this machine.



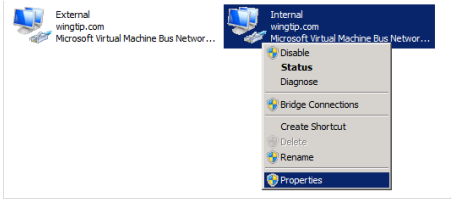
2. You should be able to verify that the DatabaseServer is configured with a sdtatic IP address of **192.168.150.1**.
3. Leave the **DatabaseServer** virtual machine open and start the **WebServer** virtual machine.
4. Now you will have to make sure that the virtual machines can talk to each other. The first step is to ensure that the **WebServer** virtual machine has a static IP address of **192.168.150.2** that will allow it to make a connection to the **DatabaseServer** VM.
    a. Ensure you are working in the **WebServer** virtual machine
    b. Right click the Network icon in the right corner of the task bar and **choose Open Network and Sharing Center**.



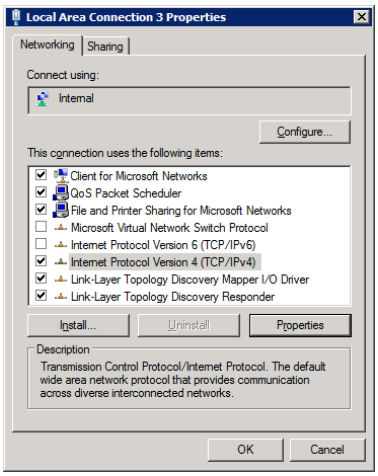
    c. In the **Network and Sharing Center**, select the **Change adapter settings** hyperlink.



    d. Right-click the **Internal** virtual network and choose **Properties**.



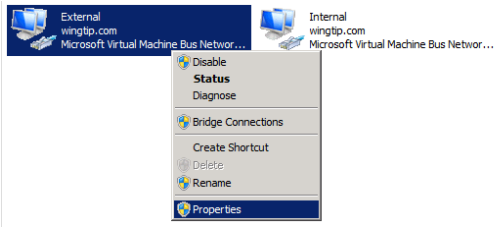
e. Verify that the option for **Internet Protocol Version 6 (TCP/IPv6)** is unchecked and also verify that the setting for **Internet Protocol Version 4 (TCP/IPv4)** have a static IP address of **192.168.150.2**.



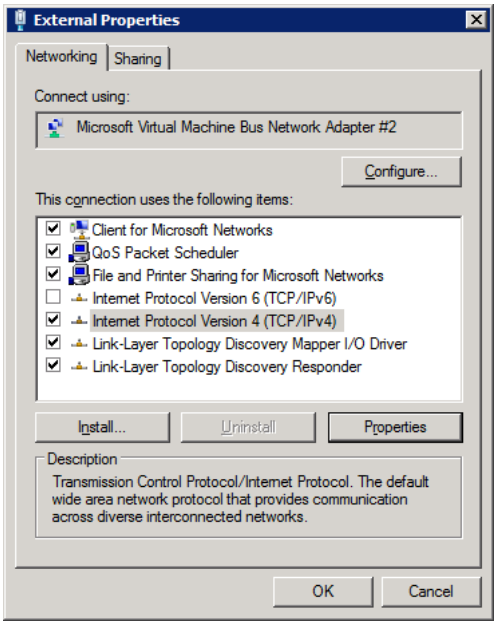
f. Close the dialog once you have verified the static IP address setting are correct.

5. In this step, you will make a configuration change to the network adapter for the **External** virtual network to ensure that the **WebServer** VM always uses the **DatabaseServer** VM as its preferred DNS server.

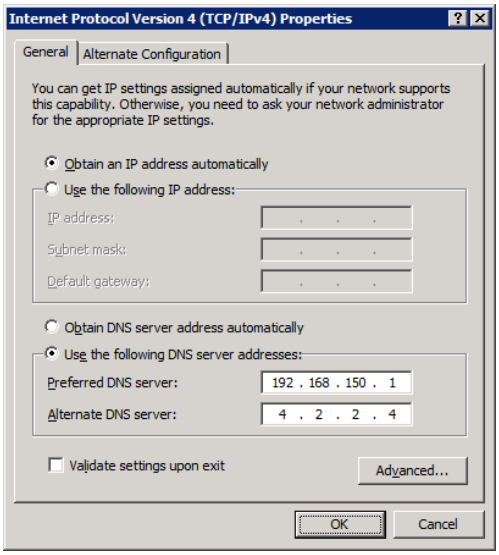
a. Right-click the **Internal** virtual network and choose **Properties**.



b. Uncheck the option for **Internet Protocol Version 6 (TCP/IPv6)** to disable this protocol. Now select the checked option for **Internet Protocol Version 4 (TCP/IPv4)** and click the **Properties** button to configure a static IP address.

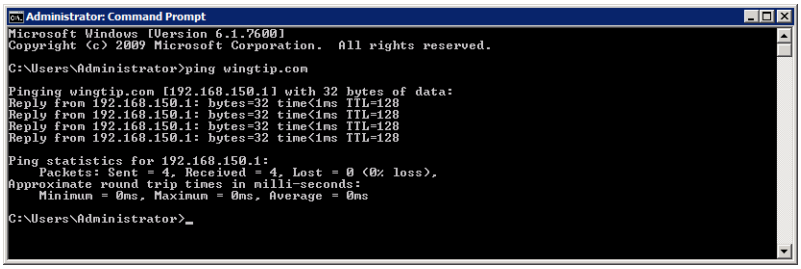


c. Leave the configuration so that the network adapter uses the **Obtain an IP address automatically**. This is required so that the **WebServer** VM can access the Internet which will be required during the class. However, you should assign a static IP address of 192.168.150.1 for the Preferred DNS server setting so the **WebServer** VM always uses the **DatabaseServer** VM to resolve DNS names to IP address. You can also set a Alternate DNS server setting to one that is available on the Internet such as **4.2.2.4**.



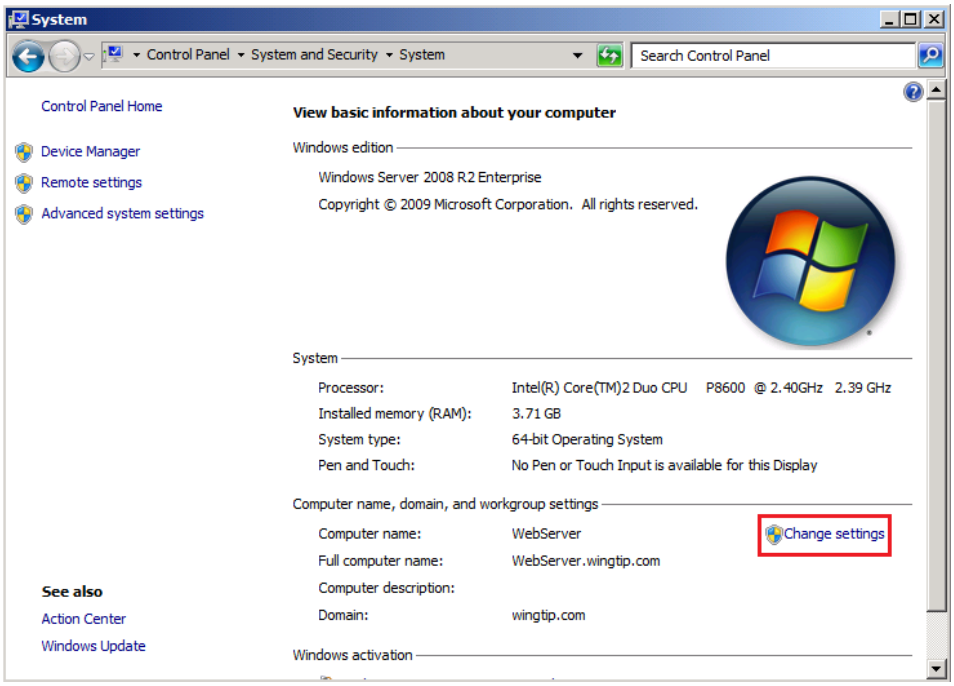
d. Close all open dialogs.

6. Now test your work to ensure you have the IP addresses configured properly.
   a. On the **WebServer** VM, bring up a command prompt.
   b. Use the **ping** utility to ping **wingtip.com**. You should be able to verify that pining **wingtip.com** resolves to an address of **192.168.150.1**.

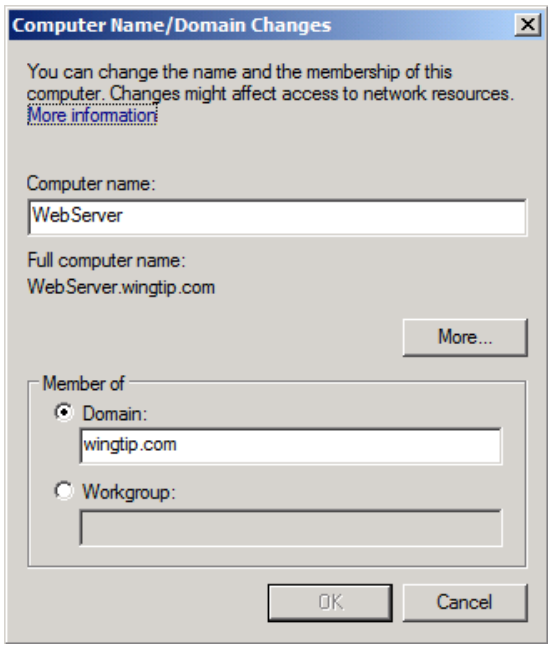


c. If your ping operation for **wingtip.com** was successful in resolving to an IP address of **192.168.150.1**, you are ready to move to the next step. If not, you must go back through the previous steps and ensure you can fix this problem before moving on.

7. Now you have to add the **WebServer** virtual machine into **WINGTIP** domain.
   a. Return to the **WebServer** virtual machine.
   b. Choose **Start** > **Control Panel** > **System and Security** > **System**.
   c. Select the **Change settings** hyperlink.



   d. The **System Properties** dialog opens. Click the **Change...** button to open the **Computer Name/Domain Changes** dialog.



e. In this dialog you can change to **Member of** option to **Domain**. Fill out **WINGTIP** and click the **OK** button.

f. The virtual machine will try to join the **WINGTIP** domain. This can take a few seconds. When the join is successful you will be asked to boot the virtual machine. Close all windows and reboot the **WebServer** virtual machine.

g. When the virtual machine has rebooted you will be asked to execute **Ctrl+Alt+Delete**.

h. Then you will be prompted to log on. Pay attention that you logon as **WINGTIP\Administrator** with the password **Password1**. If you are able to logon successfully it means that both virtual machines are in the same domain and that the installation of SharePoint can be started.

8. Run one more check to ensure joining the **wingtip** domain:

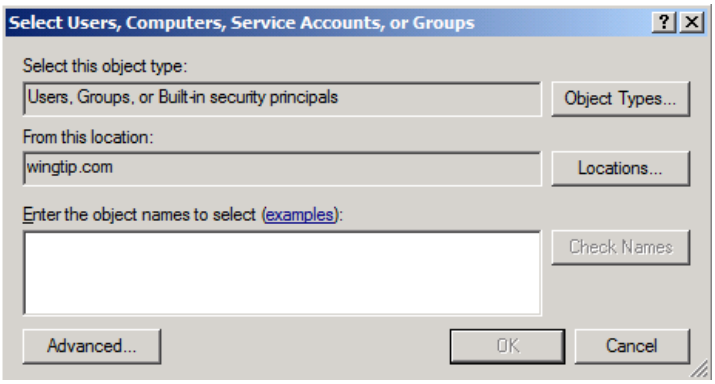
a. In the **WebServer** VM, open **Windows Explorer** and right-click one of the folders.

b. Choose **Properties**.

c. Select the **Security** tab.

d. Click the **Edit** button.

e. Click the **Add** button. You should see the wingtip domain suggested as default location.



The final step will be to download the SharePoint Server 2010 installation files and make them available on the **WebServer** VM.:

9. While logged into the **WebServer** VM, download a local copy of the SharePoint Server 2010 installation files.
    a. Navigate to **http://technet.microsoft.com/en-us/evalcenter/ee388573.aspx**
    b. Select **SharePoint Server 2010 Enterprise Client Access License features** and then click **Get Started Now**.

    c. Follow the steps to download the installation file named **SharePointServer.exe**. Copy this file into a new directory on the file system of the **WebServer** VM at the path of **c:\Install**.
    d. Extract the setup files into a child directory named **c:\Install\SharePointServer2010**. You can accomplish this by running the following command from the command line.

```
c:\Install\SharePointServer.exe /extract:c:\Install\SharePointServer2010
```

10. Now you must download one more file needed for installation to install WCF Data Services.
    a. In the browser, navigate to the download page using the URL below. Note that the download page is titled with the old name which is ADO.NET Data Services Update for .NET Framework 3.5 SP1 for Windows 7 and Windows Server 2008 R2.

```
http://www.microsoft.com/downloads/details.aspx?FamilyID=3e102d74-37bf-4c1e-9da6-5175644fe22d

http://bit.ly/9R2ju8
```

    b. Locate and download the file **Windows6.1-KB982307-x64.msu** into the **c:\Install** directory.

11. The last step is to install the SharePoint Designer on the WebServer VM.
    a) Download the 32-bit version of SharePoint Designer from the following URL**:**

```
http://www.microsoft.com/downloads/details.aspx?FamilyID=d88a1505-849b-4587-b854-a7054ee28d66 or http://bit.ly/94poZ4.
```

    b) Click **Download** to get SharePoint Designer 2010.
    c) Once downloaded, run the **SharePointDesigner.exe** file and install SharePoint Designer 2010.
    d) Launch SharePoint Designer 2010 and make sure it's can start without any issues. If prompted for configuring update settings, select the option to disable updating.

