

Creating a SharePoint Server 2013 Environment for Developing & Testing

Based on SharePoint Server 2013 Preview (aka: Beta 2)



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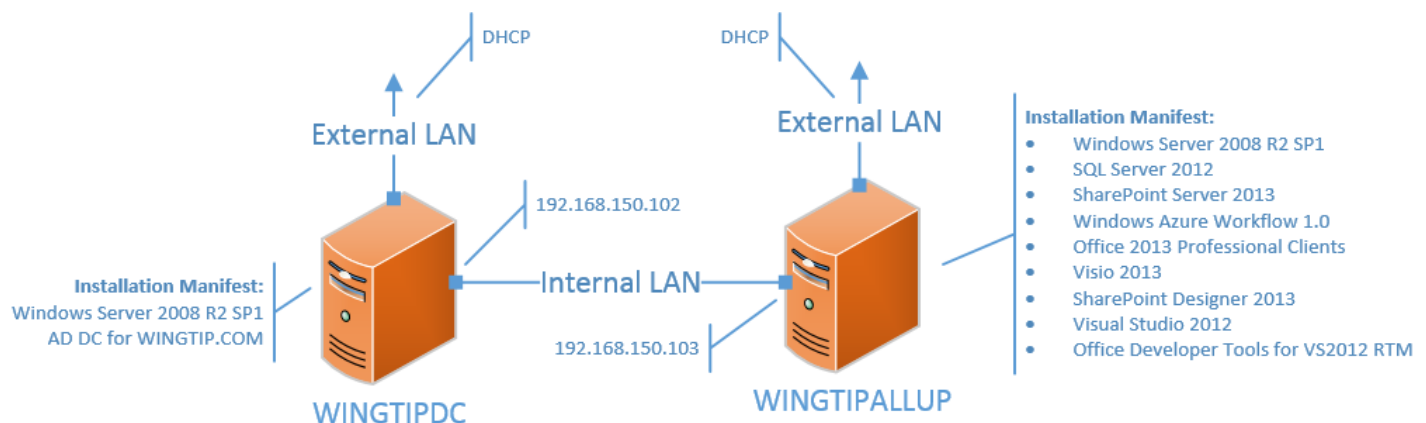
Overview

This document provides links to Internet resources and step by step instructions for building a Virtual Machine (VM) sample SharePoint Server 2013 Preview (aka: Beta 2) environment. This VM can be used to complete the lab exercises in SharePoint 2013 training courses authored by [Critical Path Training, LLC](#). The VM can also be used for general testing and development with SharePoint 2013 Preview.

This setup guide gives you the option of using free trial software or supplying your own product keys. The software products that require product keys include Windows Server 2008 R2, SQL Server 2012 Developer, SharePoint Server 2013 Preview and Office 2013 Preview. If you plan to use evaluation software to build your VM, there are optional steps for downloading Microsoft's free trial VM for Windows Server 2008 R2 so you can use that as your starting point. You can alternatively install Windows Server 2008 R2 yourself 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.

Note that the requirements for building out a SharePoint 2013 Preview development environment are more relaxed and have fewer requirements compared to building out a SharePoint 2013 Preview production environment. Therefore, you should not rely on this document as your only resource when you are installing SharePoint 2013 Preview for production use. The following list of assumptions has been made:

- Two servers:
 - Active Directory Domain Controller Server
 - All-Up Server (everything needed for SharePoint development)
- All Application Pools hosting SharePoint Service Applications will be configured to run under a single AD account.
- All Application Pools hosting SharePoint Web Applications & Workflow will be configured to run under a single AD account.



Hardware Requirements & Recommendations

SharePoint 2013 Preview has higher hardware requirements than SharePoint 2010. Specifically:

- Two or more servers: Previously SharePoint 2010 could be installed on a single server. This is no longer possible for two reasons:
 - Workflow Manager cannot be installed on a domain controller
 - Office Web Apps cannot be installed on a domain controller or SharePoint server.
- Memory: The server where SharePoint 2013 Preview is installed should be allocated at least 10GB of memory.

Therefore we recommend the following configuration (this setup guide will walk you through creating this):

- **Server 1** – Domain Controller – 1GB
- **Server 2** – All-Up (SQL Server, SharePoint, Workflow, Visual Studio, Office) – 10GB or 12GB

To do this, you will need a host computer with at least 16GB of RAM. Any computer that can support 16GB of RAM should have an adequate CPU and disk. You'll get the best performance if you use solid state drives (SSD) and ensure the virtual machines run on a separate drive from the drive where the host operating system is running.

Virtualization Details

This guide assumes you will use Microsoft's Hyper-V virtualization technology. Hyper-V is available starting in Windows Server 2008, Windows Server 2008 R2, Windows Server 2012 and Windows 8. Virtualizing a SharePoint installation is not required, nor is Hyper-V is required.

You can install on physical servers or using a different virtualization technology of your choice such as [VMWare](#) or [VirtualBox](#). This guide only deals with Hyper-V in the following ways:

- Create a virtual network
- Create two virtual machines
- Configure the processors, memory and networking on the virtual machines

If you elect to use something other than Hyper-V, you can skip the first section of this guide, however the remainder of the guide will assume you setup two servers the way they were configured and setup in exercises 2 & 3.

High-Level View of Creating a SharePoint 2013 Preview Environment

The process of creating a SharePoint 2013 Preview environment for development is not a trivial task. This guide walks through various required exercises. A summary of these exercises are as follows:

1. **Configure Host Computer Hyper-V & Networking:** Before creating virtual machines you need to configure the host environment. This includes creating a virtual network both machines will communicate on.
2. **Install & Configure a Domain Controller Server:** SharePoint 2013 must run using domain accounts (as opposed to local accounts). Unfortunately SharePoint 2013 & Workflow Manager will not install/function correctly on a domain controller. Therefore you will need a server that will function as a domain controller.
3. **Install & Configure an All-Up Server:** Once you have a domain controller, you need to create a server that will have everything else installed on it. This server is called the "All-Up" server in this guide.
4. **Install Active Directory Domain Services:** With both servers created, next you will need to install and configure Active Directory.
5. **Join the WingtipAllUp Server to the Wingtip.com Domain:** After creating the WINGTIP.COM AD domain, you need to join the All-Up server to the domain.
6. **Install SQL Server 2012:** SharePoint needs to install its databases in SQL Server. In this exercise you will install SQL Server.
7. **Install & Configure SharePoint Server 2013 Preview / Beta 2:** Obviously, you need to install SharePoint 2013 to create a SharePoint 2013 environment.
8. **Install & Configure Workflow Manager and Service Bus:** SharePoint 2013 relies on a new product, Workflow Manager, to handle all workflows. In this exercise you will install and configure Workflow Manager as well as its prerequisites (such as Service Bus) and then connect your SharePoint 2013 farm to it Workflow Manager.
9. **Install the Microsoft Office 2013 Professional Clients:** In this exercise you will install and configure Office 2013 Professional clients, including Visio and SharePoint Designer.
10. **Install Visual Studio 2012:** Finally, you install Visual Studio 2012 and the Office and SharePoint 2013 developer tools.

Creating a SharePoint Server 2013 Environment for Development & Testing

Lab Time: 2-4 hours

Lab Folder: C:\Student\GettingStarted\Lab

Lab Overview: In this lab you will create a new SharePoint environment to use for testing SharePoint 2013. It covers how to install and configure the host computer for hosting virtual machines, networking them together and installing everything needed. If you are not interested in doing development you can omit the last exercise which has you install Visual Studio 2012.

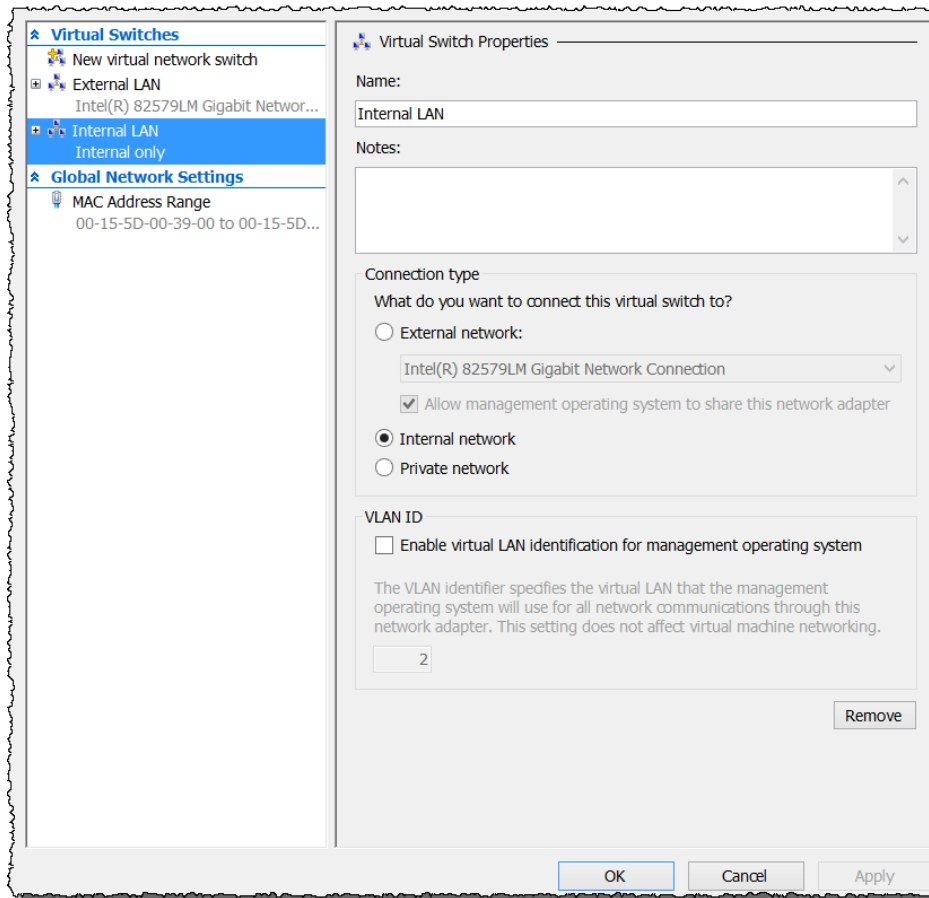
Exercise 1: Configure Host Computer Hyper-V & Networking

In this exercise you will configure your host computer's Hyper-V role for hosting multiple networked virtual machines. This involves creating a two virtual networks that will be used to connect the virtual machines together and to connect to the Internet.

1. Launch the **Hyper-V Manager**: **Start** → **Administrative Tools** → **Hyper-V Manager**.
2. Create a new virtual network to connect to the Internet:
 - a) In the **Actions** pane on the right-hand side of the screen, click **Virtual Network Manager**.
 - b) In the **Virtual Network Manager** dialog, create a new virtual network by clicking the **Add** button (it doesn't matter what you select as the network type). Use the following settings to create the network:
 - i) **Name:** External LAN
 - ii) **Connection Type:** External (select the network card on the host computer that's connected to the Internet).

This will be used to connect the VM to the Internet.

3. Click **OK** to save your changes.
4. Create a new virtual network the virtual machines will use to communicate with each other:
 - a) In the **Actions** pane on the right-hand side of the screen, click **Virtual Network Manager**.
 - b) In the **Virtual Network Manager** dialog, create a new virtual network by clicking the **Add** button (it doesn't matter what you select as the network type). Use the following settings to create the network:
 - i) **Name:** Internal LAN
 - ii) **Connection Type:** Internal Only.



This will be used to connect the two VMs together so they can talk to each other.

5. Click **OK** to save your changes.

When you create a virtual **Internal Only** network, Hyper-V creates a virtual network interface card (NIC) in the list of all NIC's installed on the host computer (**Start → [search] "View Network Connections"**). If you configure the IP of this card to be on the same network with a different IP address than you use for your machines, you will be able to login to these machines using the **Remote Desktop Connection** app in Windows.

A **Private** Virtual Machine Network, the other connection type available is similar to an Internal network except that it does not create the virtual NIC in the host computer.

Exercise 2: Install & Configure a Domain Controller Server

In this exercise you will create, install, configure and update a new server to act as the Active Directory domain controller for the SharePoint environment using Windows Server 2008 R2 with Service Pack 1.

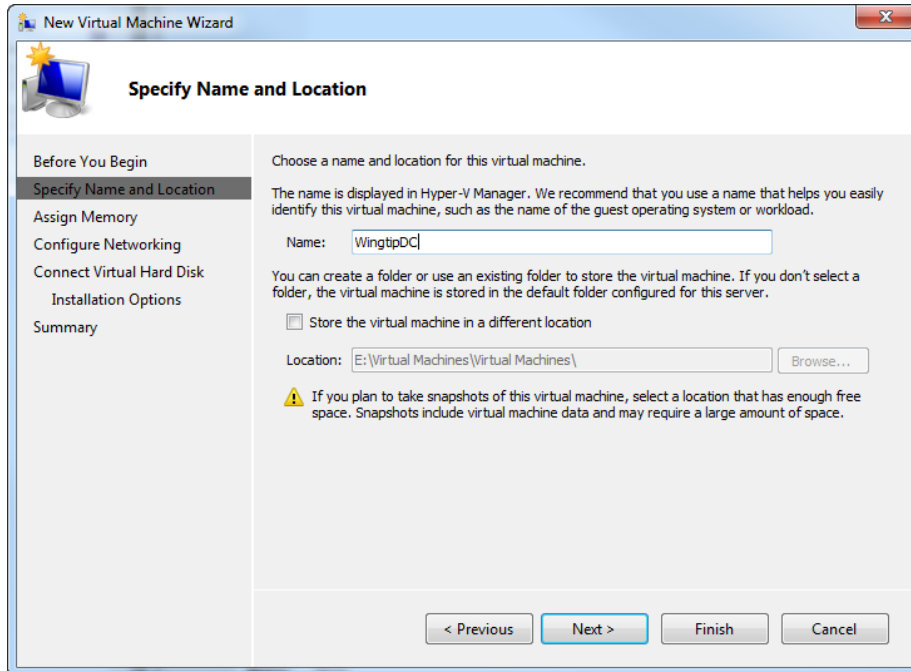
If you are using a different virtualization product other than Hyper-V, or if you are creating physical machines, you can skip to the section **Install the Windows Server 2008 R2 Operating System**.

1. If it is not open, launch the **Hyper-V Manager: Start → Administrative Tools → Hyper-V Manager**.
2. Inside the left-hand side of the **Hyper-V Manager**, locate the node with the name of the local host computer and select it.

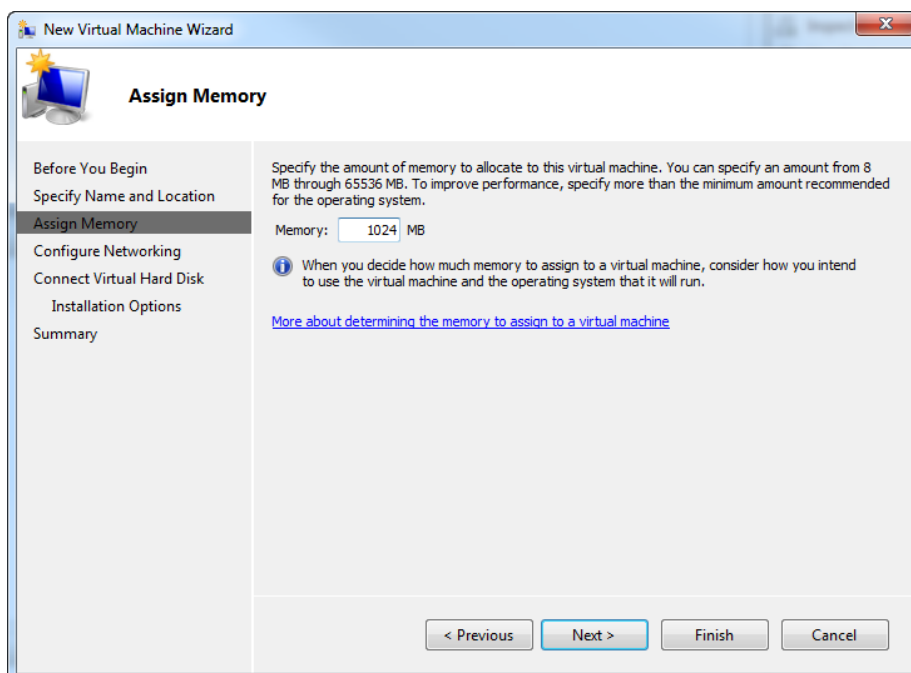
Create a new Virtual Machine

In this section you will create a new virtual machine in Hyper-V.

1. In the **Actions** pane select **New → Virtual Machine**. When you execute this menu, command, the Hyper-V Manager will launch the New Virtual machine Wizard.
2. In the **Specify Name and location** dialog, enter a **Name** of **WingtipDC** and click **Next**.



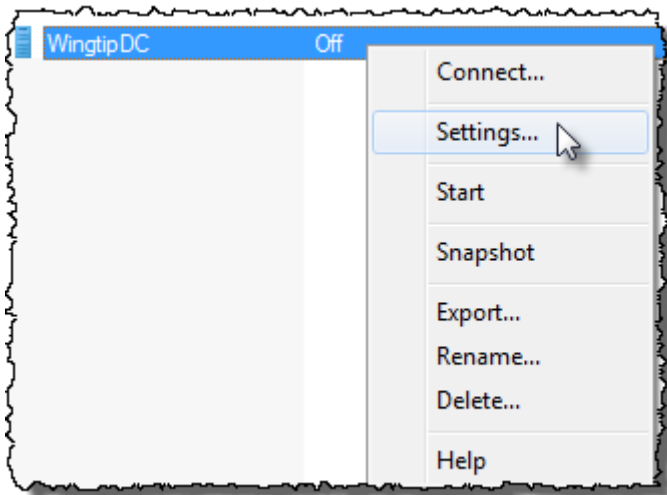
3. In the **Assign Memory** dialog, enter the amount of **Memory** to allocate to the virtual machine in MB to **1024** and click **Next**.



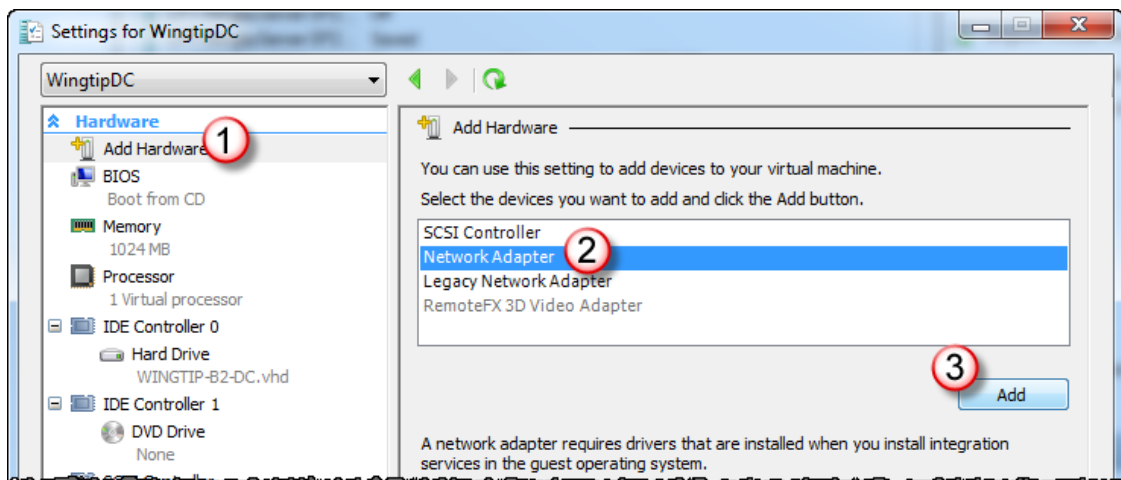
4. In the **Configure Networking** dialog, use the drop down box to assign a **Connection** value of **Internal LAN** and click **Next**.
5. In the **Connect Virtual Hard Disk** dialog, accept the default options to create a virtual hard disk & click **Finish**.

If possible, configure the location so that the *.VHD file for the VM is created on a separate drive than the host computer's operating system.

6. In the **Hyper-V Manager** window, right-click the VM you just created and select **Settings**:



7. In the **Settings for WingtipDC** dialog, select **Add Hardware**, select **Network Adapter** and click **Add**:



8. Obtain a copy of the **Windows Server 2008 R2 with Service Pack 1** install binaries.

The install image (*.ISO) is available to MSDN or TechNet subscribers or as a trial download available here <http://technet.microsoft.com/en-us/evalcenter/dd459137.aspx>.

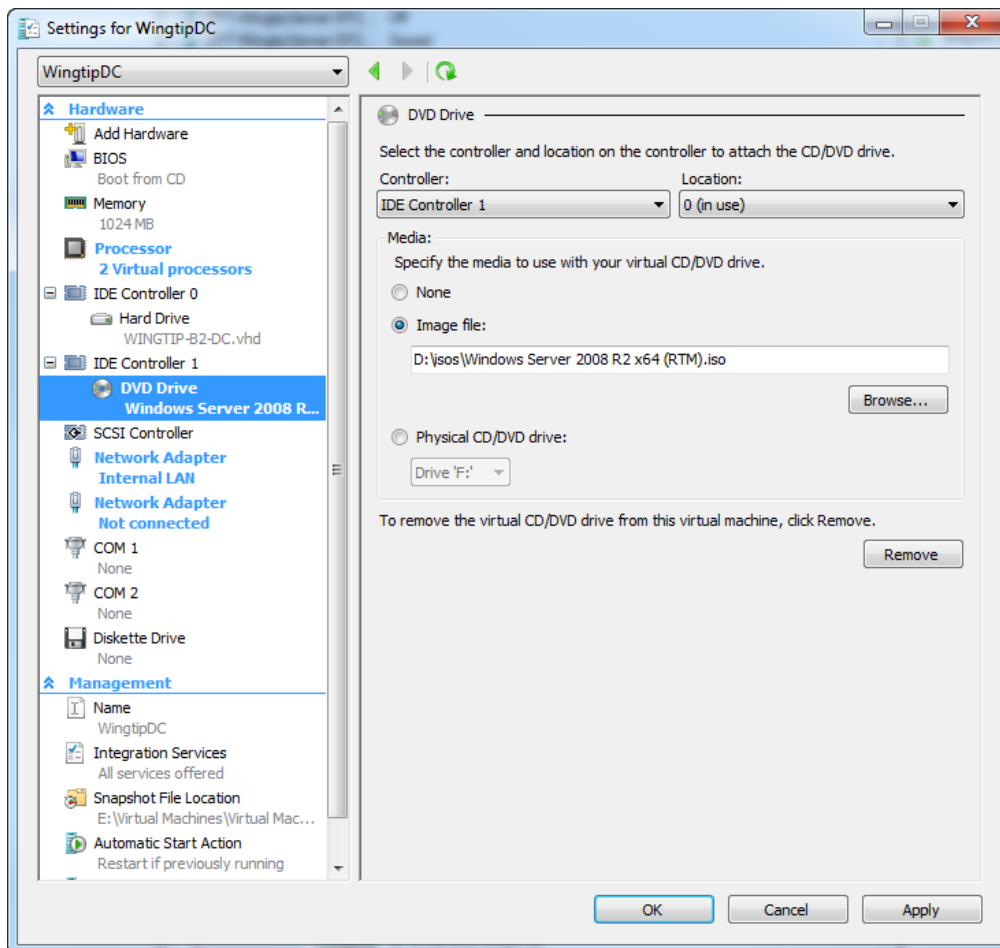
Obviously you can also use your own licensed copy of Windows Server 2008 R2 with Service Pack 1.

Microsoft also provides a pre-installed 180-day trial Windows Server 2008 R2 Hyper-V *.VHD file that you can download (<http://www.microsoft.com/downloads/details.aspx?FamilyId=9040a4be-c3cf-44a5-9052-a70314452305>) instead of installing it yourself. If you elect to go this route:

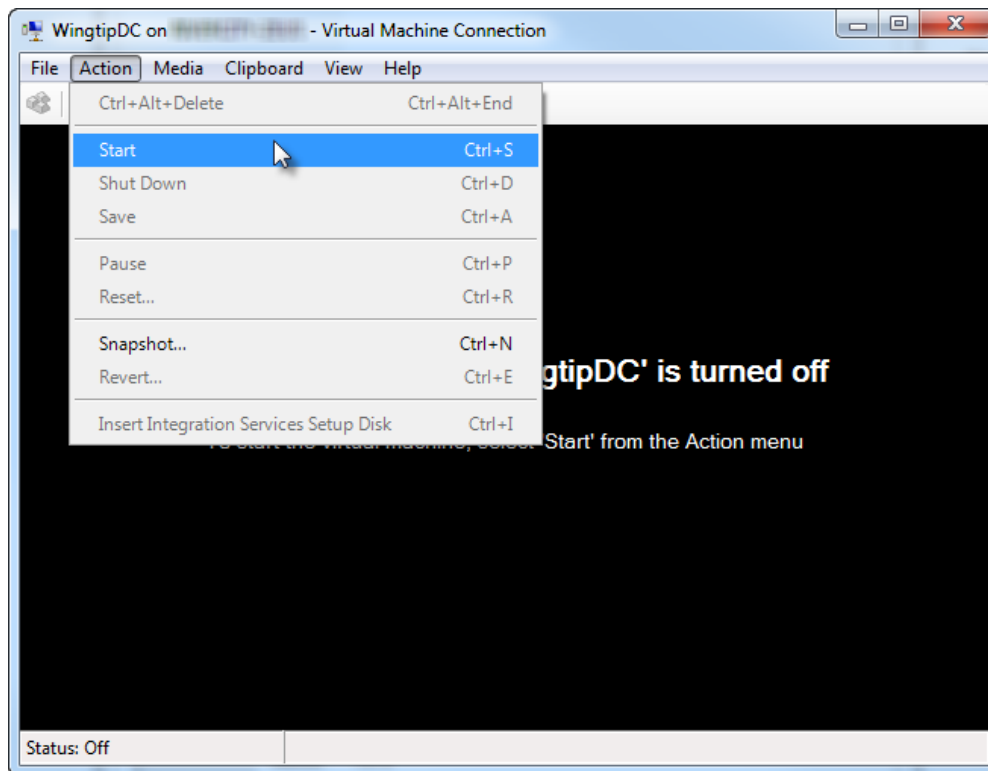
- Make sure you specify the *.VHD file you downloaded in the following step for the **Hard Drive** of the VM.

- Do not specify a **DVD Drive** in the following step as you will not be installing anything.
- If you elect to do this step, jump down to section **Configure Windows Server 2008 R2**.

9. In the **Settings for WingtipDC** dialog, update the VM to have the following settings. When finished, click OK.
 - a) **Processor:** 2 Virtual Processors
 - b) **DVD Drive:** Image File – Map to the Windows Server 2008 R2 ISO installer file.
 - c) **Network Adapter:** Internal LAN
 - d) **Network Adapter:** Not Connected



10. Start up the **WingtipDC** VM and install Windows Server 2008 R2:
 - a) In the **Hyper-V Manager** window, right-click the VM you just created and select **Settings**:
 - b) Right-click on the VM named **WingtipDC** and select the **Connect...** menu.
 - c) In the **Virtual Machine Connection** window, drop down the **Action** menu and select **Start**:



If you elected to use the fully installed trial *.VHD from Microsoft instead of installing your own server, skip to the section **Configure Windows Server 2008 R2**.

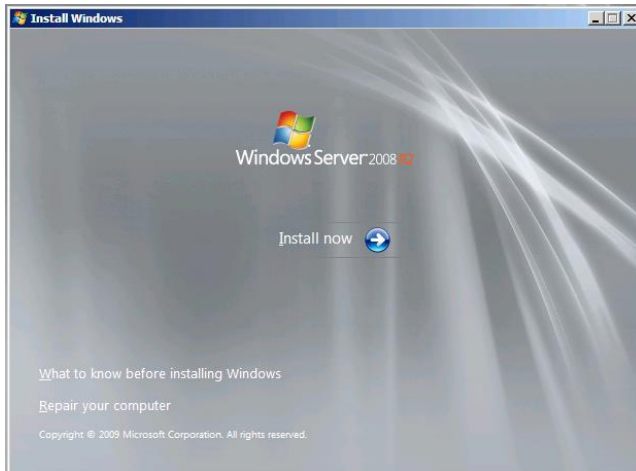
Install the Windows Server 2008 R2 Operating System

In this section you will install the operating system.

1. After the setup program for Windows Server 2008 R2 loads, it will prompt you with a dialog asking you to select a language. Accept the default of **English** and click **Install** to continue.



2. At the next dialog, click the **Install Now** button to begin the installation.



3. The next dialog instructs you to select the operating system you want to install. Select the operating system named **Windows Server 2008 R2 Enterprise (Full Installation)** with the **x64** architecture. Click **Next** to continue.
4. Agree to the licensing terms and click **Next**.
5. Click on **Custom (advanced)** to select the type of installation.
6. The next dialog asks you where you want to install Windows. Accept the default configuration which uses a location of **Disk 0 Unallocated Space** as shown below. Click **Next** to continue.

At this point you have given the Windows setup program enough information to install the basic operating system. Setup program will now run for a while as it copies and expands files and installs Windows features. You now have a few minutes to get a cup of coffee or catch up on email.

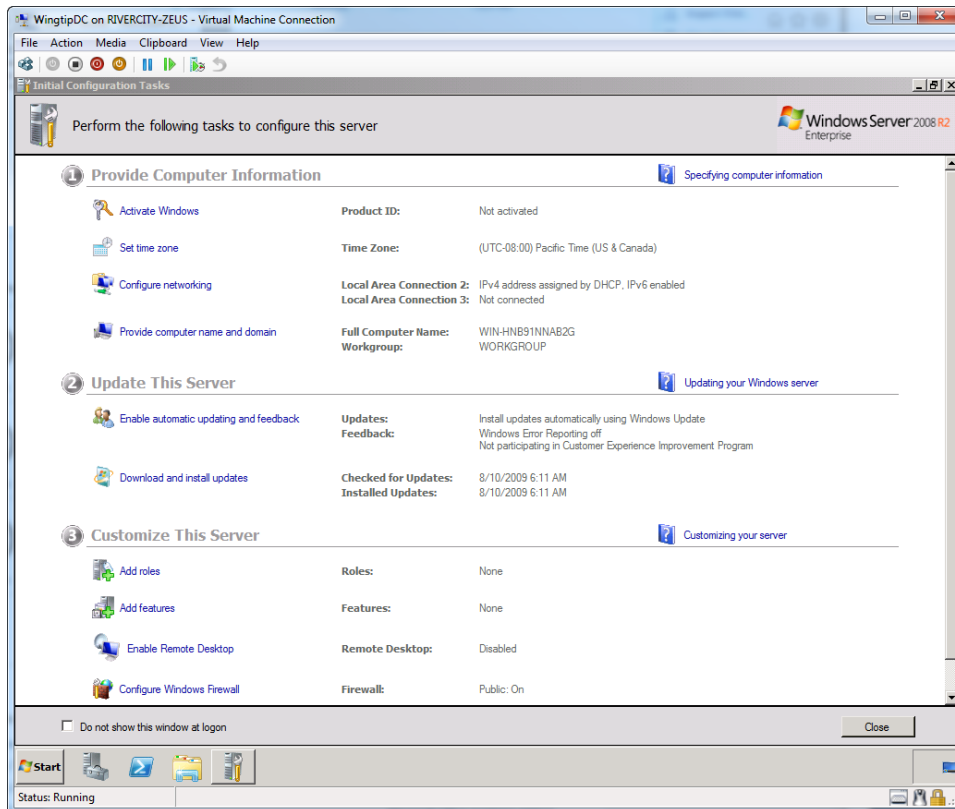
7. When the setup program completes, it will ask you to assign a new password for the built-in **Administrator** account. Click **OK** to continue.
8. Set the password for **Administrator** account to **Password1**.
9. When you have updated the **Administrator** password, you will get a confirmation that the update was successful. Click **OK** to complete the installation of the operating system.

If you elected to use the pre-installed trial *.VHD Microsoft offers, you will pick up the configuration exercise at this point.

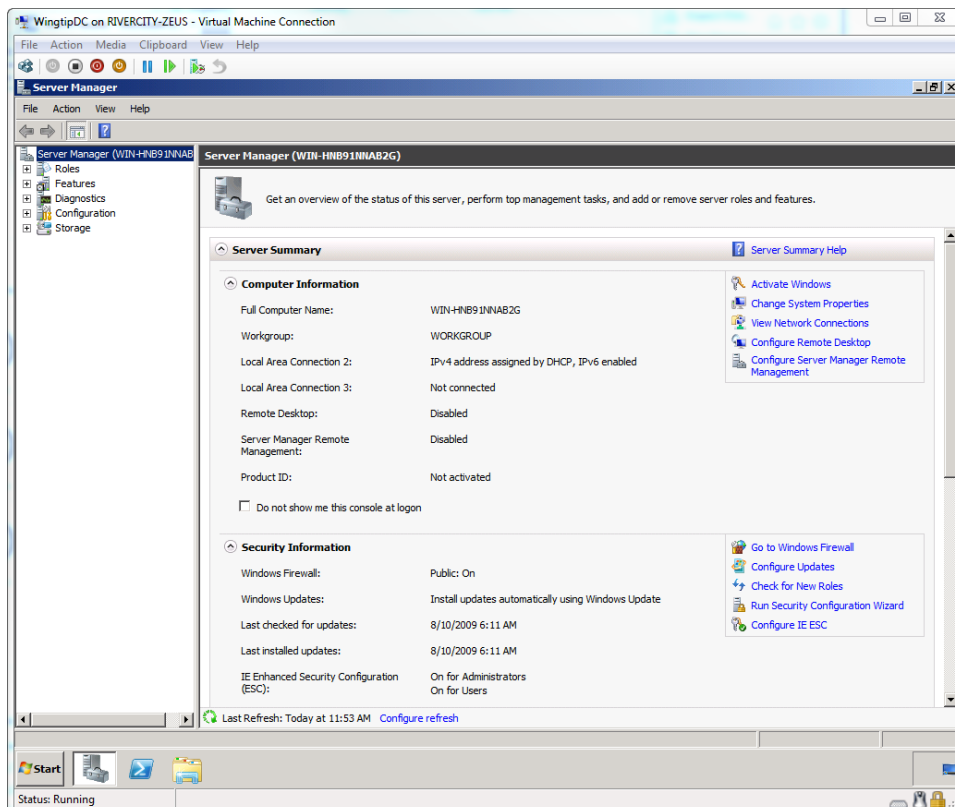
Configure Windows Server 2008 R2

In this section you will configure the server.

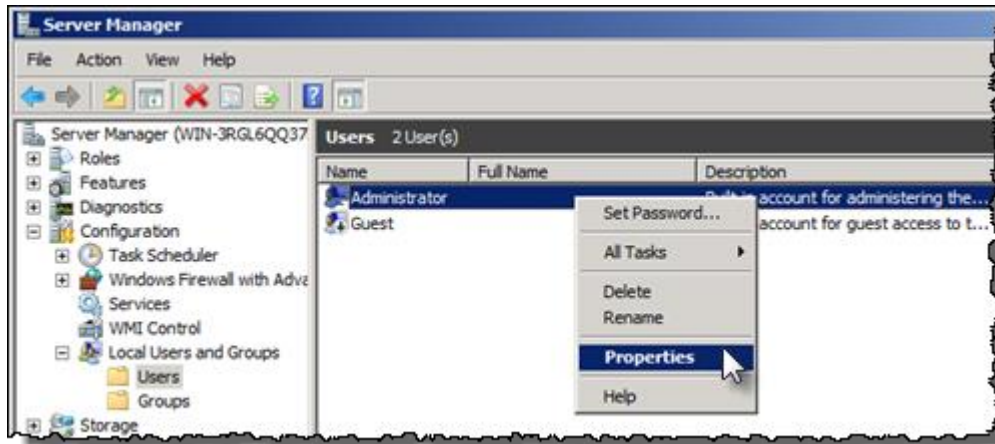
1. When you log in, Windows Server automatically displays the **Initial Configuration Tasks** window. Click the check box with the caption **Do not show this window at logon** and then click the **Close** button.



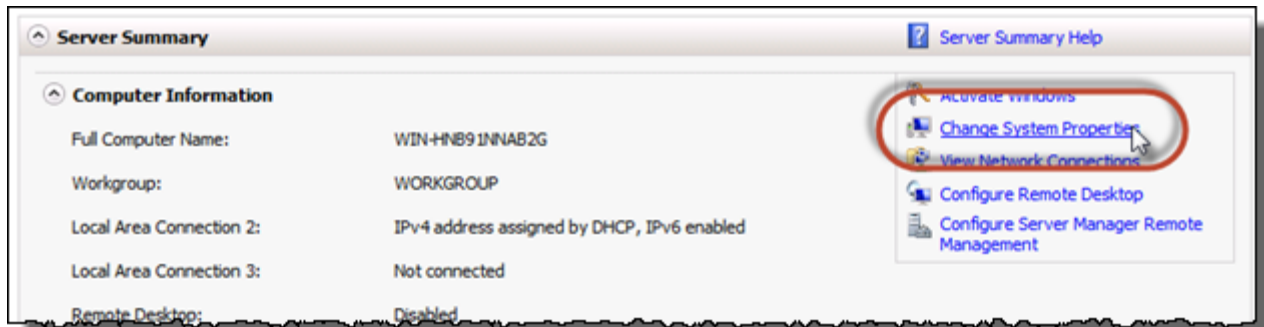
2. After you close the **Initial Configuration Tasks** window, Windows Server will display the **Server Manager**.



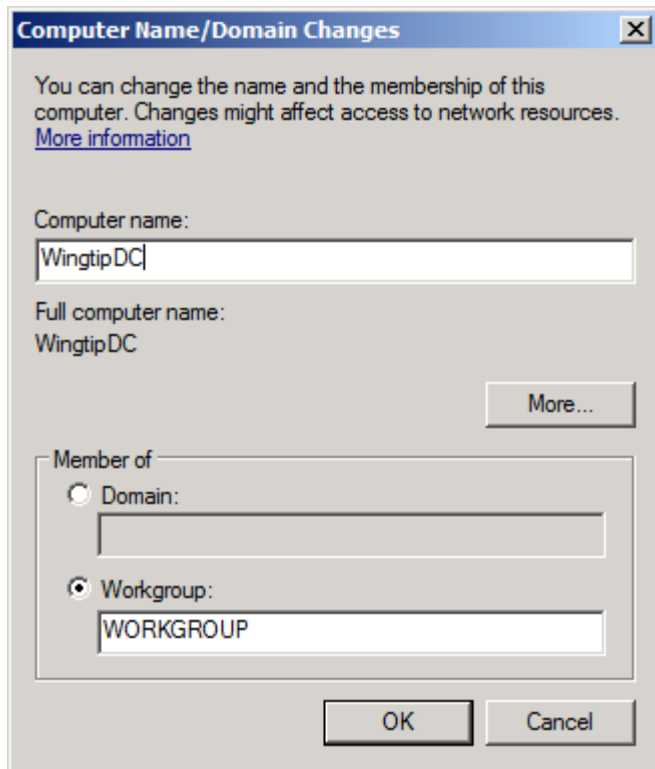
3. Configure the Administrator account so that its password does not expire.
 - a) Inside the **Configuration** node of the **Server Manager**, navigate to **Local Users and Groups → Users** (as shown in the following screenshot) and locate the local **Administrator** account.
 - b) Right-click on the **Administrator** account and click **Properties**.



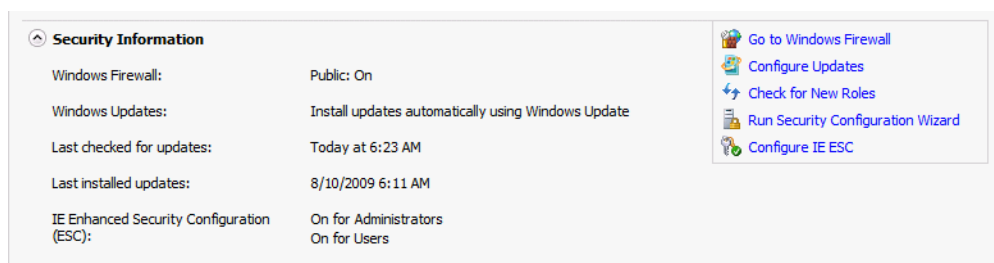
- c) In the **Administrator Properties** dialog, unselect the option for **User must change password at next logon** and select the option for **Password never expires**. Click **OK**.
4. Rename the computer name of the VM:
 - a) In the **Server Manager**, navigate to the top-level node to display the **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 **WingtipDC** and click **OK**.

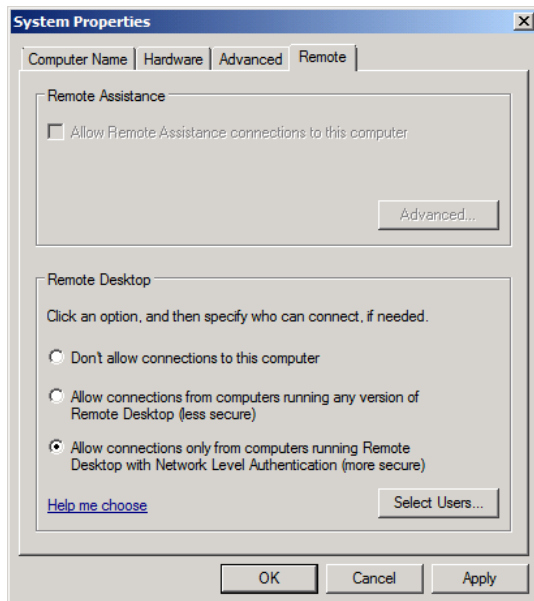


5. After changing the computer name you will be prompted to restart the VM. Choose **OK** to restart. After the VM has restarted, log in again using **[administrator | Password1]** (*username | password*).
6. Disable **Windows Firewall** and **Enhanced Security Configuration**.
 - a) In the **Server 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**.

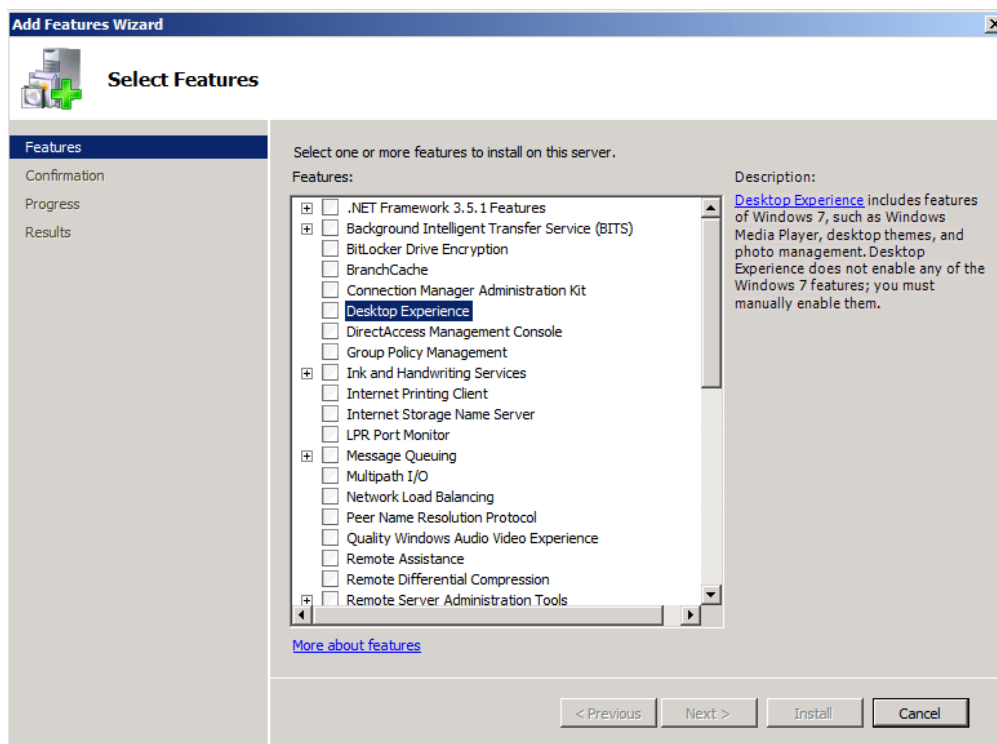


- b) Click on **Configure IE ECS** link. Disable Enhanced Security Configuration for both Administrators and Users by selecting the **Off** radio buttons and click **OK**.
 - c) Now click the **Go to Windows Firewall** link to display the page for the Windows Firewall. Click on the **Windows Firewall Properties** link at the bottom of the **Overview** section.
 - d) In the **Domain Profile** tab of the Windows Firewall dialog, change the **Firewall state** property setting from **On** to **Off**. Click to **Apply** button to save your changes.
 - e) 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.
 - f) Click **OK** to dismiss the Windows Firewall dialog once you have turned off the firewall for all three profiles.
7. Enable 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**.

- b) 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.



8. Enable the Windows Server Features for the **Desktop Experience** and the **PowerShell Integrated Scripting Environment**.
- In **Server Manager**, choose **Add Feature** to bring up the Add Features Wizard dialog.
 - Select the feature **Desktop Experience**.



When you first click the checkbox for the **Desktop Experience**, the wizard will prompt you with the following dialog to add support for Ink and Handwriting Services. Click the **Add Required Features** button to continue.

- c) Scroll down the list of features in the **Add Features Wizard** dialog and select the feature **Windows PowerShell Integrated Scripting Environment (ISE)**.

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.

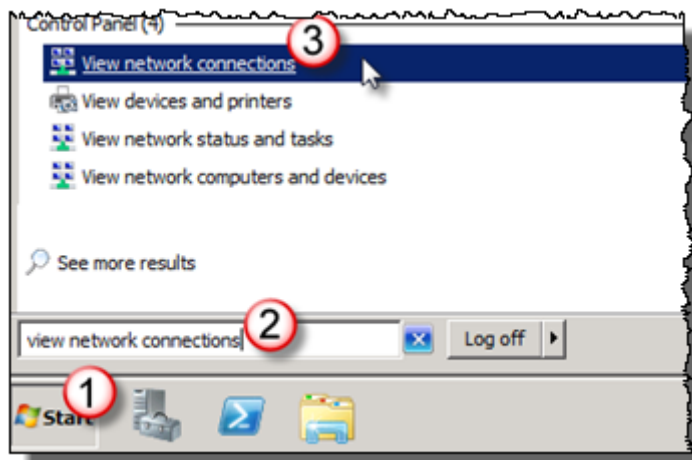
- d) Click the **Next** button on the **Add Features Wizard** dialog to continue with the install.
 - e) On the Confirm Installation Selection wizard page, click the **Install** button.
 - f) When you see the **Installation Results** screen, the Add Features Wizard informs you a computer restart is required. Click **Close** button to dismiss this dialog.
9. After the VM has restarted, log in again using **[administrator | Password1]** (*username | password*).

Configure the Virtual Machine's Networking Setup

In this section you'll configure the two NIC's you added to the VM in previous steps. One NIC (Internal LAN) will be used to communicate with other VMs in this environment while the other (External LAN) will be used to connect to the internet.

PowerShell Script Alert: The networking configuration steps in this section is automated in a Windows PowerShell script, **ConfigureSpVmNetworking.ps1**, found in the files that accompany this setup guide. Open the script and read the header for documentation on how to use it. If you use the script, you can skip to the step #3 in this section that has you connect the external network to the External LAN NIC and test the connection.

1. Configure the NIC that is linked to the **Internal LAN** network:
 - a) Open the **Network Connections** dialog by pressing **Start**, enter **view network connections** in the **search box**. Click the **View Network Connections** shortcut.

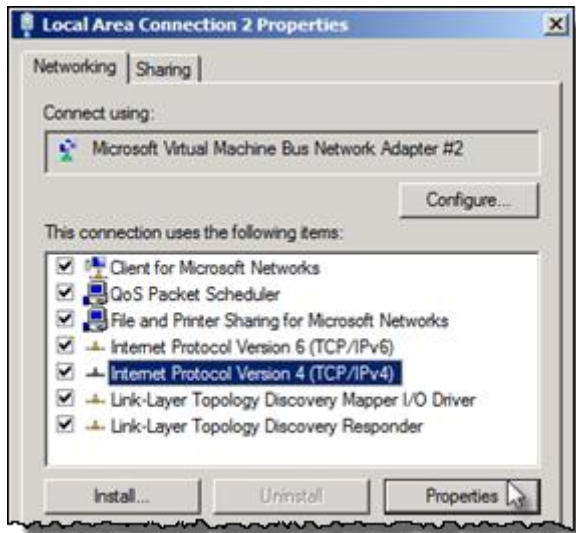


- b) Two network connections will be shown, but only one will show as connected:



The connected one is the one that is connected to the Internal LAN network. The other one is currently “unplugged”... this is why we didn't connect a network to the second network when initially configuring the VM as this makes it easier to see which NIC is which in the VM.

- c) Rename the two NIC's:
 - i) Right-click the connected NIC and select **Rename**. Give it a name of **Internal LAN**.
 - ii) Right-click the disconnected NIC and select **Rename**. Give it a name of **External LAN**.
- d) Right-click the **Internal LAN** NIC and select **Properties**.
- e) In the **Local Area Connection # Properties** dialog, select the **Internet Protocol Version 4 (TCP/IPv4)** item and click **Properties**.



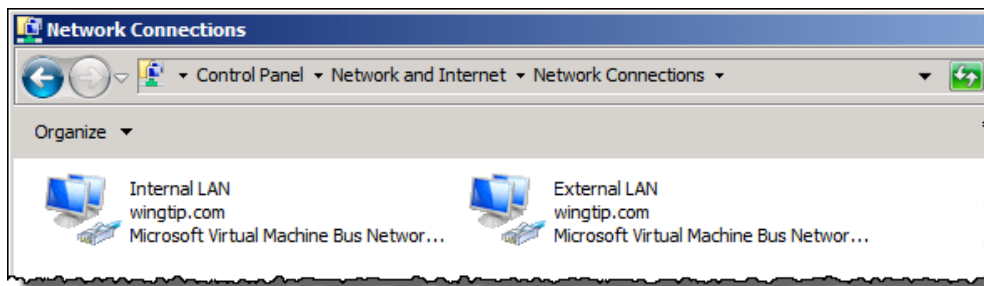
- f) Enter the following information into the resulting dialog to configure the NIC's IP settings:
 - i) **Use the Following IP Address:**
 - (1) **IP Address:** 192.168.150.102
 - (2) **Subnet mask:** 255.255.255.0
 - (3) **Default Gateway:** 192.168.150.102
 - ii) **Use the Following DNS Server Addresses:**
 - (1) **Preferred DNS Server:** 192.168.150.102
- g) Click **OK** to accept the IP settings and **Close** to accept the changes to the NIC.

Why not use 101 as the start NIC? When you created the virtual internal network, Hyper-V created a virtual NIC on the host computer. If you set the IP of that NIC to 192.168.150.101 you can use the Remote Desktop Connection app in Windows to connect to your virtual machines and easily copy-paste & share drives.

2. Configure the NIC that is linked to the **External LAN** network:
 - a) Open the **Network Connections** window if it is not still open using the same steps from the previous step.
 - b) Right-click the **External LAN** NIC and select **Properties**.
 - c) In the **Local Area Connection # Properties** dialog, select the **Internet Protocol Version 4 (TCP/IPv4)** item and click **Properties**.
 - d) Enter the following information into the resulting dialog to configure the NIC's IP settings:
 - i) **Obtain an IP Address Automatically**
 - ii) **Use the Following DNS Server Addresses:**
 - (1) **Preferred DNS Server:** 192.168.150.102
 - e) Click the **Advanced** button to open the **Advanced TCP/IP Settings** dialog.
 - f) In the **Advanced TCP/IP Settings** dialog, click the **DNS** tab.
 - i) Uncheck the **Register this Connections Address in DNS**.
 - g) In the **Advanced TCP/IP Settings** dialog, click the **WINS** tab.
 - i) Click the **Add** button and specify a new **WINS Server** as **192.168.150.102**.
 - h) Click **OK** / **Close** multiple times to accept all TCP/IP settings.

The external NIC will now obtain an IP dynamically & will not register itself in the DHCP's DNS server which is a good thing when there are multiple people on the same network this type of a setup.

3. Connect the second NIC to the **External LAN** network.
 - a) Go back to the host computer and open the **Hyper-V Manager**.
 - b) In the **Hyper-V Manager** window, right-click the VM **WingtipDC** and select **Settings**.
 - c) Select the second NIC, the one that is not connected.
 - d) For the **Network**, select **External LAN** and click **OK**. This will effectively plug the external network into the VM.
4. Go back into the **WingtipDC** VM and if it is not still open, open the **Network Connections** dialog. You should now see both connections plugged in:

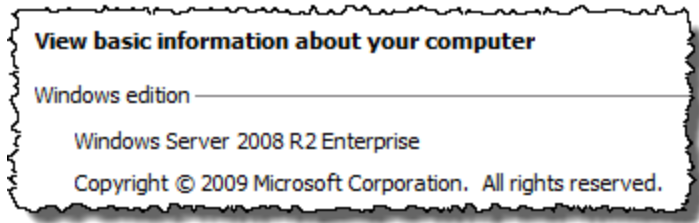


- a) To refresh the connection, select the connection you just plugged in and click the **Disable this Network Device** button in the toolbar. After the connection is disabled, select it and click the **Enable this Network Device** button.
- b) After a few seconds, the VM should be able to connect to the internet which you can test by browsing to a site such as <http://www.bing.com>.

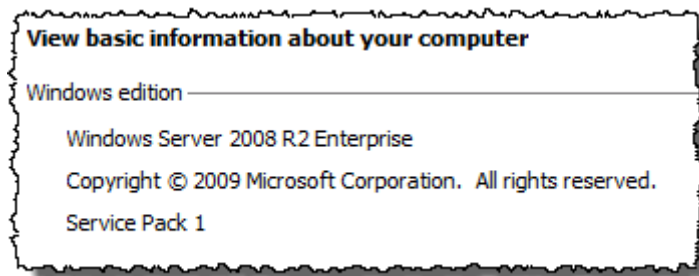
Configure Windows Update and Update the Server

In this section you will verify the server is fully patched and updated.

1. Verify Service Pack 1 is installed:
 - a) Verify the version of the operating system installed by clicking **Start**, right-click on **Computer**, select **Properties**.
 - b) If the server simply says Windows Server 2008 R2 Enterprise, as shown in the following figure, download and install Service Pack 1 from the following location: <http://www.microsoft.com/en-us/download/details.aspx?id=5842>.



- c) If Service Pack 1 is installed, it will state it:



2. Update the server using **Windows Update**:
 - a) Selecting **Start → All Programs → Windows Update**.
 - b) First, disable Windows Update from running automatically:
 - i) Click the link **Change Settings**.
 - ii) 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) Now update the server:
 - i) Click the **Check for Updates** button.
 - ii) If prompted, install any updates to the **Windows Update** dialog.
 - iii) Select the **Check for Updates** link.
 - iv) Windows Update will report how many updates are available. Select all important and recommended updates and click the **Install Updates** button.
 - v) If prompted, select **I accept the license terms** for any updates that require it.
 - vi) Keep going through the process of running Windows Update, checking for updates and installing them after each reboot until it says there are no updates left to install.

This step is likely going to take quite a bit of time so be patient.

Activate Windows Server 2008 R2

In this section you will activate the server if you have a product key.

1. If you have a product key for Windows Server 2008 R2, use it to activate Windows.
 - a) In the **Server Manager** window, navigate to the top-level node to display the **Server Summary** page. Click **Activate Windows**.
 - b) You will be prompted to enter your product key.
 - i) Enter your product key and click to button to activate Windows.
 - ii) After a few seconds, your VM should be able to connect to a Microsoft site and successfully activate Windows.

At this point you have a fully patched operating system VM created that will act as the Active Directory domain controller.

Exercise 3: Install & Configure an All-Up Server

In this exercise you will create, install, configure and update a new server to act as the “All-Up” server that will eventually contain SQL Server, SharePoint Server 2013, Workflow Manager, Visual Studio 2012 and other applications for doing SharePoint development.

Repeat **Exercise 2: Install & Configure a Domain Controller Server** to create a new VM that will act as the All-Up server. The steps are identical, but some settings need to change. Unless otherwise mentioned below, repeat the steps exactly as specified:

Section: **Create a new Virtual Machine**

1. Hyper-V VM created in **Hyper-V Manager** window:
 - a) **VM Name:** WingtipAllUp
 - b) **Memory Assigned:** 12,288 MB
 - c) **Processor:** 4 Virtual Processors

Section: **Configure Windows Server 2008 R2**

2. Server details in the **Server Manager** window:
 - a) **Computer Name:** WingtipAllUp

Section: **Configure the Virtual Machine’s Networking Setup**

3. Configure the **Internet Protocol Version 4 (TCP/IPv4)** settings of the NIC that is linked to the **Internal LAN** network:
 - a) Use the Following IP Address:
 - i) **IP Address:** 192.168.150.103
 - ii) **Subnet mask:** 255.255.255.0
 - iii) **Default Gateway:** 192.168.150.102
 - b) Use the Following DNS Server Addresses:
 - i) **Preferred DNS Server:** 192.168.150.102

Apply the DisableLoopbackCheck Registry Fix

Configure the **DisableLoopbackCheck** registry setting (Microsoft KB <http://support.microsoft.com/kb/896861>).

The following steps automate creating the registry key outlined as **Method 2** in the Microsoft KB article <http://support.microsoft.com/kb/896861> using Windows PowerShell.

PowerShell Script Alert: You can also find this PowerShell script, **AddDisableLoopbackCheckRegKey.ps1**, in the files that accompany this setup guide.

1. Click the **Windows PowerShell** icon in the **Taskbar**.



2. Run the following PowerShell commands, pressing **[ENTER]** after each one:

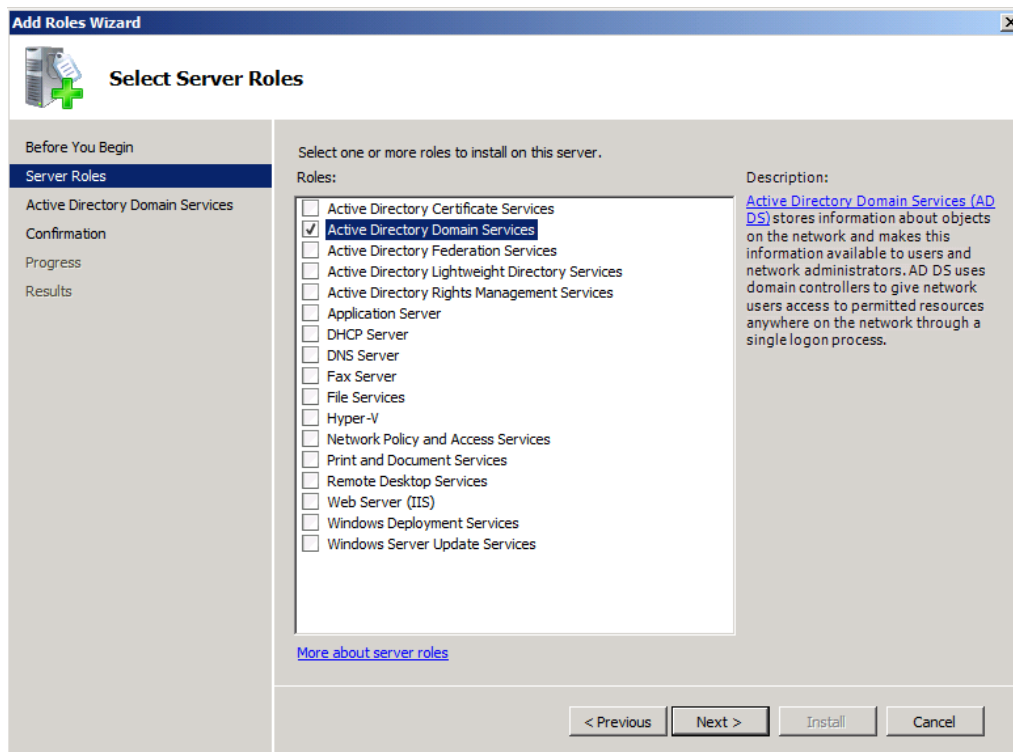
```
$regKeyPath = "HKLM:\System\CurrentControlSet\Control\Lsa"
$key = "DisableLoopbackCheck"
New-ItemProperty -Path $regKeyPath -Name $key -value "1" -PropertyType dword
```

- a) Close the Windows PowerShell console by typing **EXIT** and pressing **[ENTER]**.

Exercise 4: Install Active Directory Domain Services

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

1. Login to the **WingtipDC** virtual machine using **administrator | Password1**.
2. Add and configure the role for Active Directory Domain Services:
 - a) Launch **Server Manager** and select the **Roles** node.
 - 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**. Click the **Add Required Features** button if prompted to install prerequisites.
 - e) Click **Next**.

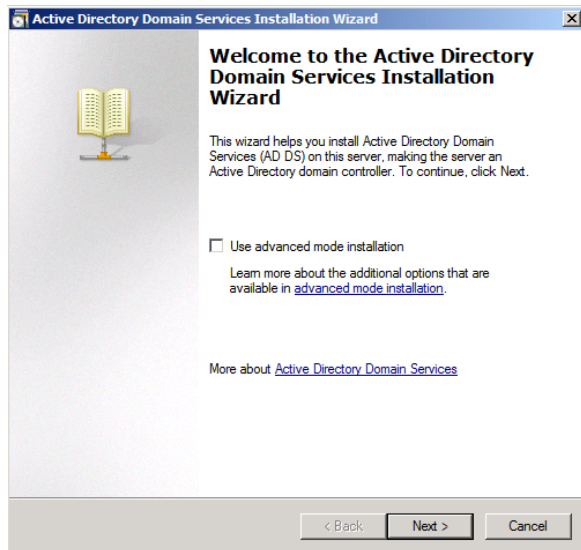


- f) On the next page of the wizard, click **Next** which will bring you to the **Confirm Installation Selections** page.

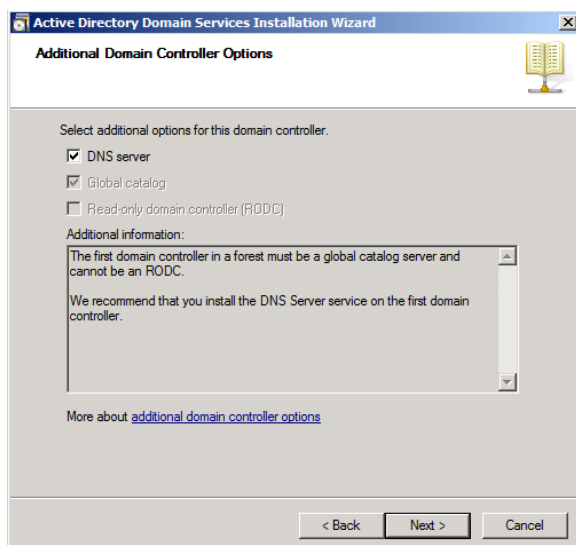
g) Click **Install**.

After Active Directory Domain Services has been installed, you will see the **Installation Results** page in the **Add Roles Wizard**.

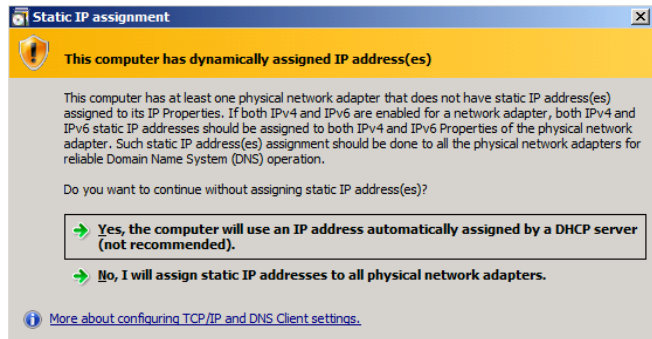
3. Click on the link with the big long caption of **Close this wizard and launch the Active Directory Domain Services Installation Wizard (dcpromo.exe)**.
4. On the first page of the **Active Directory Domain Services Installation Wizard**, click the **Use Advanced Mode Installation** checkbox and click **Next**.



5. On the **Operating System Compatibility** page, click **Next**.
6. On the **Choose a Deployment Configuration**, select **Create a new domain in a new forest** and click **Next**.
7. On the **Name the Forest Root Domain**, enter the following and click **Next**.
 - a) **FQDN of the forest root domain:** wingtip.com
8. On the **Set Forest Functional Level** page, select **Windows Server 2008 R2** and click **Next**.
9. On the **Additional Domain Controller Options**, accept the default options and click **Next**.



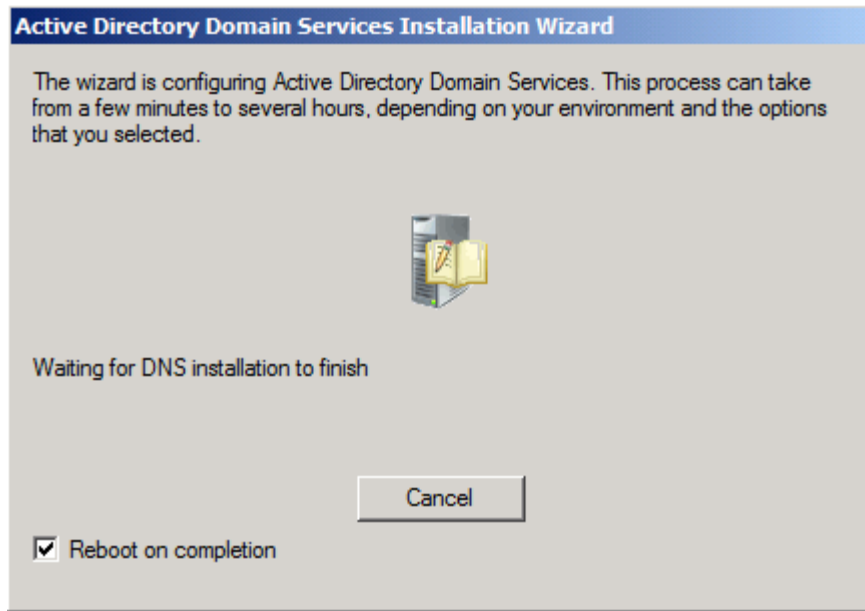
10. You might be prompted with the dialog shown below providing a warning that **This computer has dynamically assigned IP address(es)**. This is not a problem when you are running your development environment on a domain controller. Click **Yes** to dismiss the dialog.



11. At this point the wizard will prompt you with a dialog information 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.



12. On the **Location for Database Log Files and SYSVOL** page, accept all the default values and click **Next**.
13. On the **Directory Services Restore Mode Administrator Password** page, enter **Password1** in both textboxes and click **Next**.
14. On the **Summary** page, click **Next** to start the process of configuring the new Active Directory domain.
15. 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.



16. After the VM reboots login to the server with **wingtipadministrator** | **Password1**.

Configure Windows Update and Update the Server

In this section you will verify the server is fully patched and updated.

1. Update the server using **Windows Update**:
 - a) Selecting **Start** → **All Programs** → **Windows Update**.
 - b) Select the **Check for Updates** link.
 - c) Windows Update will the report how many updates are available. Select all important and recommended updates and click the **Install Updates** button.
 - d) If prompted, select **I accept the license terms** for any updates that require it.
 - e) *Keep running Windows Update after each reboot and update install until it says there are no updates left to install.*

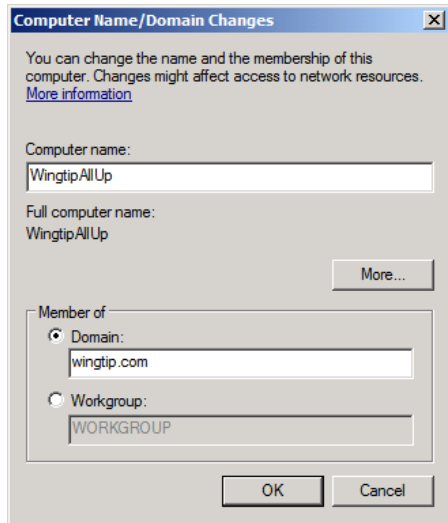
This step could take quite a bit of time so be patient.

At this point you have a fully installed **Active Directory Domain Controller** for the **Wingtip.com** domain hosted on the server **WingtipDC**.

Exercise 5: Join the WingtipAllUp Server to the Wingtip.com Domain

In this exercise you will join the WingtipAllUp VM to the Wingtip.com Domain you just created.

1. Login to the **WingtipAllUp** virtual machine using **administrator** | **Password1**.
2. Click **Start**, right-click on **Computer**, select **Properties**.
3. In the **System** dialog, in the **Computer Name, Domain and Workgroup Settings** section, click the **Change Settings**.
4. In the **System Properties** dialog, click **Change**.
5. In the **Computer Name/Domain Changes** dialog:
 - a) **Member Of**: Domain
 - b) Enter the domain name **wingtip.com**.



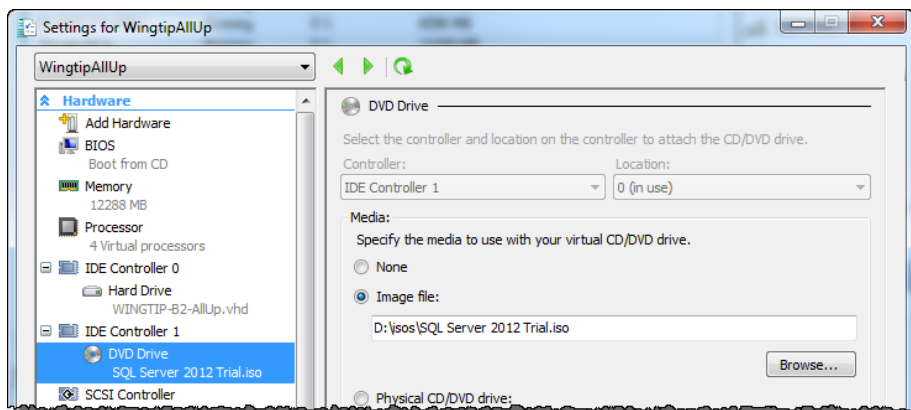
6. Click **OK**.
7. When prompted for credentials, use **wingtip\administrator | Password1** and click **OK**.
8. The server will require a reboot. After rebooting login to the server as **wingtip\administrator | Password1**.

At this point you now have two servers in the **wingtip.com** domain: a domain controller (**WingtipDC**) and a member server (**WingtipAllUp**) that will have everything installed on it.

Exercise 6: Install SQL Server 2012

In this exercise you will install SQL Server 2012 that will be used to store all required databases.

1. Download the **SQL Server 2012 Evaluation Edition**, specifically the **DVD x64 ISO** image to the host computer from here: <http://www.microsoft.com/betaexperience/pd/SQL2012EvalCTA/enus/default.aspx> or you can use your own licensed copy.
2. Mount the SQL Server 2012 *.ISO to the **WingtipAllUp** VM:
 - a) On the host computer, open the **Hyper-V Manager**.
 - b) Right-click the VM **WingtipAllUp** and select **Settings**.
 - c) Select **DVD Drive** in the left-hand panel.
 - d) In the right-hand panel, select **Image File** and browse to the *.ISO file that contains **SQL Server 2012** and click **OK**.



3. Login to the **WingtipAllUp** VM as **wingtip\administrator | Password1**.

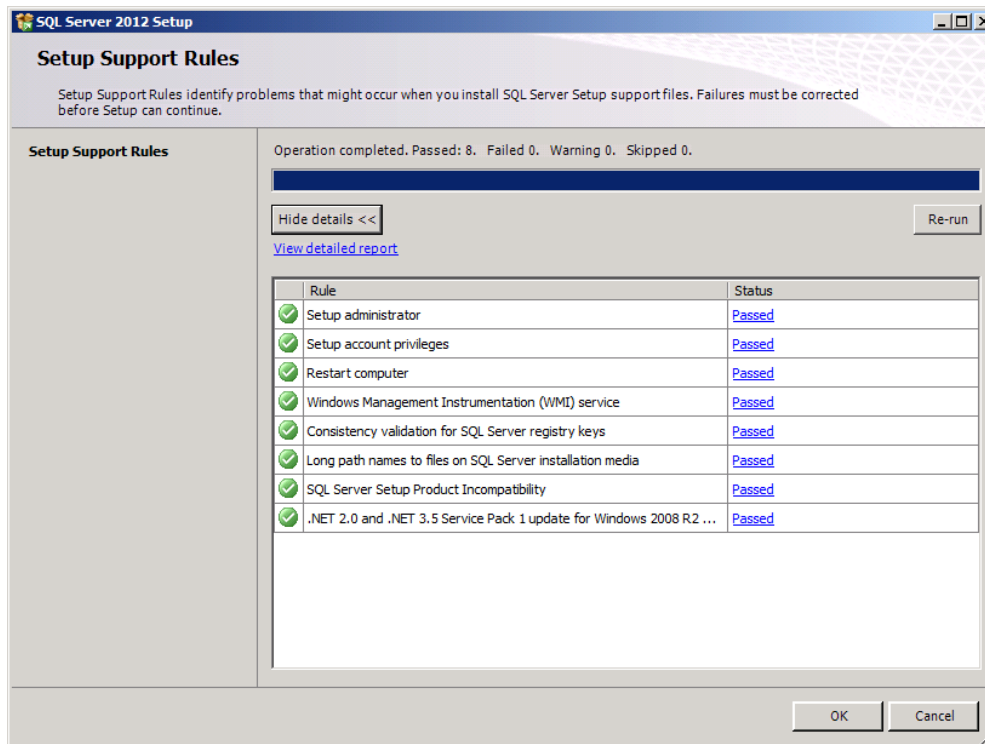
Install SQL Server 2012

In this section you will install SQL Server 2012

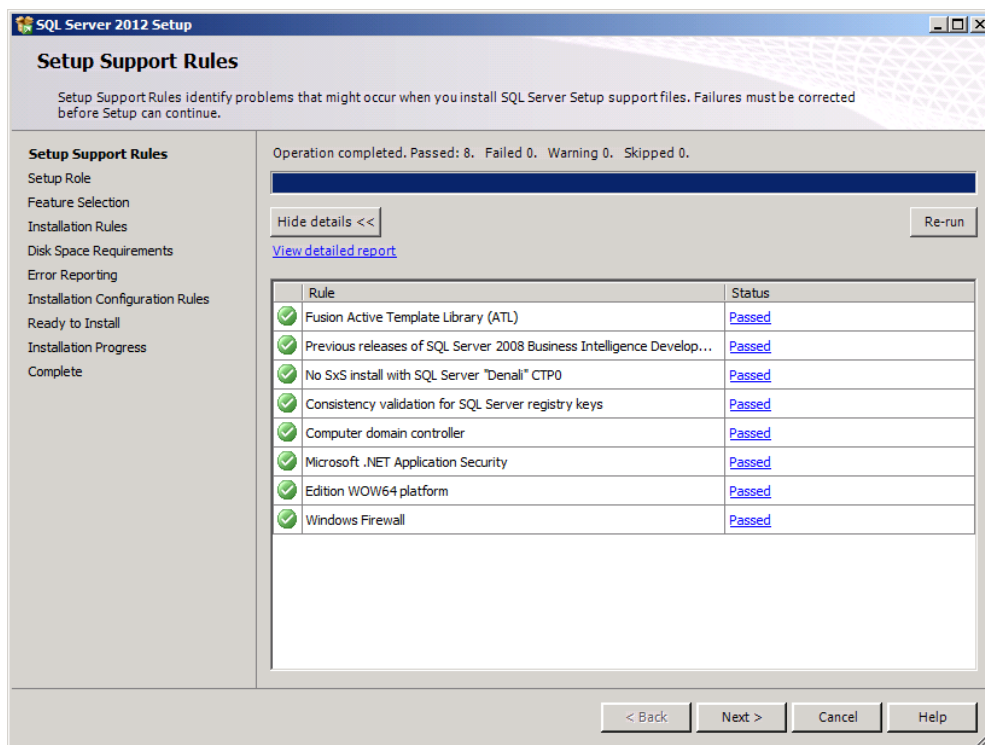
1. If the **AutoPlay** dialog box is open, click **Run SETUP.EXE**. If it isn't, use **Windows Explorer** to navigate to the DVD drive and execute the **setup.exe** file in the root of the DVD drive.
2. In the **SQL Server Installation Center**, click **Installation** on the left-hand side:



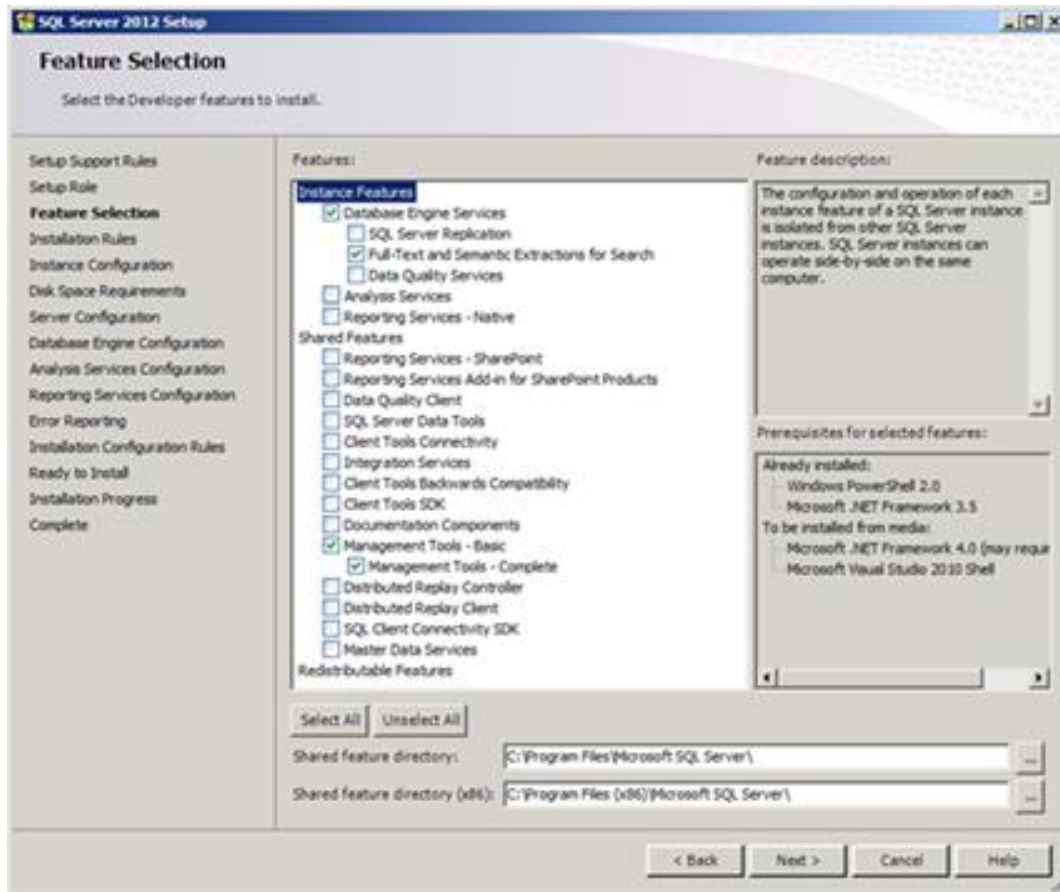
3. Next, select **New SQL Server stand-alone installation or add features to an existing installation**.
4. On the **Setup Support Rules** page, the installer will check for issues before installing. Click **OK**.



5. On the **Product Key** page, click the **Specify a free edition** radio box and select **Evaluation**, then click **Next**.
6. On the **License Terms** page, click the **I accept the license terms** checkbox and click **Next**.
7. On the **Setup Support Rules** page, the installer will check for any problems with the server you are installing on. Click **Next** when this completes.



8. On the **Support Role** page, select **SQL Server Feature Installation** and click **Next**.
9. On the **Feature Selection** page, check the following options and click **Next**:
 - a) Instances Features:
 - i) **Database Engine Services**
 - (1) **Full-Text and Semantic Extractions for Search**
 - b) Shared Features:
 - i) **Management Tools – Basic**
 - (1) **Management Tools – Complete**



10. On the **Installation Rules** page, click **Next**.
11. On the **Instance Configuration** page, click **Next**.
12. On the **Disk Space Requirements** page, click **Next**.
13. On the **Server Configuration** page, do the following and click **Next**:
 - a) On the **Service Account** tab, change the **Startup Type** for the **SQL Server Agent** to **Automatic**.
14. On the **Database Engine Configuration** page, do the following and click **Next**:
 - a) On the **Server Configuration** tab, click **Add Current User**.
 - b) On the **FILESTREAM** tab:
 - i) Check **Enable FILESTREAM for Transact-SQL Access**
 - ii) Check **Enable FILESTREAM for file I/O access**
15. On the **Error Reporting** page, click **Next**.

16. On the **Installation Configuration Rules** page, click **Next**.

17. On the **Ready to Install** page, click **Install**.

Installation of SQL Server 2012 will take some time, please be patient.

18. When the installation completes, the **Complete** page will be shown. Click **Close**.

At this point you have now successfully installed SQL Server 2012.

Exercise 7: Install & Configure SharePoint Server 2013 Preview

In this exercise you will install SharePoint 2013 Preview.

1. Download the **SharePoint Server 2013 Preview** to the host computer from here: <http://technet.microsoft.com/en-US/evalcenter/hh973397.aspx>.
2. Mount the SharePoint Server 2013 *.ISO to the **WingtipAllUp** VM:
 - a) On the host computer, open the **Hyper-V Manager**.
 - b) Right-click the VM **WingtipAllUp** and select **Settings**.
 - c) Select **DVD Drive** in the left-hand panel.

The file that Microsoft provides is saved in the *.IMG format. Hyper-V Manager won't allow you to mount an *.IMG file so rename it to *.ISO before mounting it.

- d) In the right-hand panel, select **Image File** and browse to the *.ISO file that contains **SharePoint Server 2013** and click **OK**.

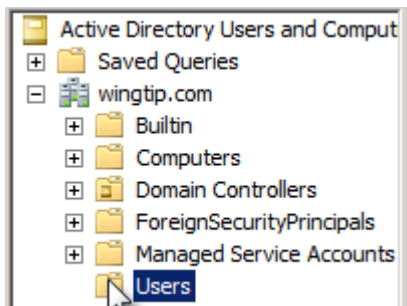
Create SharePoint Service Accounts & Grant Rights to SQL Server 2012

In this section you will create the necessary service accounts that will be used by SharePoint in Active Directory and grant them necessary rights in SQL Server 2012.

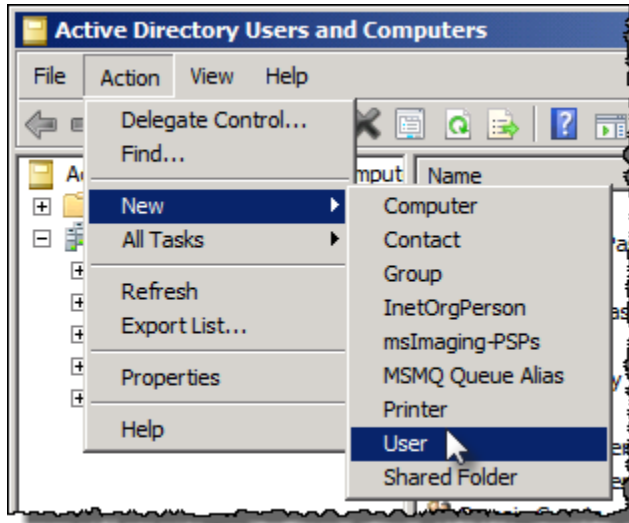
1. Ensure you are logged into the **WingtipDC** VM using the account **wingtip\administrator | Password1**.

PowerShell Script Alert: The creation of users and granting them rights to SQL Server 2012 steps in this section are automated in the Windows PowerShell script **CreateSpServiceAccounts.ps1**, found in the files that accompany this setup guide. Open the script and read the header for documentation on how to use it.

2. Open the **Active Directory Users and Computers: Start → Administrative Tools → Active Directory Users and Computers**.
3. Expand the tree in the left-hand pane to see the **Users** OU. Select the **Users** OU:

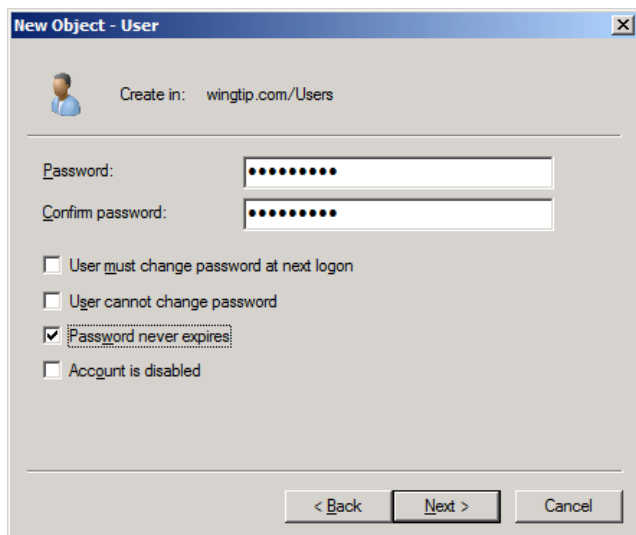


4. Create a new user **SP_Farm**:
 - a) In the toolbar, select **Action → New → User**:



b) Set the user's **Full Name** & **User Login Name** to **SP_Farm** and click **Next**:

- c) In the password dialog, enter the following and click **Next**:
- i) **Password** (and **Confirm Password**): Password1
 - ii) **User must change password at next login**: unchecked
 - iii) **User cannot change password**: unchecked
 - iv) **Password never expires**: checked
 - v) **Account is disabled**: unchecked



- vi) Click **Finish**.
5. Repeat the previous step to create two more accounts:
- a) **SP_Content**
 - b) **SP_Services**

You can now logout of the WingtipDC VM.

At this point you have created all the necessary service accounts.

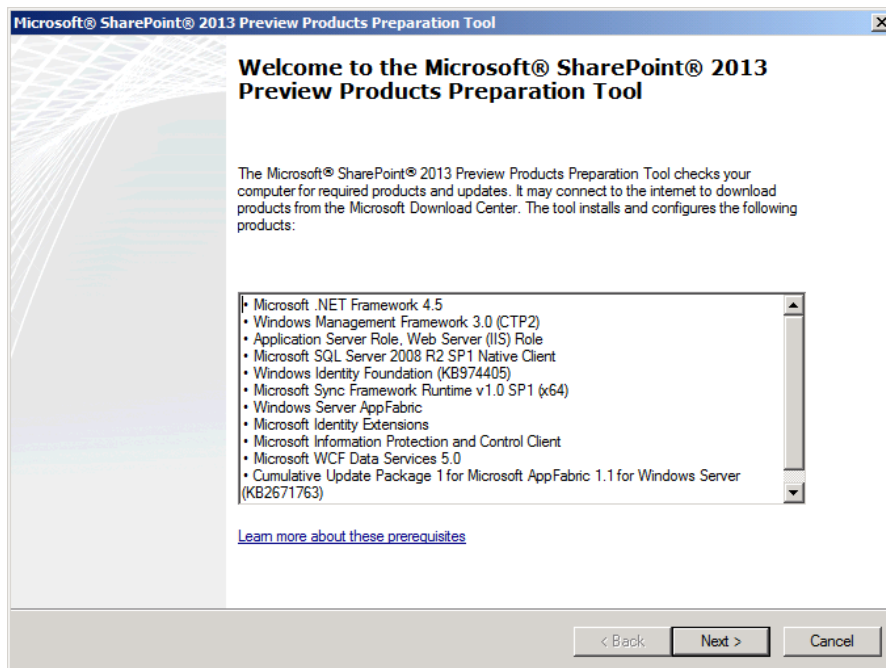
Install SharePoint Server 2013 Preview Prerequisites

In this section you will install the SharePoint Server 2013 Prerequisites.

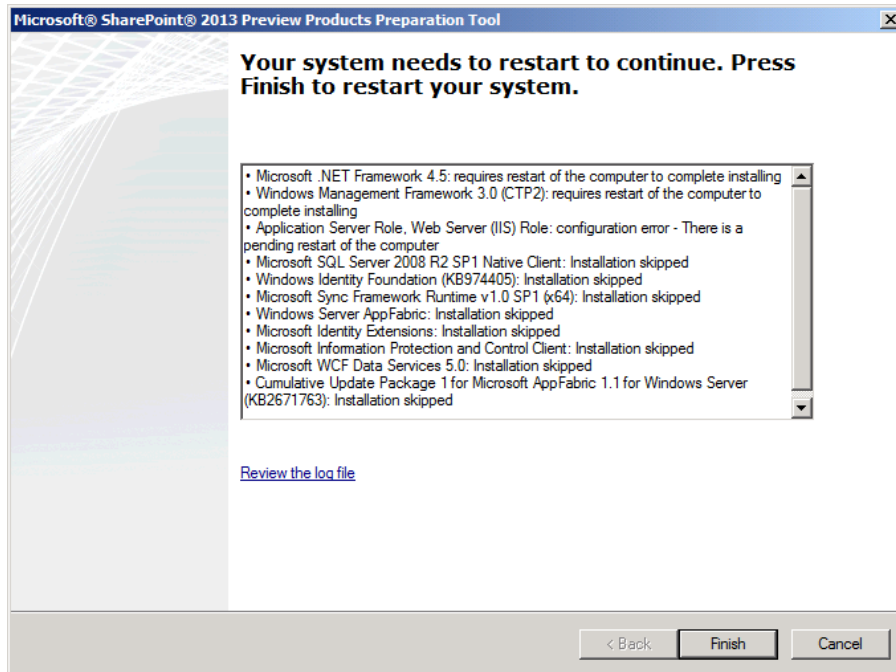
1. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator** | **Password1**.
2. If the **AutoPlay** dialog box is open, click **Run splash.hta**. If it isn't, use **Windows Explorer** to navigate to the DVD drive and execute the **splash.hta** file in the root of the DVD drive.



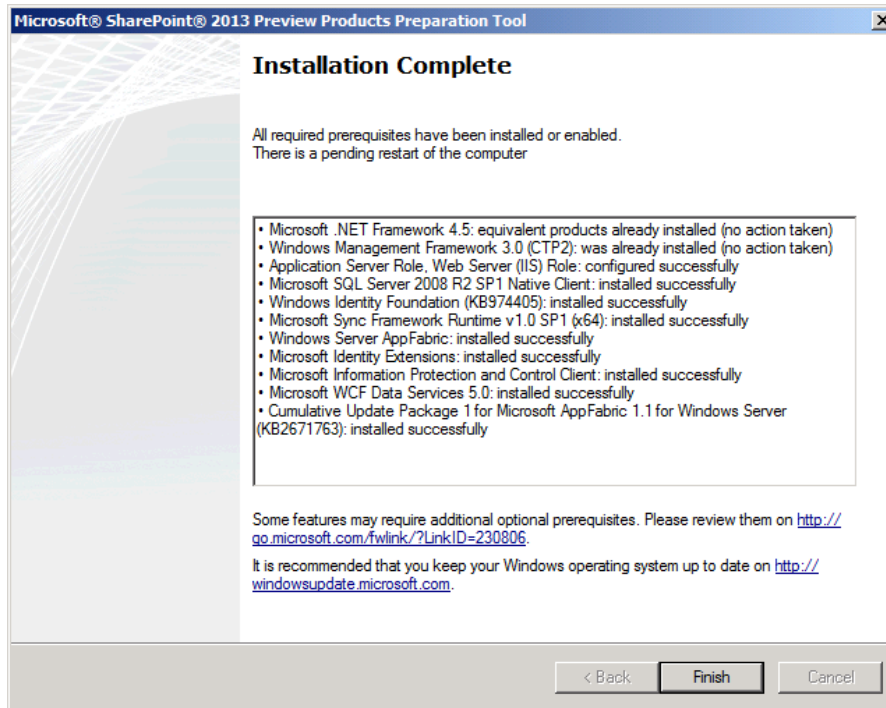
3. Click the **Install Software Prerequisites** link.
4. In the **Microsoft SharePoint 2013 Preview Products Preparation Tool** window, click **Next**.



5. On the License Terms for Software Products page:
 - a) Check **I accept the terms of the License Agreement(s)**.
 - b) Click **Next**.
6. The tool will download and install all prerequisites for SharePoint Server 2013 preview. This will take some time. It may prompt you to reboot the server. If so, reboot the server and login using **wingtipadministrator | Password1**.



7. **If you don't get any errors, skip to the next step.** Otherwise, if you receive an error while installing the prerequisites, it is likely due to the fact that the prerequisite installer did not notice you installed SQL Server 2012 (it only knows about SQL Server 2008 R2) so it tries to download the SQL Server 2008 R2 SP1 Native Client but the URL it uses is invalid. You can get around this by manually downloading and installing this prerequisite:
 - a) With Internet Explorer, navigate to the **SQL Server 2008 R2 SP1 Feature Pack** download page: <http://www.microsoft.com/en-us/download/details.aspx?id=26728>.
 - b) Find and download the **x64** installer file, **sqlncli.msi**.
 - c) Execute the installer and let it complete.
 - d) Once it has finished, rerun the prerequisite installer (**prerequisiteinstaller.exe** found in the root on the DVD). This time it will not report an error as it will see the SQL Server 2008 R2 SP1 Native Client is installed.
8. When the prerequisite installer is complete, it will present a summary of everything it did:



9. Click **Finish**.

10. Restart the **WingtipAllUp** VM... some additional installations and changes that the prerequisite installer did will require a restart before installing SharePoint Server 2013.

At this point all prerequisites required by SharePoint Server 2013 have been installed and any necessary configuration changes have been applied to the server.

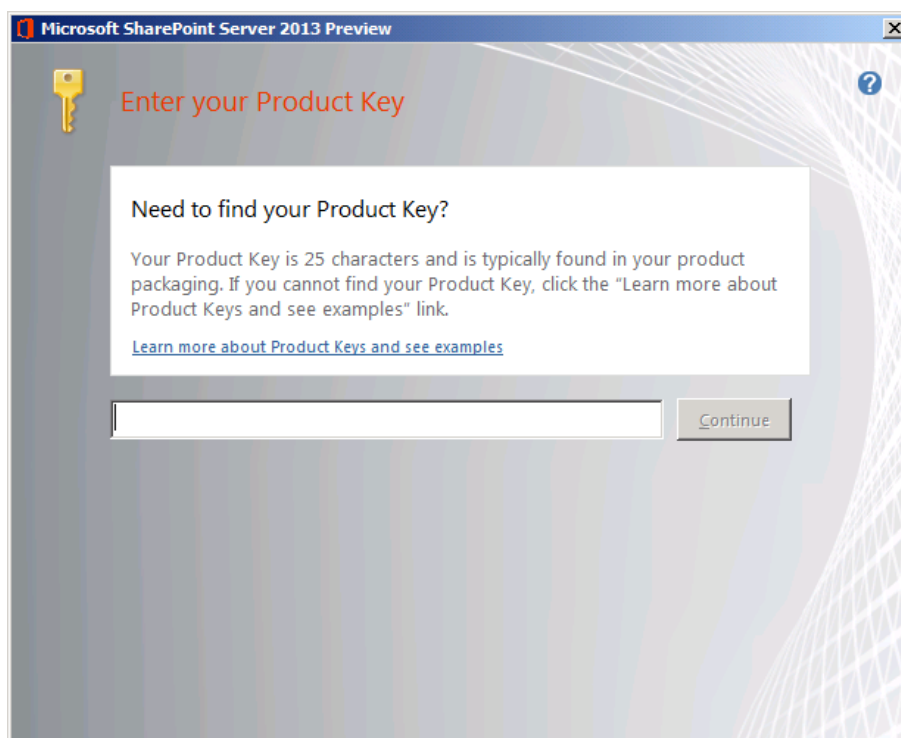
Install SharePoint Server 2013 Preview

In this section you will install SharePoint Server 2013.

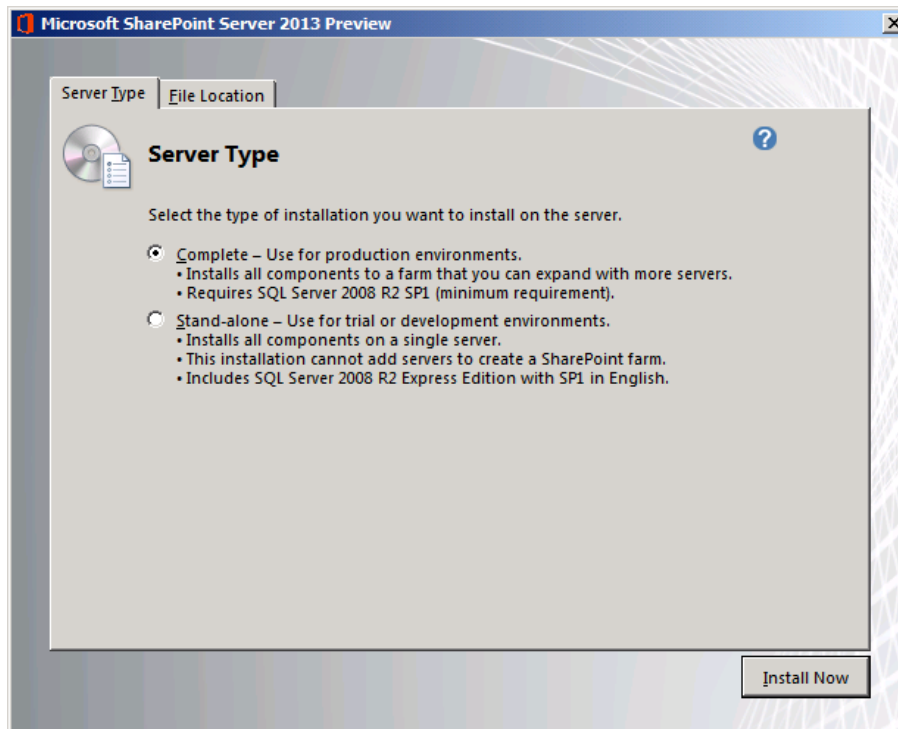
1. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator** | **Password1**.
2. If the **AutoPlay** dialog box is open, click **Run splash.hta**. If it isn't, use **Windows Explorer** to navigate to the DVD drive and execute the **splash.hta** file in the root of the DVD drive.



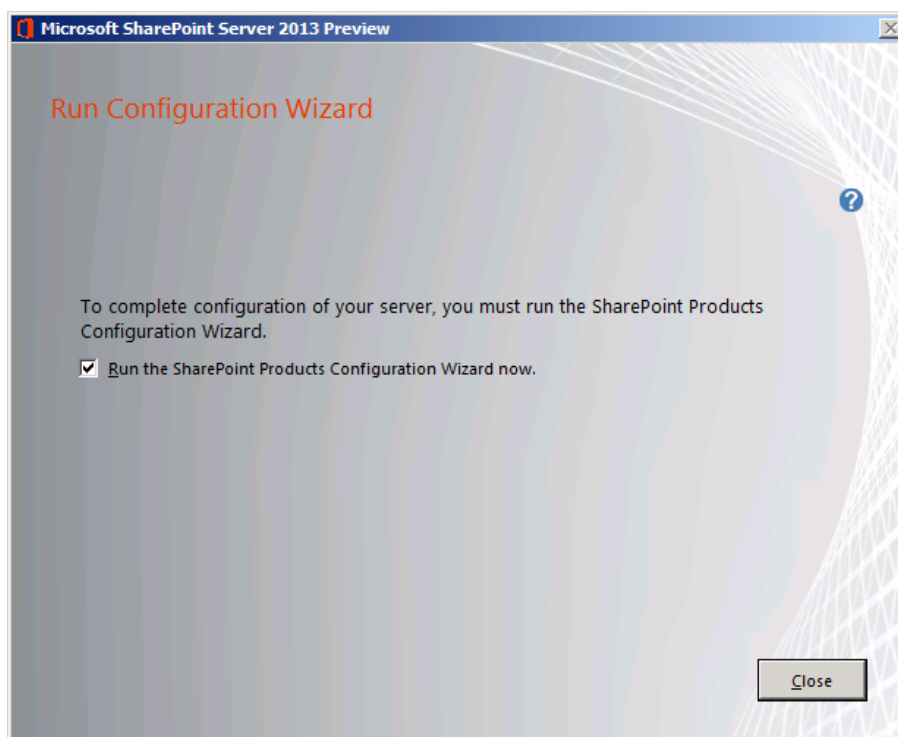
3. Click **Install SharePoint Server**.
4. When prompted to **Enter your Product Key**, enter the key you obtained for the trial install and click **Continue**.



5. On the **Read the Microsoft Software License Terms** page, check the **I accept the terms of this agreement** checkbox and click **Continue**.
6. On the **Server Type** page, select **Complete** and click **Install Now**:



7. When the installation is complete, select the **Run the SharePoint Products Configuration Wizard** checkbox and click **Close**.

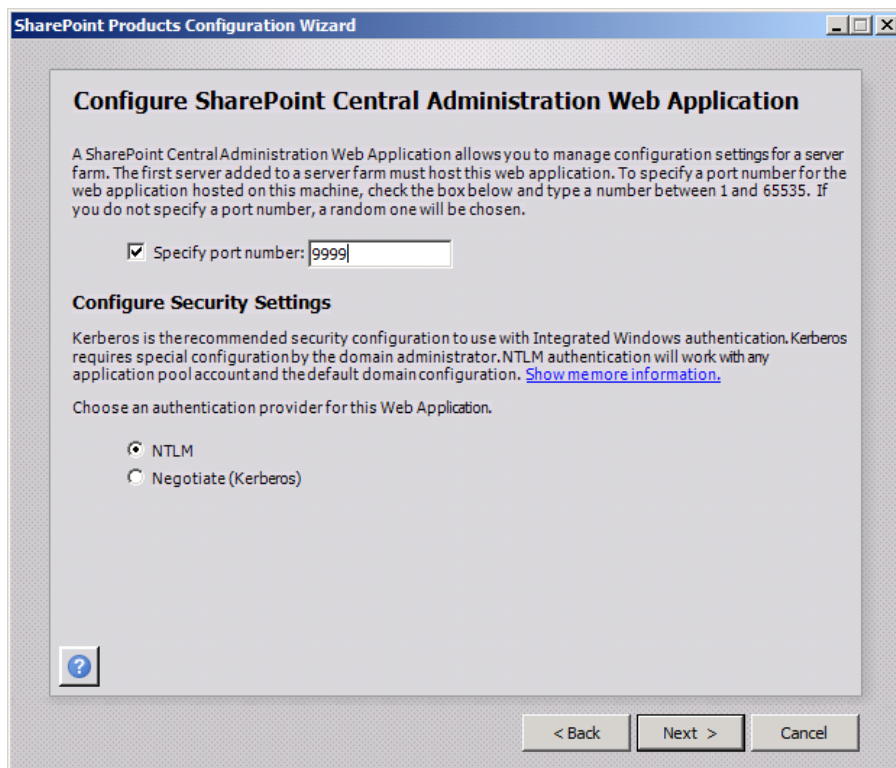


8. On the **Welcome to SharePoint Products** page, click **Next**.
 - a) If prompted to start or reset services, click **Yes**.
9. On the **Connect to a server farm** page, select **Create a new server farm** and click **Next**.

10. On the **Specify Configuration Database Settings** page, use the following to complete the page and click **Next**:
- a) **Database server:** WINGTIPALLUP
 - b) **Database name:** SharePoint_Config
 - c) **Username:** WINGTIP\SP_farm
 - d) **Password:** Password1

The screenshot shows the 'Specify Configuration Database Settings' page of the SharePoint Products Configuration Wizard. The page has a title bar 'SharePoint Products Configuration Wizard' and a close button. The main content area has a title 'Specify Configuration Database Settings' and a paragraph of instructions: 'All servers in a server farm must share a configuration database. Type the database server and database name. If the database does not exist, it will be created. To reuse an existing database, the database must be empty. For additional information regarding database server security configuration and network access please see [help](#).' Below this, there are two text boxes: 'Database server:' with the value 'WINGTIPALLUP' and 'Database name:' with the value 'SharePoint_Config'. Below these is a section titled 'Specify Database Access Account' with instructions: 'Select an existing Windows account that this machine will always use to connect to the configuration database. If your configuration database is hosted on another server, you must specify a domain account. Type the username in the form DOMAIN\User_Name and password for the account.' Below this are two text boxes: 'Username:' with the value 'WINGTIP\SP_Farm' and 'Password:' with a masked password '.....'. At the bottom left is a help icon (a question mark in a square). At the bottom right are three buttons: '< Back', 'Next >', and 'Cancel'.

11. On the **Specify Farm Security Settings** page, for the **Passphrase** and **Confirm Passphrase** boxes, enter **Password1** and click **Next**.
12. On the **Configure SharePoint Central Administration Web Application** page, check the **Specify port number** checkbox and enter a value of **9999**, then Click **Next**.



SharePoint Products Configuration Wizard

Configure SharePoint Central Administration Web Application

A SharePoint Central Administration Web Application allows you to manage configuration settings for a server farm. The first server added to a server farm must host this web application. To specify a port number for the web application hosted on this machine, check the box below and type a number between 1 and 65535. If you do not specify a port number, a random one will be chosen.


☒ Specify port number:

Configure Security Settings

Kerberos is the recommended security configuration to use with Integrated Windows authentication. Kerberos requires special configuration by the domain administrator. NTLM authentication will work with any application pool account and the default domain configuration. [Show more information.](#)

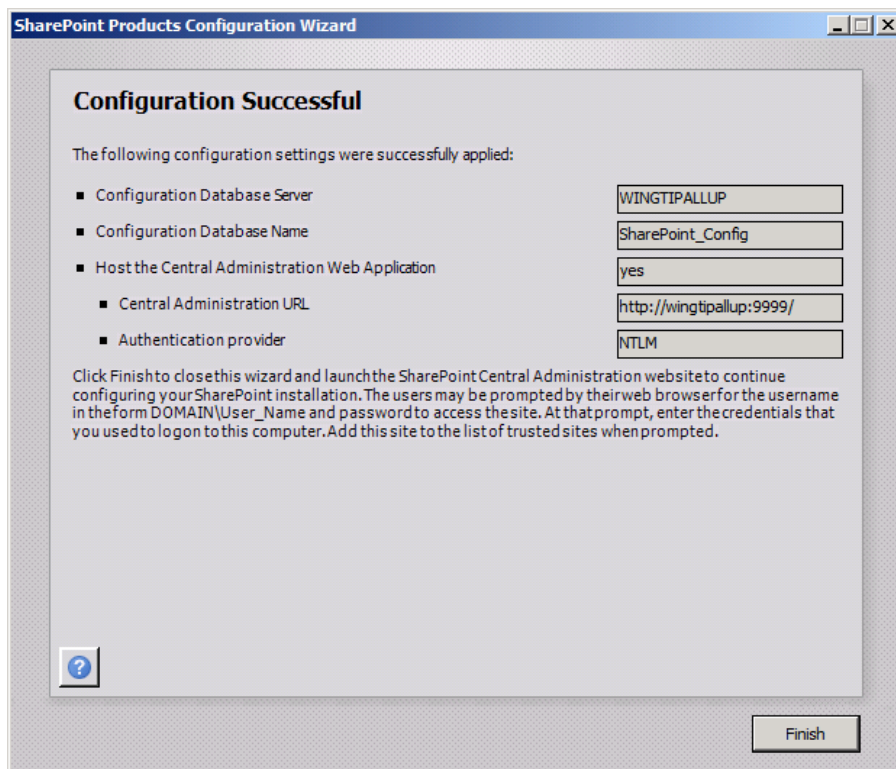
Choose an authentication provider for this Web Application.

☒ NTLM
☐ Negotiate (Kerberos)



13. On the **Completing the SharePoint Products Configuration Wizard** page, click **Next**.

14. When the installer completes, it will display the **Confirmation Successful** page:




SharePoint Products Configuration Wizard

Configuration Successful

The following configuration settings were successfully applied:

■ Configuration Database Server	<input type="text" value="WINGTIPALLUP"/>
■ Configuration Database Name	<input type="text" value="SharePoint_Config"/>
■ Host the Central Administration Web Application	<input type="text" value="yes"/>
■ Central Administration URL	<input type="text" value="http://wingtipallup:9999/"/>
■ Authentication provider	<input type="text" value="NTLM"/>

Click Finish to close this wizard and launch the SharePoint Central Administration website to continue configuring your SharePoint installation. The users may be prompted by their web browser for the username in the form DOMAIN\User_Name and password to access the site. At that prompt, enter the credentials that you used to logon to this computer. Add this site to the list of trusted sites when prompted.



15. Click **Finish**. This will launch Internet Explorer to go through the configuration process.

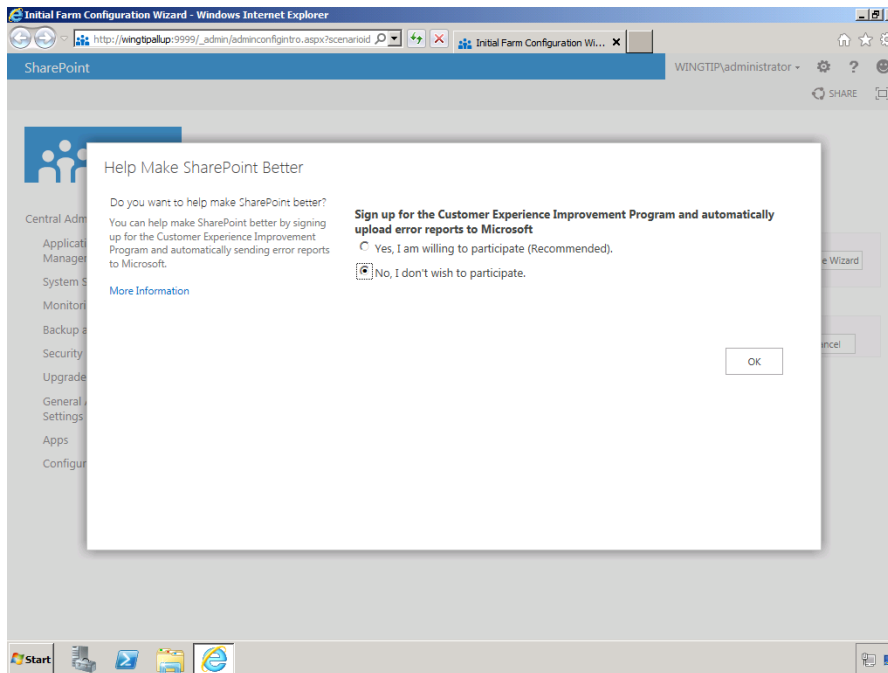
At this point you have successfully installed SharePoint Server 2013.

Configure SharePoint Server 2013 Preview

In this section you will create a new SharePoint Server 2013 farm and perform minimal configuration tasks.

After installing SharePoint Server 2013, the **SharePoint Products Configuration Wizard** will launch the browser-based **Initial Farm Configuration Wizard**.

1. In the first page of the wizard, you are prompted to **Help Make SharePoint Better**. Select **No, I don't wish to participate** and click **OK**.



2. On the **Welcome** page that asks **How do you want to configure your SharePoint farm?**, click the **Start the Wizard** button.

Welcome

How do you want to configure your SharePoint farm?

This wizard will help with the initial configuration of your SharePoint farm. You can select the services to use in this farm and create your first site.

You can launch this wizard again from the Configuration Wizards page in the Central Administration site.

Yes, walk me through the configuration of my farm using this wizard.

Start the Wizard

No, I will configure everything myself.

Cancel

3. On the **Services** page, do the following and then click **Next**:
 - a) **Service Account**: Select **Create new managed account**:
 - i) **Username**: WINGTIP\SP_Services
 - ii) **Password**: Password1
 - b) **Services**: Uncheck the following services:

- i) **Access Services 2010**
- ii) **App Management Service**

In SharePoint Server 2013 Preview, the Search Service Application processes, specifically noderunner.exe, can consume a considerable amount of memory and processor time. If you are not going to work with search, you might consider unchecking this option for now. You can always go back into Central Administration and create a new instance of the Search Service Application at a later date if you need it.

Why did we remove Access Services 2010 & App Management Service service applications? The Access Services 2010 service application is included for backwards compatibility and isn't needed in new installations unless you are migrating solutions built with Access Services 2010 from SharePoint Server 2010 (if so, you can create this service application later within Central Administration → Application Management → Manage Service Applications). The App Management Service service application will be created in a later step in this setup guide therefore it is skipped here.

4. The creation of the service applications can take quite a while, so be patient. If it exceeds 20 minutes, it is fairly safe to assume the page is hung up. One option is to close the browser, then launch **Central Administration (Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Central Administration)** and look at the **Service Application** page (**Application Management → Manage Service Applications**) to see if they were all created.

Install SharePoint Server 2013 Search Hotfixes

In this section you will install some hotfixes that are required to fix some issues with search in SharePoint Server 2013 Preview.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator | Password1**.
2. Download & install the following hotfixes to ensure the search processes are working:
 - a) <http://support.microsoft.com/kb/2554876>
 - b) <http://support.microsoft.com/kb/2708075>
 - c) <http://support.microsoft.com/kb/2472264>

Configure SharePoint Server 2013 Preview for Host-Named Site Collections & Create Initial Site Collections

In this section you will create new SharePoint 2013 site collections for testing and hosting apps.

Microsoft recommends to create host-named site collections (HNSC) instead of using the path based site collection addressing. The difference is the following: a path based site created at something such as <http://intranet.wingtip.com/sites/devtest> as an HNSC site would be more like <http://devtest.wingtip.com>. This is how it works in the cloud (Office 365) and it scales much better for on-prem deployments. This setup guide will show you how to setup your environment to create HNSC. The only downside to this approach is that you can't create site collections within Central Administration, it must be done via Windows PowerShell / API (because Central Administration doesn't instruct you where to put the site).

This is implemented in various parts. First, DNS must be configured to send all requests for http://*.wingtip.com to a Web Application (implemented in the last section). Second, this Web Application must be extended with SharePoint and have no host header bindings (so it handles all requests). Third, it must have a default site collection at the root of the Web Application, but it will not be used for anything (in fact it doesn't need a template assigned to it).

You can read more about HNSC's on TechNet: <http://technet.microsoft.com/en-us/library/cc424952.aspx>.

PowerShell Script Alert: The steps in this section are automated in the script **SetupSharePointForHNSC.ps1**, found in the files that accompany this setup guide. Open the script and read the header for documentation on how to use it.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator | Password1**.
2. Open **Central Administration: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Central Administration**.
3. Select **Application Management → Manage Web Applications**.
4. Delete the default Web Application created by the configuration wizard:
 - a) Delete the existing default Web Application

- i) Select the Web Application **SharePoint – 80**, the one with the **URL** of **http://wingtipallup**, and click **Delete** in the ribbon.
- ii) When prompted to delete the associated IIS Web Site & SQL Server database, select both options to delete them and click **OK**.

The reason you are doing this is because the setup wizard you ran previously when creating the service applications automatically created it. The problem is that it used the same identity (**WINGTIP\SP_Services**) for the app pool that is used for all the service applications which is not desired.

5. Create a new Web Application to handle Host-Named Site Collections (HNSC):
 - a) In the ribbon click the **New** button.
 - b) In the **Create New Web Application** dialog, enter the following values in the properties and click **OK**. Leave all properties not mentioned :
 - i) Select the radio button **Create a new IIS web site:**
 - (1) **Name:** SharePoint HNSC Host – 80
 - (2) **Port:** 80
 - ii) Application Pool:
 - (1) Select the radio button **Create a new application pool:**
 - (a) **Application Pool Name:** SharePoint Default HNSC AppPool
 - (b) **Select a security account for this application pool:** WINGTIP\SP_Content

If **WINGTIP\SP_Content** is not listed as an available managed account, create it by selecting the appropriate option and using Password1 for the password.

- iii) Database Name and Authentication
 - (1) **Database Name:** WSS_Content_HNSCDefaultHost.
 - c) This process will take a few moments. At the end of the process, SharePoint will ask if you want to create a site collection. You do, but you don't want to do it through the browser as this will not be a HNSC. To create a HNSC, you must create it via Windows PowerShell.
6. Create a default, not template site collection at the root of the web application:
7. Create Site Collections for Testing SharePoint & SharePoint Apps:
 - a) Open **SharePoint 2013 Management Shell: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Management Shell**.
 - b) Get a reference to the HNSC web application you just created by running the following Windows PowerShell script in the **SharePoint 2013 Management Shell**:

```
$hnsWebApp = Get-SPWebApplication | where-Object {$_.DisplayName -eq "SharePoint HNSC Host - 80"}
```

- c) Create a non-templated site at the root of the web application for Workflow to connect to by executing the following Windows PowerShell script in the **SharePoint 2013 Management Shell**:

```
New-SPSite -Name "Root HNSC Site Collection" -Url "http://wingtip.com" -HostHeaderWebApplication $hnsWebApp -OwnerAlias "WINGTIP\Administrator"
```

- d) Create a team site by executing the following Windows PowerShell script in the **SharePoint 2013 Management Shell**:

```
New-SPSite -Name "Wingtip Intranet" -Url "http://intranet.wingtip.com" -HostHeaderWebApplication $hnsWebApp -Template "STS#0" -OwnerAlias "WINGTIP\Administrator"
```

- e) Create a developer site by executing the following Windows PowerShell script in the **SharePoint 2013 Management Shell**:

```
New-SPSite -Name "Wingtip Developer Site" -Url "http://dev.wingtip.com" -HostHeaderWebApplication
$HnsWebApp -Template "DEV#0" -OwnerAlias "WINGTIP\Administrator"
```

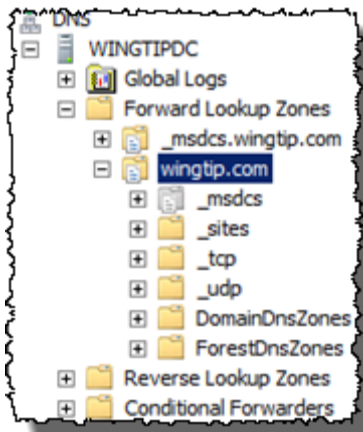
You can only create, debug and test apps using a developer site.

At this point you now have a site collection to use as a team site (<http://intranet.wingtip.com>) and to develop and test custom SharePoint apps (<http://dev.wingtip.com>).

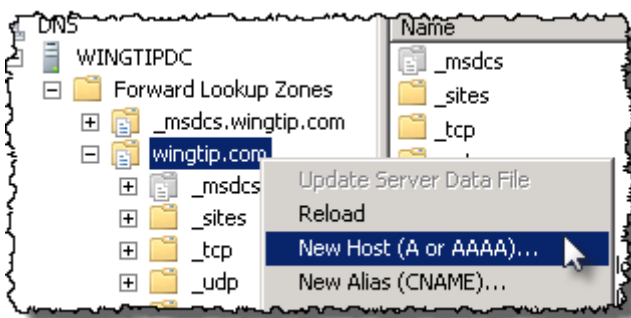
Configure SharePoint Server 2013 Preview for App Hosting

In this section you will configure your environment (DNS & SharePoint) for hosting SharePoint sites & Apps.

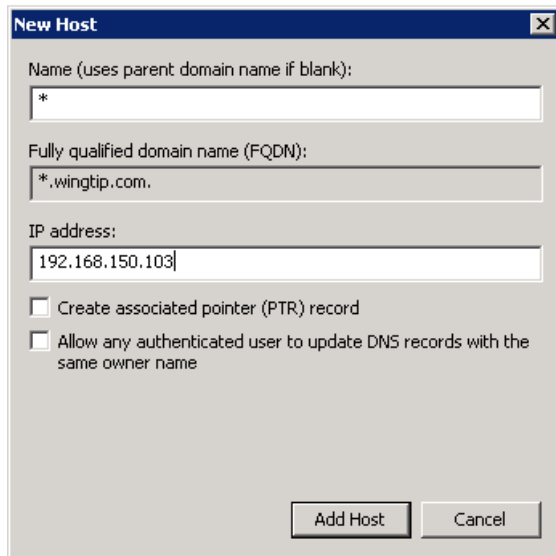
1. Ensure you are logged into the **WingtipDC** VM using the account **wingtip\administrator** | **Password1**.
2. Open the DNS window: **Start → Administrative Tools → DNS**.
3. Expand the hierarchy on the left-hand side of the window until you get to **DNS / WINGTIPDC / Forward Lookup Zones / wingtip.com**.



4. Create a new wildcard so all requests for [http://\[...\].wingtip.com](http://[...].wingtip.com) will be forwarded to our SharePoint machine.
 - a) Next, right-click **wingtip.com** and select **New Host (A or AAAA)**.



- b) In the **New Host** dialog, enter the following and click **OK**:
 - i) **Alias Name:** *
 - ii) **IP Address:** 192.168.150.103. Then click **Add Host**. The following figure shows how this looks:



The 'New Host' dialog box is shown with the following fields and options:

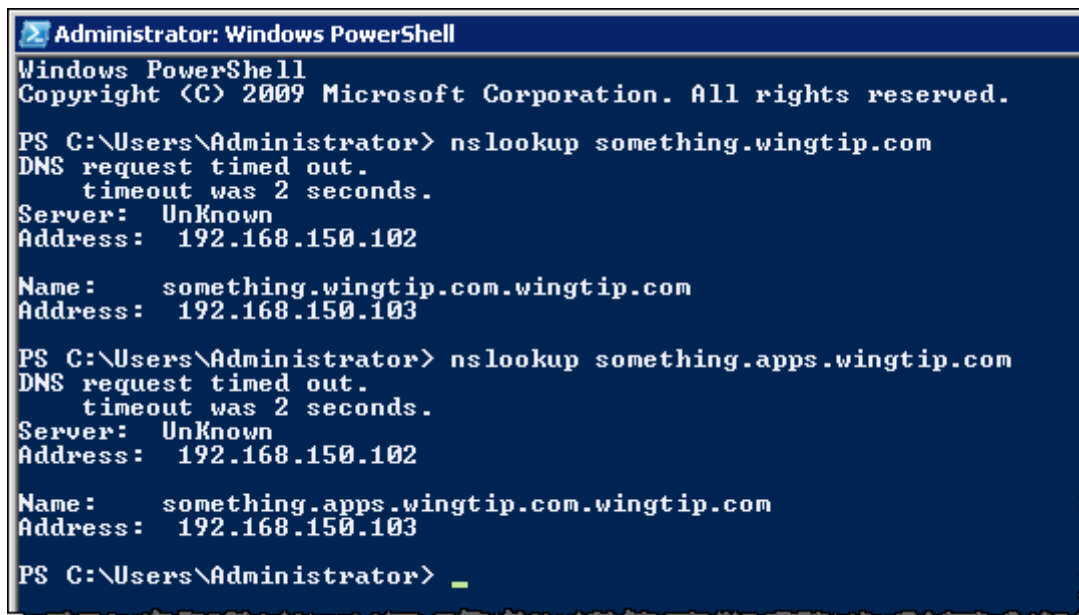
- Name (uses parent domain name if blank): *
- Fully qualified domain name (FQDN): *.wingtip.com.
- IP address: 192.168.150.103
- ☐ Create associated pointer (PTR) record
- ☐ Allow any authenticated user to update DNS records with the same owner name
- Buttons: Add Host, Cancel

This new record is telling DNS to forward any request for [http://\[*.\].wingtip.com](http://[*.].wingtip.com) to the webserver, WingtipAllUp, where the requests will be served by SharePoint.

5. Verify this DNS entry is working:
 - a) Open **Windows PowerShell: Start → All Programs → Accessories → Windows PowerShell → Windows PowerShell**.
 - b) Run the following commands and press **ENTER**:

```
PS C:\Users\Administrator> nslookup something.wingtip.com
PS C:\Users\Administrator> nslookup something.apps.wingtip.com
```

- c) You should get a response that points to the **WingtipAllUp** server, as shown in the following figure:



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2009 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> nslookup something.wingtip.com
DNS request timed out.
    timeout was 2 seconds.
Server:      Unknown
Address:     192.168.150.102

Name:   something.wingtip.com.wingtip.com
Address: 192.168.150.103

PS C:\Users\Administrator> nslookup something.apps.wingtip.com
DNS request timed out.
    timeout was 2 seconds.
Server:      Unknown
Address:     192.168.150.102

Name:   something.apps.wingtip.com.wingtip.com
Address: 192.168.150.103

PS C:\Users\Administrator> _
```

PowerShell Script Alert: Everything in the next immediate step is provided in the script **ConfigureSpFarmForApps.ps1**, found in the files that accompany this setup guide. Open the script and read the header for documentation on how to use it.

6. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator | Password1**.
7. Create the necessary SharePoint App Management service applications and start the necessary services via Windows PowerShell.
 - a) Open **SharePoint 2013 Management Shell: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Management Shell**.
 - b) Execute the following Windows PowerShell script in the **SharePoint 2013 Management Shell**:

```
$appHostDomain = "apps.wingtip.com"

$adminService = Get-Service -Name spadminv4
if ($adminService.Status -ne "Running") { Start-Service $adminService }
$timerService = Get-Service -Name sptimerv4
if ($timerService.Status -ne "Running") { Start-Service $timerService }

Set-SPAppDomain $appHostDomain

$appMgmtSvcInstance = Get-SPServiceInstance | Where-Object { $_.GetType().Name -eq
"AppManagementServiceInstance" }
if ($appMgmtSvcInstance.Status -ne "Online") { Start-SPServiceInstance -Identity
$appMgmtSvcInstance }

$appSubSettingSvcInstance = Get-SPServiceInstance | Where-Object { $_.GetType().Name -eq
"SPSubscriptionSettingsServiceInstance" }
if ($appSubSettingSvcInstance.Status -ne "Online") { Start-SPServiceInstance -Identity
$appSubSettingSvcInstance }

$appPoolServiceApps = Get-SPServiceApplicationPool -Identity "SharePoint Web Services Default"

$appSubSvc = New-SPSubscriptionSettingsServiceApplication -ApplicationPool $appPoolServiceApps -
Name "Settings Service Application" -DatabaseName SettingsServiceDB
$proxySubSvc = New-SPSubscriptionSettingsServiceApplicationProxy -ServiceApplication $appSubSvc

$appAppSvc = New-SPAppManagementServiceApplication -ApplicationPool $appPoolServiceApps -Name "App
Management Service Application" -DatabaseName AppServiceDB
$proxyAppSvc = New-SPAppManagementServiceApplicationProxy -ServiceApplication $appAppSvc

Set-SPAppSiteSubscriptionName -Name "app" -Confirm:$false
```

8. Verify the script configured SharePoint 2013 for hosting apps:
 - a) Open **Central Administration: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Central Administration**.
 - b) Verify service applications created:
 - i) Open the **Service Applications** page: **Application Management → Manage Service Applications**.
 - ii) Verify you have two service applications created:
 - (1) **App Management Service Application**
 - (2) **Settings Service Application**
 - c) Verify service instances are running:
 - i) Open the **Services on Server** page: **System Settings → Manage Services on Server**.
 - ii) Verify the following services are **Started**:
 - (1) **App Management Service**
 - (2) **Microsoft SharePoint Foundation Subscription Settings Service**

Services on Server ⓘ

Server: **WINGTIPALLUP** | View: **Configurable**

Service	Status	Action
Access Database Service 2010	Stopped	Start
Access Services	Started	Stop
App Management Service	Started	Stop
Business Data Connectivity Service	Started	Stop
Central Administration	Started	Stop
Claims to Windows Token Service	Stopped	Start
Distributed Cache	Started	Stop
Document Conversions Launcher Service	Stopped	Start
Document Conversions Load Balancer Service	Stopped	Start
Excel Calculation Services	Started	Stop
Lotus Notes Connector	Stopped	Start
Machine Translation Service	Started	Stop
Managed Metadata Web Service	Started	Stop
Microsoft SharePoint Foundation Incoming E-Mail	Started	Stop
Microsoft SharePoint Foundation Sandboxed Code Service	Stopped	Start
Microsoft SharePoint Foundation Subscription Settings Service	Started	Stop

- d) Verify App URLs are correct:
- Open the **Configure App URLs** page: **Apps → Configure app URLs**.
 - Verify the following
 - App Domain:** apps.wingtip.com
 - App Prefix:** app

Configure App URLs ⓘ

App URLs will be based on the following pattern: <app prefix> - <app id>.<app domain>

App domain

The app domain is the parent domain under which all apps will be hosted. You must already own this domain and have it configured in your DNS servers. It is recommended to use a unique domain for apps.

App domain:

App prefix

The app prefix will be prepended to the subdomain of the app URLs. Only letters and digits, no-hyphens or periods allowed.

App prefix:

At this point your SharePoint Server 2013 environment is ready to host SharePoint apps.

Start the SharePoint 2013 Sandbox Service

By default the service that executes sandbox solutions is not running. In this step you will start the service.

1. Open **Central Administration: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Central Administration**.
2. Open the **Services on Server** page: **System Settings → Manage Services on Server**.
3. Click the Start link to the left of the **Microsoft SharePoint Foundation Sandboxed Code Service**.

At this point your installation can support sandbox solutions.

Configure CRL Verification for Disconnected Environments

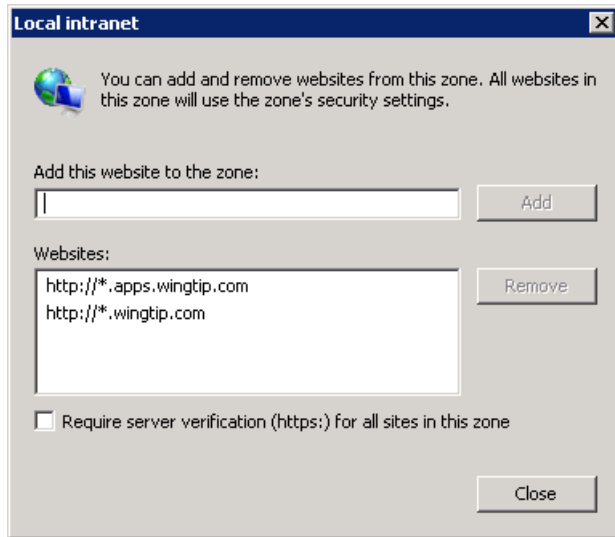
SharePoint periodically “phones home” to a specific address hosted by Microsoft under certain conditions. When your environment is disconnected, this can cause an unnecessary delay or failures when starting up the sandbox. The following steps outline a workaround to bypass this check.

1. Launch **Notepad** as an administrator: **Start → All Programs → Accessories**, right-click **Notepad** and select **Run as Administrator**.
2. Open the hosts file by selecting **File → Open** and finding the file:
`c:\windows\system32\drivers\etc\hosts`
3. Add the following line to the end of the file:
`127.0.0.1 crl.microsoft.com`
4. Save and close the **hosts** file.

Update Internet Explorer to Bypass the App URL & Automatically Login to SharePoint Sites

In this section you will update Internet Explorer to add the App hosting URL to the bypass list so you can navigate to the domain after deploying SharePoint hosted apps.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator | Password1**.
2. Launch **Internet Explorer: Start → All Programs → Internet Explorer**.
3. Configure Internet Explorer to bypass the App URL:
 - a) In the top-right corner, click the gear icon and select **Internet Options**.
 - b) On the **Security** tab, select the **Local Intranet** and click the **Sites** button.
 - c) Uncheck the box next to **Automatically detect intranet network**.
 - d) Click the **Advanced** button and add two entries to the **Exceptions** list:
 - i) http://*.wingtip.com
 - ii) http://*.apps.wingtip.com



- e) Click the **Close** button followed by the **OK** button multiple times to close out of the dialogs.

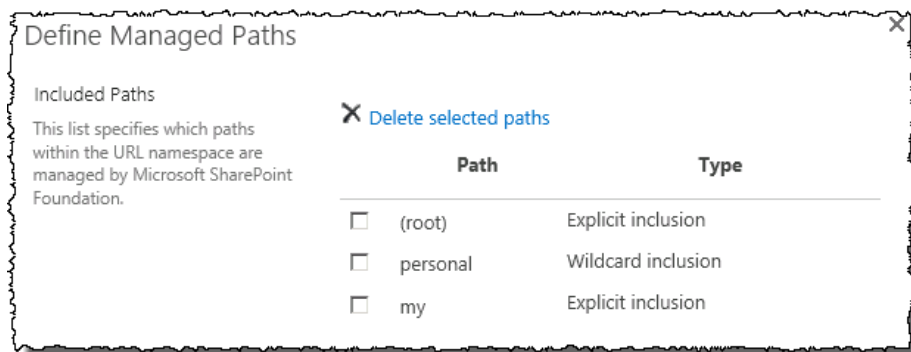
At this point Internet Explorer is setup to bypass your app URL so you can navigate to apps (http://*.apps.wingtip.com) as well as automatically authenticate to sites hosted at http://*.wingtip.com.

Exercise 8: Configure SharePoint to Host My Sites

In this exercise you will configure SharePoint to create and host My Sites. In order to host My Sites you will need a new Web Application that is configured for Self-Service Site Creation and has a My Site Host site collection.

1. Create a new SharePoint web application to host the My Sites:
 - a) Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip\administrator | Password1**.
 - b) Open **Central Administration: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Central Administration**.
 - c) Select **Application Management → Manage Web Applications**.
 - d) In the ribbon click the **New** button.
 - e) In the **Create New Web Application** dialog, enter the following values in the properties and click **OK**. Leave all properties not mentioned :
 - i) Select the radio button **Create a new IIS web site:**
 - (1) **Name:** SharePoint MySite Host – 80
 - (2) **Port:** 80
 - (3) **Host Header:** my.wingtip.com
 - ii) Application Pool:
 - (1) Select the radio button **Use existing application pool:**
 - (a) **Application Pool Name:** SharePoint Default HNSC AppPool
 - iii) Database Name and Authentication
 - (1) **Database Name:** WSS_Content_SocialWingtipCom
 - f) This process will take a few moments. At the end of the process, SharePoint will ask if you want to create a site collection. Click the link provided to create a new site collection & continue to the next step.
2. Create a My Site Host site collection:
 - a) On the **Create Site Collection** page, use the following information to complete the form and click **OK**:

- i) **Title:** My Site Host
 - ii) **URL:** /
 - iii) **Template Selection:** My Site Host (*found in the **Enterprise** tab*)
 - iv) **Primary Site Collection Administrator:** WINGTIP\Administrator
3. Update the Web Application to host my sites:
- a) Within **Central Administration**, in the left-hand navigation, navigate to the Manage Web Applications page: **Application Management** → **Manage Web Applications**.
 - b) Select the **SharePoint MySite Host – 80** web application.
 - c) Click the **Managed Paths** button in the ribbon.
 - d) Remove the sites managed path and add two new managed paths and click **OK**:
 - i) **personal** – Wildcard inclusion
 - ii) **my** – Explicit inclusion



- e) With the **SharePoint MySite Host – 80** web application still selected, click the **Self-Service Site Creation** button.
 - f) On the **Self-Service Site Creation** page, use the following values to complete the form and click **OK**:
 - i) **Site Collections:** On
4. Next, configure the User Profile Service Application My Site settings:
- a) Browse to the **User Profile Service Application** management page: **Application Management** → **Manage Service Applications** → **User Profile Service Application**.
 - b) Under the **My Site Settings** section, click the **Setup My Sites**.
 - c) On the **My Site Settings** page, use the following information to complete the form and click **OK**:
 - i) **My Site Host:** <http://my.wingtip.com/>
 - ii) **Personal Site Location:** personal

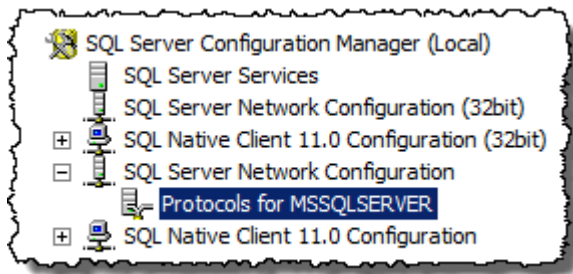
At this point your SharePoint deployment is now configured to automatically create My Sites under <http://my.wingtip.com/Personal/UserName> when users first browse to them.

Exercise 9: Install & Configure Workflow Manager

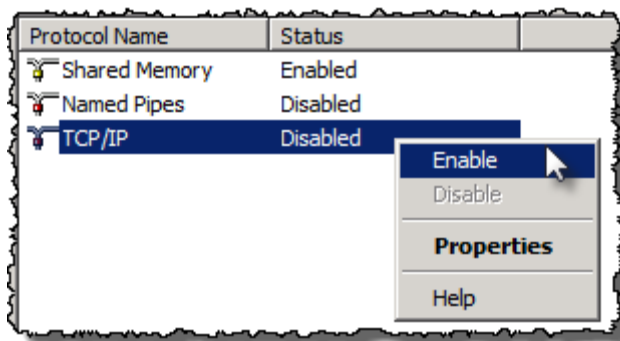
In this exercise you will configure the WingtipAllUp VM to host Workflow Manager and connect it to your SharePoint installation.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **wingtip administrator | Password1**.
2. Configure SQL Server 2012 to have the TCP/IP connection protocol enabled:
 - a) Open the **SQL Server Configuration Manager: Start** → **All Programs** → **Microsoft SQL Server 2012** → **Configuration Tools** → **SQL Server Configuration Manager**.

- b) Expand the hierarchy on the left-hand side to the following: **SQL Server Connection Manager (local) \ SQL Server Network Configuration \ Protocols for MSSQLSERVER**:



- c) In the main window, if **TCP/IP** is **Disabled**, right-click **TCP/IP** and select **Enable**.



- d) When prompted with a warning, click **OK**.

3. SQL Server must be restarted in order to reflect this change:
 - a) In the hierarchy on the left-hand side of the window, select **SQL Server Services**.
 - b) Right-click **SQL Server (MSSQLSERVER)** and select **Restart**.

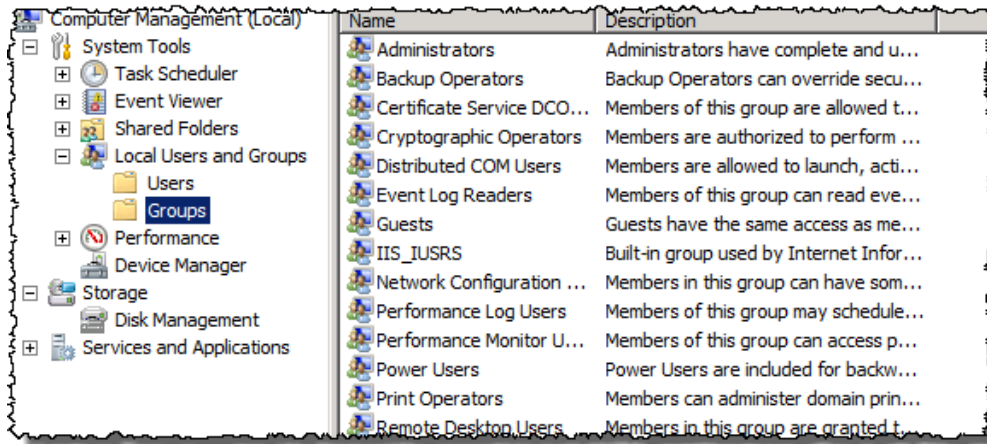
At this point SQL Server is now configured with the TCP/IP protocol enabled, a requirement when configuring Service Bus.

Configure the Workflow Service Account with the Necessary Rights

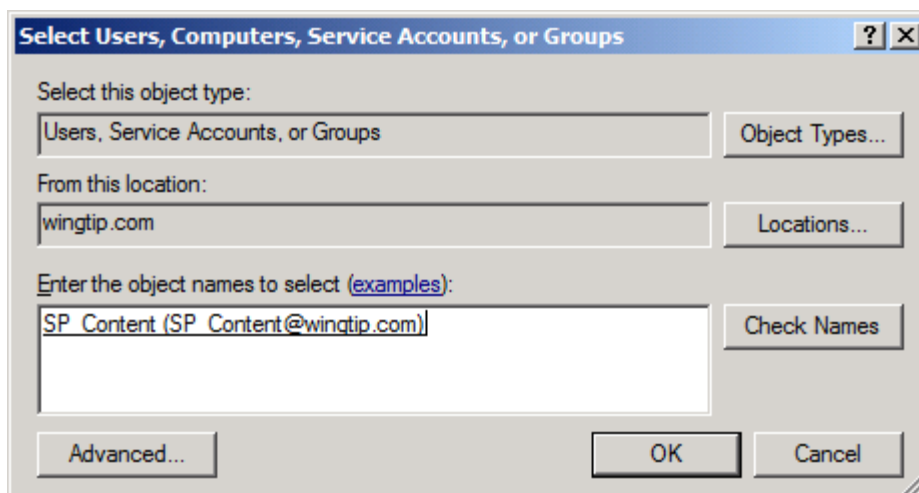
In this section you will verify the service account that will run Workflow Manager and Service Bus.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPAdministrator | Password1**.
2. Grant the **WINGTIP\SP_Content** account **securityadmin & dbcreator** permissions in SQL Server:
 - a) Launch **SQL Server Management Studio**: **Start** → **All Programs** → **Microsoft SQL Server 2012** → **SQL Server Management Studio**.
 - b) When SQL Server Management Studio launches, within the **Connect to Server** dialog, login using the default settings and click **Connect**.
 - c) In the **Object Explorer** tool window, expand the **WINGTIPALLUP** server hierarchy to the **Security** → **Logins** node.
 - d) Find the **WINGTIP\SP_Content** account, right-click it and select **Properties**.
 - e) In the **Select a page** pane, select **Server Roles**.
 - f) Check **securityadmin & dbcreator** and click **OK**.
 - g) Close **SQL Server Management Studio**.

3. Add the Workflow service account to the local administrators group
 - a) Open the **Computer Management** window: **Start → Administrative Tools → Computer Management**.
 - b) In the hierarchy on the left-hand side of the window, expand it to the following: **Computer Management (local) / System Tools / Local Users and Groups / Groups**:



- c) In the main window, right-click **Administrators** and select **Add to Group**.
- d) In the **Administrators Properties** dialog, click **Add**.
- e) In the **Enter the object names to select** box, enter **wingtip\sp_content** and click the **Check Names** button.



- f) In the **Administrators Properties** dialog, click **OK**.
- g) Close the **Computer Management** window.

At this point the service account that will host Workflow Manager and Service Bus has been configured correctly.

Download & Install Workflow Manager and Service Bus

In this section you will install Workflow Manager and Service Bus.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPSP_Content | Password1**.

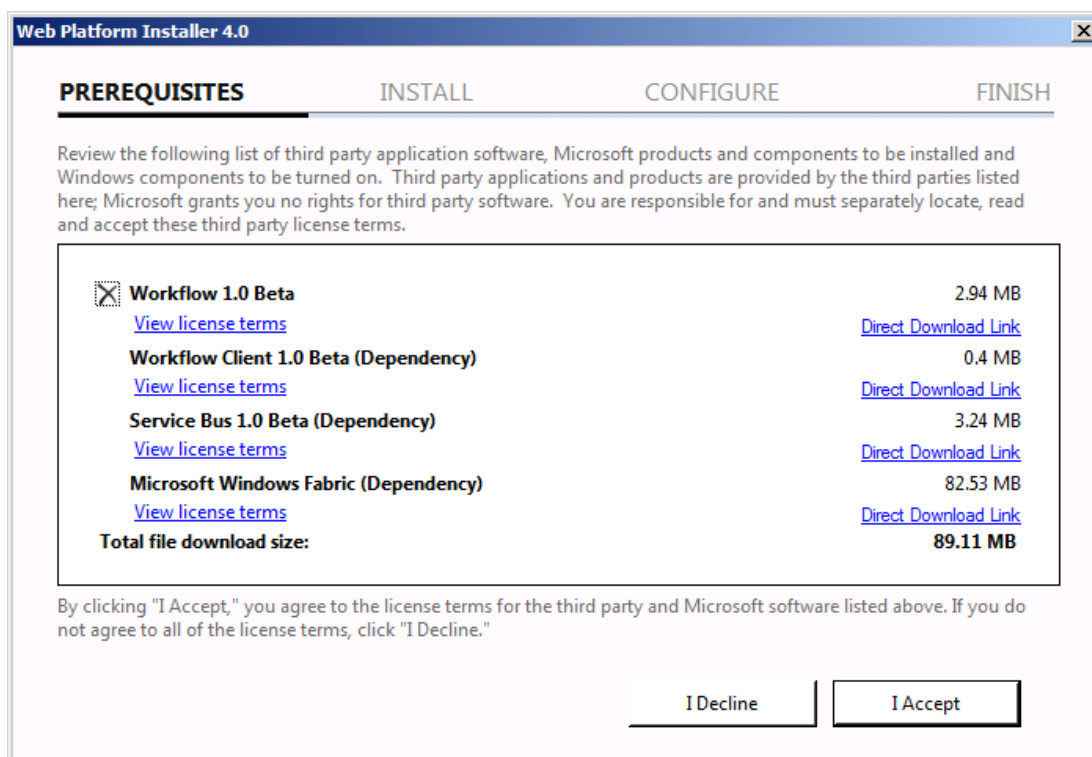
It is important you are logged in as the user that will run workflow when you install & configure Workflow Manager and Service Bus.

2. Launch the **Web Platform Installer: Start → All Programs → Microsoft Web Platform Installer**.
 - a) If the Web Platform Installer is not present on your machine, you can download & install it from here: <http://www.microsoft.com/web/downloads/platform.aspx>.

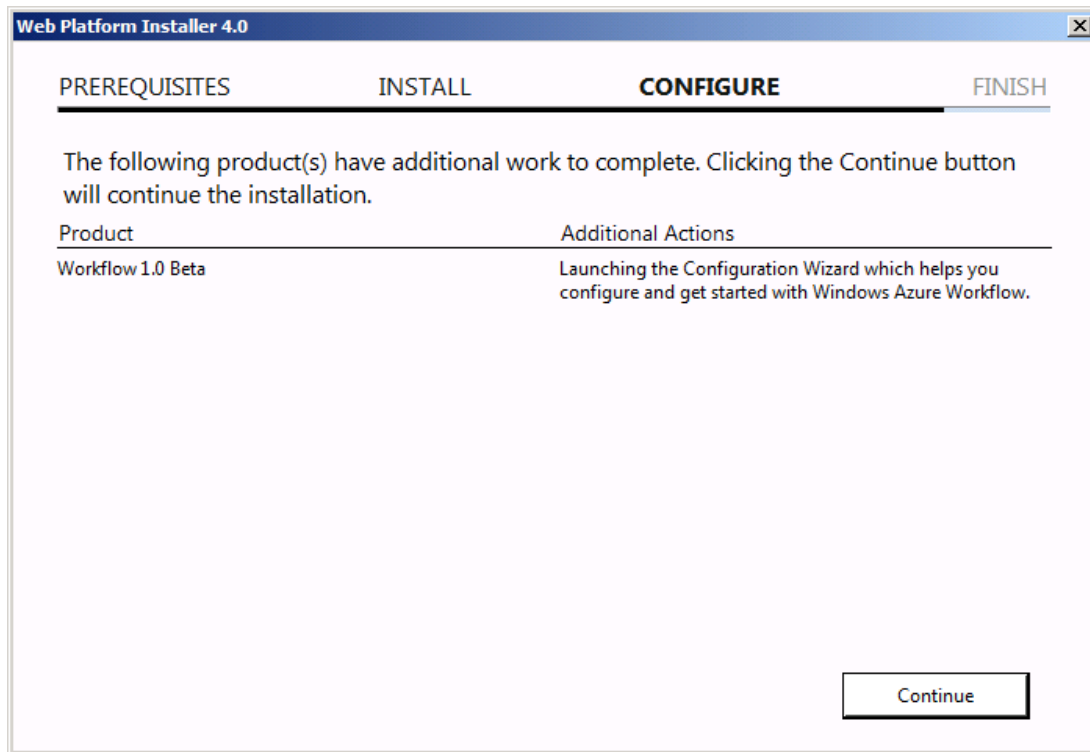
If you do not have internet access within the virtual machine, it is possible to download everything needed for workflow using the command line version of the Web Platform Installer (WebPICMD). You can get WebPICMD from <http://learn.iis.net/page.aspx/1072/web-platform-installer-v4-command-line-webpicmdexe-preview-release>. Specifically for workflow, enter the following command to download Workflow Beta 1 and all prerequisites:

```
webpicmd /offline /Products:Workflow /Path:c:\[path]
```

3. When the Web Platform Installer loads, execute a search for **Workflow**, select **Workflow 1.0 Beta** and click **Add**.
4. Click the **Install** button at the bottom of the **Web Platform Installer 4.0** window.
5. On the **Prerequisites** page, click **I Accept**.



6. When the installer completes, the following dialog will appear. Click **Continue** and then **Finish** to start the configuration process:

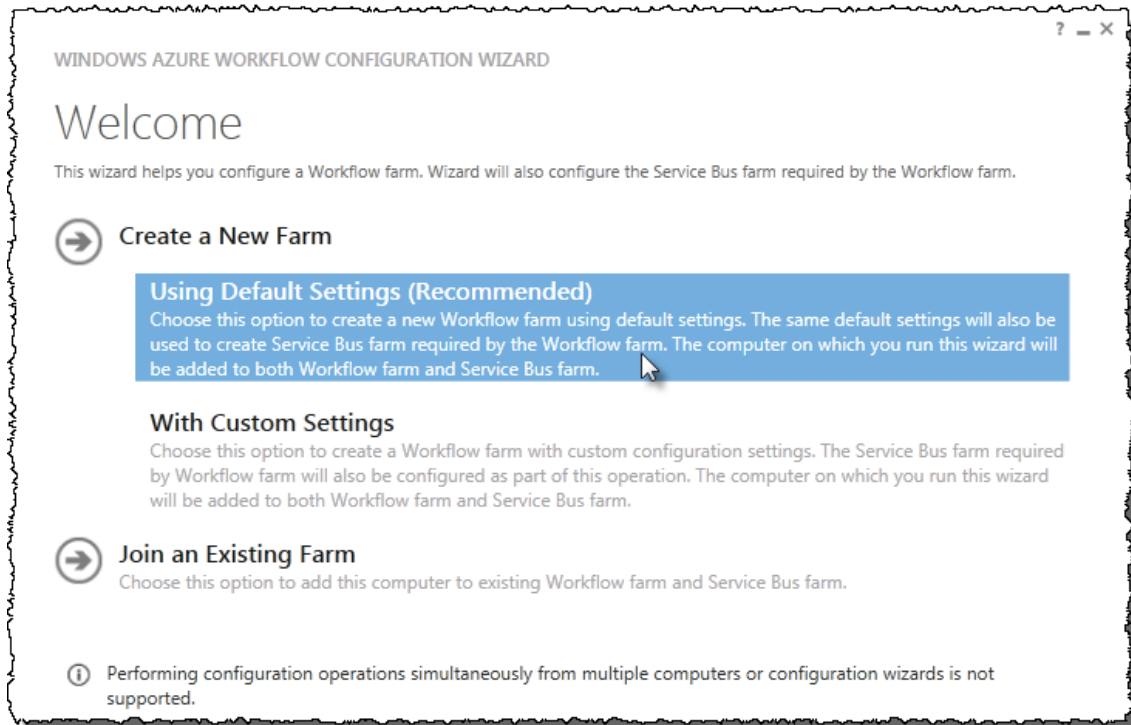


At this point Workflow Manager & Service Bus are installed.

Configure Workflow Manager and Service Bus

In this section you will install Workflow Manager and Service Bus.

1. If the **Windows Azure Configuration Wizard** is not open, open it: **Start → All Programs → Workflow Manager 1.0 → Workflow Configuration**.
2. On the **Welcome** page, click **Create a New Farm / Use Default Settings**.



3. On the **New Farm Configuration page**, do the following:
 - a) In the section **Configure Service Account**, set the credentials to:
 - i) **User ID:** sp_content@wingtip.com
 - ii) **Password:** Password1
 - b) Check the **Allow Workflow management over HTTP on this computer** checkbox.

Ensure the username is entered in the fully qualified UPN format, not as the default shows in the installer (sp_content@wingtip) or the domain\username format.

In a production environment you should be doing everything over SSL.


- c) Click the **Test Connection** button to verify the connection credentials before proceeding:

New Farm Configuration

Provide mandatory configuration parameters that are required for creating databases and run services in the Work farm. This configuration will be used for Service Bus farm.

Configure Farm Databases

SQL SERVER INSTANCE

WingtipAllUp.wingtip.com 

Configure Service Account

User account under which the services will run (RunAs Account) using the format 'domain\user' or 'user@domain'. Password will be required every time you join a computer to the farm.

USER ID

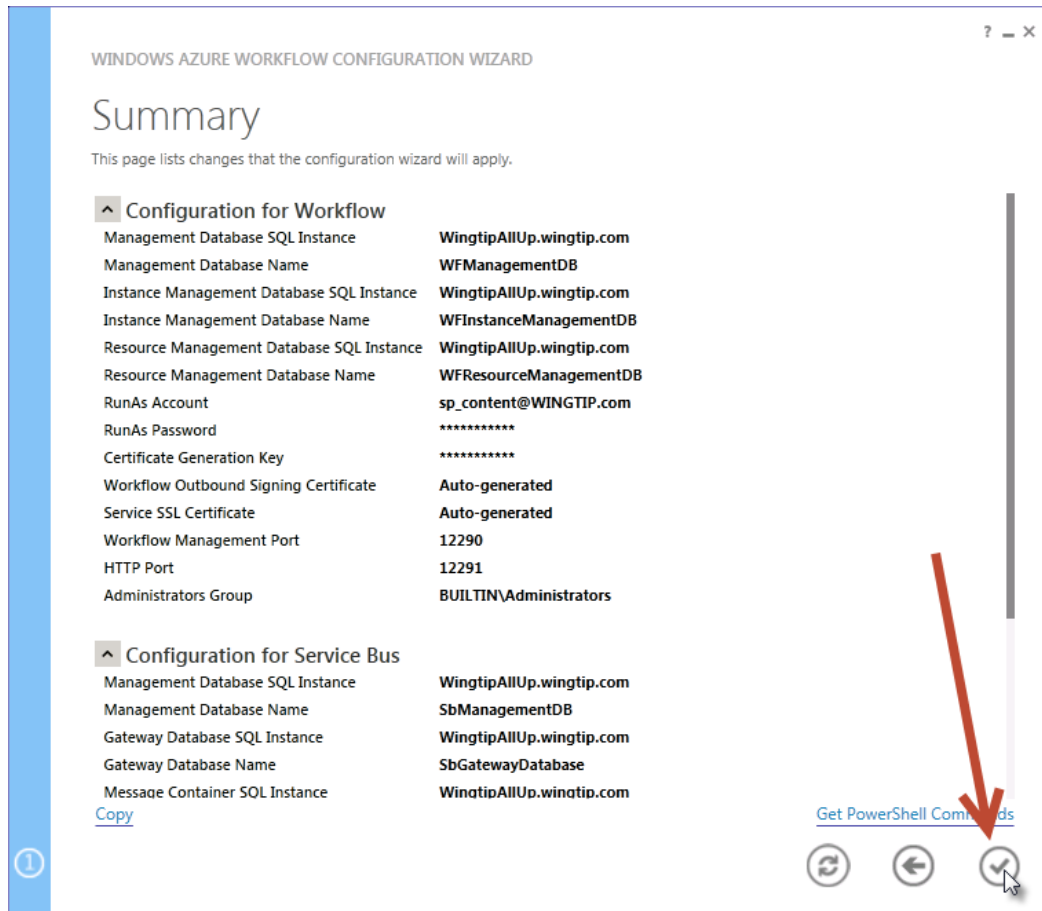
sp_content@WINGTIP.com

PASSWORD

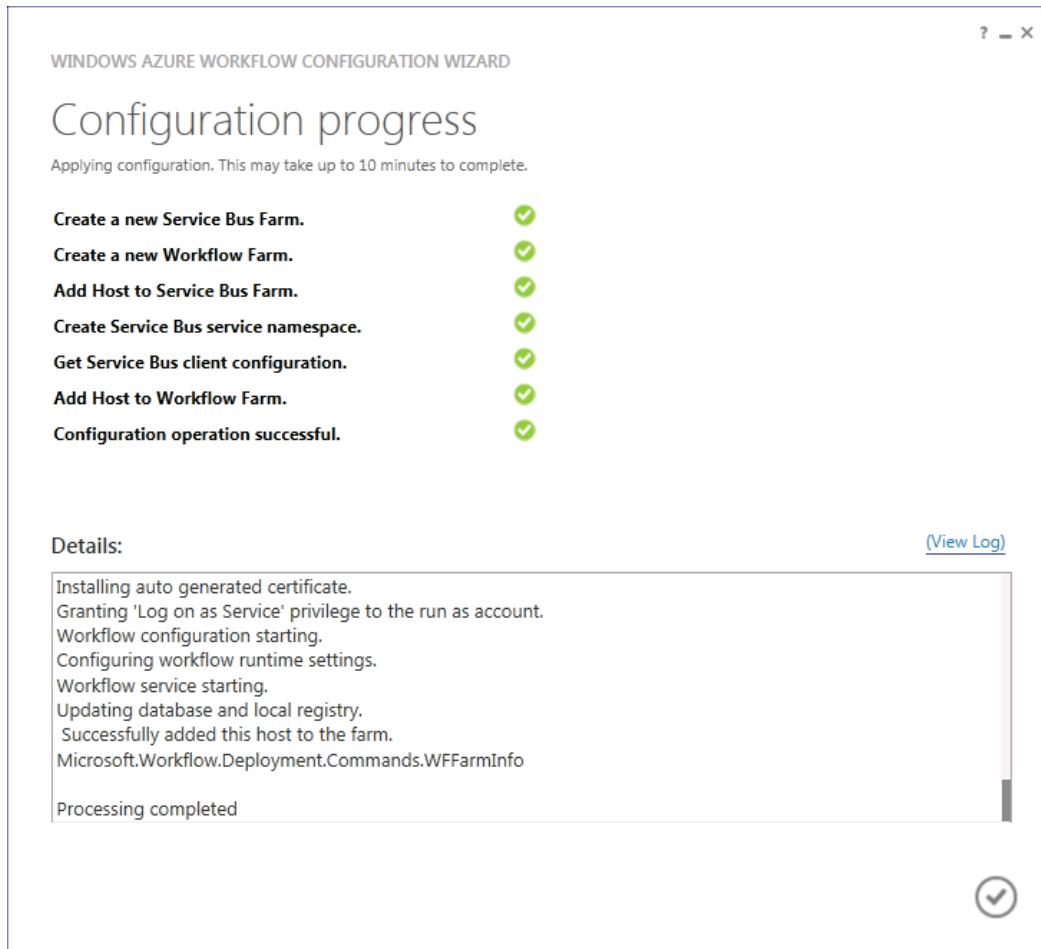
●●●●●●●●

☒ Allow Workflow management over HTTP on this computer

- d) In the **Certificate Generation Key** and **Confirm Certificate Generation Key**, enter **Password1** into both fields.
4. Click the right arrow in the bottom right corner to proceed.
5. On the **Summary** page review your settings and click the **check** at the bottom right of the window to start the configuration process.



6. After a few minutes the **Configuration Progress** screen will show that everything has been configured correctly:



7. Click the **check** in the bottom right corner.

At this point Workflow Manager & Service Bus has been installed and a new Workflow Manager farm has been created. The next step is to connect the SharePoint 2013 farm to the Workflow Manager farm.

Connect SharePoint 2013 to Workflow Manager

In this section you will connect SharePoint 2013 and Workflow Manager together.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPladministrator | Password1**.
2. Get the Workflow Manager endpoint:
 - a) Open the **Workflow PowerShell** console: **Start → All Programs → Workflow Manager 1.0**.
 - b) Execute the Windows PowerShell following cmdlet:

```
Get-WFFarm | ft WFMgmtHttpPort
```

- c) Take note of this port (usually 12291). This port number is what you will use to connect the SharePoint 2013 farm to the Workflow Manager 1.0 farm.

In production you should connect to the HTTPS port listed in the WFMgmtHttpsPort property when you run Get-WFFarm.

- d) Close the Workflow PowerShell window.
3. Connect the SharePoint 2013 farm to Workflow Manager:

- a) Open **SharePoint 2013 Management Shell: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Management Shell.**
- b) Execute the following Windows PowerShell script in the **SharePoint 2013 Management Shell:**

```
Register-SPWorkflowService -SPSite "http://intranet.wingtip.com" -workflowHostUri  
"http://wingtipallup:12291" -AllowOAuthHttp
```

This script is telling SharePoint the endpoint it should use to talk to Workflow Manager as well as Workflow Manager the SharePoint site collection it should talk to for calls into the CSOM. It is also configuring all communication over HTTP rather than HTTPS for performance reasons. In production you should always use HTTPS.

This step will take a moment with no feedback during the process. Be patient.

- c) Close the SharePoint 2013 Management Shell.

At this point the SharePoint 2013 farm is connected to the Workflow Manager 1.0 farm.

Configure SharePoint User Profile Service Application AD Sync

Users in SharePoint 2013 are validated by Workflow Manager against SharePoint to ensure they have permissions to start a workflow. This is done by looking up the user by their AD UserPrincipalName (UPN) attribute in the User Profile Service Application (UPA). If no matching user is found, the workflow will be automatically cancelled by Workflow Manager. In this section you will setup UPA to connect & sync with the local Active Directory so user accounts in AD will have their UPN synchronized to UPA.

1. Open **Central Administration: Start → All Programs → Microsoft SharePoint 2013 Products → SharePoint 2013 Central Administration.**
2. Go to the **User Profile Service Application** management page: **Application Management → Manage Service Applications → User Profile Service Application.**
3. The first step is to configure the User Profile Service Application (UPA) to allow for Active Directory (AD) synchronization:
 - a) Under **Synchronization**, select **Configure Synchronization Settings.**
 - b) For **Synchronization**, select **Use SharePoint Active Directory Import** and click **OK.**
4. Next, establish a connection to the wingtip.com AD:
 - a) Under **Synchronization**, select **Configure Synchronization Connections.**
 - b) On the **Synchronization Connections** page, select **Create New Connection.**
 - c) Enter the following values on this form and click **OK:**
 - i) **Connection Name:** WINGTIP.COM AD
 - ii) **Type:** Active Directory Import
 - iii) **Connection Settings:**
 - (1) **Fully Qualified Domain Name:** wingtip.com
 - (2) **Authentication Provider Type:** Windows Authentication
 - (3) **Account Name:** WINGTIP\Administrator
 - (4) **Password (and Confirm Password):** Password1
 - iv) **Containers:**
 - (1) Click **Populate Containers.**
 - (2) After it loads, check the box next to **WINGTIP** or click the **Select All** button below the box.
5. Go back to the UPA management page: **Application Management → Manage Service Applications → User Profile Service Application.**
6. Finally, start a synchronization import:
 - a) Under **Synchronization**, select **Start Profile Synchronization.**

- b) Select **Start Full Synchronization** and click **OK**.
- c) You will be taken back to the UPA management page. Notice in the top-right corner there is a status block that reports how many profiles are in the UPA database. Refresh the page to see it increase to a handful of profiles as the import process runs.

At this point you have successfully configured the UPA to import profiles from the local AD.

Exercise 10: Install the Microsoft Office 2013 Professional Clients

In this exercise you will install the Microsoft Office 2013 client applications.

1. Download the **Office 2013 Preview** into the **WingtipAllUp** VM. For this you need to create an Office 365 Trial account, login to Office 365 Preview, go to the **Admin Dashboard** and then download the latest version: <http://www.microsoft.com/office/preview/en/try-office-preview>.
2. Download the **SharePoint Designer 2013 Preview** into the **WingtipAllUp** VM from here: <http://www.microsoft.com/en-us/download/details.aspx?id=30346>.
3. Download the **Visio Professional 2013 Preview** into the **WingtipAllUp** VM from here: <http://technet.microsoft.com/en-us/evalcenter/hh973399>.

Install Microsoft Office Professional Plus 2013

In this section you will install the Microsoft Office 2013 clients.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPadministrator | Password1**.
2. Execute the installer **OfficeProfessionalPlus_English_x64.exe**.
3. On the **Read the Microsoft Software License Terms** dialog, click the checkbox next to **I accept the terms of this agreement** and click **Continue**.
4. On the **Choose the installation you want** dialog, click the **Install Now** button.
5. The installer will proceed and install all the Office products.
6. When the installer completes, click the **Close** button.
7. Apply your Office Professional Plus 2013 license key:
 - a) Launch **Word 2013: Start → All Programs → Microsoft Office 2013 → Word 2013**.
 - b) In the **First things first** dialog, select **Use recommended settings** and click **Accept**.
 - c) In the **Welcome to Office** dialog that opens, click the [X] icon in the top-right corner to close it.
 - d) In the left-hand pane, click **Open Other Documents**.
 - e) In the left-hand pane, click **Account**.
 - f) In the **Product Information** section, within the **Activation Required** box, click **Change Product Key**.
 - g) Enter your license key for Office Professional Plus 2013, check the box next to **Attempt to automatically activate my product online** and click **Install**.
 - h) Click **OK**.

If you plan to use Outlook 2013 to check your email, it's recommended to install the following patch to address an issue with Outlook 2013 deleting emails: <http://support.microsoft.com/kb/2737132>

At this point you have installed Office Professional Plus 2013.

Install Microsoft Office Visio 2013

In this section you will install Microsoft Office 2013 Visio.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPadministrator | Password1**.
2. Execute the installer **VisioProfessional_English_x64.exe**.

3. On the **Read the Microsoft Software License Terms** dialog, click the checkbox next to **I accept the terms of this agreement** and click **Continue**.
4. On the **Choose the installation you want** dialog, click the **Install Now** button.
5. The installer will proceed and install all Visio 2013.
6. When the installer completes, click the **Close** button.
7. Apply your Visio 2013 license key:
 - a) Launch **Visio 2013: Start → All Programs → Microsoft Office 2013 → Visio 2013**.
 - b) In the **First things first** dialog, select **Use recommended settings** and click **Accept**.
 - c) In the **Welcome to Office** dialog that opens, click the X icon in the top-right corner to close it.
 - d) In the left-hand pane, click **Open Other Documents**.
 - e) In the left-hand pane, click **Account**.
 - f) In the **Product Information** section, within the **Activation Required** box, click **Change Product Key**.
 - g) Enter your license key for Visio 2013, check the box next to **Attempt to automatically activate my product online** and click **Install**.
 - h) Click **OK**.

At this point you have installed Visio 2013.

Install Microsoft Office 2013 SharePoint Designer

In this section you will install Microsoft Office 2013 SharePoint Designer.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPAdministrator | Password1**.
2. Execute the installer **SharePointDesigner_English_x64.exe**.
3. On the **Read the Microsoft Software License Terms** dialog, click the checkbox next to **I accept the terms of this agreement** and click **Continue**.
4. On the **Choose the installation you want** dialog, click the **Install Now** button.
5. The installer will proceed and install all SharePoint Designer 2013.
6. When the installer completes, click the **Close** button.

At this point you have installed SharePoint Designer 2013.

Apply Hotfixes to Enable ECT Creation in SharePoint Designer 2013 Preview

SharePoint Designer 2013 Preview has issues creating external content types, unless you apply a few changes to the registry to enable it. You'll apply these fixes to enable this.

PowerShell Script Alert: The steps in this section are automated in the script **PatchSPD2013.ps1**, found in the files that accompany this setup guide. Open the script and read the header for documentation on how to use it.

1. Open a **Command Prompt: Start → All Programs → Accessories → Command Prompt**.
2. Run the following commands to create a few registry entries that will enable SharePoint Designer 2013 Preview to create external content types:

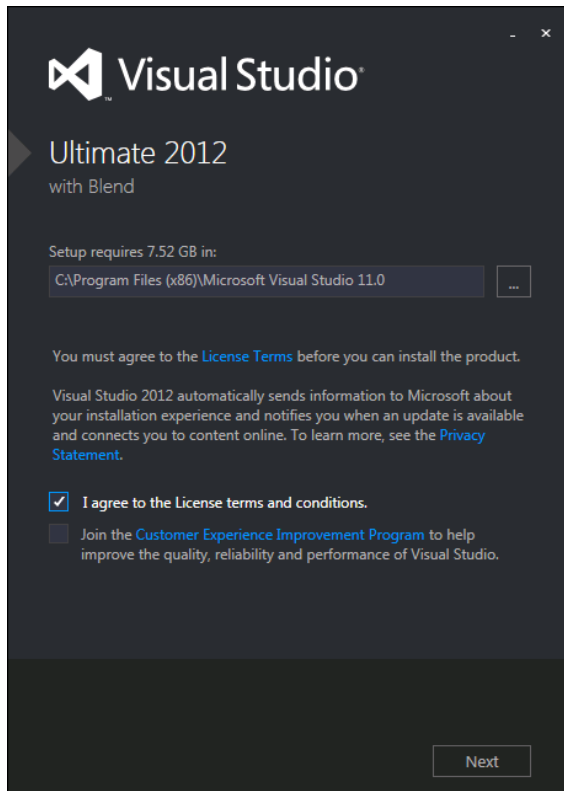
```
reg add HKLM\SOFTWARE\Microsoft\StrongName\Verification\*,71e9bce111e9429c /f
reg add HKLM\SOFTWARE\Wow6432Node\Microsoft\StrongName\Verification\*,71e9bce111e9429c /f
reg add HKLM\SOFTWARE\Microsoft\StrongName\Verification\*,* /f
reg add HKLM\SOFTWARE\Wow6432Node\Microsoft\StrongName\Verification\*,* /f
net stop msiserver
```

At this point you have installed SharePoint Designer 2013.

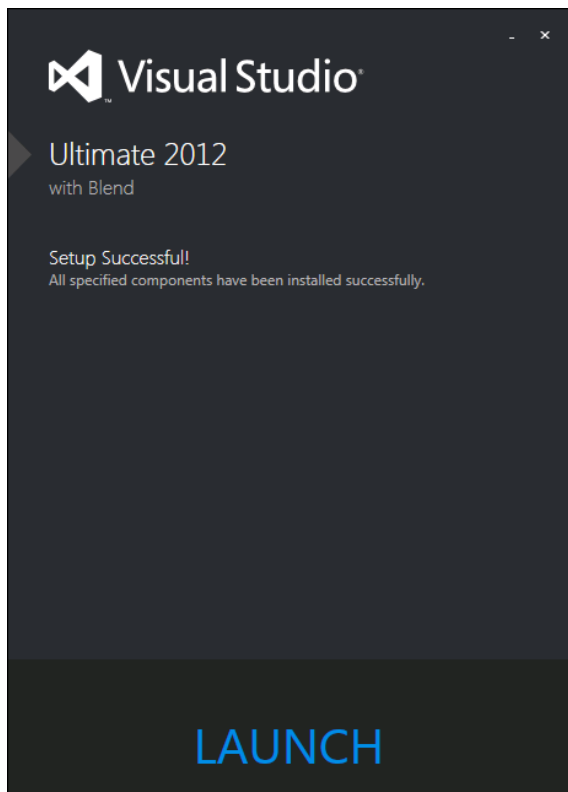
Exercise 11: Install Visual Studio 2012

In this exercise you will install Visual Studio 2012.

1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPladministrator | Password1**.
2. Start the install of **Visual Studio 2012 Ultimate Trial** by downloading the installer from here: <http://www.microsoft.com/visualstudio/11/en-us/downloads>.
3. On the installation splash screen, check the box next to **I agree to the License terms and conditions** and click the **Next** button:



4. On the **Optional Features** to install dialog, click **Install**.
5. After some time, the installer will complete. Click the **Launch** button to launch Visual Studio 2012:



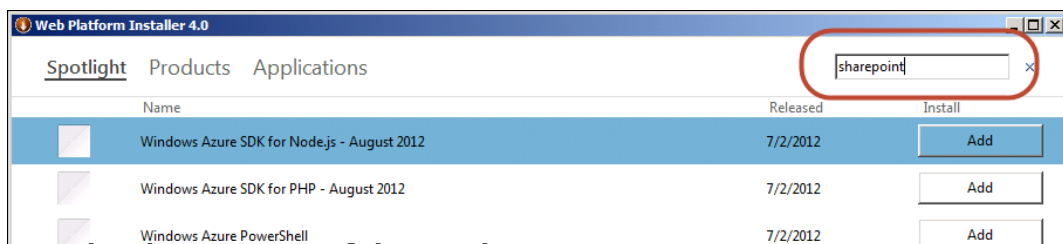
6. In the **Choose Default Environment Settings**, select **Visual C# Development Settings** and click **Start Visual Studio**.
7. Close Visual Studio 2012.

At this point Visual Studio 2012 RTM is installed.

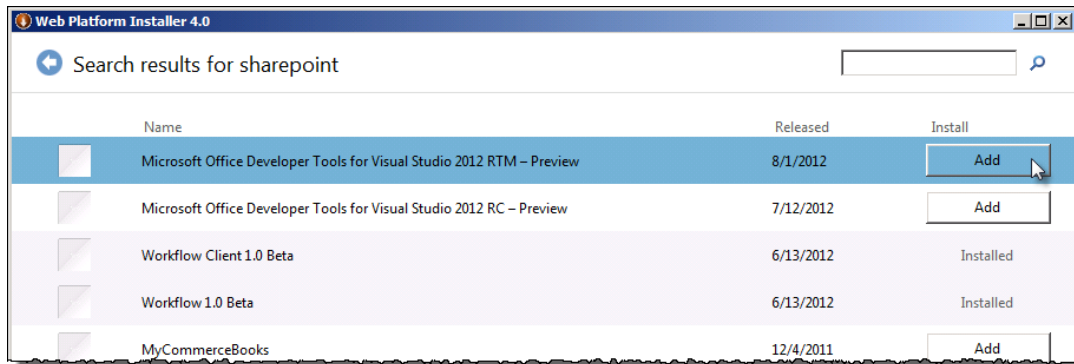
Install Office & SharePoint 2013 Developer Tools

In this section you will install the Office and SharePoint 2013 developer tools for Visual Studio.

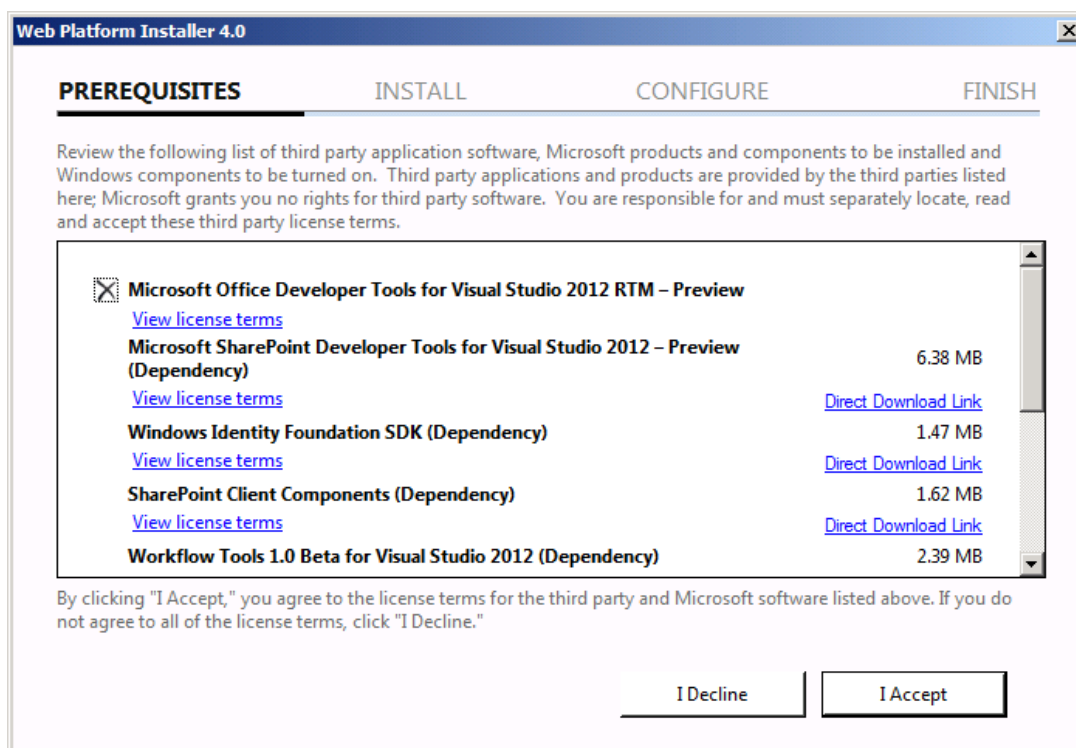
1. Ensure you are logged into the **WingtipAllUp** VM using the account **WINGTIPAdministrator | Password1**.
2. Launch the **Web Platform Installer**: **Start** → **All Programs** → **Microsoft Web Platform Installer**.
3. In the search box at the top-right corner of the **Web Platform Installer 4.0** window, type **sharepoint** and press **Enter**:



4. Click the **Add** button to the right of **Microsoft Office Developer Tools for Visual Studio 2012 RTM – Preview**.



5. Click the **Install** button at the bottom of the **Web Platform Installer 4.0** window.
6. On the **Prerequisites** page, click **I Accept**.



At this point you have installed the SharePoint 2013 & Office 2013 development tools in Visual Studio 2012.

Appendix 1: Download Manifest

The following lists everything referenced that you will or may need to download in this environment.

- Windows Server 2008 R2 with Service Pack 1 (installer ISO)
 - <http://technet.microsoft.com/en-us/evalcenter/dd459137.aspx>
- Windows Server 2008 R2 with Service Pack 1 (prebuilt VHD)
 - <http://www.microsoft.com/downloads/details.aspx?FamilyId=9040a4be-c3cf-44a5-9052-a70314452305>
- Windows Server 2008 R2 Service Pack 1
 - <http://www.microsoft.com/en-us/download/details.aspx?id=5842>
- SQL Server 2012 Trial
 - <http://www.microsoft.com/betaexperience/pd/SQL2012EvalCTA/enus/default.aspx>
- SharePoint Server 2013 Beta 2 / Preview
 - <http://technet.microsoft.com/en-US/evalcenter/hh973397.aspx>
- SQL Server 2008 R2 SP Native Client:
 - <http://www.microsoft.com/en-us/download/details.aspx?id=26728>
 - *You only need for the x64 installer file **sqlncli.msi**.*
- Hotfixes for SharePoint Server 2013 Beta 2 / Preview Search:
 - <http://support.microsoft.com/kb/2554876>
 - <http://support.microsoft.com/kb/2708075>
 - <http://support.microsoft.com/kb/2472264>
- Web Platform Installer
 - <http://www.microsoft.com/web/downloads/platform.aspx>
- Web Platform Installer – Command Line Version
 - <http://learn.iis.net/page.aspx/1072/web-platform-installer-v4-command-line-webpicmdexe-preview-release>
- Workflow Beta 1.0
 - Download using the Microsoft Web Platform Installer, or download offline using the WebPICMD utility:

```
webpicmd /offline /Products:Workflow /Path:c:\[path]
```

- Office 2013 Preview
 - <http://www.microsoft.com/office/preview/en/try-office-preview>
- Hotfix for Outlook 2013 Preview
 - <http://support.microsoft.com/kb/2737132>
- SharePoint Designer 2013 Preview
 - <http://www.microsoft.com/en-us/download/details.aspx?id=30346>
- Visio Professional 2013 Preview
 - <http://technet.microsoft.com/en-us/evalcenter/hh973399>
- Visual Studio 2012
 - <http://www.microsoft.com/visualstudio/11/en-us/downloads>
- Office Developer Tools for Visual Studio 2012 RTM – Preview
 - Download using the Microsoft Web Platform Installer, or download offline using the WebPICMD utility:

```
webpicmd /offline /Products:OfficeToolsForVS2012RTMPreview /Path:c:\[path]
```

Appendix 2: Windows PowerShell Script Manifest

The following lists all Windows PowerShell scripts that are provided with this setup guide.

- **AddDisableLoopbackCheckRegKey.ps1**
 - The following steps automate creating the registry key outlined as **Method 2** in the Microsoft Knowledgebase article <http://support.microsoft.com/kb/896861> using Windows PowerShell. This key, **DisableLoopbackCheck**, will allow you to browse SharePoint sites on the same machine. Without this key (or following Method 1 in the KB article) you would need to browse any SharePoint sites from a different computer than the one which SharePoint is installed on.
- **ConfigureSpFarmForApps.ps1**
 - Configures a SharePoint 2013 for hosting apps. This ensures everything you need is installed, running and configured. This is documented here: [http://msdn.microsoft.com/en-us/library/fp179923\(v=office.15\)](http://msdn.microsoft.com/en-us/library/fp179923(v=office.15)).
- **ConfigureSpVmNetworking.ps1**
 - Configures the specified NIC for SharePoint. It is run on both the domain controller & the all up server. It configures the internal & external NIC on both machines, depending the parameters passed in.
- **CreateSpServiceAccounts.ps1**
 - Creates the minimal necessary service accounts for SharePoint Server 2013: SP_Farm, SP_Content & SP_Services.
- **PatchSPD2013.ps1**
 - Adds a few registry keys to the virtual machine to fix an issue with SharePoint Designer 2013 Beta 2 / Preview where it can't create BCS External Content Types.
- **SetupSharePointForHNSC.ps1**
 - Configures a SharePoint 2013 install for hosting Host-Named Site Collections (HNSC). This involves creating a Web Application in SharePoint that has no host header bindings. Using DNS, all requests are mapped to this Web Application. You then create the site collections via PowerShell as you can't create HNSC's via the browser (Central Administration).

Appendix 3: Create Sample Adventure Works Database

The following steps document downloading and installing the sample Adventure Works OLTP database provided by Microsoft.

1. Launch **Internet Explorer** and navigate to: <http://msftdbprodsamples.codeplex.com>
2. Download the **Adventure Works 2012 OLTP Script**:
3. Extract the ZIP into a folder on the desktop.
4. Launch **SQL Server Management Studio**: **Start** → **All Programs** → **Microsoft SQL Server 2012** → **SQL Server Management Studio**.
5. When **SQL Server Management Studio** launches, within the **Connect to Server** dialog, login using the default settings and click **Connect**.
6. Within **SQL Server Management Studio**, select **File** → **Open** → **File**.
7. Select the file **instawdb.sql** from the extracted ZIP and click **Open**.
8. If prompted to re-login to the database engine, do it.
9. Select **Query** → **SQLCMD Mode**.
10. Scroll down to line **42**, the line that starts with the following:

```
:setvar SqlSamplesSourceDataPath
```

11. Change the folder location of where you unzipped the Adventure Works 2012 OLTP Script.
12. Select **Query** → **Execute**.
13. When the script completes, the **AdventureWorks2012** database will have been created.

Change Log

Change	Version	Description
August 22, 2012	v 0.1	➤ Pre-release for review
August 27, 2012	v 0.2	➤ Initial public release – install guide based on SharePoint Server Beta 2
August 28, 2012	v 0.3	➤ Updated URL for the site collection used to connect SharePoint to WAW.
August 31, 2012	v 0.4	<ul style="list-style-type: none"> ➤ Typo: Removed SQL Server Analysis Services as part of the install. Not required in a SharePoint dev box (unless you are doing business intelligence, which is not covered in the guide). ➤ Updated all references to Windows Azure Workflow to Workflow Manager, the new official name for the new workflow product. ➤ Updated SetupSharePointForHNSC.ps1 script to lookup HNSC Web Application by name rather than URL which is more reliable. ➤ Typo: Updated WingtipAllUp public NIC to use a different IP than the WingtipDC ➤ Typo: Replaced a reference to WingtipServer with WingtipDC. ➤ Typo: Fixed handful of minor typos.
September 1, 2012	v 0.5	<ul style="list-style-type: none"> ➤ Removed SQL Server Reporting Services from install guide. ➤ Added step to uncheck IE's "Automatically detect proxy". ➤ Added post workflow install steps to setup User Profile Service Application to sync with local Active Directory
September 5, 2012	v 0.6	<ul style="list-style-type: none"> ➤ Added step to create a default root site collection in the HNSC web app. ➤ Updated minor typos and added extra notes for context. ➤ Updated PowerShell script SetupSharePointForHNSC.ps1 to remove content database of default Web Application when setting up HNSC Web App. ➤ Added a new exercise #8 (after SharePoint install & config and before the Workflow install and config) to setup support for My Sites.
October 20, 2012	v 0.7	<ul style="list-style-type: none"> ➤ Updated script SetupSharePointForHNSC.ps1 to fix a bug where it would fail on line #111 if you didn't already have a WINGTIP\SP_Content managed account. ➤ Added section to bypass SharePoint's check for crl.microsoft.com. ➤ Updated workflow's registration PowerShell script to point to http://intranet.wingtip.com. ➤ Switched order of post-SharePoint install to setup HSNC hosting before configuring for hosting apps.