

The CPT SharePoint 2013 VM Setup Guide

Setup Time: 10 to 16 hours

Overview: Before you can begin to work on the lab exercises for a Critical Path Training course on SharePoint 2013, you must first build or acquire a virtual machine (VM) with all the prerequisite software installed by following the instructions provided in this document.

This guide will step you through using the Microsoft's Hyper-V to create a new VM and install the Windows Server 2012 R2 operating system onto a new server named **WingtipServer**. You will then create a new Active Directory domain named **wingtip.com** by promoting **WingtipServer** to be a domain controller. After that, you will install SQL Server 2012 with service pack 1. Next you will download the installation files for **SharePoint Server 2013**, **Office 2013**, **Visual Studio 2013**, and **SharePoint Designer 2013**. You will then install and configure SharePoint 2013 and create all of the starting points needed by the lab files.

You will then install both Office 2013 and SharePoint Designer 2013. Finally you will install and configure **Visual Studio 2013**. After all the major installations and core configurations are complete you'll install and configure several components necessary for utilizing the Business Intelligence components of SharePoint 2013. Once you have completed all the tasks in this setup guide, you will have created a VM that can be used as the starting point for any of the SharePoint 2013 Developer and Business Intelligence courses offered by Critical Path Training.

Please note that the instructions and screenshots in this setup guide are based on Microsoft's Hyper-V Environment. If you plan to build the VM using a different virtualization product other than Hyper-V such as VMWare, you will have to make adjustments as you move through this setup guide for the ways in which your virtualization product differs from Hyper-V.

A Note from the Author

I've been working with SharePoint since the beta version of 2003 and it seems like I'm constantly learning something new about the product - not just in how to use and develop against it but in the myriad of nuances that arise when trying to deploy it to various configurations. Whether its simple things like making sure the correct prerequisites are installed for this operating system versus that operating system or trying to resolve the infamous "stuck in starting" issues with service applications like the User Profile Service or the Search Service in 2013, I find I'm constantly being challenged with new bridges to cross and hurdles to overcome. So if you're new to SharePoint and you feel overwhelmed looking at this 120+ pages of documentation all I can say is don't fret for you're in good hands as this guide encompasses years of experience from myself and SharePoint super stars **Andrew Connell** and **Ted Pattison**, both of whom worked on the 2010 version of this guide as well as the initial 2013 version.

We've tried to cover every possible detail necessary to create a fully functional lab machine for development and business intelligence testing scenarios. Of course, we don't cover everything you need when considering production environments (we don't configure Kerberos for BI, for example) but before you start messing with a production environment you should be able to create a self-contained lab machine, such as this, so that you can familiarize yourself with SharePoint as a product – it makes no sense to engineer a production environment before you understand the product as a whole. And, as a developer, I believe it's extremely valuable to know how to build your own development lab machine; after all, who are you going to contact when you screw up your SharePoint development environment? Probably not your IT department ☺. So knowing how to build a SharePoint farm, even a simple one like this single-server lab machine, is extremely valuable when it comes to being able to maintain your own development environment. And if you're an IT professional ask yourself this, are you really going to have your production environment be the first environment you configure? You definitely want to experiment with a lab machine(s) first.

A lot of effort has gone into making this guide as complete as possible, but going back to my first few statements, there's always something new cropping up and thus I consider this guide a living entity which will constantly evolve from both my experience as well as yours. So if you find something incorrect or if something just isn't working (or if you just want to praise the guide – we love praise!) please fill out the Critical Path Training contact form at <http://www.criticalpathtraining.com/contact/> and let us know.

Good luck with your new SharePoint adventure!

- **Gary Lapointe**

Task 1: Make Sure You Meet the Hardware Requirements

Before getting started, make sure you have a student workstation that meets the following requirements

1. Make sure you have a host computer running either: Windows 8, Windows Server 2012 or Windows Server 2008 R2.
2. Make sure your host computer is configured to run Hyper-V.
3. Make sure your host computer has at least 120GB of free hard drive space
4. Make sure your host computer has enough RAM to run a VM with SharePoint Server 2013
 - a) 16GB is the recommended amount of RAM.
 - b) 12GB should be considered the minimum amount of RAM to achieve acceptable performance.
 - c) Running with less than 12GB of RAM of your host computer will likely lead to poor performance and is not recommended.
5. Make sure your host computer has a connection to the Internet.
 - a) The connection can be based on either a network card with a cable plugged in or a wireless connection.

Note that the instructions and the screenshots of the host computer and the Hyper-V environment in this document were created using Windows 8. Things will look a bit different with Hyper-V if you are running Windows Server 2012 or Windows Server 2008 R2.

Task 2: Configure the Hyper-V Network Adapters on the Host Computer

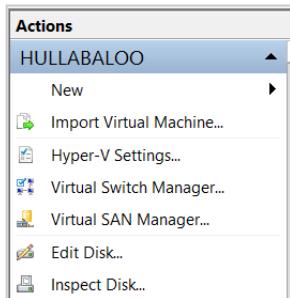
In this task you will configure two Hyper-V network adapters. This task involves creating two virtual switches in Hyper-V that will be used to configure both an internal network adapter and an external network adapter. The internal network adapter will be used to configure a static IP address in the VM. The external network adapter will be used to connect the VM to the Internet.

1. Launch the Hyper-V Manager: **Start → Administrative Tools → Hyper-V Manager**.

The host computer that was used to create the following screenshots is named **HULLABALOO**. Your screen will look a little different because your host computer will have a different name.

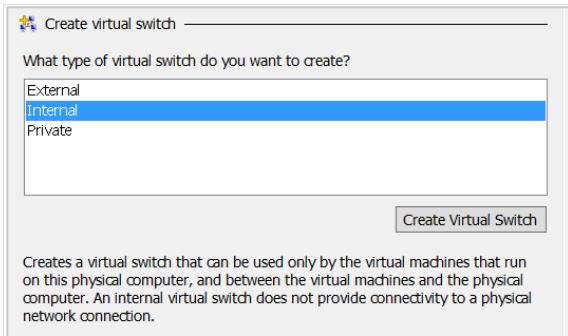
2. Create a new virtual switch named **Internal** for an internal network adapter:

- a) In the **Actions** pane on the right-hand side of the screen, click **Virtual Switch Manager**.

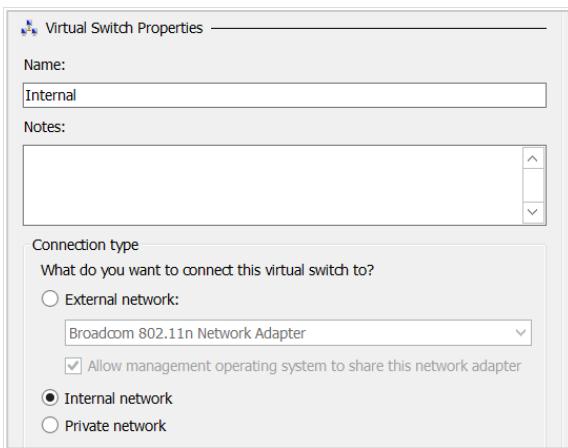


If you are using Windows Server 2008 R2, you are using an older version of Hyper-V which does not use the term **Virtual Switch**. This older version of Hyper-V uses the term **Virtual LAN** instead of **Virtual Switch** so the screenshots shown here will not match.

- b) In the **Virtual Switch Manager** dialog, create a new virtual switch by selecting **Internal** and then clicking the **Create Virtual Switch** button.



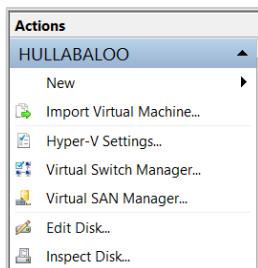
- c) Configure the new virtual switch with the following properties:
- Name: Internal
 - Connection Type: Internal network.



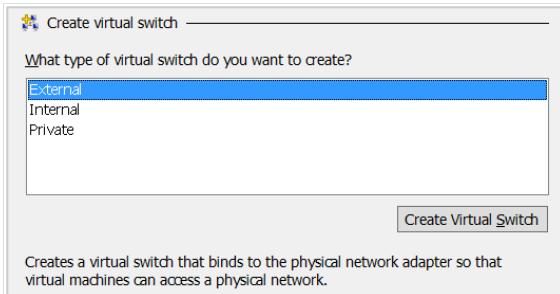
- d) Click **OK** to save your changes.

In the next step you will create an external virtual switch that will be used to connect the VM to the Internet. You can create this external network switch by using either a network adapter with a network cabled plugged in or a wireless connection on your host computer. All that is required is that you create the virtual switch using a network adapter on your host computer that can connect to the Internet. The Internet connection is an essential part of the setup for this VM because it's required when running the Prerequisite Installer utility of SharePoint Server 2013.

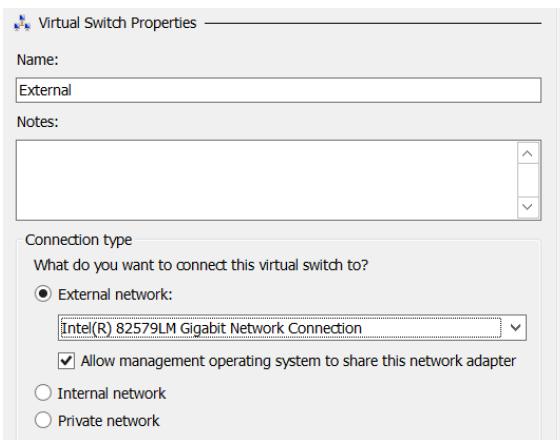
3. Create a new virtual switch named **External** for an external network adapter:
- In the **Actions** pane on the right-hand side of the screen, click **Virtual Switch Manager**.



- In the **Virtual Switch Manager** dialog, create a new virtual switch by selecting **External** and then clicking the **Create Virtual Switch** button.



- Configure the new virtual switch with the following properties:
 - Name:** External
 - Connection Type:** External network.
 - Make sure to select a network adapter or wireless connection from the host computer in the dropdown menu under the **External network** radio button.

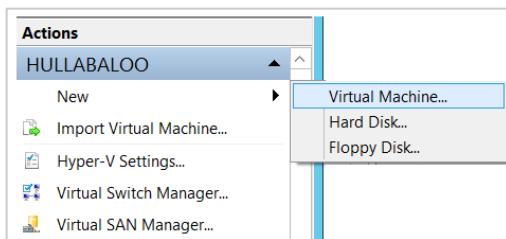


- Click **OK** to save your changes.

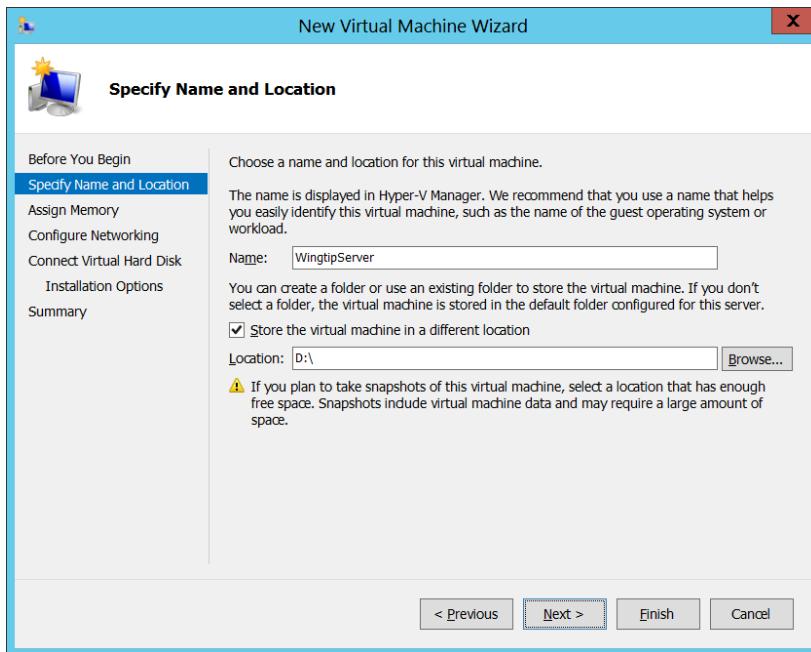
Task 3: Create a new Virtual Machine (VM) using Hyper-V

To complete this task you will create a new VM using the Hyper-V environment.

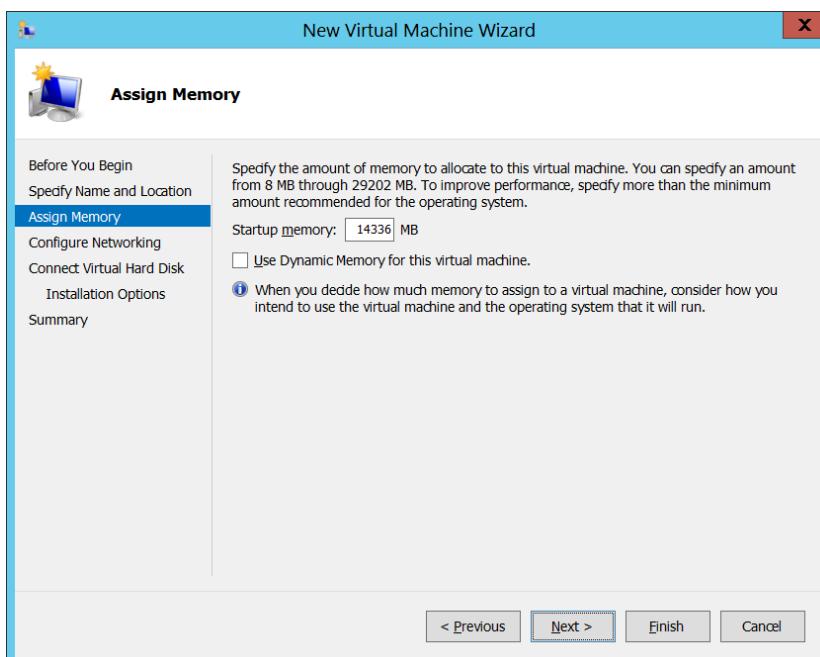
- If it is not open, launch **Hyper-V Manager**.
- On the left-hand side of **Hyper-V Manager**, locate the node with the name of the local host computer and select it.
- In the **Actions** pane select **New → Virtual Machine**.
 - When you execute this menu command, the Hyper-V Manager will launch the **New Virtual Machine Wizard**.



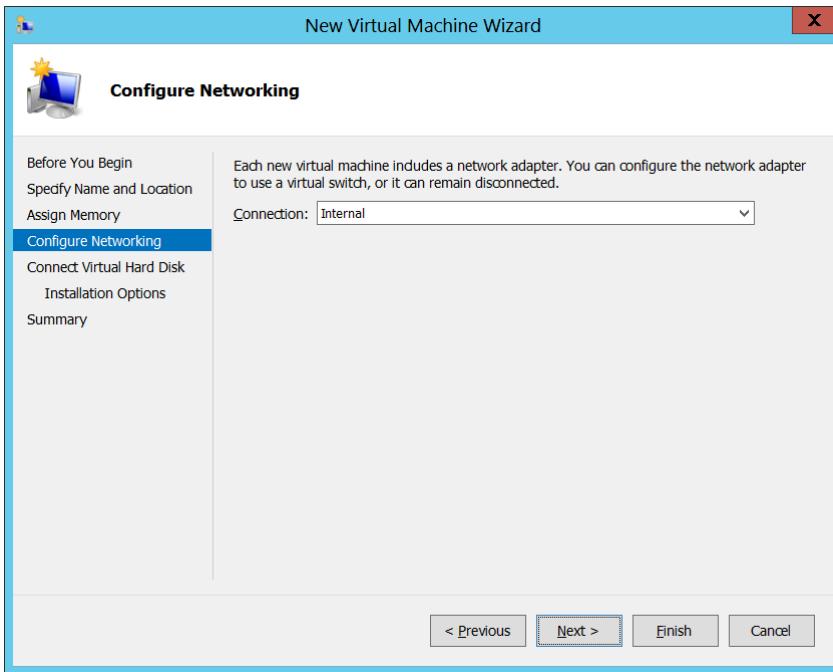
- The **New Virtual Machine Wizard** begins with the **Specify Name and location dialog**.
 - Enter a **Name of WingtipServer**.
 - Select a folder path for the **Location** property where the virtual machine files will be stored. Ensure the **Location** path is hosted by a hard drive that has at least 100GB of free space. If possible, configure the **Location** path on a secondary hard drive that is different from the hard drive running the host operating system to improve the performance of your VM.



- c) Click **Next**.
5. In the **Assign Memory** dialog, enter the amount of **Memory** to allocate to the virtual machine.
- Determine the amount of memory to use for the VM from the following table.
- | If host machine has this much RAM | Then configure the VM with this much RAM |
|-----------------------------------|---|
| 16 GB or more | 14 GB - configure the VM with 14336 MB of RAM. |
| 14 GB | 12 GB - configure the VM with 12288 MB of RAM. |
| 12 GB | 10 GB - configure the VM with 10240 MB of RAM. |
| 10 GB (not supported) | 8 GB - configure the VM with 8192 MB of RAM. |
| 8 GB (not supported) | 6.5 GB - configure the VM with 6656 MB of RAM. |
- Enter the amount of RAM you calculated in the previous step as the **Startup** memory property. Make sure you enter the number in megabytes (e.g. **14336 MB**). Finally, make sure to leave the **Use Dynamic Memory for this virtual machine** checkbox unchecked. Click **Next** to continue.

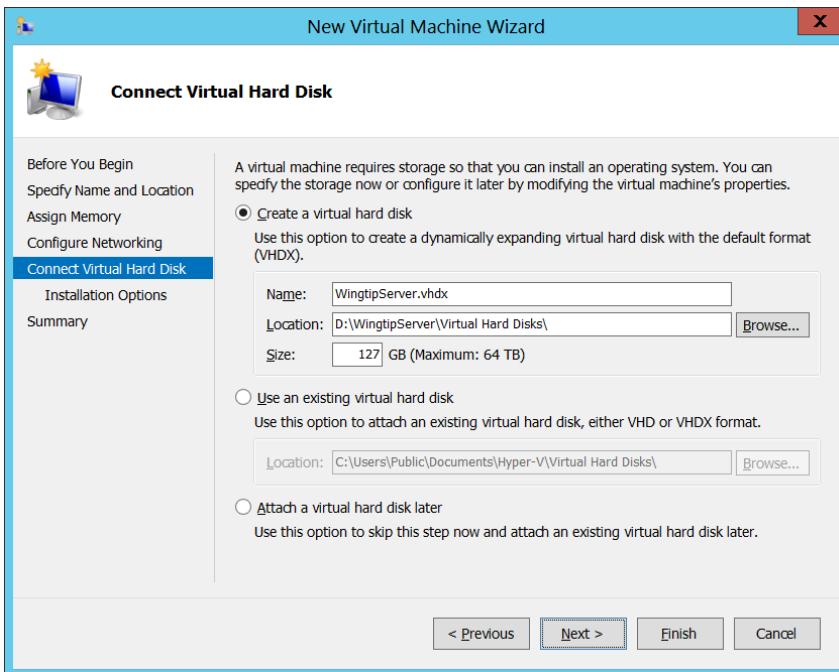


6. In the **Configure Networking** dialog, assign a **Connection** property of the **Internal** and click **Next**.

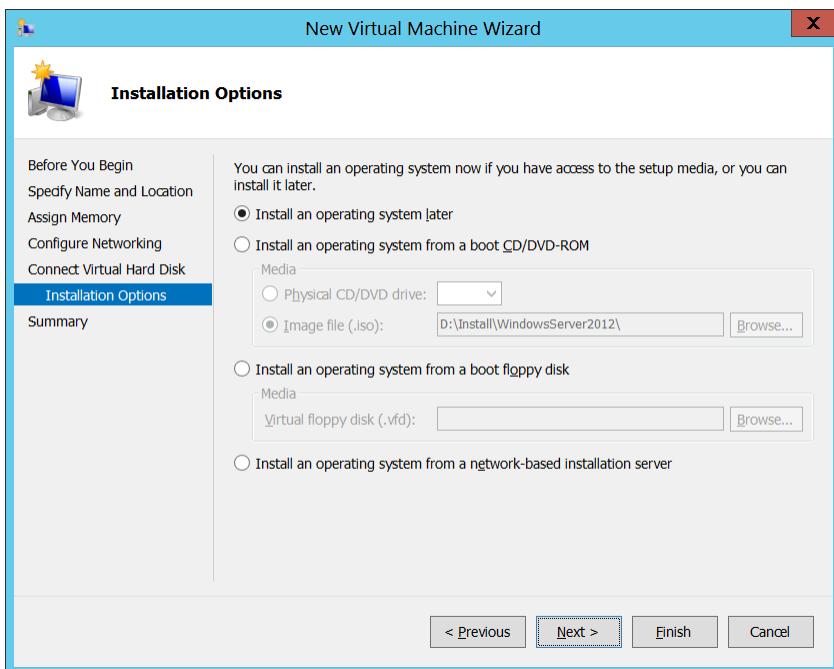


In the next step you will configure the file location for the files Hyper-V uses to store the VM. If possible, configure the VM file location on a separate physical drive that is different than the drive which holds the host computer's operating system. This is one of the best way to increase the performance of a VM.

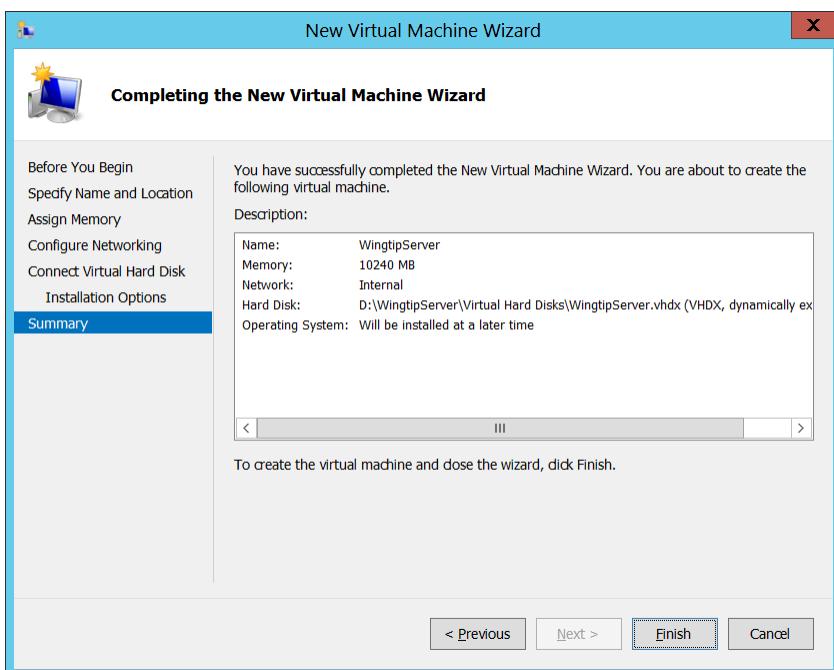
7. In the **Connect Virtual Hard Disk** dialog, accept the default option of **Create a virtual hard disk**. Make sure the **Location** is set to a directory in a local hard drive on our host computer that has at least 120 GB of free space. Click **Next**.



8. In the **Installation Options** dialog, accept the default option which is **Install an operating system later** and click **Next**.

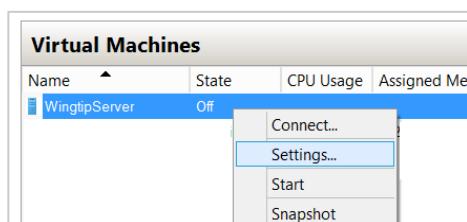


9. On the **Completing the New Virtual Machine Wizard** dialog, review the setting and verify that these settings are what you expected. Click **Finish** to create the new VM.



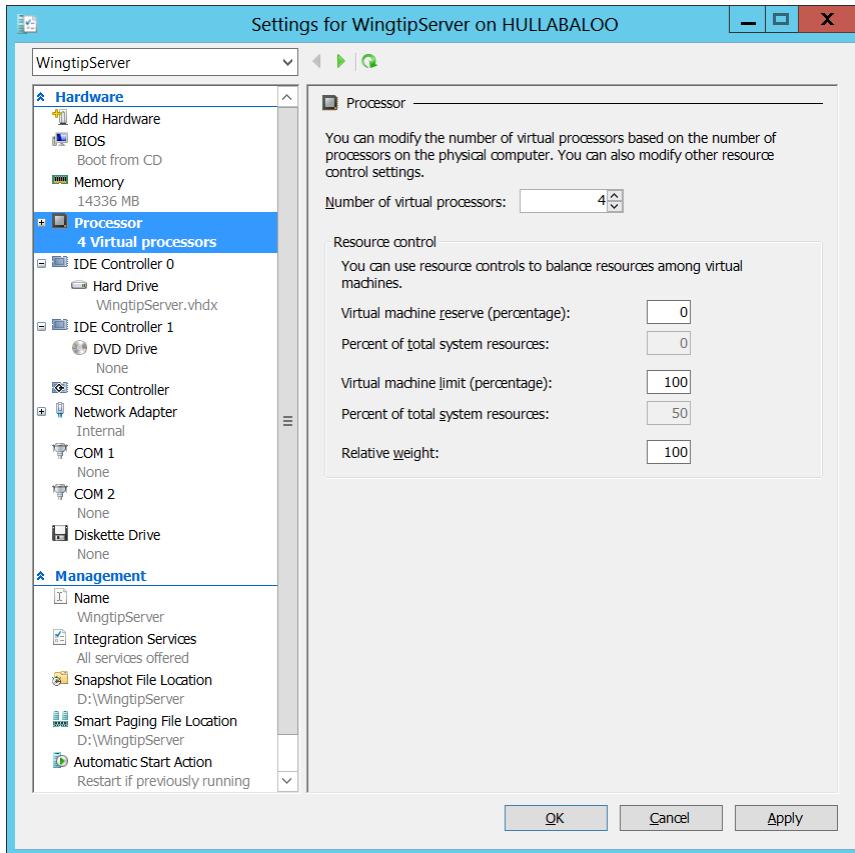
Even though you have finished going through the New Virtual Machine Wizard, there are still two more configuration changes you need to make on the VM before you are ready to install the Windows Server 2012 R2 operating system.

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



11. In the **Settings for WingtipServer** dialog, complete the following steps

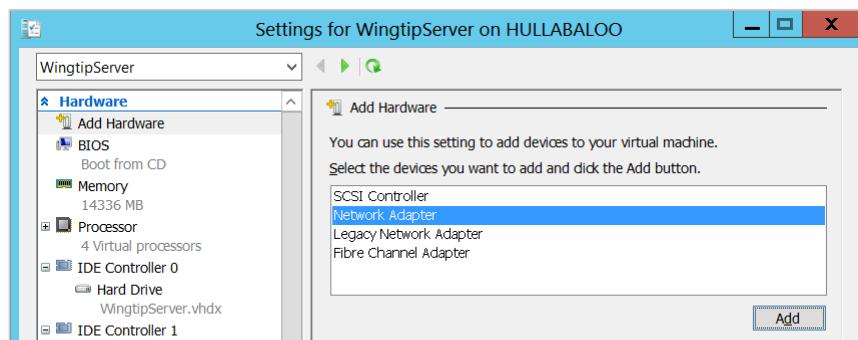
- Select the **Processor** setting and increment the **Number of processors** property value from its default value of **1** to the maximum allowable number for your host machine. You can increment the **Number of processors** property value using the up arrow in the spinner control to its right. Depending on the processor capabilities of your host computer, you should be able to increase this property to a value of either **2**, **4** or **8**.



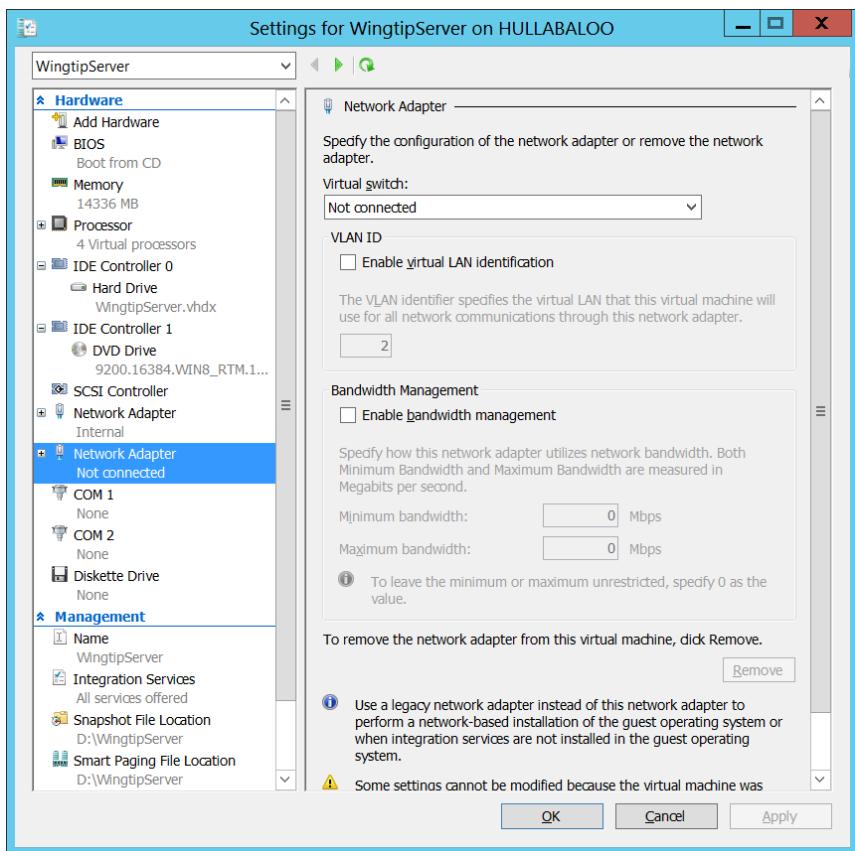
- Click the **Apply** button to save your changes to the **Number of virtual processors** property while leaving the dialog open.

12. Create a second network adapter in the VM.

- In the **Settings for WingtipServer** dialog, select **Add Hardware**. Next, select **Network Adapter** and click **Add**:



- Once the new Network Adapter has been created, do **not** assign a **Virtual switch** yet. In an upcoming task later in this setup guide you will bind this network adapter to the **External** virtual switch. For now, however, you should leave the **Virtual switch** setting with its default value of **Not connected**.



- c) Click **OK** to save the changes you have made to the VM.

At this point you have created and configured a new VM. You are now ready to install Windows Server 2012 R2.

Task 4: Install Windows Server 2012 R2

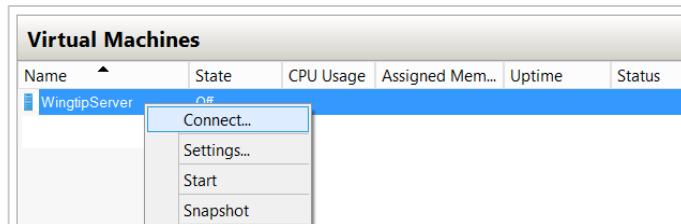
You will begin this task by acquiring the installation files and optionally a product key for Windows Server 2012 R2. After that you will move through the steps of installing the operating system and configuring the VM as a server computer named **WingtipServer**.

1. Obtain a copy of the Windows Server 2012 R2 install binaries.
 - a) Choose between using your own licensed copy of Windows Server 2012 R2 or using a free trial version.
 - i) Note that downloading the free trial version will require that you have a TechNet or an MSDN subscription.
 - b) If you plan to use a licensed copy, acquire the install image (*.iso) for Windows Server 2012 R2 and the product key.
 - c) If you plan to use a free trial copy of Windows Server 2012 R2, follow these steps:
 - i) Navigate to the evaluation download page at <http://technet.microsoft.com/en-US/evalcenter/dn205286>.
 - ii) Select **Windows Server 2012 R2 Datacenter ISO** from the dropdown and click the **Get Started Now** button underneath to begin the download.
 - iii) When prompted, log in using the credentials for your TechNet or MSDN subscription.
 - iv) Work through the instructions for downloading the Windows Server 2012 R2 installation files in the .ISO file format.
 - v) When you are done, you should have successfully downloaded the .ISO file with the Windows Server 2012 R2 installation files to the hard drive of your host computer.

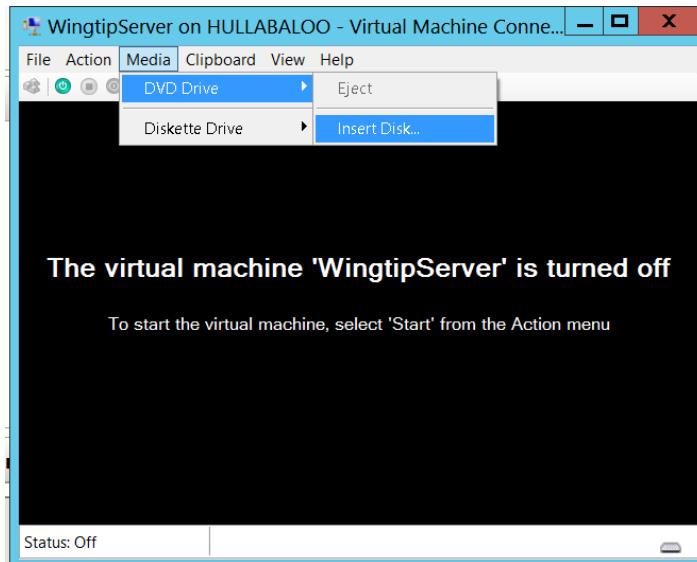
Windows Server 2012 R2 requires SharePoint 2013 SP1 and cannot be used with prior versions of SharePoint.

2. Mount the .ISO file so the **WingtipServer** VM recognizes it as a DVD.
 - a) Navigate to **Hyper-V Manager**.

- b) Right-click the **WingtipServer** VM and select the **Connect...** command to display the Hyper-V console window for this VM.



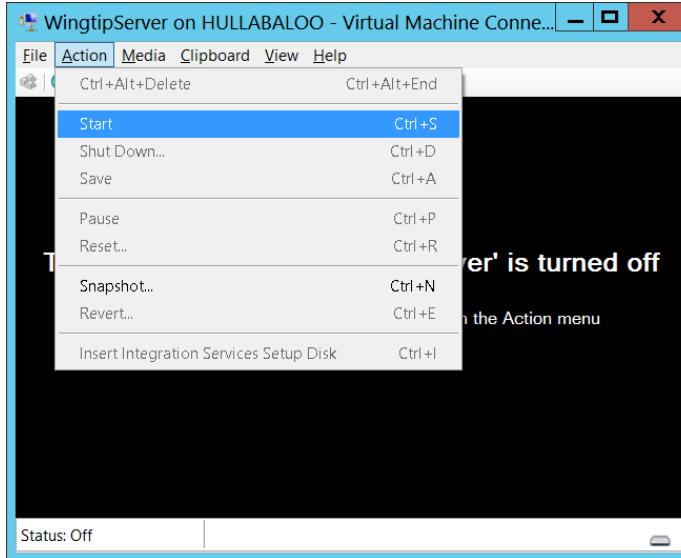
- c) In the Hyper-V console windows for the **WingtipServer** VM, select the **Insert Disk...** command.



- d) When the **Open File** dialog appears, enter the path to the .ISO file with the Windows Server 2012 R2 installation files.
e) Click **OK**.

3. Start the **WingtipServer** VM.

- a) In the Hyper-V console windows for **WingtipServer**, select the **Start** command from the **Action** menu to start up the VM.



When the **WingtipServer** VM starts, it should automatically start the Windows Server 2012 R2 installation program.

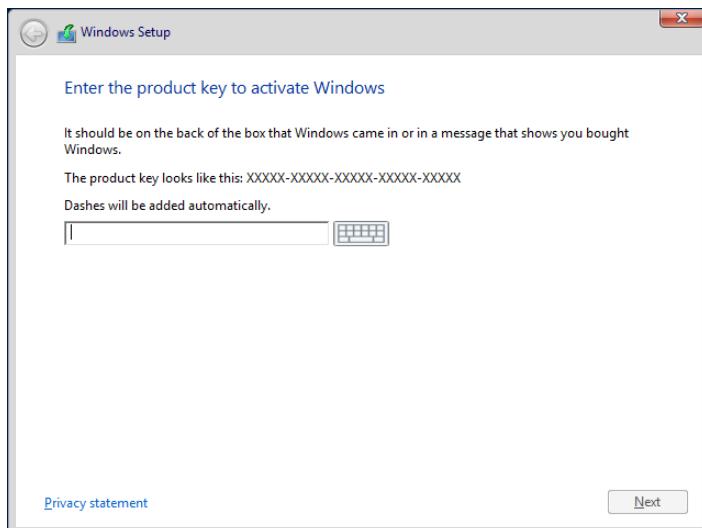
4. After the setup program for Windows Server 2012 R2 loads, it will prompt you with a dialog asking you to select a language. Accept the default of **English** and click **Install** to continue.



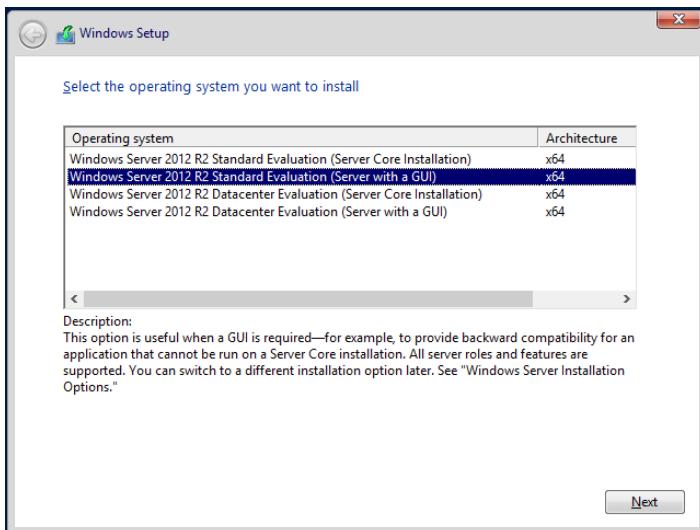
5. At the next dialog, click the **Install Now** button to begin the installation.



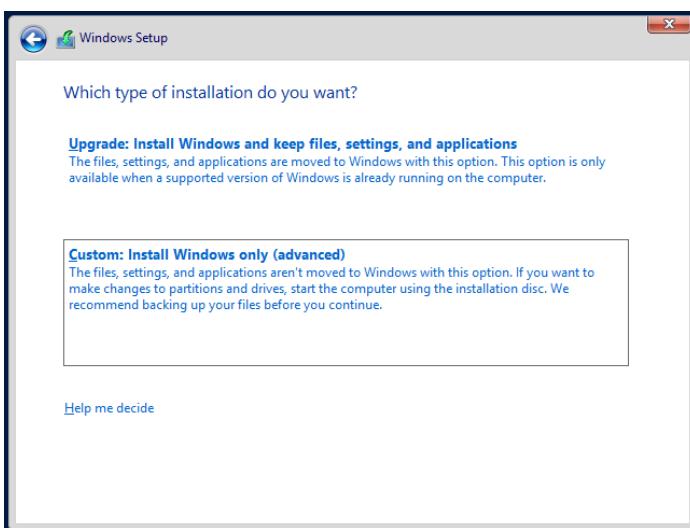
6. Depending on the type of installation files you have for Windows Server 2012 R2, you might be prompted with a dialog which asks you to provide your Windows Server 2012 R2 product key. If so, enter your product key and click **Next**.



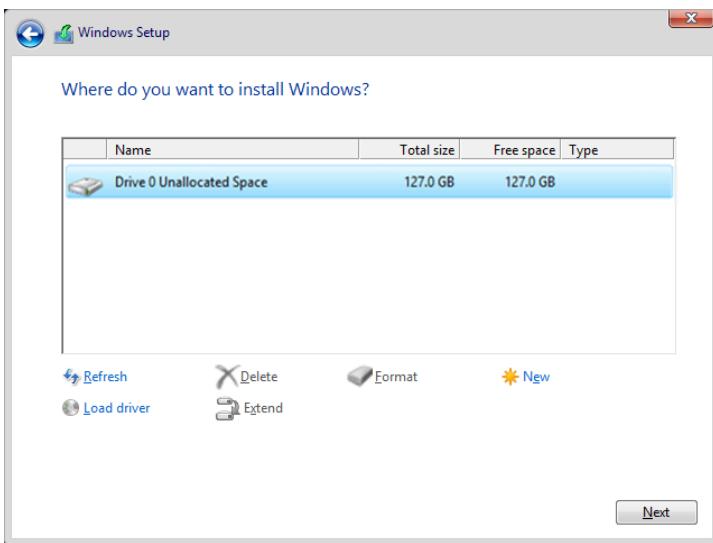
7. Depending on the type of installation files you have for Windows Server 2012 R2, you might be prompted with a dialog which asks you to select the operating system you want to install. If so, select the **64-bit** edition of **Windows Server 2012 R2 Standard Evaluation (Server with a GUI)** and click **Next**.



8. On the following dialog, agree to the licensing terms and click **Next**.
9. The next dialog prompts you with the question **Which type of installation do you want?**
a) Select the installation type of **Custom: Install Windows only (advanced)**
b) Click **Next**.

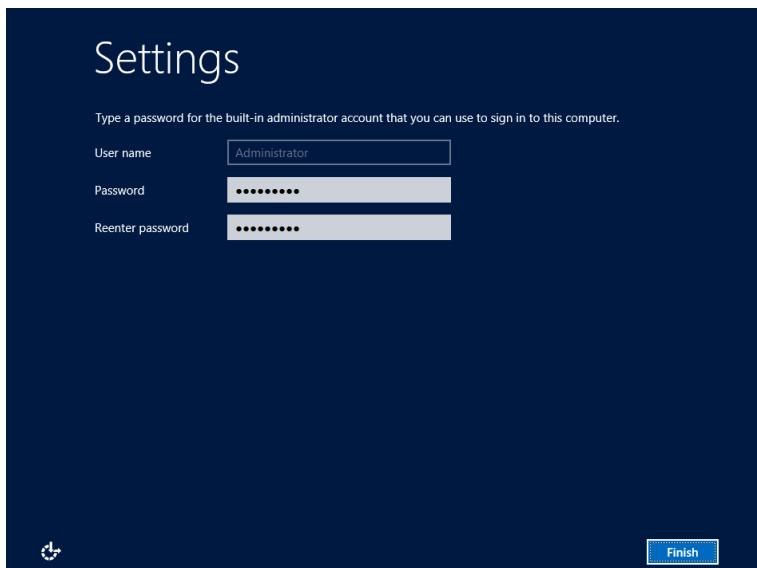


10. The next dialog asks you where you want to install Windows.
a) Accept the default configuration which uses a location of **Disk 0 Unallocated Space** as shown below.
b) Click **Next** to continue.

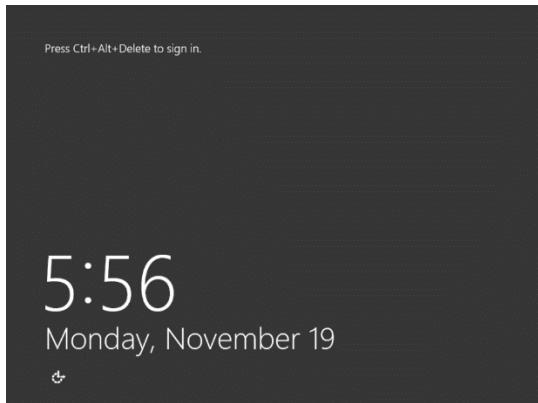


At this point you have given the Windows setup program enough information to install the basic operating system. The Windows Server 2012 R2 setup program will now run for several minutes as it copies and expands files and installs Windows features. You now have a few minutes to get a cup of coffee or catch up on email.

11. Wait until the Windows Server 2012 R2 setup program completes
12. When the setup program has completed, it will prompt you to assign a new password for the **Administrator** account.
 - a) Click **OK** to continue and reset the administrator password.
 - b) Set the password for the **Administrator** account to **Password1**.



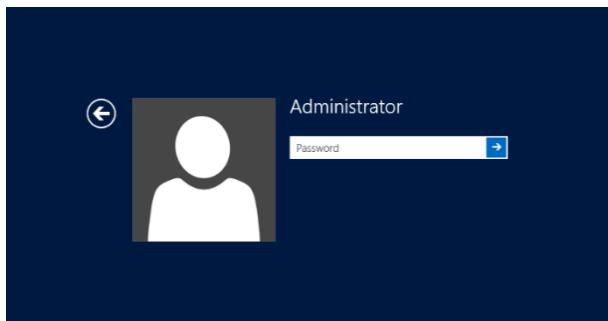
- c) After you have updated the **Administrator** password, you will get a confirmation that the update was successful.
- d) Click **OK** to complete the basic installation of the operating system.
- e) When you click **OK** in the previous step, you will be logged off of the VM and the Hyper-V console window will then display the current date and time as well as the message **Press Ctrl + Alt + Delete to sign in**.



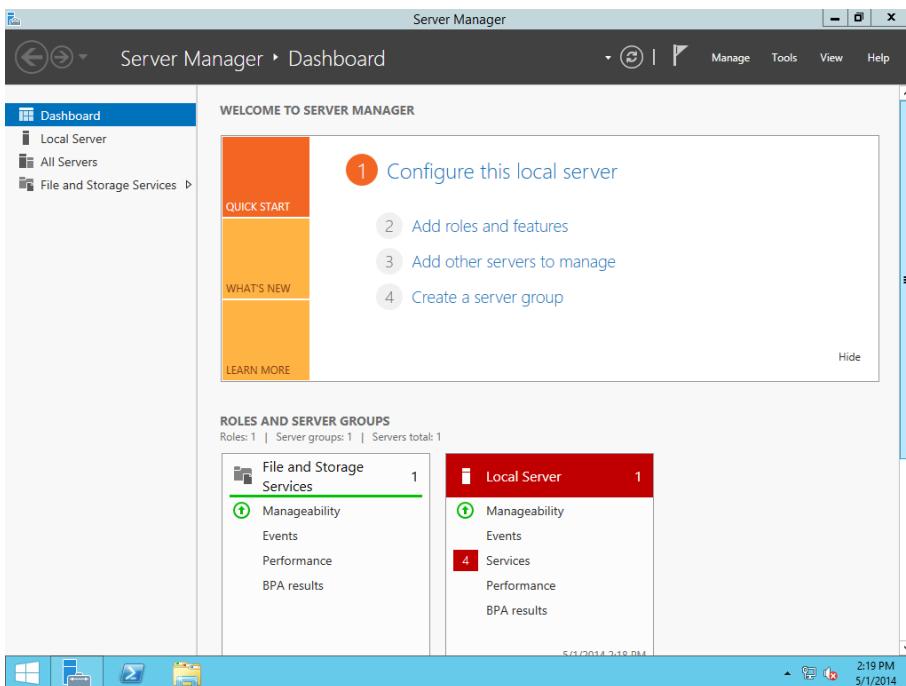
At this point, you have installed the basic operating system for Windows Server 2012 R2 but there are several more configuration changes that you must make. Over the next few steps you will complete the required configuration by changing the computer name of the VM and making a few additional changes to the configuration of the operating system.

13. Log onto the VM using the local **Administrator** account.

- a) Do not attempt to log on by pressing the **Ctrl + Alt + Delete**. This keyboard combination will be sent to the host computer instead of the VM running inside Hyper-V.
- b) Log on to the VM by pressing the **Ctrl + Alt + End** keyboard combination or by selecting the **Ctrl + Alt + Delete** menu command inside the **Action** menu of the Hyper-V console window. When prompted to log on to the **Administrator** account, provide a password of **Password1**.



14. When you log in, Windows Server 2012 R2 automatically displays the **Dashboard** page of the **Server Manager**. If you look at the left-hand portion of the screen, you will notice several navigation links including **Dashboard**, **Local Server**, **All Servers** and **File and Storage Services**.

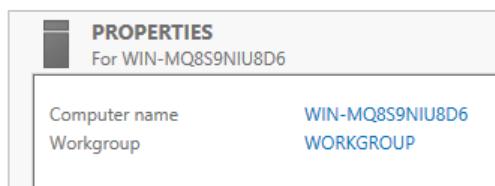


15. Click on **Local Server** link to navigate to the main page used to update configuration properties of the local machine. You can see on the right-hand side of the screen there is a large section with a title of **Properties** which displays selected properties of the local machine.

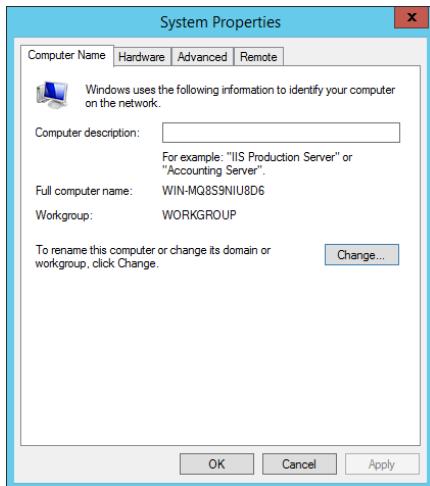
Server Name	ID	Severity	Source	Log	Date and Time
WIN-MQ8S9NIU8D6	1014	Warning	Microsoft-Windows-DNS Client Events	System	5/1/2014 3:16:37 PM
WIN-MQ8S9NIU8D6	10149	Warning	Microsoft-Windows-Windows Remote Management	System	5/1/2014 3:15:28 PM
WIN-MQ8S9NIU8D6	1014	Warning	Microsoft-Windows-DNS Client Events	System	5/1/2014 3:15:19 PM

16. Change the **Computer name** of the VM to **WingtipServer**.

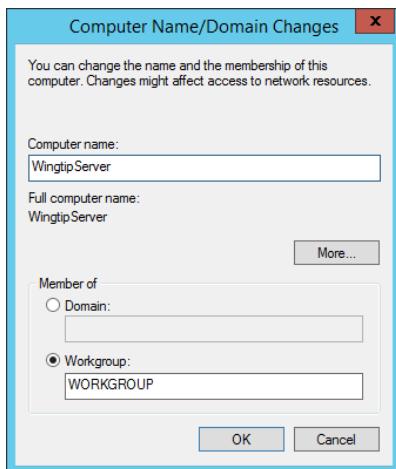
- a) Locate the **Computer name** property which is listed first in the **Properties** section. The current computer name was created by the Windows installation program as part of the initial setup of the operating system. Click on the value of the **Computer name** property to modify it.



- b) At this point you should be at the **Computer Name** tab of the **System Properties** dialog. Click on the **Change** button to update the **Computer name** property.



- c) In the **Computer Name/Domain Changes** dialog, change the **Computer name** property to **WingtipServer**. Click **OK** to save your changes.



- d) When you modify the **Computer name** property, Windows prompts you with a dialog that tells you the machine needs to be restarted to apply the change. Choose **OK** to restart, then click **OK** to close the System Properties dialog, and finally, click **Restart Now** to restart the VM.
e) After the VM has restarted, log in again using **[Administrator | Password1] (username | password)**.

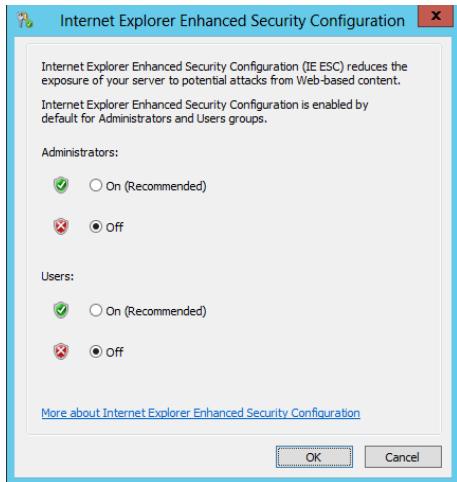
17. Once you have logged back onto the VM, navigate back to the **Server Manager** and click the **Local Server** node. At this point, you should be able to see the **Properties for WingtipServer** section in the **Server Manager**.

The screenshot shows the 'PROPERTIES' section for the local server 'WingtipServer'. It displays various system settings:

- Computer name:** WingtipServer
- Workgroup:** WORKGROUP
- Last installed updates:** Windows Update
- Windows Firewall:** Public: On
- Remote management:** Enabled
- Remote Desktop:** Disabled
- NIC Teaming:** Disabled
- Ethernet:** IPv4 address assigned by DHCP, IPv6 enabled
- Ethernet 2:** IPv4 address assigned by DHCP, IPv6 enabled
- Windows Error Reporting:** Customer Experience Improvement Program
- Customer Experience Improvement Program:** IE Enhanced Security Configuration
- Time zone:** Time zone
- Product ID:** Product ID
- Operating system version:** Microsoft Windows Server 2012 R2 Standard Evaluation
- Hardware information:** VMware, Inc. VMware Virtual Platform
- Processors:** Installed memory (RAM)

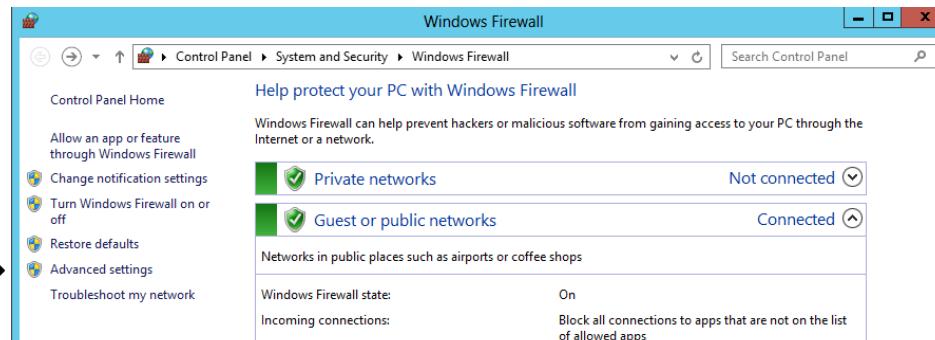
18. Disable Enhanced Security Configuration.

- In the **Properties for WingtipServer** section of the **Server Manager**, locate the **IE Enhanced Security Configuration** property in the right-hand column.
- You should be able to see that the **Enhanced Security Configuration** mode is configured to be on by default.
- Click on the value of **On** to display the **Internet Explorer Enhanced Security Configuration** dialog. This will display the **Internet Explorer Enhanced Security Configuration** dialog.
- In the **Internet Explorer Enhanced Security Configuration** dialog, disable **Enhanced Security Configuration** for both **Administrators** and **Users** by selecting the **Off** radio buttons as shown below and then click **OK**.

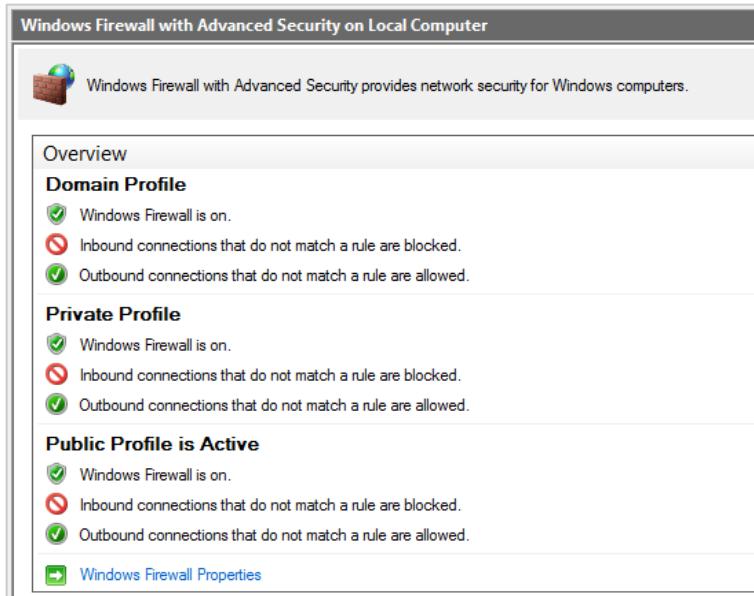


19. Disable the Windows Firewall.

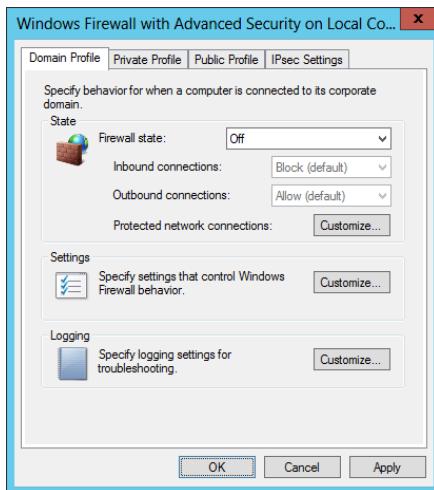
- In the **Properties for WingtipServer** section of the **Server Manager**, locate the **Windows Firewall** property which shows an initial value of **Public: On**. Click on the value of **Public: On** to display the **Windows Firewall** dialog.
- In the **Windows Firewall** dialog, locate and click the **Advanced Settings** link to display the **Windows Firewall Advanced Settings** dialog.



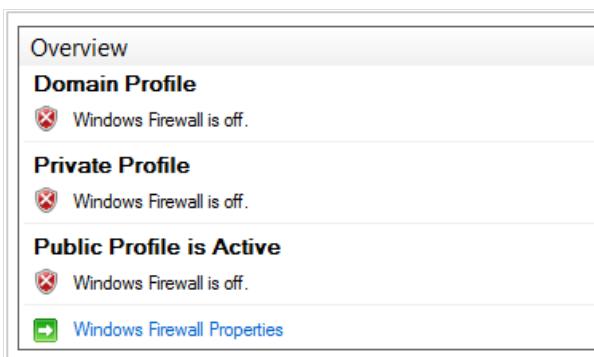
- In the **Windows Firewall Advanced Settings** dialog, you should be able to see that the Windows Firewall for the **Domain Profile**, the **Private Profile** and the **Public Profile** are all enabled. Locate and click the **Windows Firewall Properties** link at the bottom of the **Overview** section to display a tabbed dialog with the title of the **Windows Firewall with Advanced Security on Local Computer**.



- d) In the **Domain Profile** tab of the **Windows Firewall with Advanced Security on Local Computer** dialog, change the **Firewall state** property setting from **On** to **Off**. Click **Apply** to save your changes while leaving the tabbed dialog open.

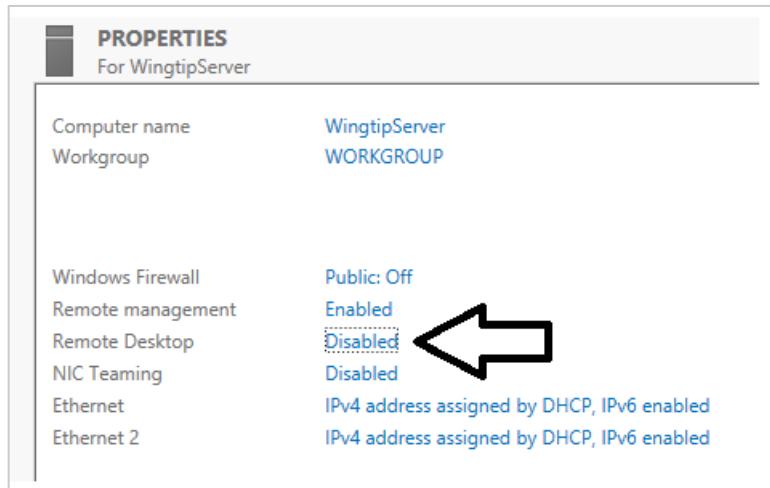


- e) Once you have configured the **Firewall state** property to **Off** on the **Domain Profile** tab, go to the **Private Profile** tab and then the **Public Profile** tab and follow the same steps to disable the firewall for these profiles as well.
f) Once you have turned off the firewall for all three profiles, click **OK** to dismiss the dialog. You should be able to verify in the **Overview** section of the **Windows Firewall Advanced Settings** dialog that the Windows Firewall has been turned off for the **Domain Profile**, the **Private Profile** and the **Public Profile**.

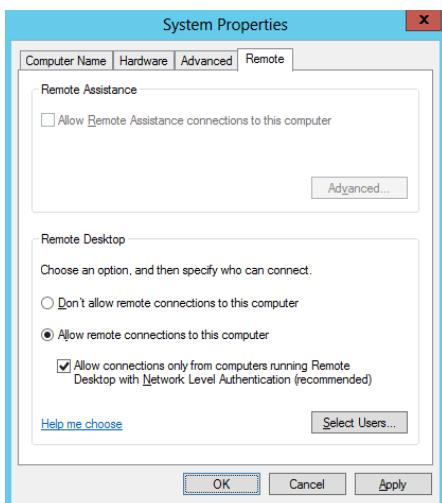


20. Enable Remote Desktop for your VM:

- Navigate back to the **Server Manager** and click the **Local Server** node. At this point, you should be able to see the **Properties for WingtipServer** section in the **Server Manager**.
- Look inside the **Properties for WingtipServer** section and locate the **Remote Desktop** property which has an initial value of **Disabled**.



- Click on the **Remote Desktop** property value of **Disabled**. This will display the **Remote** tab of the **System Properties** dialog.
- Select the radio button option **Allow for remote connections to this computer**.
- Check **Allow connections only from computers running Remote Desktop with Network Level Authentication**.
- Click **OK** to save changes and dismiss the **System Properties** dialog.

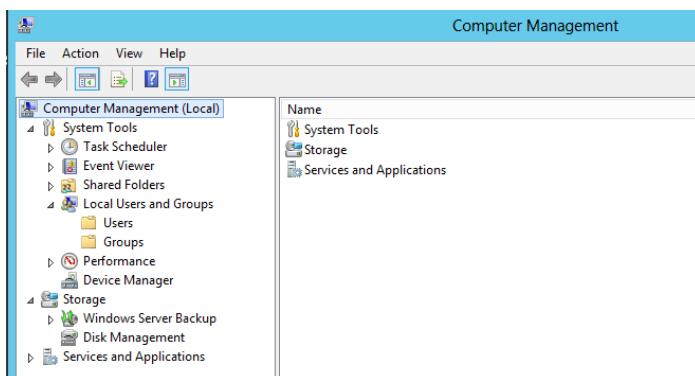


21. Configure the local **Administrators** account so the password never expires.

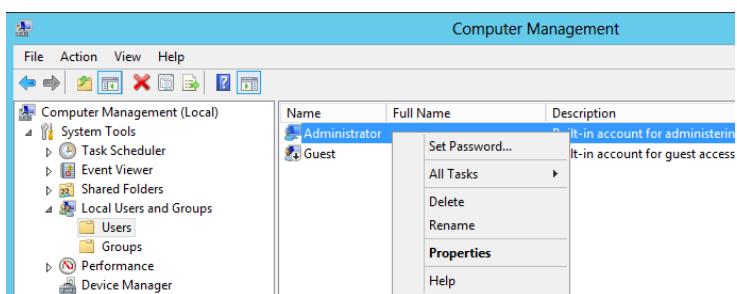
- Navigate to the **Properties for WingtipServer** section of **Server Manager > Local Server**.
- Look at the top-right corner of the **Properties for WingtipServer** section and locate the **Tasks** menu. Drop down the **Tasks** menu and select the **Computer Management** menu command to display the Windows server **Computer Management** utility.



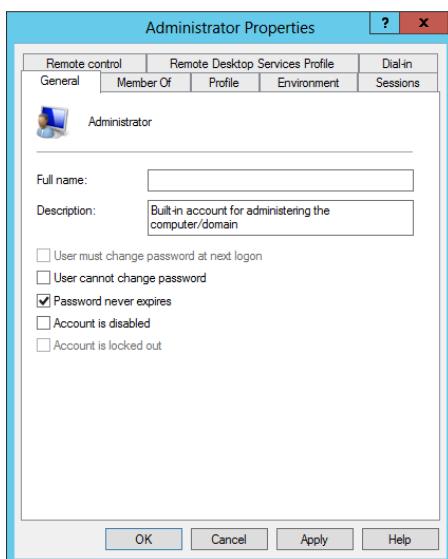
- c) When the **Computer Management** utility appears, you can see that it provides a tree view control of nodes that represent various configurable components and services on the local machine. Within this collection of nodes, you should be able to locate the **Local Users and Groups** node.



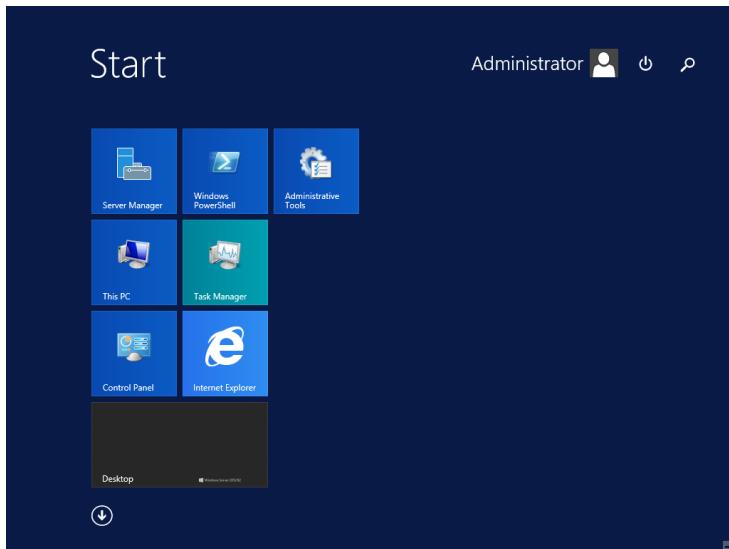
- d) Navigate to **Local Users and Groups** → **Users** and locate the local **Administrator** account.
e) Right-click on the **Administrator** account and click **Properties**.



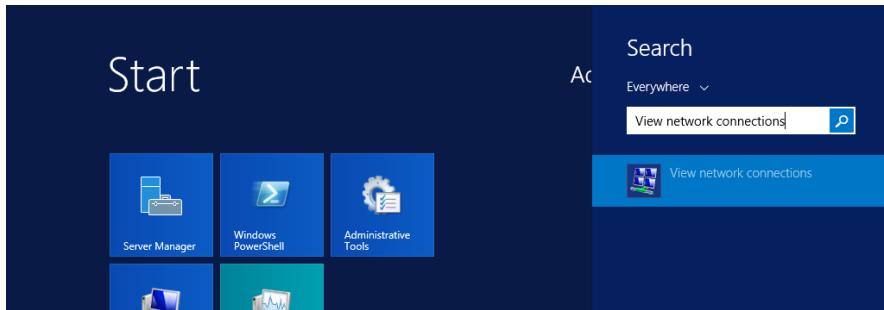
- f) In the **Administrator Properties** dialog, select the option for **Password never expires**.



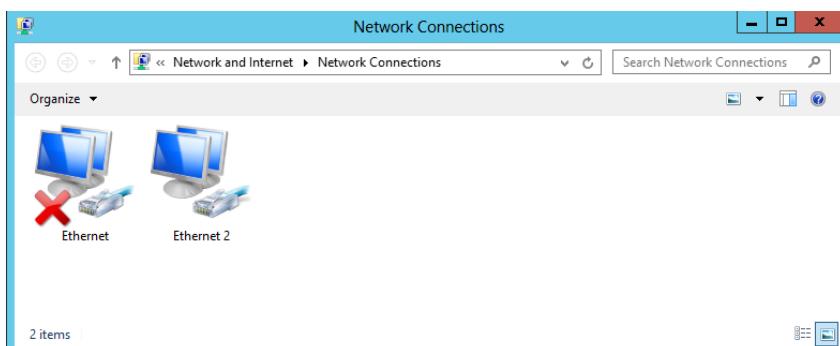
- g) Click **OK** to save your changes and close the **Administrator Properties** dialog.
 - h) Return to the **Local Server** page of the **Server Manager**.
22. Rename the two network connections so you can tell them apart.
- a) Press the **Windows** key on the keyboard to bring up the Windows Server 2012 R2 **Start page**.
 - b) Your **Start page** should appear as the one shown below.



- c) With the **Start page** showing, go to the keyboard and type in "**View Network Connections**". You should see that Windows found the **View network connections** page. Click on **View network connections** to navigate to that page.

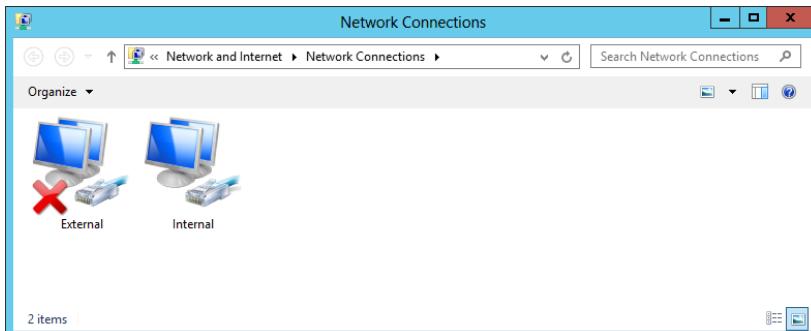


- d) On the **View network connections** page, you should see that the VM has two network connections. You should also be able to see that one of them is connected and the other one with the big red X is disconnected.



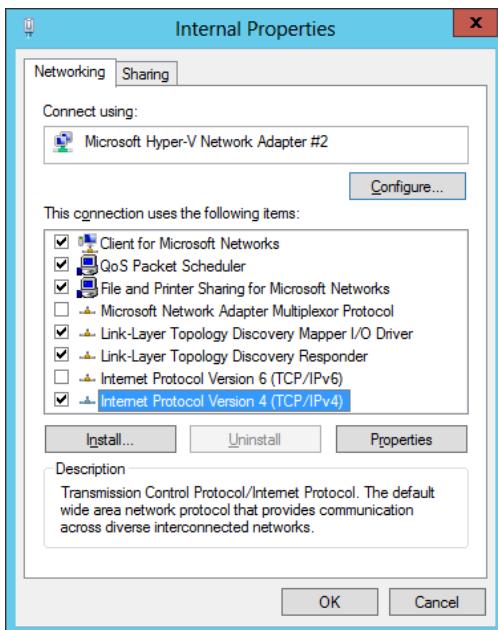
The network connection which is connected is based on network adapter for the VM which is assigned to the virtual switch named **Internal**. The other network connection which is disconnected (e.g. unplugged) has a network adapter that is not currently assigned to a virtual switch. The reason we had you leave the second network adapter unassigned earlier in the setup guide is that it makes it easier to see which network connection is which when initially configuring the VM.

- e) Right-click the network connection which is connected and select **Rename**. Give it a name of **Internal**.
- f) Right-click the network connection which is disconnected and select **Rename**. Give it a name of **External**.

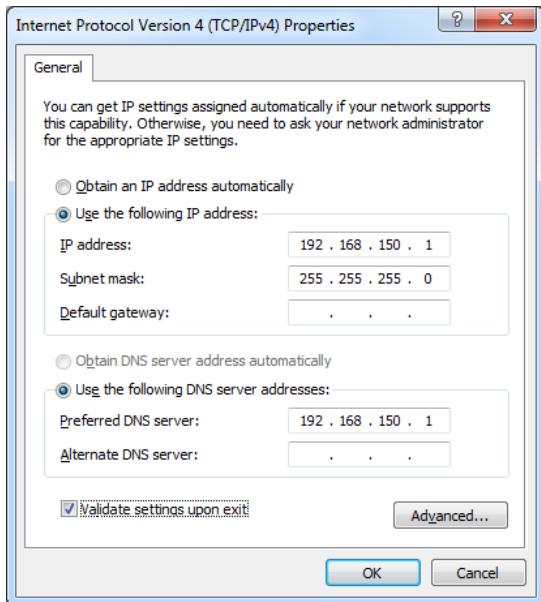


23. Configure a static IP address on **Internal** network connection.

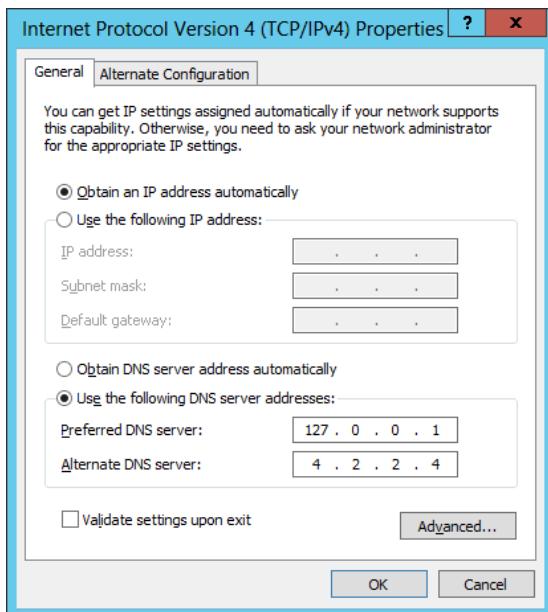
- a) Right-click the **Internal** network connection and select **Properties**.
- b) Uncheck the item **Internet Protocol Version 6 (TCP/IPv6)**
- c) In the **Internal Properties** dialog, select the **Internet Protocol Version 4 (TCP/IPv4)** item and click **Properties**.



- d) In the **Internet Protocol Version 4 Properties** dialog, select the option **Use the following IP address** and enter the following configuration settings:
 - i) IP Address: 192.168.150.1
 - ii) Subnet mask: 255.255.255.0
- e) In the **Internet Protocol Version 4 Properties** dialog, select the option **Use the following DNS Server Addresses** and enter the following configuration setting:
 - i) Preferred DNS Server: 192.168.150.1



- f) Click **OK** to accept the IP settings and **Close** the **Internet Protocol Version 4** dialog.
24. Configure the **External** network connection inside the VM to connect to the Internet:
- Open the **Network Connections** window if it is not still open using the same steps from the previous step.
 - Right-click the **External** network connection and select **Properties** to display the **External Properties** dialog.
 - Uncheck the item **Internet Protocol Version 6 (TCP/IPv6)**
 - Select the **Internet Protocol Version 4 (TCP/IPv4)** item and click **Properties**.
 - Enter the following information into the resulting dialog to configure the network connections IP settings:
 - Select the radio button option **Obtain an IP Address Automatically**
 - Select the radio button option **Use the following DNS server addresses**.
 - Set the **Preferred DNS Server** to **127.0.0.1**.
 - Set the **Alternate DNS Server** to **4.2.2.4**.



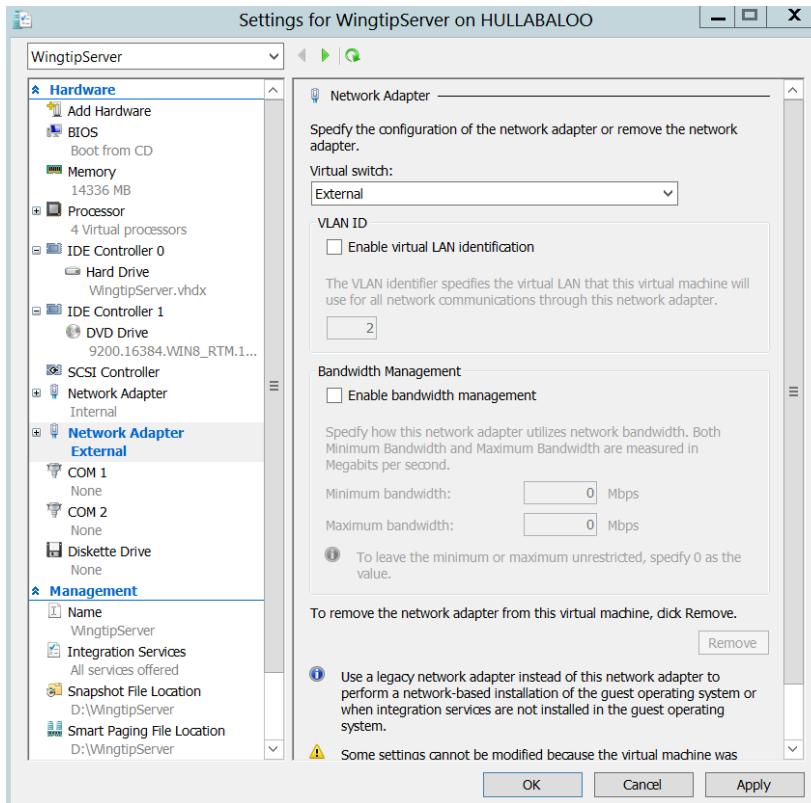
- f) Click **OK** to accept the IP settings and **Close** the **Internet Protocol Version 4** dialog.

Setting the DNS server addresses for the **External** network connection is important. These settings will ensure that the VM always looks to its local DNS service first when attempting to resolve an Internet domain name to an IP address. The

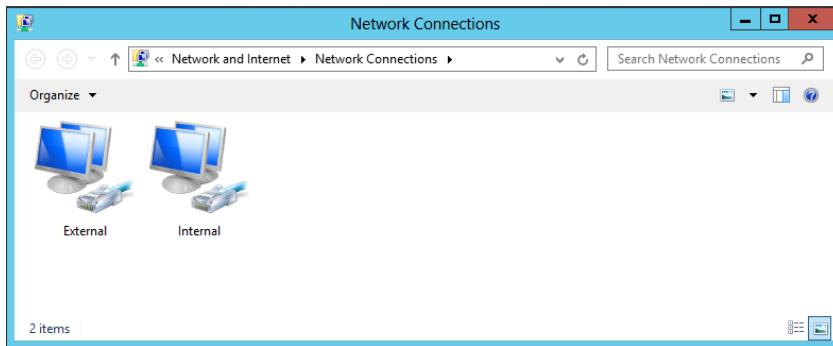
second IP address of **4.2.2.4** is a well-known address of a DNS server on the Internet. This configuration ensures that the VM will always have a secondary DNS service to look up domains on the Internet that the local DNS service cannot find.

25. Reconfigure the VM's network adapter in Hyper-V to bind it to the **External** virtual switch.

- Go back to the host computer and open the Hyper-V Manager.
- In the Hyper-V Manager window, right-click the VM named **WingtipServer** and select **Settings**.
- Select the second Network Adapter, the one that is not connected.
- For the **Virtual switch** setting, select **External** and click **OK**. This will effectively connect the **External** network connection in the **WingtipServer** VM to your local LAN and your local DHCP service.

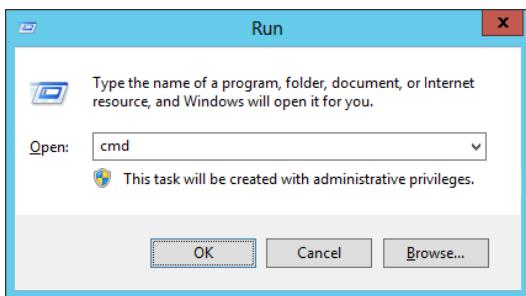


- Return back into the user interface of the **WingtipServer** VM.
- Navigate back to the **View network connections** page. You should now see that both network connections show they are connected. In other words, the big red X should have disappeared.



- Refresh the **External** network connection
 - Select the **External** network connection you just plugged in
 - With the **External** network connection selected, click the **Disable this Network Device** button in the toolbar.
 - With the **External** network connection selected, click the **Enable this Network Device** button in the toolbar

- iv) When the network connection is re-enabled, Windows uses the **External** network connection to call out to the local DHCP service to acquire an IP address that will make it possible for the **WingtipServer** VM to access the Internet.
 - v) Open the Internet Explorer and browse to a site on the Internet such as <http://www.bing.com>. You should be able to browse sites on the Internet without any problems.
26. Run the **ipconfig.exe** utility to verify that the VM's IP addresses have been configured properly.
- a) Press the **Windows** key + **R** key keyboard combination to bring up the Windows **Run** menu.
 - b) In the **Run** dialog, type in **cmd** and click **OK** to bring up a standard Windows command prompt.



- c) In the command prompt, run the **ipconfig** command to view the IP addresses that have been assigned to the **WingtipServer** VM. You should be able to verify that that the **Internal** network connection has the static IP address you assigned which is **192.168.150.1**. You should also be able to verify that that the **External** network connection has been assigned a dynamic IP address by your local DHCP service.

```

Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.

C:\>Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Internal:

  Connection-specific DNS Suffix  . : 
  Link-local IPv6 Address . . . . . : fe80::dccc:4af3:134f:925fx13
  IPv4 Address . . . . . : 192.168.150.1
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 

Ethernet adapter External:

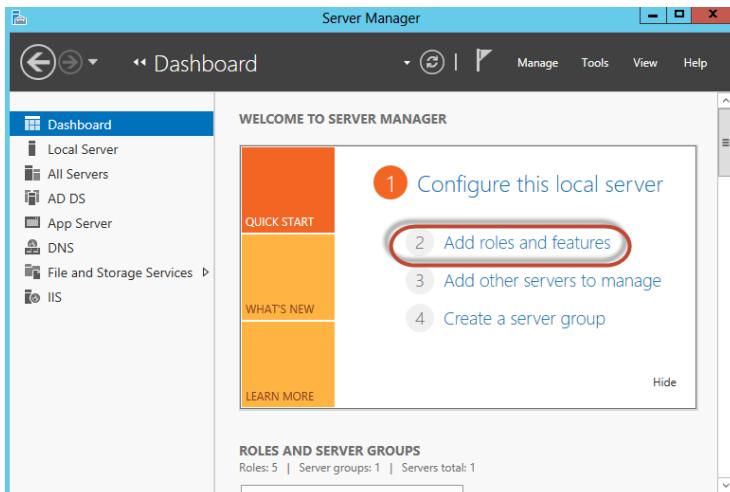
  Connection-specific DNS Suffix  . : home
  Link-local IPv6 Address . . . . . : fe80::d85e:f616:3923:18b3x12
  IPv4 Address . . . . . : 192.168.1.2
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 192.168.1.1

```

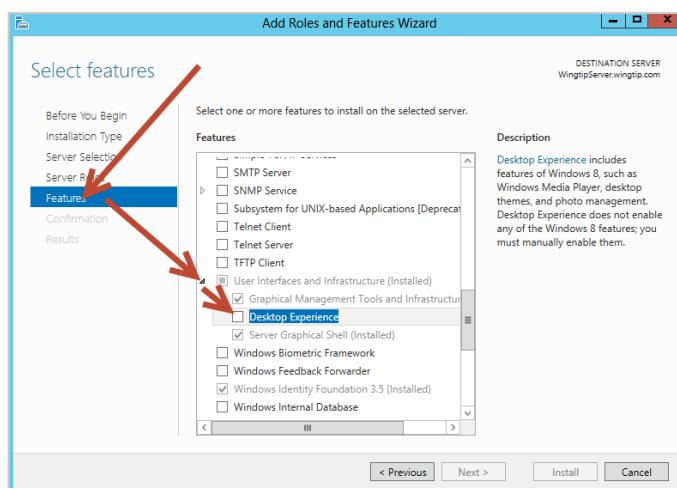
27. Enable the **Windows Server Desktop Experience** feature in the **Wingtip Server** VM.
- a) Open the **Server Manager**; if necessary, Click the **Server Manager Icon** in the lower left corner of the Windows Server 2012 R2 screen.



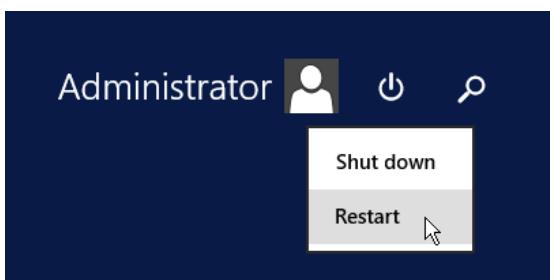
- b) On Server Manager in the right side of the dialog box click **Add roles and features** then Click **Next → Next**



- c) In the Add Roles and Features Wizard:
- Click on **Features** in the left-hand side Select features area
 - In the Features list expand User interfaces and infrastructure (Installed)
 - Place a check in **Desktop Experience** and then click **Add Features** to the required features dialog box that appears.



- Click **Next >** then click **Install**
- d) Restart Windows server when prompted:
- Windows Keyboard key
 - Click the power button in the top right to bring up the power menu then click **Restart**.

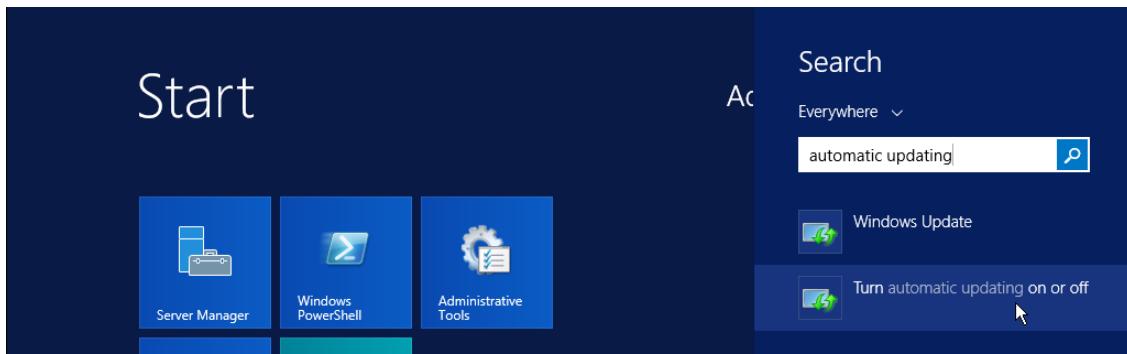


- When the Server restarts log back in using the same password (**Password1**)

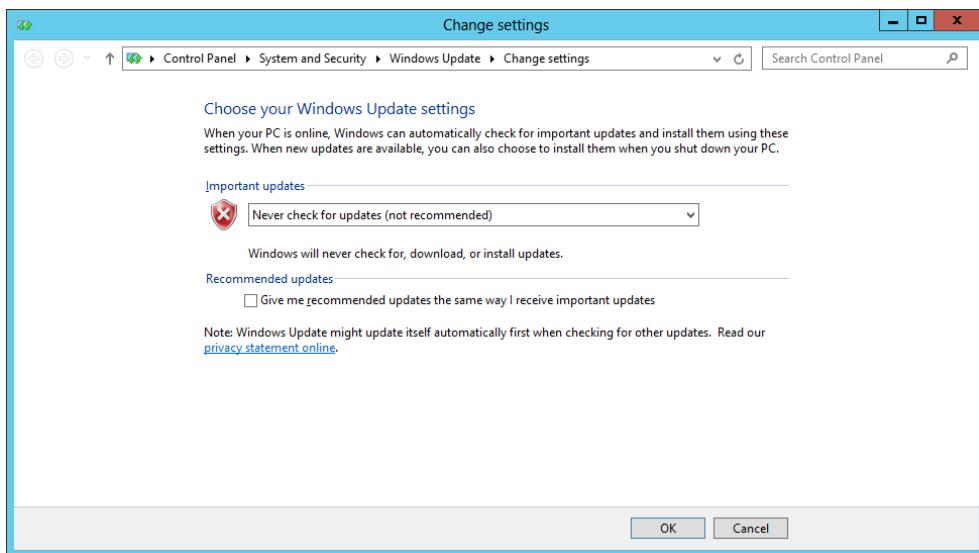
28. Configure the Windows Update settings for the **WingtipServer** VM.

- Press the **Windows** key on the keyboard to bring up the Windows Server 2012 R2 **Start menu**.

- b) With the **Start menu** showing, go to the keyboard and type in "**automatic updating**". You should see that Windows found the **Turn automatic updating on or off** page. Click on **Turn automatic updating on or off** to navigate to the **Choose your Windows Update settings** page.



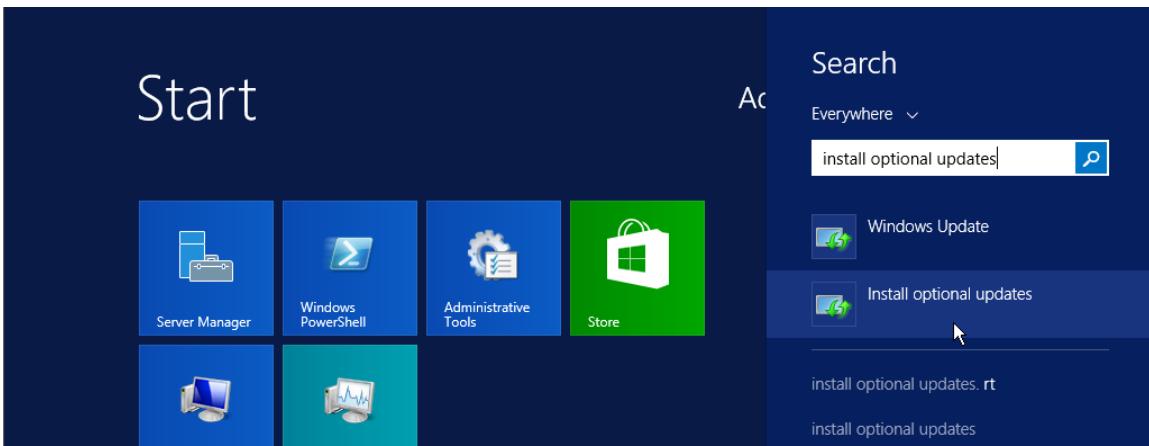
- c) The **Choose your Windows Update settings** page shown below provides a dropdown menu that allows you to configure how the **WingtipServer** VM will deal with getting Windows Updates. Select the option for **Never check for updates (not recommended)** as shown in the screenshot below and then click **OK** to close the dialog.



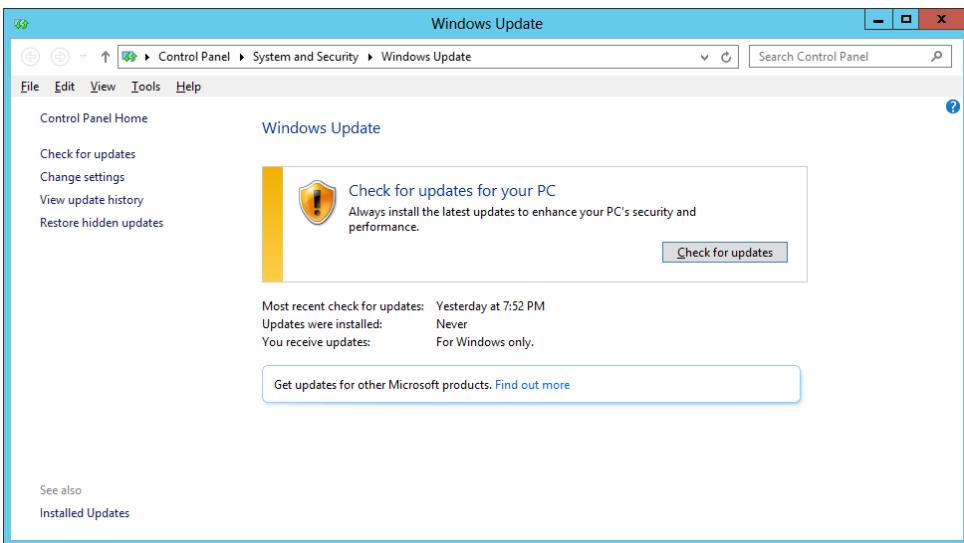
Configuring a computer with a setting of **Never check for updates** isn't what you should use in a production environment. However, it is usually the good choice for a VM which has been created to provide a lab environment because you don't want to be taken by surprise by Windows updates that change the local computer configuration or interrupt the network connection. Instead of configuring Windows to apply updates automatically, you will now run Windows update manually a single time to apply all the important updates and recommended updates to get the **WingtipServer** VM up to date.

29. Update the **WingtipServer** VM with the latest updates using **Windows Update**

- Click on the **Windows** key on the keyboard to bring up the Windows Server 2012 R2 **Start menu**.
- With the **Start menu** showing, go to the keyboard and type in "**install optional updates**". You should see that Windows found the **Install optional updates** page. Click on **Install optional updates** to navigate to the **Windows Update** page.

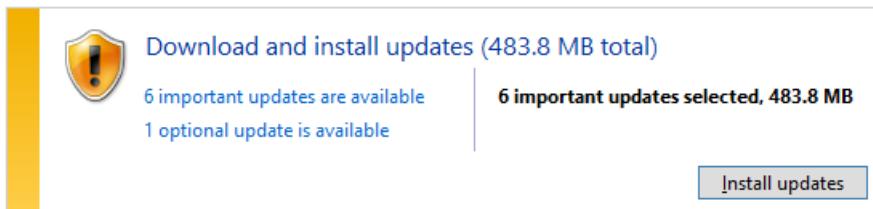


- c) On the Windows Update page, click the **Check for Updates** button. When you click this button, the Windows operating system will communicate with the Windows Update service on the Internet to determine which Windows updates are available for installation.



- d) The **Windows Update** page will prompt you to install any available updates. Click the **Install updates** button to install all important and recommended updates. If you are prompted, select **I accept the license terms** for any updates that require it.

Windows Update



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

- e) If you are prompted to restart your PC during the Windows Update process, click **Restart now** and wait for the VM to restart. Once the VM restarts, log in as **Administrator** and navigate back to the **Windows update** page as you did earlier in this step by searching for "**install optional updates**" on the Windows Start page.

Windows Update



Restart your PC to finish installing updates

[Restart now](#)

- f) Once the first round of updates have been installed, click on **Check for updates** button again on the **Windows Update** page. Repeat the process of running Windows Update, checking for updates and installing them (rebooting if required) until the **Windows Update** page reports that **Your PC is up to date** as shown in the following screenshot.

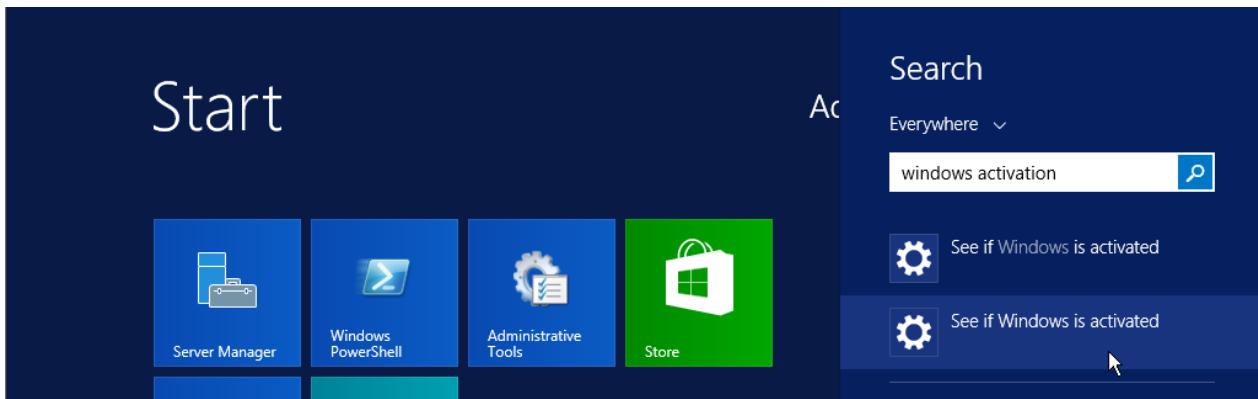
Windows Update



Your PC is up to date
No updates are available.

- g) Once you have applied all the important and recommended updates, close the **Windows Update** page.

30. If you have a Windows Server 2012 R2 product key, verify that the Windows operating system is activated.
- If you are using the trial version of Windows Server 2012 R2, you should skip this step and move ahead to the next step.
 - Click on the **Windows** key on the keyboard to bring up the Windows Server 2012 R2 **Start menu**.
 - With the **Start menu** showing, go to the keyboard and type in "**Windows Activation**". You should see that Windows found the **See if Windows is activated** page. Click on **See if Windows is activated** to navigate to the **PC and devices** page.



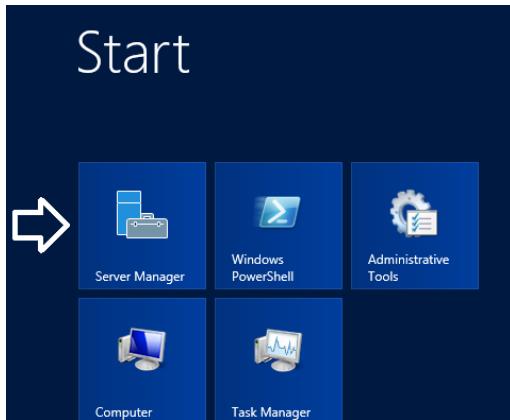
- On the **PC and devices** page, if not activated, click the **Change product key** button to enter your product key and automatically activate your copy of Windows Server 2012 R2.
- Once you have activated the Windows operating system, close the **Activate Windows** page.

At this point you have configured the **WingtipServer** VM with a fully updated version of Windows Server 2012 R2. In the next task you will move ahead by configuring the **WingtipServer** VM to act as the Active Directory domain controller.

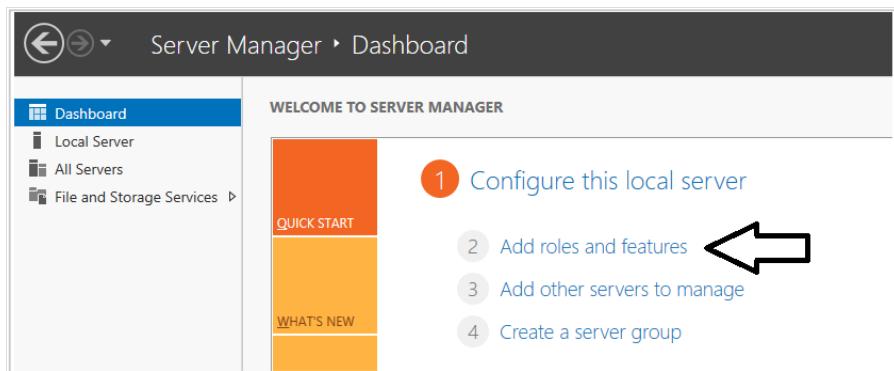
Task 5: Install Active Directory Domain Services and Create a new Domain

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

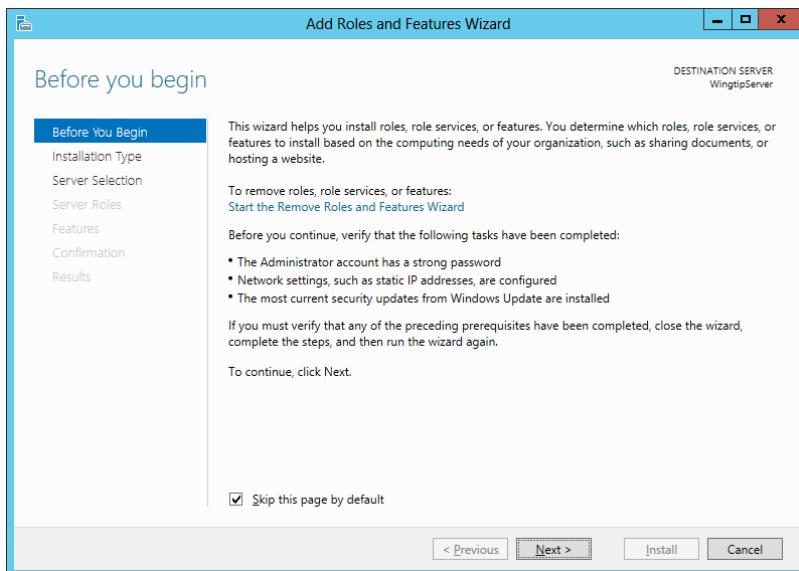
- Navigate back to the **Dashboard** page of **Server Manager**.
 - Press the **Windows** key to display the Windows **Start page**.
 - Click the **Server Manager** tile to start up and navigate to the **Server Manager**.



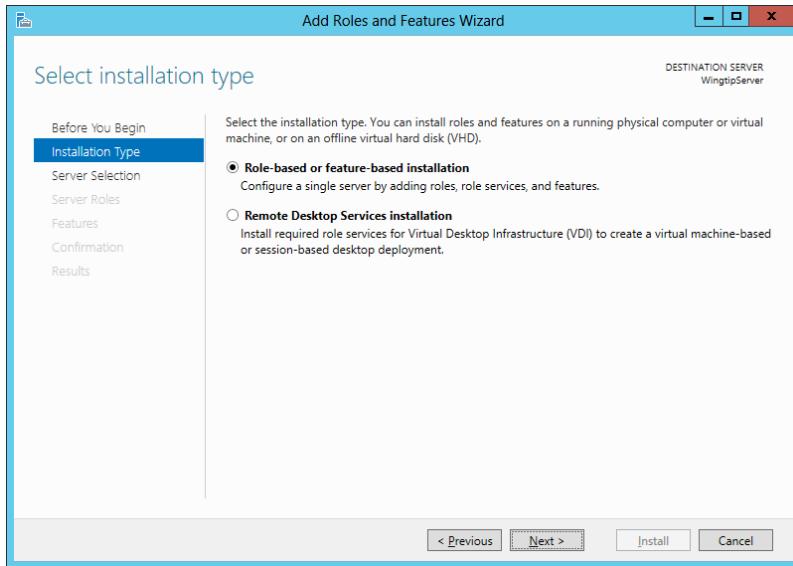
2. You should now be on the **Dashboard** page in the **Server Manager** where you can start the **Add Roles and Features Wizard**.
 - a) On the right-hand side of the **Dashboard** page, locate the **Add roles and features** link.
 - b) Click the **Add roles and features** link to start the **Add Roles and Features Wizard**.



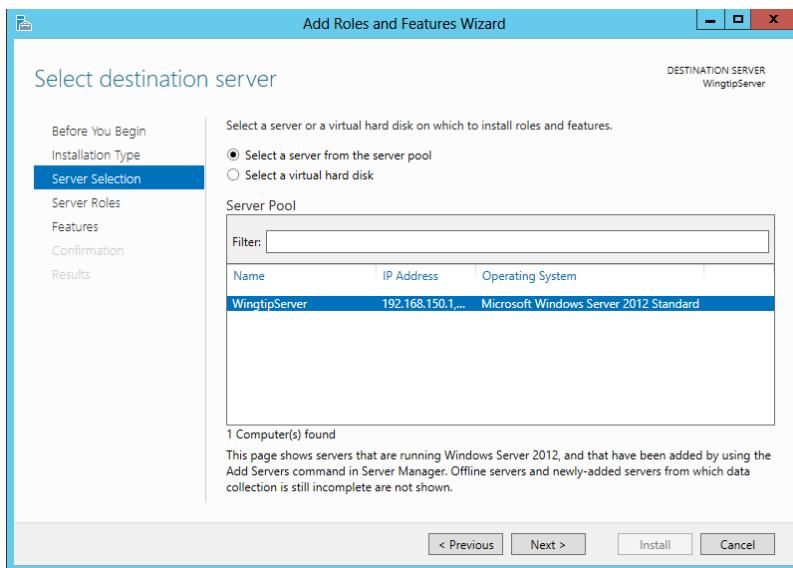
- c) On the first page of the **Add Roles and Features Wizard**, check the box titled **Skip this page by default** and click **Next**.



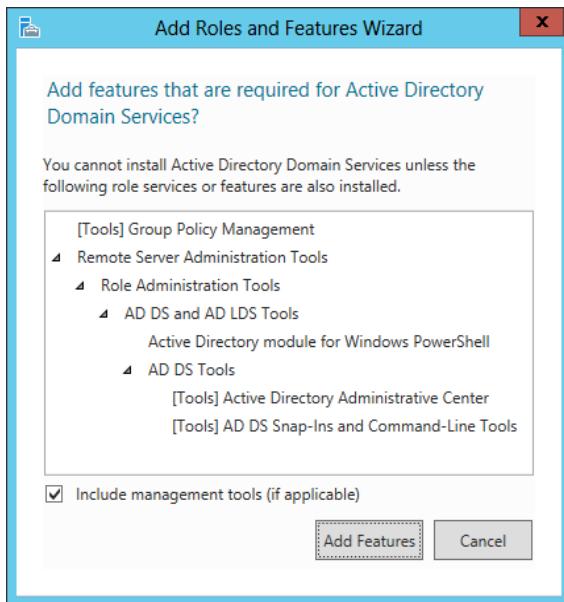
- d) On the **Select installation type** page of the **Add Roles and Features Wizard**, do the following:
 - i) Select the option **Role-based or feature-based installation**.
 - ii) Click **Next** to advance to the next page of the wizard.



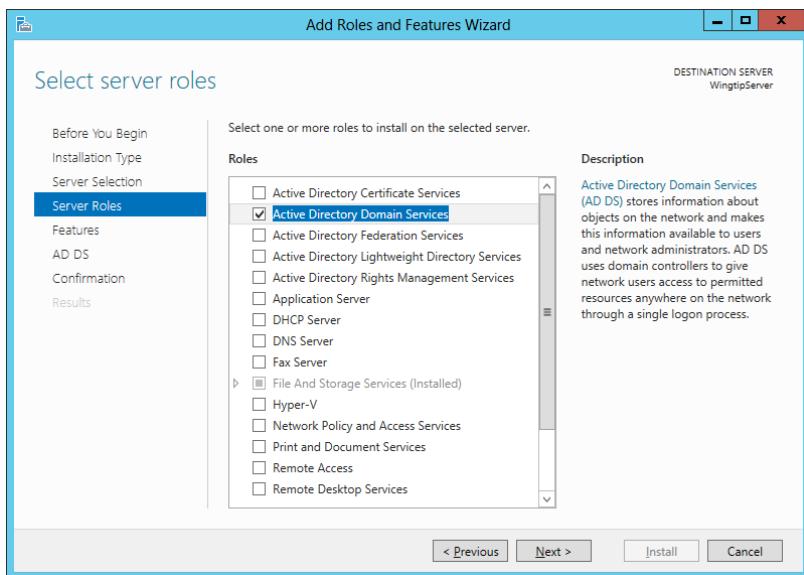
- e) Do the following on the **Select destination server** page of the **Add Roles and Features Wizard**.
- Select the option **Select a server from the server pool**.
 - Select **WingtipServer** from the **Server Pool**.
 - Click **Next** to move to the next page.



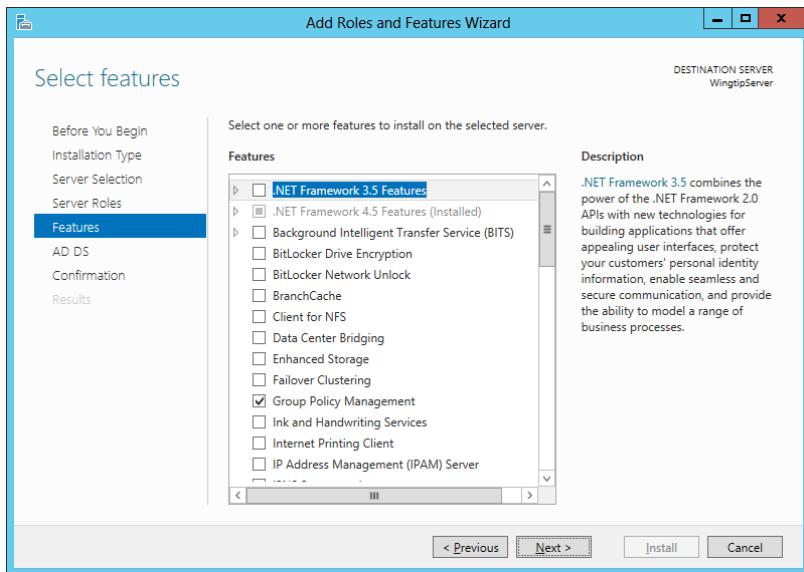
- f) On the **Select server roles** page, select the role of **Active Directory Domain Services**. When you select this role, the wizard prompts you with the following dialog asking you to confirm you want to add the prerequisite features required for this role.



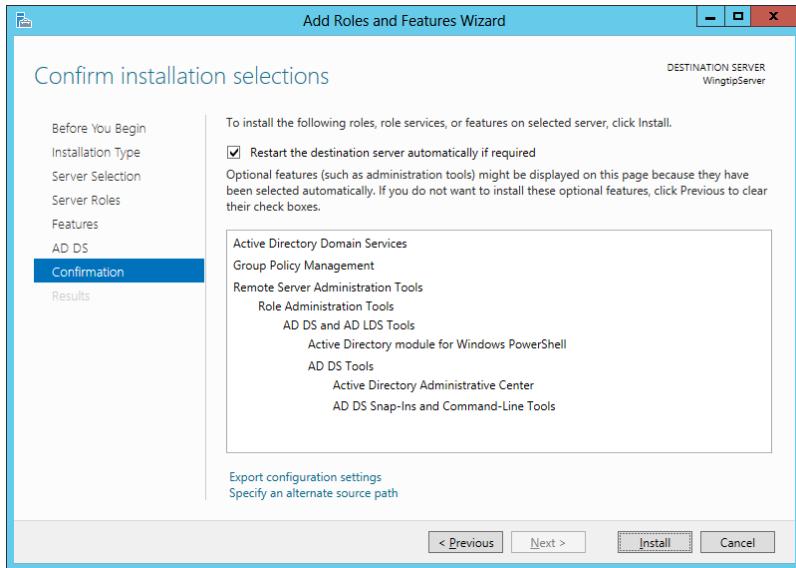
- g) Respond to this dialog by clicking the **Add Features** button to confirm it is OK to install the prerequisite features.
- h) Click **Next** on the **Select server roles** page to move on to the next page of the wizard.



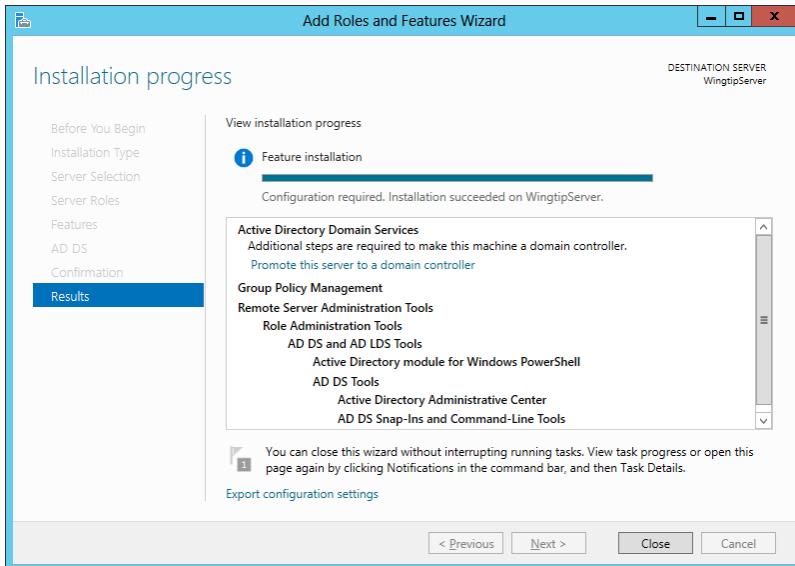
- i) On the **Select features** page of the **Add Roles and Features Wizard**, there is no need to select any additional features. Click **Next** to advance to the next page in the wizard.



- j) The next page provided by the wizard displays information about how Active Directory Domain Service will be installed.
 - i) Click **Next** to move to the next page of the wizard.
- k) The next page in the **Add Roles and Features Wizard** is the **Confirm installation selections** page. Complete these steps to start the installation of **Active Directory Domain Services**.
 - i) Click the checkbox to enable the option **Restart the destination server automatically if required**.
 - ii) In the **Add Roles and Features Wizard** dialog box, click the **Yes** button to confirm you wish to allow automatic restarts.
 - iii) Click the **Install** button.



- l) Installation will take several minutes and you will see its progress in the **Installation progress** page. After **Active Directory Domain Services** have been installed, the wizard displays a **Results** view which should indicate that the installation succeeded but additional configuration is required. Do **not** close the windows for the **Add Roles and Features Wizard** yet. You will need this window to remain open with the **Results** view showing to complete the next step.



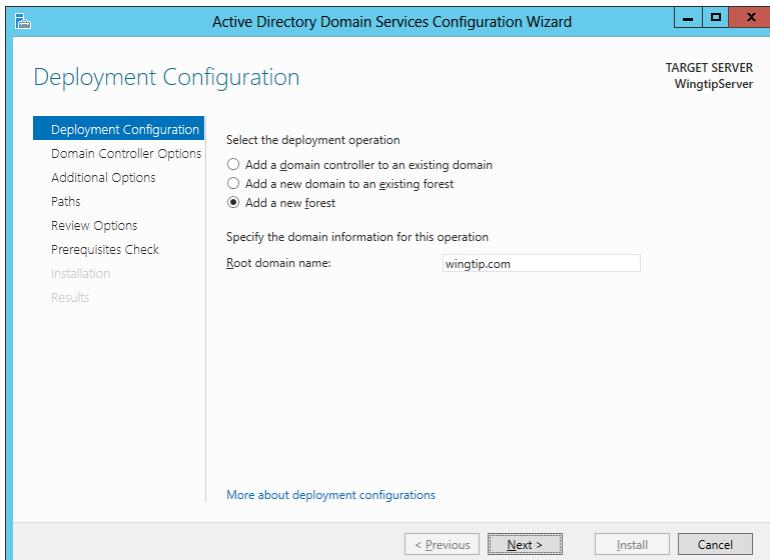
- m) Look in the **Results** view of the dialog shown above and locate the **Promote this server to a domain controller** link.
- n) Click **Promote this server to a domain controller** to launch the **Active Directory Domain Services Configuration Wizard**.
- o) Move on to the next step to move through the details of using the **Active Directory Domain Services Configuration Wizard**.

With previous versions of Windows Server, you would use a utility named **dcpromo.exe** when you needed to create a new Active Directory domain and to promote a server to be a domain controller. However, the **dcpromo.exe** utility is now deprecated starting with Windows Server 2012. The **dcpromo.exe** utility has been replaced by the **Active Directory Domain Services Configuration Wizard** which is part of **Server Manager**.

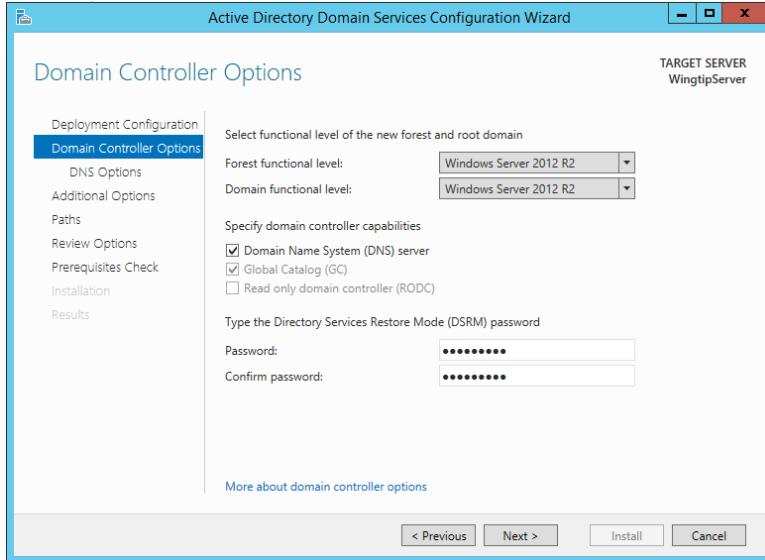
3. Use the **Active Directory Domain Services Configuration Wizard** to create a new Active Directory domain and promote the **WingtipServer** VM to be a domain controller.

(Note: when clicking the **Next** button to advance between screens in this wizard it may take up to several minutes before the next screen becomes functional (due to background configurations from the prior screen). Please be patient.

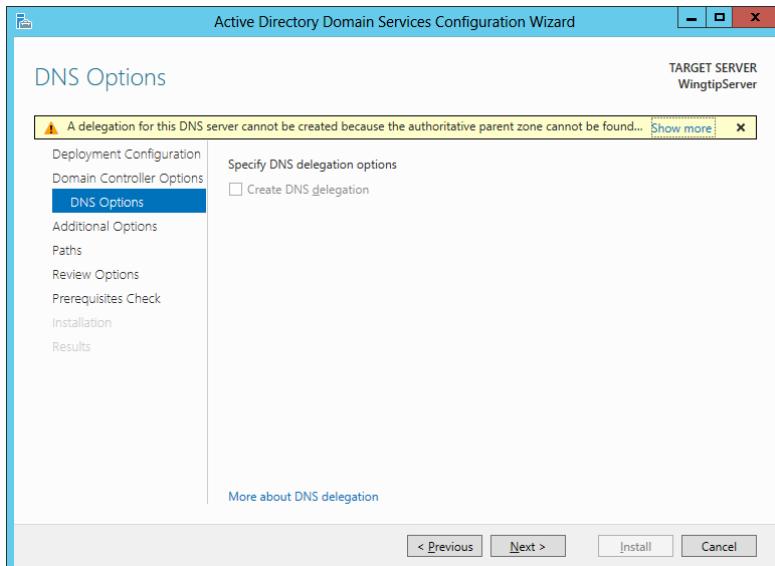
- a) The first page of the **wizard** is the **Deployment Configuration** page.
 - i) Select the radio button option **Add a new forest**
 - ii) Enter a **Root domain name of wingtip.com**.
 - iii) Click **Next** to move to the next page in the wizard.



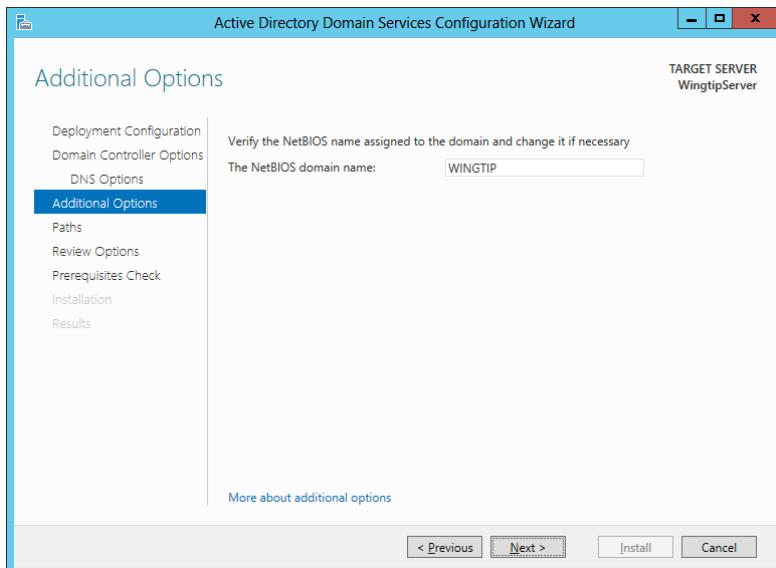
- b) The next page is the **Domain Controller Options** page:
- Leave the default settings for **Forest function level** and **Domain functional level**.
 - Leave the default settings for checkbox options for **Specify domain controller capabilities**.
 - Locate the section with the caption **Type the Directory Services Restore Mode (DSRM) password** and type a password of **Password1** in the **Password** textbox and the **Confirm Password** textbox.
 - Click **Next** to move to the next page.



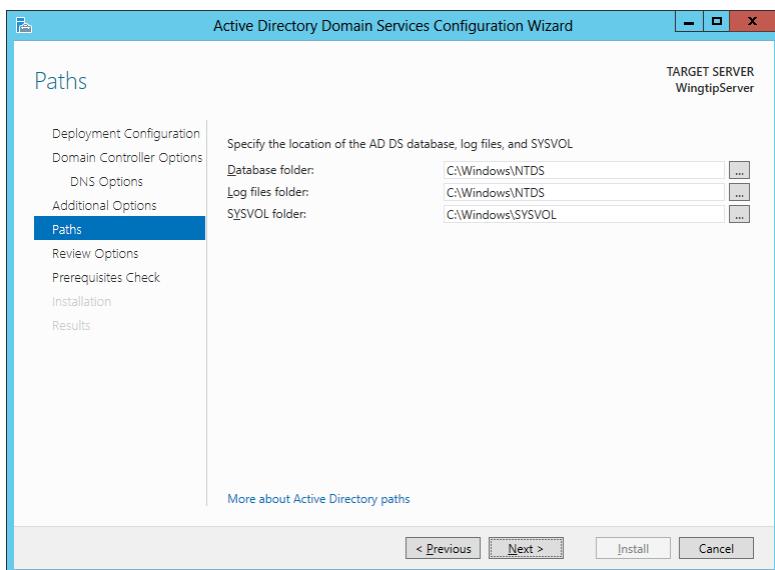
- c) On the **DNS Options** page of the **Active Directory Domain Service Configuration Wizard** you will be prompted with a warning that Windows cannot find a delegation for this DNS server. You can ignore this warning because you will configure the **WingtipServer** VM to act as a top-level DNS server which needs no delegation. You don't need to do anything on this page other than clicking **Next** to continue to the next page in the wizard.



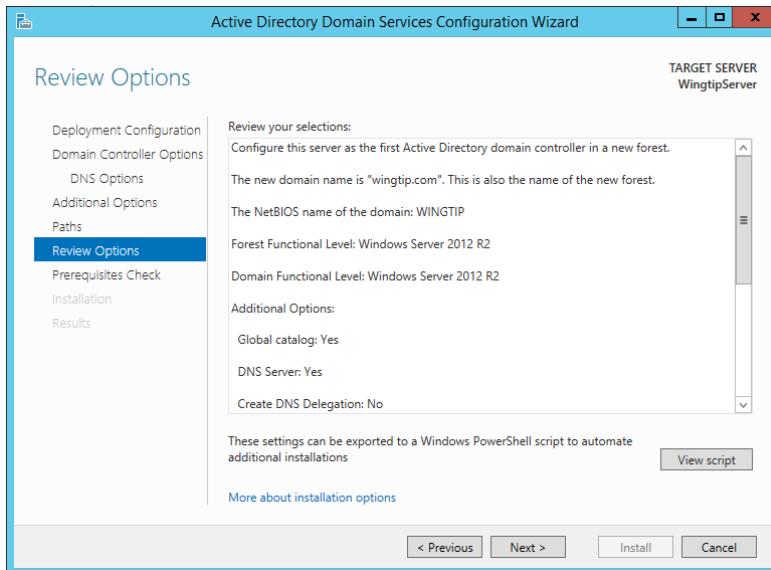
- d) On the **Additional Options** page you are asked to verify that the NetBIOS domain name is **WINGTIP**.
- Accept the default value and click **Next** to continue to the next page in the wizard.



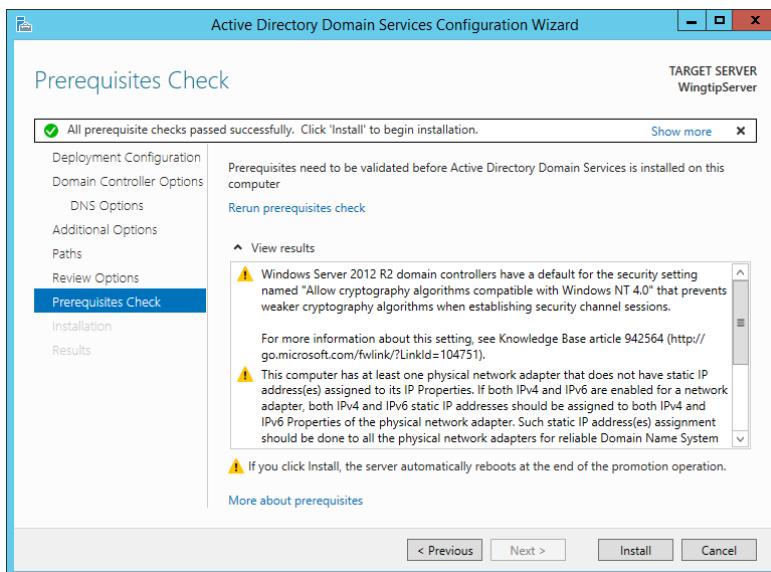
- e) On the **Paths** page you should accept the default settings and click **Next** to continue to the next page in the wizard.



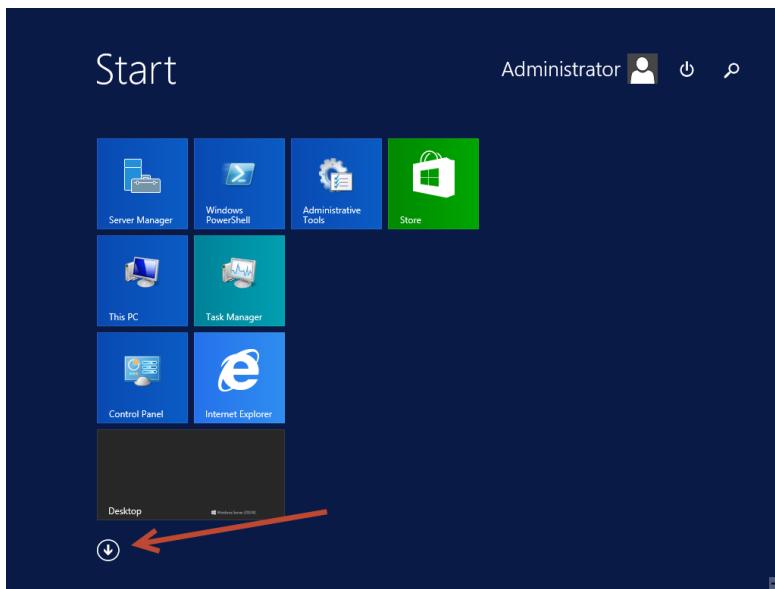
- f) The **Review Options** page shows the wizard settings you selected. Click **Next** to continue to the next page in the wizard.



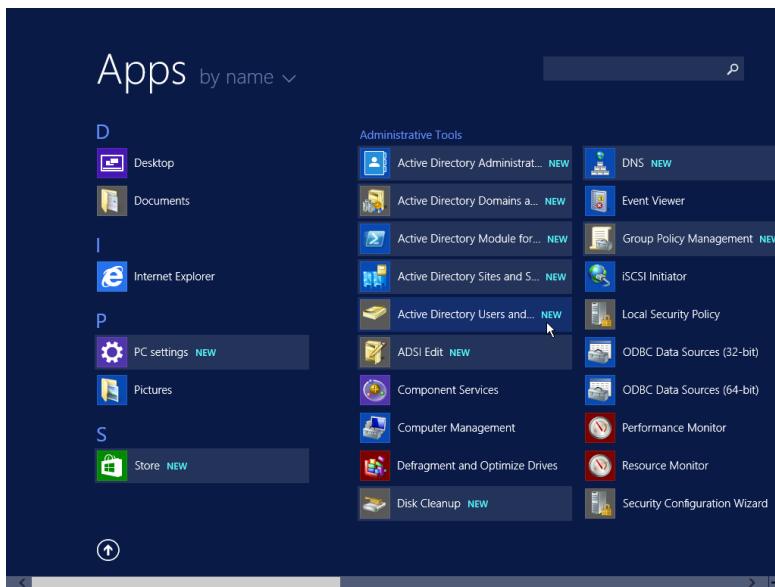
- g) The last page of the **Active Directory Domain Service Configuration Wizard** is the **Prerequisites Check** page. This page will run a test which takes about a minute. The purpose of the test is to verify that the **WingtipServer** VM meets the requirements of a domain controller computer.
- h) After the tests complete, click the **Install** button to begin the process of creating the new Active Directory domain and promoting the **WingtipServer** VM to become a new domain controller.



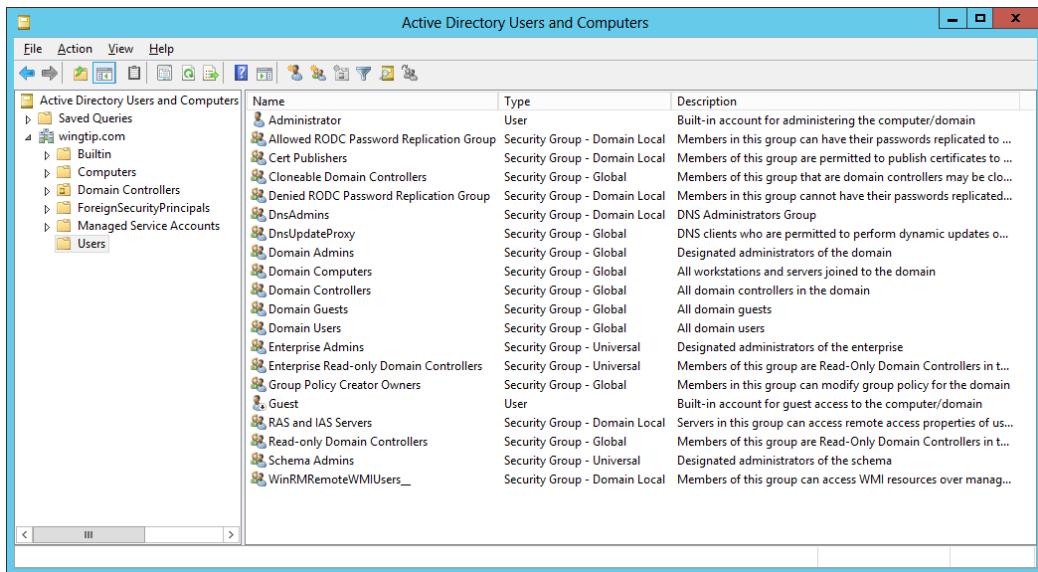
- i) During the installation process, the **WingtipServer** VM will automatically restart. After the **WingtipServer** VM has restarted, log back in using the domain account **WINGTIP\Administrator**.
4. Use the **Active Directory Users and Computer** administrative tool to inspect the **wingtip.com** domain.
- a) Click on the **Windows** key to display the **Windows Start** page. To locate the tile for the **Active Directory Users and Computer** administrative tool click the arrow at the bottom left of the screen.



- b) Now you should see several start items for Active Directory tools. Locate the tile for the **Active Directory Users and Computer** administrative tool. The link might only display **Active Directory Users and...** as shown in the following screenshot.



- c) Click on the link on the Windows Start page to start the **Active Directory Users and Computer** administrative tool.
- When the **Active Directory Users and Computer** administrative tool starts, you should see a node for **wingtip.com**.
 - Expand the **wingtip.com** node and select the **Users** node inside.
 - You should be able to see all the user and group accounts that Windows automatically adds to a new domain.



- d) You have now verified that the **wingtip.com** domain has been properly created and that the **WingtipServer** VM has been promoted to be a domain controller.
- e) Close the **Active Directory Users and Computer** administrative tool.

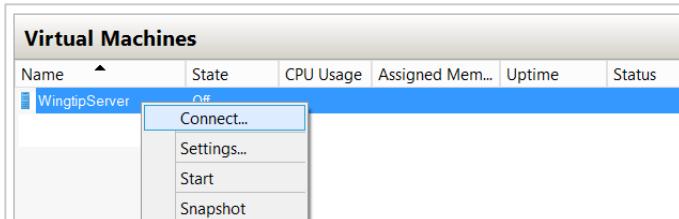
Task 6: Install SQL Server Enterprise or Evaluation 2012 with Service Pack 1

You will begin this task by acquiring the installation files and optionally a product key for SQL Server Enterprise or Evaluation 2012. After that you will move through the basic steps of installing SQL Server 2012 with Service Pack 1 and configuring it for basic usage within a SharePoint 2013 farm.

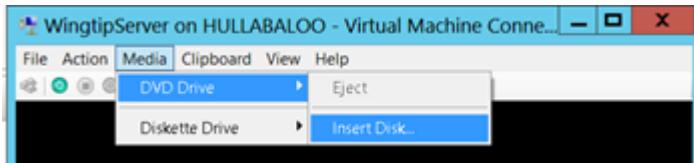
1. Obtain a copy of the 64-bit installation binaries for SQL Server 2012 with Service Pack 1.
 - a) Choose between using your own licensed copy of SQL Server Enterprise 2012 or using the free trial version. Note: if you are given the option make sure you download the **SQL Server 2012 Enterprise Edition with Service Pack 1** and not the version without Service Pack 1.
 - b) If you plan to use a licensed copy, acquire the install image (*.iso) for SQL Server 2012 with SP1 and the product key.
 - c) If you plan to use a free trial copy of SQL Server 2012, follow these steps:
 - i) Navigate to the evaluation down page at <http://technet.microsoft.com/en-US/evalcenter/hh225126>.
 - ii) Click **Get Started Now**
 - iii) Follow the instructions to download the evaluation software to your local machine (be sure to select the 64 bit version of the software to download when prompted).

This download is several gigabytes in size so it will take some time to download. The amount of time it takes to download will depend upon the speed of your Internet connection.

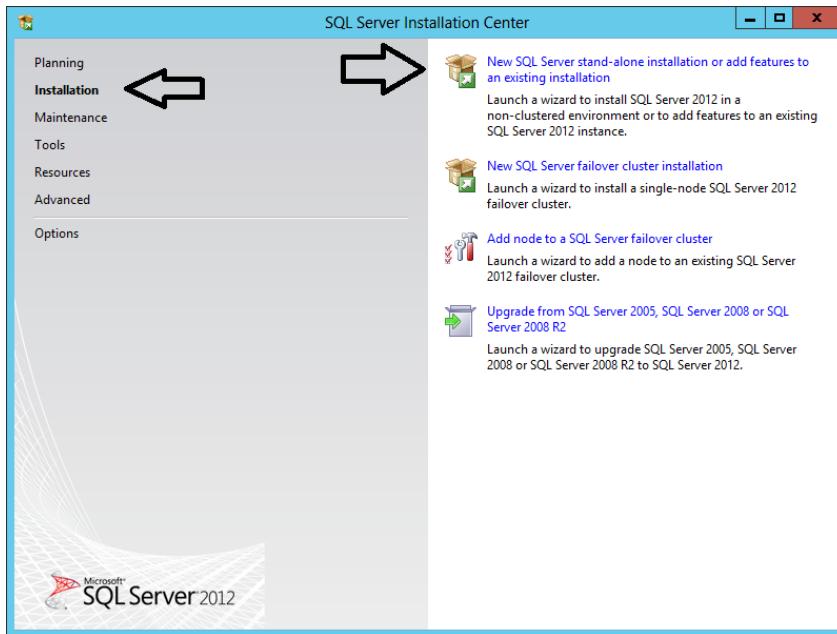
2. Navigate to the Hyper-V Manager. Right-click the **WingtipServer** VM and select the **Connect...** command to display the Hyper-V console window for this VM.



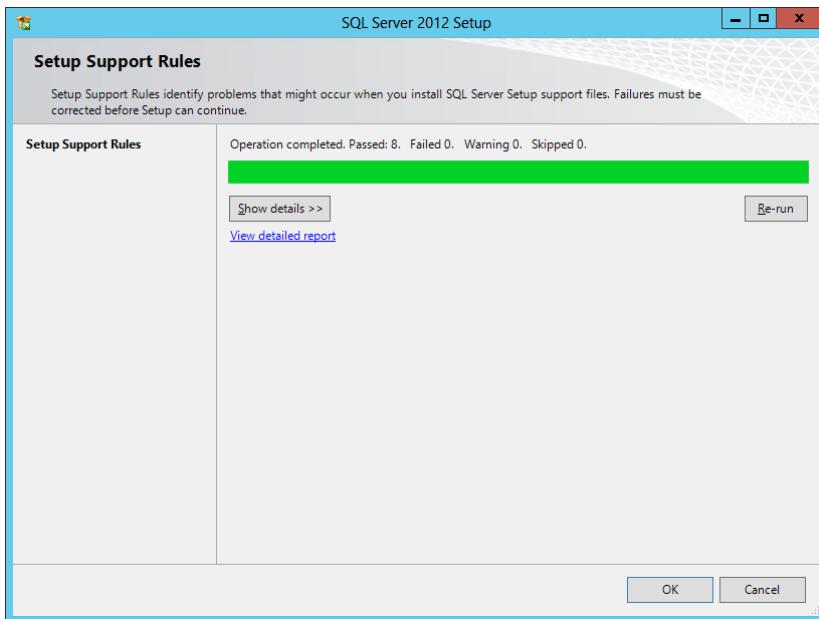
3. In this step you will configure the VM to load the .ISO file with the SQL Server 2012 with SP1 installation files as a DVD drive.
 - a) In the Hyper-V console windows for the **WingtipServer** VM, select the **Insert Disk...** command.



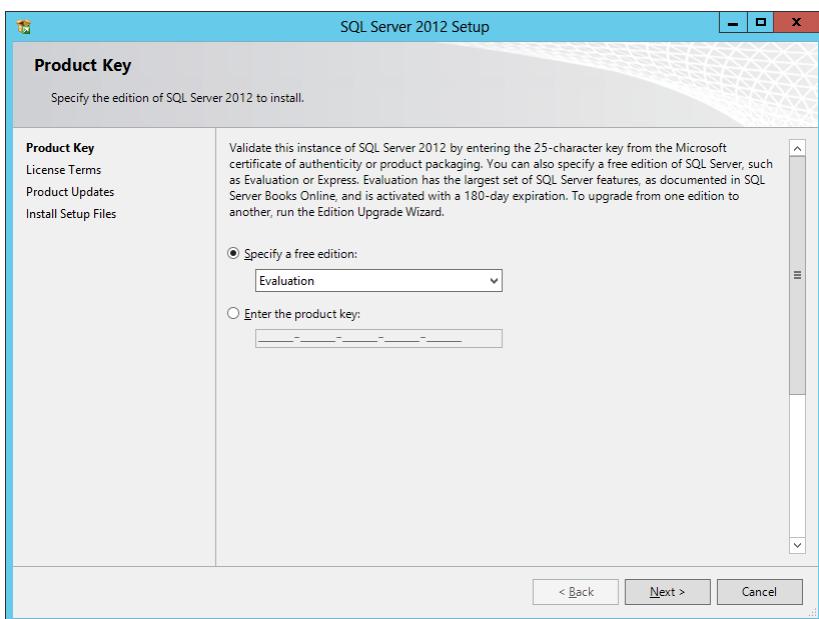
- b) When the **Open File** dialog appears, enter the path to the .ISO file with the SQL Server 2012 with SP1 installation files. Click **OK**.
4. Navigate back into the user interface of the **WingtipServer** VM.
5. Depending on your configuration, the SQL Server installation program in the DVD might or might not start automatically.
- If the **AutoPlay** dialog box is open, click run **setup.exe**.
 - If the **AutoPlay** dialog box is not open, use Windows Explorer to navigate to the DVD drive and execute the **setup.exe** file in the root of the DVD drive.
 - Wait for the SQL Server installation program to initialize and display the **SQL Server Installation Center** dialog.
6. In the **SQL Server Installation Center** dialog, complete the following steps:
- Click the **Installation** link on the left-hand side.
 - Click the **New SQL Server stand-alone installation or add features to an existing installation** link on the right-hand side.



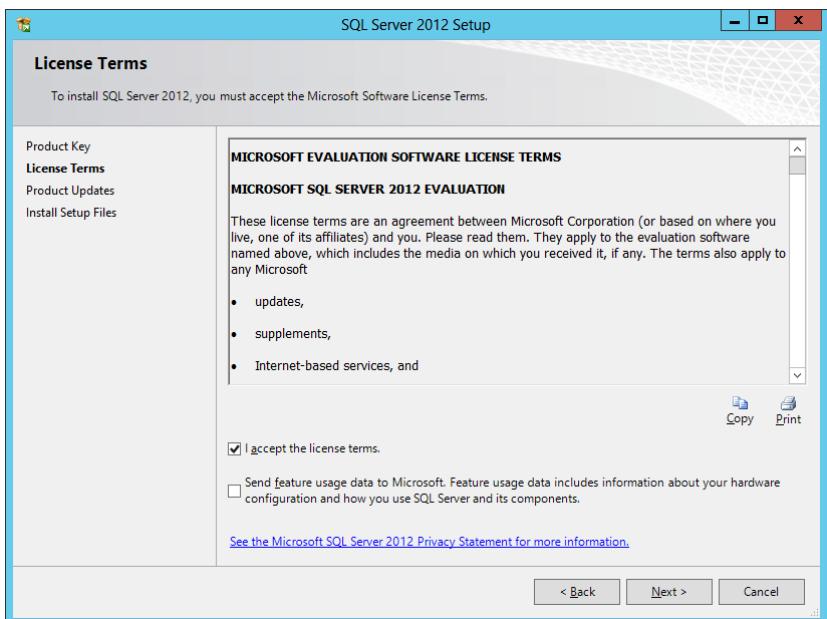
7. On the **Setup Support Rules** page, the installer will check for potential issues before installing.
- Verify that the **WingtipServer** VM has passed all the tests.
 - Click **OK** to move to the next page.



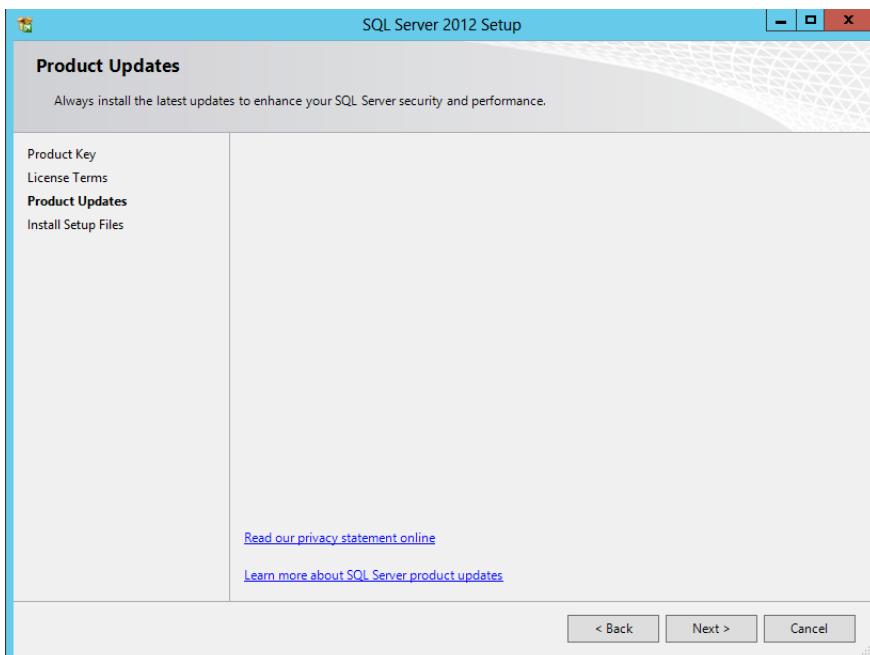
8. What you do on the **Product Key** page depends on whether you are using the free trial or a licensed version of SQL Server 2012 with SP1.
 - a) If you are using the free trial version, click the **Specify a free edition** radio box and select **Evaluation**.
 - b) If you are using a licensed version, enter your 25-character product key
 - c) Click **Next** to move to the next page.



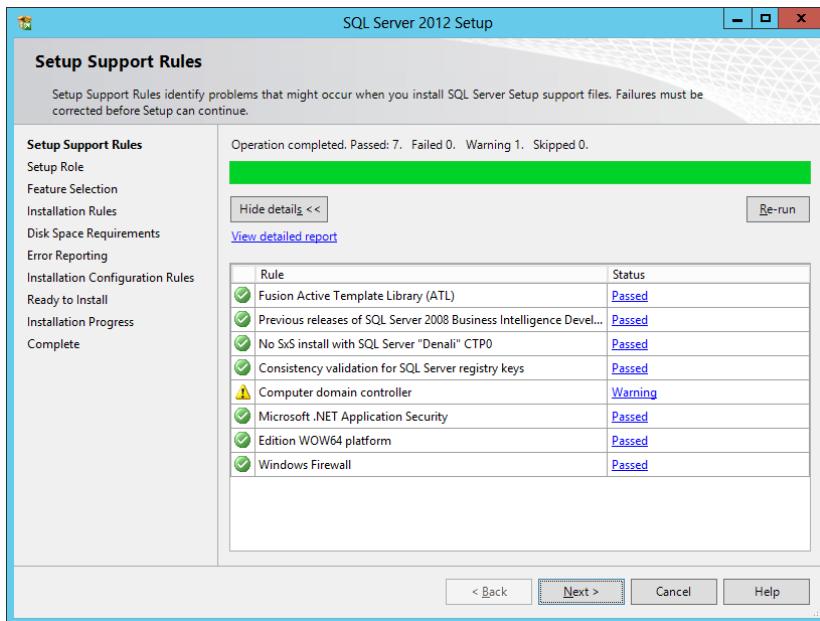
9. On the **License Terms** page, check the option **I accept the license terms** and click **Next**.



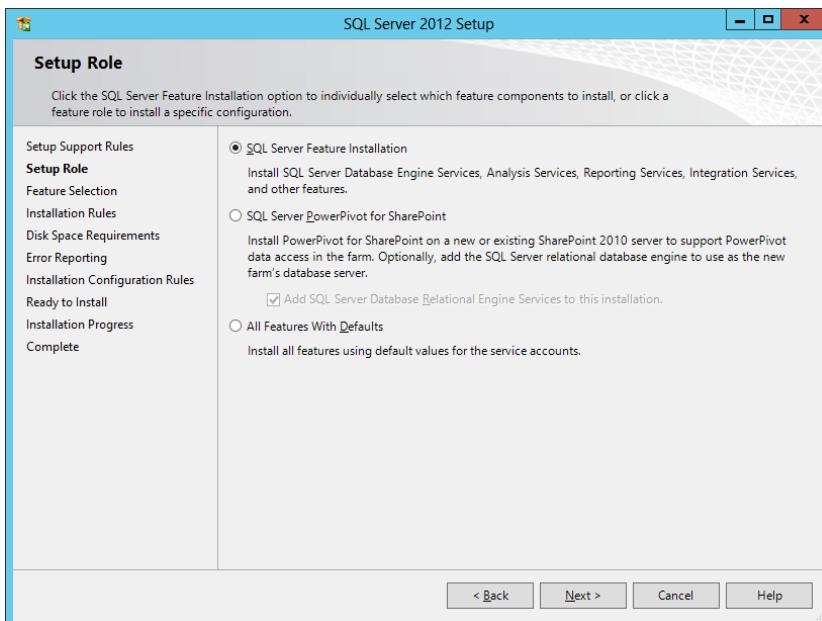
10. On the Product Updates page update any needed items and then click **Next**.



11. The next page is the **Setup Support Rules** page which runs checks on the **WingtipServer** VM to detect if there are any potential problems you might encounter when installing SQL Server 2012 with SP1.
- You should see all the tests were passed except the one that warns that the **WingtipServer** VM is a domain controller.
 - While you should never install SQL Server on domain controller in a production environment, you can ignore the domain controller warning in a scenario like this when creating a lab environment such as the **WingtipServer** VM.
 - Note: you might also receive a Microsoft .Net Application Security error related to the computer not being able to access the internet. Should you receive this error, open Internet Explorer (press the **Windows Key** and on the Start Page click on the **Internet Explorer** tile). Using Internet Explorer navigate to a website (e.g. Bing.com). If this site is returned in the browser, you may ignore this warning.
 - Click **Next** to move to the next page.

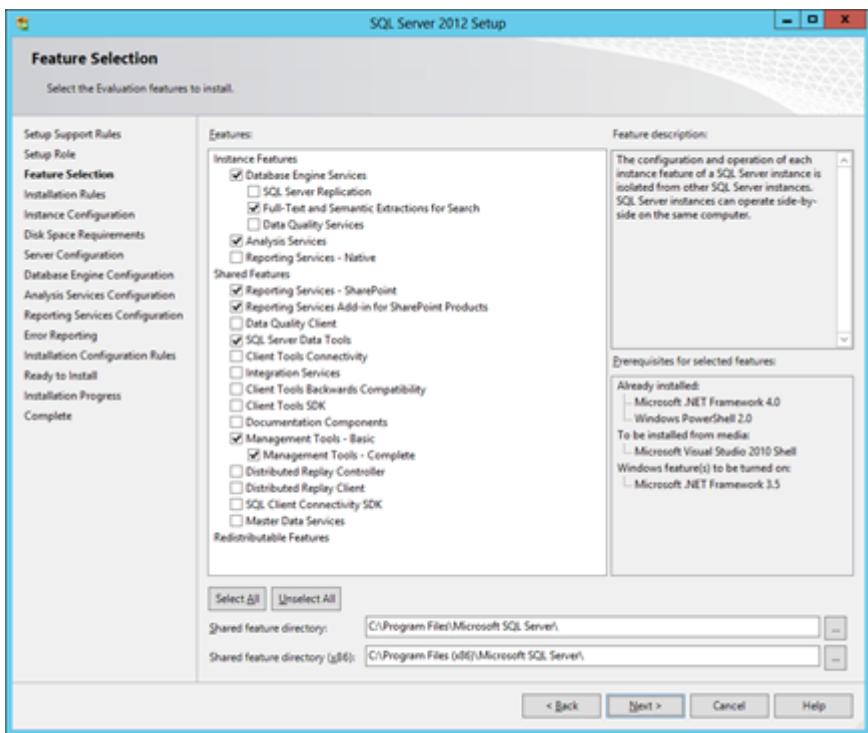


12. On the **Setup Role** page, select **SQL Server Feature Installation** and click **Next >**



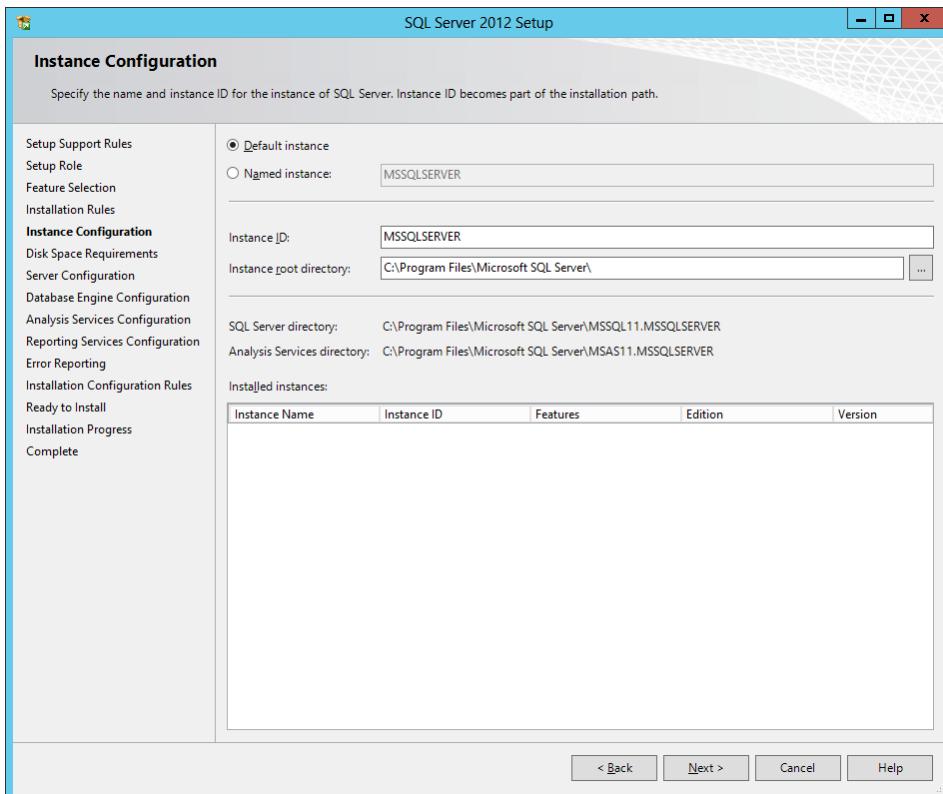
13. On the **Feature Selection** page, check the following options and click **Next >**:

- Instances Features:
 - Database Engine Services
 - Full-Text and Semantic Extractions for Search
 - Analysis Services
- Shared Features:
 - Reporting Services - SharePoint
 - Reporting Services Add-in for SharePoint Products
 - SQL Server Data Tools
 - Management Tools – Basic
 - Management Tools – Complete

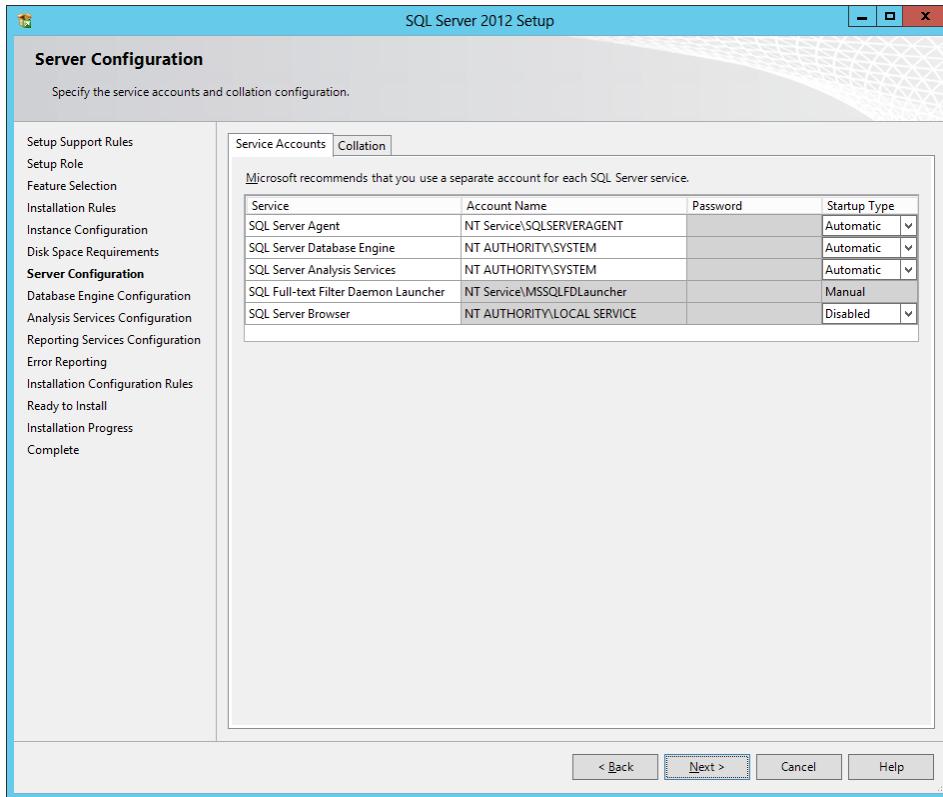


The minimal installation of SQL Server 2012 with SP1 for SharePoint 2013 only requires the **Database Engine Services**. However, it is recommended that you also install the Management Tools so you have GUI tools to administer SQL Server 2012. The **Full-Text and Semantic Extractions for Search** feature is required if you plan to use **Access Services** in SharePoint Server 2013. Adding in **Analysis Services** and **Reporting Services** is only required when you want to configure and use the Business Intelligence (BI) features of SharePoint Server 2013 while leveraging integration with SQL Server Reporting Services.

14. On the **Installation Rules** page, click **Next**.
15. On the **Instance Configuration** page, accept all the default settings and click **Next**.

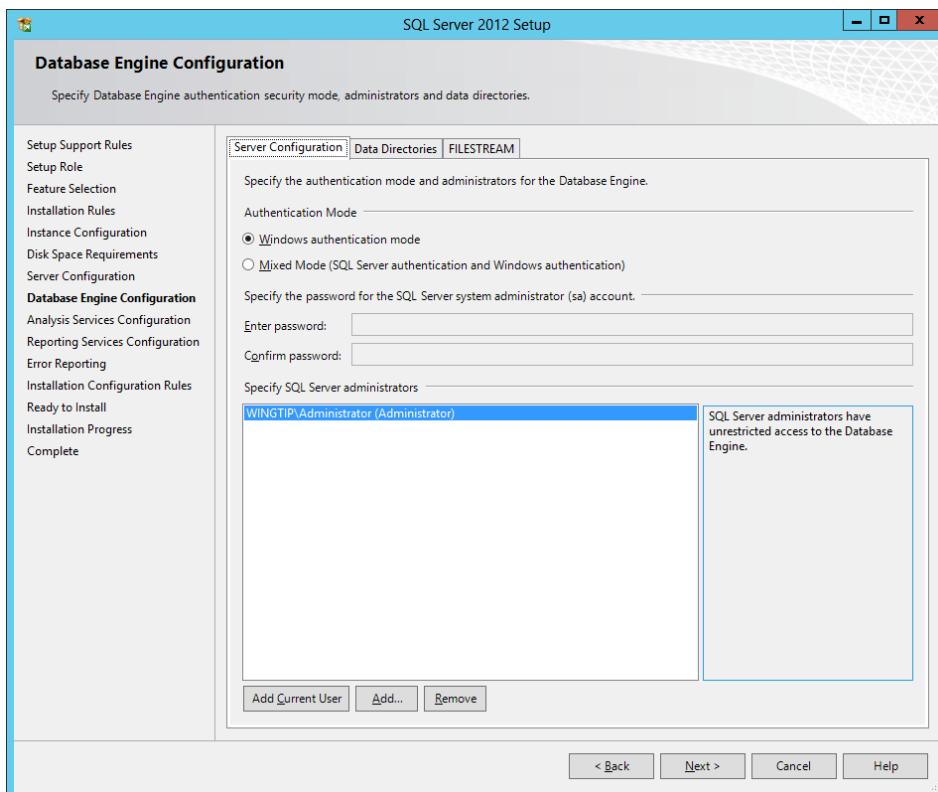


16. On the **Disk Space Requirements** page, click **Next**.
17. On the **Service Account** tab of the **Server Configuration** page, do the following:
 - a) Change the **Startup Type** for the **SQL Server Agent** to **Automatic**.
 - b) Change the **Account Name** for the **SQL Server Database Engine** to **NT AUTHORITY\SYSTEM**.
 - c) Change the **Account Name** for the **SQL Server Analysis Services** to **NT AUTHORITY\SYSTEM**.
 - d) Click **Next** to move to the next page.

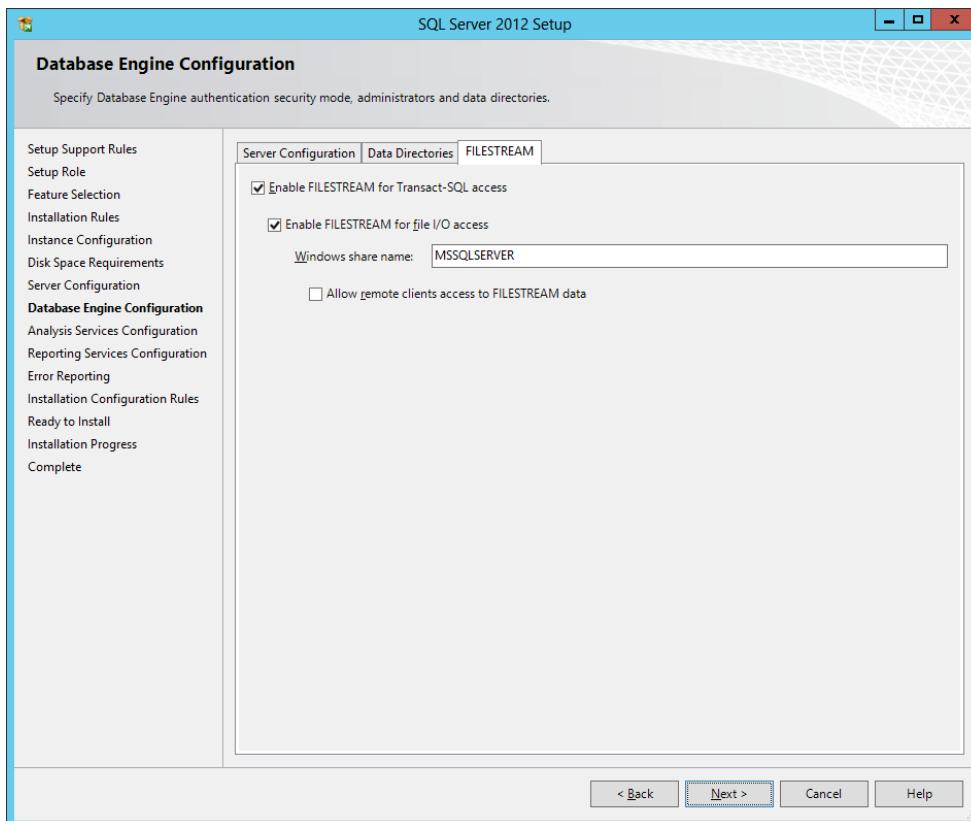


In a real-world installation of SQL Server in a production environment, you should consider using dedicated user accounts to provide the identity for the SQL Server services instead of using the SYSTEM account. This setup guide is using the SYSTEM account for the SQL Server worker processes to simplify the installation of SQL Server which is acceptable in a lab environment.

18. On the **Database Engine Configuration** page, do the following:
 - a) On the **Server Configuration** tab, click the **Add Current User** button to configure the **WINGTIP\Administrator** account as a system administrator for this SQL Server instance.



- b) On the **FILESTREAM** tab, check **Enable FILESTREAM for Transact-SQL access** and also check **Enable FILESTREAM for file I/O access**.

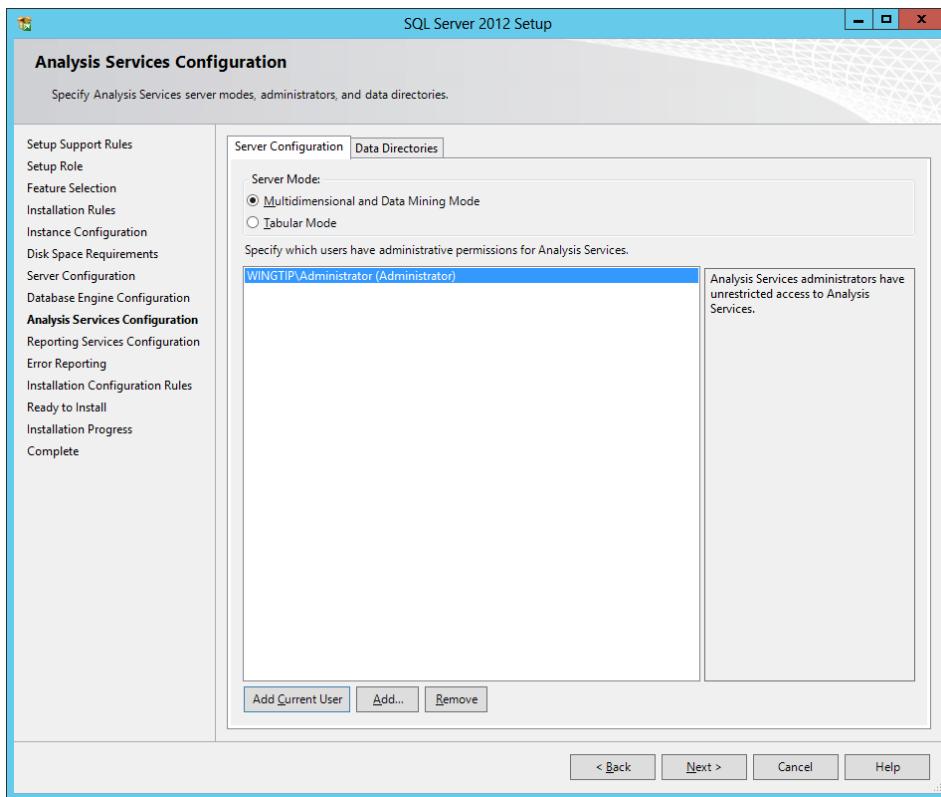


- c) Click **Next** to move to the next page

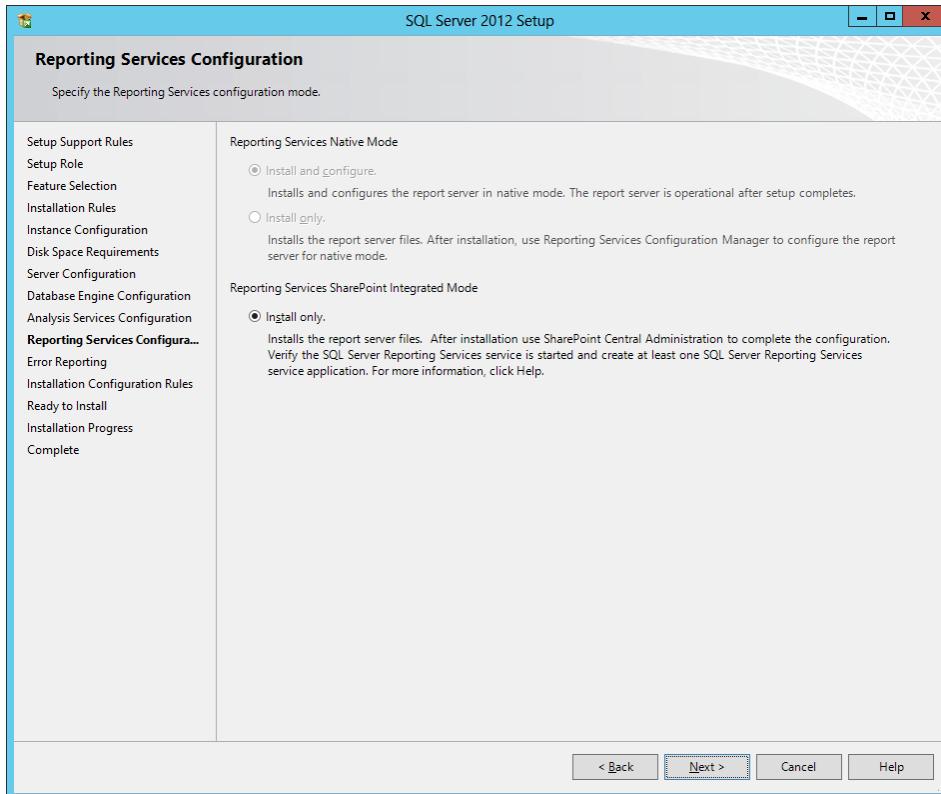
19. On the **Server Configuration** tab of the **Analysis Services Configuration** page:

- a) Click **Add Current User** to configure the **WINGTIP\Administrator** account with administrative permissions.

- b) Click **Next** to move ahead to the next page.



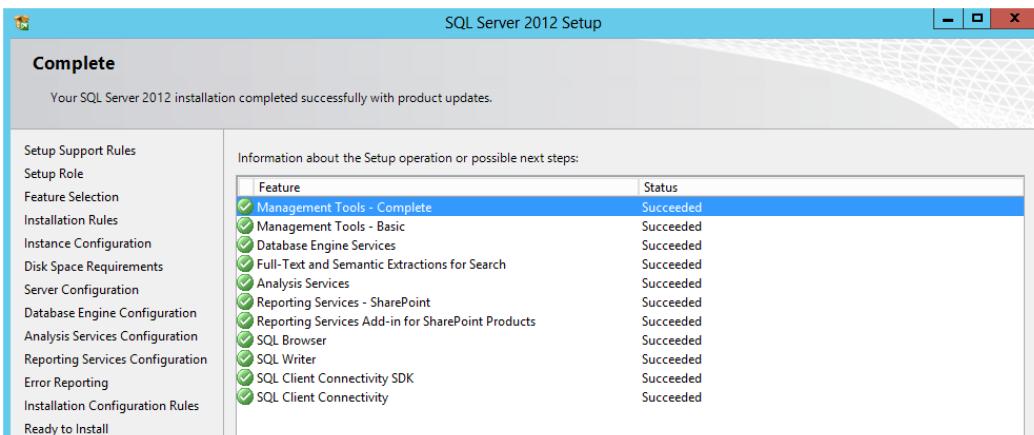
20. On the **Reporting Services Configuration** page, accept the default selection of **Install only** and click **Next** to move ahead.



21. On the **Error Reporting** page, accept the default values and click **Next**.

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

23. When you get to the **Ready to Install** page, you are finally at the point where you can begin the installation. Click the **Install** button and wait for the SQL Server installation program to complete. This process will likely take about 10-15 minutes to complete.
24. When the installation finishes, the **Complete** page is displayed showing the features that were successfully installed.



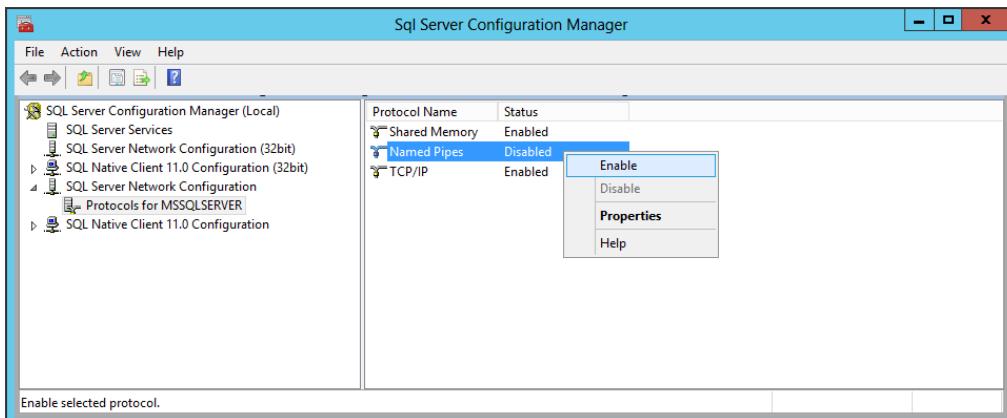
25. Click **Close** to complete the installation.

You have now successfully installed SQL Server 2012 with SP1.

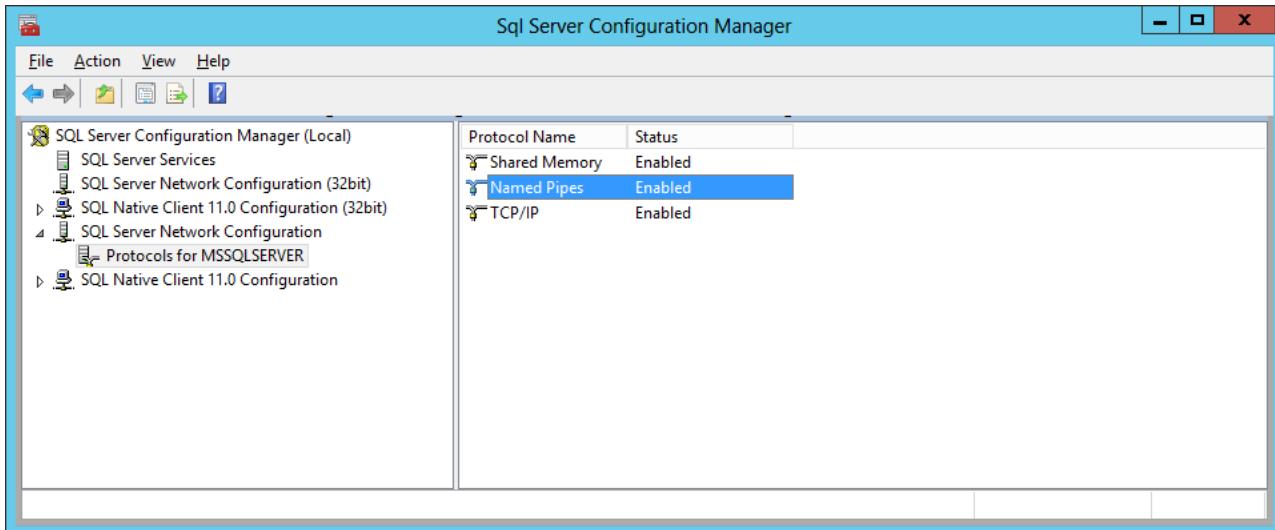
26. Configure the **Named Pipes** protocol using the **SQL Server Configuration Manager**.
 - a) Press the **Windows** key to navigate to the Windows Start page.
 - b) Locate and click the **SQL Server Configuration** tile to launch the **SQL Server Configuration Manager**.

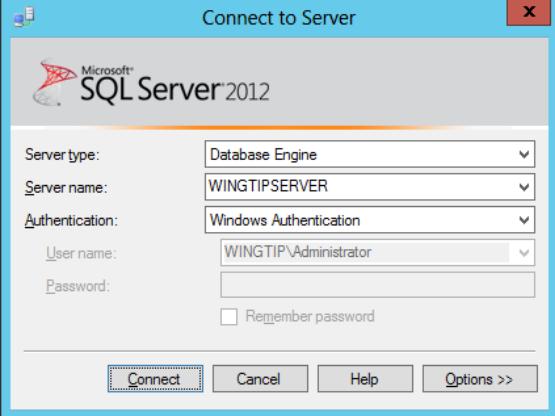


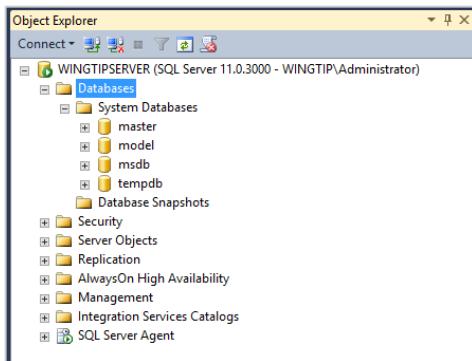
- c) In the SQL Server Configuration Manager, expand the nodes of the tree view control on the left to the following path.
 - i) **SQL Server Configuration Manager >> SQL Server Network Configuration >> Protocols for MSSQLSERVER.**
Note: Make certain to expand **SQL Server Network Configuration** and NOT **SQL Server Network Configuration (32bit)**.
 - ii) On the right-hand side, locate the property setting for the **Named Pipes** protocol. This protocol is initially in a disabled state.
 - iii) Right click on the **Named Pipes** property and select the **Enabled** command.



- iv) Verify that all three protocols are in an enabled state.

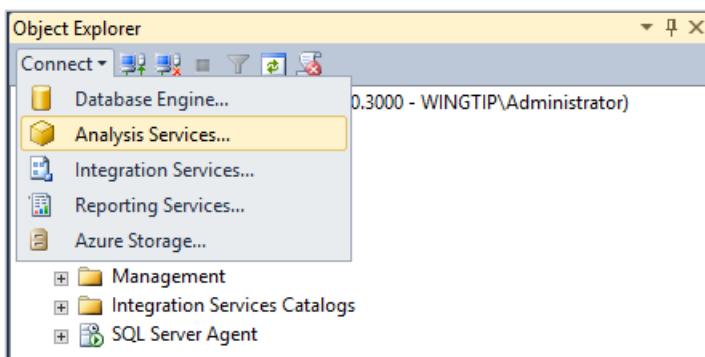


- d) Close the **SQL Server Configuration Manager**.
27. Connect the **SQL Server Database Engine** using **SQL Server Management Studio**.
- Press the **Windows** key to navigate to the Windows Start page.
 - Locate and click the **SQL Server Management Studio** tile to launch **SQL Server Management Studio**.
- 
- c) When you are prompted with the **Connect to Server** dialog, ensure it is filled out as the screenshot below. Click the **Connect** button to connect to the Database Engine where you will be able to see the existing set of databases.
- 
- d) Once **SQL Server Management Studio** has connected to the **SQL Server Database Engine**, you should see the **Object Explorer** with a tree view control with **WINGTIPSERVER** as its top-level node.
- Expand the **Databases** node and then the **System Databases** node.
 - You should be able to see the system database such as **master** and **tempdb**.
 - However, there are no user-created databases yet.



28. Connect to **SQL Server Analysis** in the **SQL Server Management Studio**.

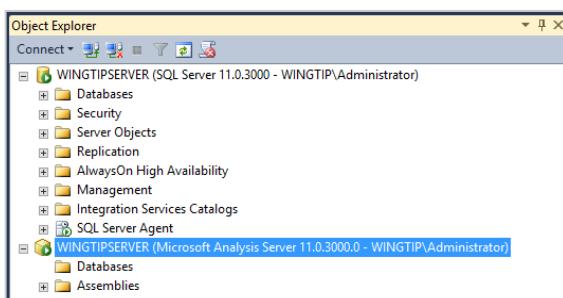
- a) Drop down the **Connect** menu in the **Object Explorer** and select the **Analysis Services...** command.



- b) When you are prompted with the **Connect to Server** dialog, ensure it is filled out as the screenshot below. Click the **Connect** button to connect to **Analysis Services**.



- c) When you connect to Analysis Services, you will find there are no Analysis Services databases because this is a default installation. However, the **WingtipServer** VM is now prepared to support SQL Server Analysis Services databases if you decide to add them.



- d) Close **SQL Server Management Studio**.

29. Next we need to Download the Adventure Works databases:

- Navigate to <http://msftdbprodamples.codeplex.com/releases/view/55330>

The screenshot shows the Microsoft SQL Server Database Product Samples website. The top navigation bar includes links for HOME, SOURCE CODE, DOWNLOADS (which is highlighted in green), and DOCUMENTATION. Below the navigation is a section titled "Adventure Works for SQL Server 2012". It displays the following information:

Rating: ★★★★☆ Based on 28 ratings	Released: Mar 12, 2012
Reviewed: 26 reviews	Updated: Jan 14, 2013 by mynd
Downloads: 515131	Dev status: Stable

Below this, there's a "DOWNLOADS" section listing three files:

- AdventureWorks2012 Data File**: application, 193536K, uploaded Mar 14, 2012 - 201281 downloads
- AdventureWorksDW2012 Data File**: application, 206080K, uploaded Mar 12, 2012 - 96007 downloads
- AdventureWorks Multidimensional Models SQL Server 2012**: application, 442K, uploaded Mar 12, 2012 - 40064 downloads

- Click on each of the following three files to download these into your image at C:\Install
 - AdventureWorks2012 Data File
 - AdventureWorksDW2012 Data File
 - AdventureWorks Multidimensional Models SQL Server 2012
- Move both of the .MDF files to the following location

```
C:\Program Files\Microsoft SQL Server\MSSQL11.MSSQLSERVER\MSSQL\DATA
```

30. Next let's install the Adventure Works OLTP database

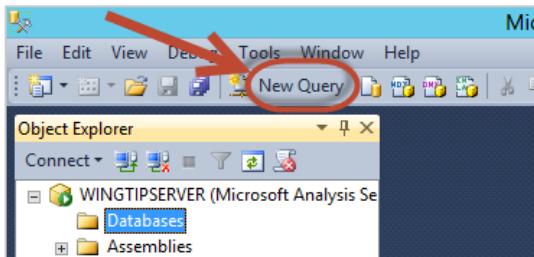
- Press the **Windows** key and type **SQL Server** click on the **SQL Server Management Studio** tile.



- Connect to the:
 - Server type: **Database Engine**
 - Server Name: **WINGTIPSERVER**
 - Authentication: **Windows Authentication**
 - Click **Connect**.



- c) In the Ribbon click the **New Query** option:

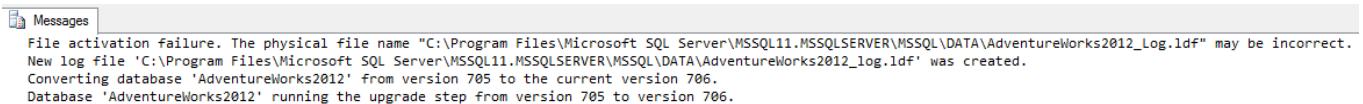


- d) Enter the following command and then Run this to install the AdventureWorks2012_Data.MDF file
(Note: this command needs to be entered all on one line)

```
CREATE DATABASE AdventureWorks2012 ON (FILENAME =
'C:\Program Files\Microsoft SQL
Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\AdventureWorks2012_Data.mdf')
FOR ATTACH_REBUILD_LOG;
```

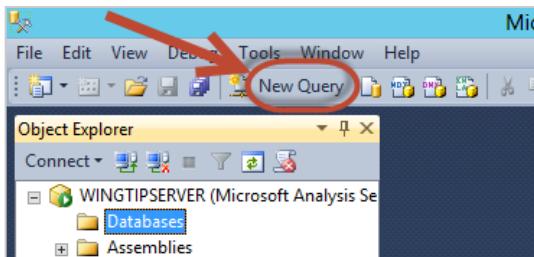
- i) In the Ribbon click **Execute**.

- ii) You will receive a message that the Database was upgraded from **version 705 to 706** indicating success:



31. Next let's install the Adventure Works OLAP database

- a) In the Ribbon click the **New Query** option:

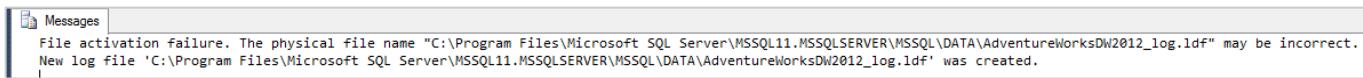


- b) Enter the following command and then Run this to install the AdventureWorksDW2012_Data.MDF file
(Note: this command needs to be entered all on one line)

```
CREATE DATABASE AdventureWorksDW2012 ON (FILENAME = 'C:\Program Files\Microsoft SQL
Server\MSSQL11.MSSQLSERVER\MSSQL\DATA\AdventureWorksDW2012_Data.mdf') FOR
ATTACH_REBUILD_LOG;
```

- i) In the Ribbon Click **Execute**

- ii) You will receive a message that the log file was created indicating success

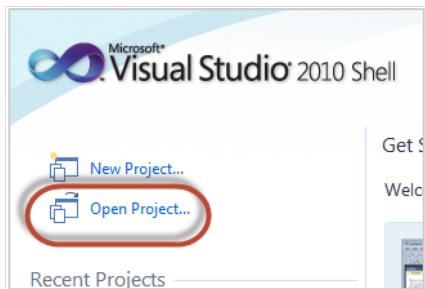


32. Give permissions to NT AUTHORITY\SYSTEM account for each of the new databases:

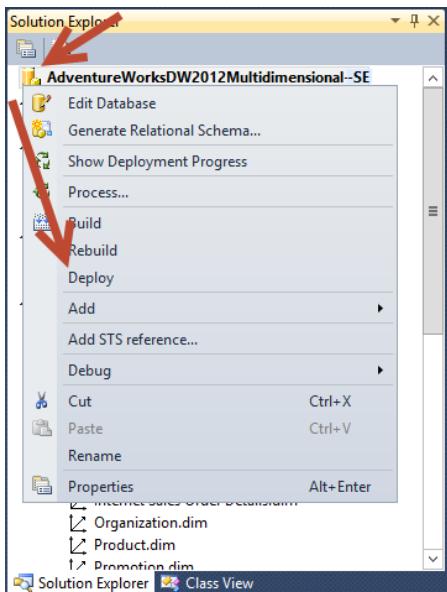
- In SQL Server Management Studio, expand the node for **Security**
- Expand the node for **Logins**
- Locate the account NT AUTHORITY\SYSTEM and right click the account
- Select **Properties**
- In the **Login Properties** dialog, on the left hand side, click **User Mapping**
- For both AdventureWorks2012 and AdventureWorksDW2012 databases, check the boxes under **Map**
- In each database, check the box next to **db_owner** and **public**
- Click **OK**

33. Now let's create the Adventure Works Data Warehouse:

- a) In the C:\Install directory double click on the **AdventureWorks Multidimensional Models SQL Server 2012.zip** file
 - i) Copy the **AdventureWorks Multidimensional Models SQL Server 2012** folder and paste it in the C:\Install folder location
- b) Press the **Windows** key and type SQL Server Data Tools
 - i) Click on the SQL Server Data Tools tile
 - ii) In the **Choose Default Environment Settings** window select **Business Intelligence Settings** and Click **Start Visual Studio**
- c) On the **Visual Studio 2010 Shell** window select **Open Project...**



- i) Navigate to the **C:\Install\AdventureWorks Multidimensional Models SQL Server 2012\Standard** folder:
- ii) Double click on the **AdventureWorksDW2012Multidimensional-SE.sln** file
 - (1) Click **OK** on the Security Warning dialog box
- iii) Right Click on the **AdventureWorksDW2012Multidimensional-SE** solution in the Solution Explorer and select **Deploy** from the shortcut menu.



- iv) Wait for the deployment to finish
 - (1) You will likely see ~18 warnings which you may ignore
- v) You should see in the bottom right hand corner a green **Deployment Completed Successfully** message when finished.
- d) Close out of all SQL Server windows as you have completed this configuration Task.

You have now successfully installed SQL Server 2012 with Service Pack 1. You are now finished installing and configuring basic software in the **WingtipServer** VM. In the next task, you will download installation files for SharePoint Server 2013 and SharePoint Designer 2013 so these installation files are available on the local hard drive of the **WingtipServer** VM for when it's time to install them later in the setup process.

Task 7: Download the Installation Files Required to install SharePoint Server 2013

In this task you will download the installation files for **SharePoint Server 2013**, **SharePoint Designer 2013**, and **Fiddler** and make them available on the local hard drive of the **WingtipServer** VM. Note that at the time of writing there is presently not a trial version of SharePoint 2013 slipstreamed with Service Pack 1 and creating a manual slipstream is not supported due to a change in the package layout which was introduced with the March 2013 PU. To install SharePoint 2013 on Windows 2012 R2 you must download a slipstreamed install from MSDN, VLSC, or MPN, whichever is relevant to your Microsoft licensing. For the purposes of this guide we will assume you will use an MSDN subscription to download the installer. If a trial version integrated with SP1 has become available then feel free to download that instead.

1. If not already created, create a new directory named **Install** on the **C:** drive of the **WingtipServer** VM.
 - a) Once created, the path to this directory should be **c:\Install**
2. Log into your MSDN subscription and download the installation files for **SharePoint Server 2013 with SP1 (x64)**.

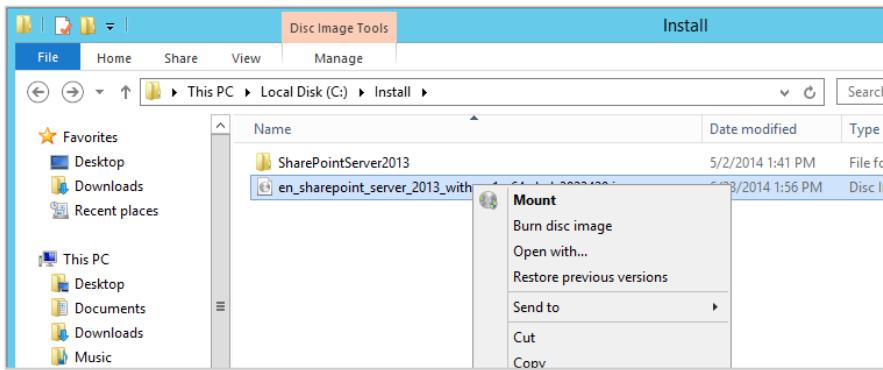
The screenshot shows the 'Subscriber Downloads' section of the MSDN website. The search bar contains 'sharepoint 2013'. The results list several SharePoint products, with the first one highlighted:

Product	Description	File Type	Language	Release Date	Action Buttons
SharePoint Designer 2013 with SP1 (x64) - (English)	No product key is required.	EXE	English	3/18/2014	Download
SharePoint Designer 2013 with SP1 (x86) - (English)	No product key is required.	EXE	English	3/18/2014	Download
SharePoint Server 2013 with SP1 (x64) - DVD (English)	Product Keys Download	ISO	English	2/28/2014	Download
SharePoint Designer 2013 (x64) - (English)	No product key is required.	EXE	English	11/7/2012	Download
SharePoint Designer 2013 (x86) - (English)	No product key is required.	EXE	English	11/7/2012	Download
SharePoint Server 2013 (x64) - DVD (English)	Product Keys	ISO	English	10/24/2012	Download

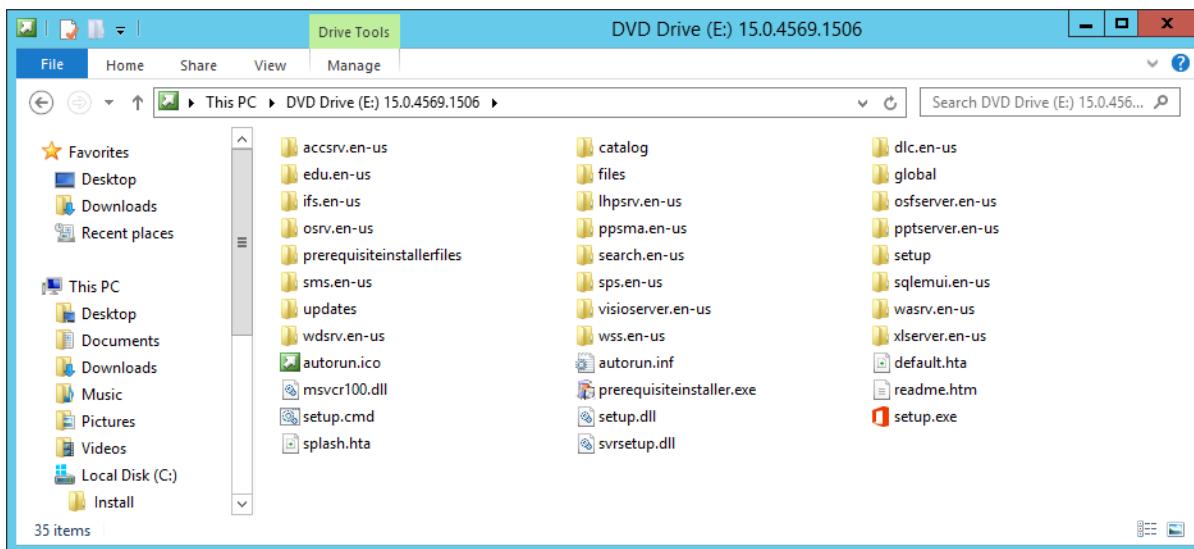
- a) Download the installation file named **en_sharepoint_server_2013_with_sp1_x64_dvd_3823428.iso** to the **c:\Install** directory.

If you chose to download the RTM trial version then you will have to manually install the Web Server (IIS) Role and any other prerequisites which fail to run when running the prerequisites installer. You will then have to manually install Service Pack 1 after installing the RTM version of SharePoint and before running the configuration wizard. Do not install from a manually built slipstream as this is not supported.

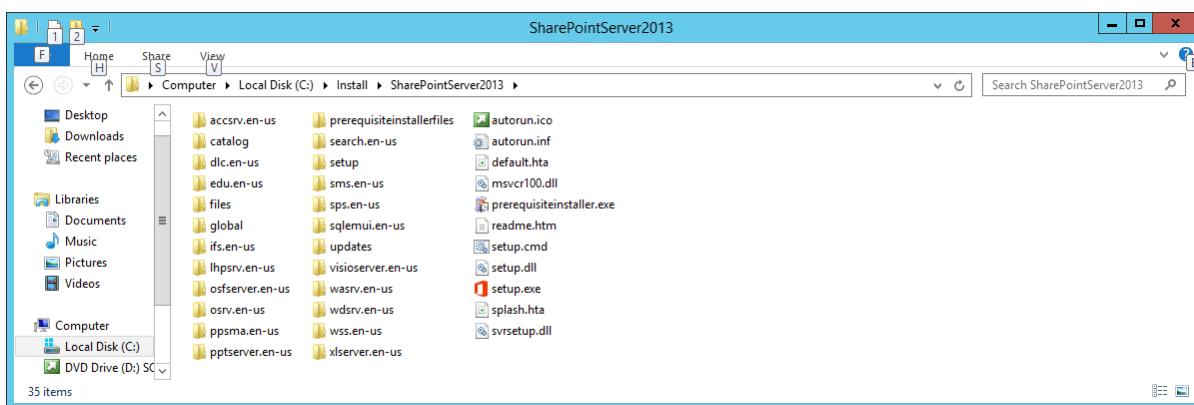
3. Extract the SharePoint Server 2013 installation files from **en_sharepoint_server_2013_with_sp1_x64_dvd_3823428.iso**.
 - a) Use the Windows Explorer to navigate to the **c:\Install** directory.
 - b) Create a new child directory named **SharePointServer2013** at **c:\Install\SharePointServer2013**.
 - c) Locate the file named **en_sharepoint_server_2013_with_sp1_x64_dvd_3823428.iso** in the **c:\Install** directory.
 - d) Right-click **en_sharepoint_server_2013_with_sp1_x64_dvd_3823428.iso** and select the **Mount** command to access the files inside the ISO file in a new window.



- e) Look in the new windows and examine the files and folders inside. You should see quite a few folders and files including the main setup program named **setup.exe**.



- f) Copy all the files and folders from the ISO file to the directory at **c:\Install\SharePoint2013**. When you are done, the **C:\Install\SharePointServer2013** directory on the **WingtipServer** VM should look like the one below.



4. Download the installation files for **SharePoint Designer 2013**.
 - a) Go to the SharePoint Designer 2013 download page at <http://www.microsoft.com/en-us/download/details.aspx?id=35491>.
 - b) On the download page, locate the installation file for the 64-bit edition named **sharepointdesigner_64bit.exe**.
 - c) Download the installation file to the **WingtipServer** VM at the path **c:\Install\sharepointdesigner_64bit.exe**.
5. Download the installation files for Fiddler.
 - a) Go to the Fiddler download page at <http://www.telerik.com/download/fiddler> and select the **Fiddler 4** build.

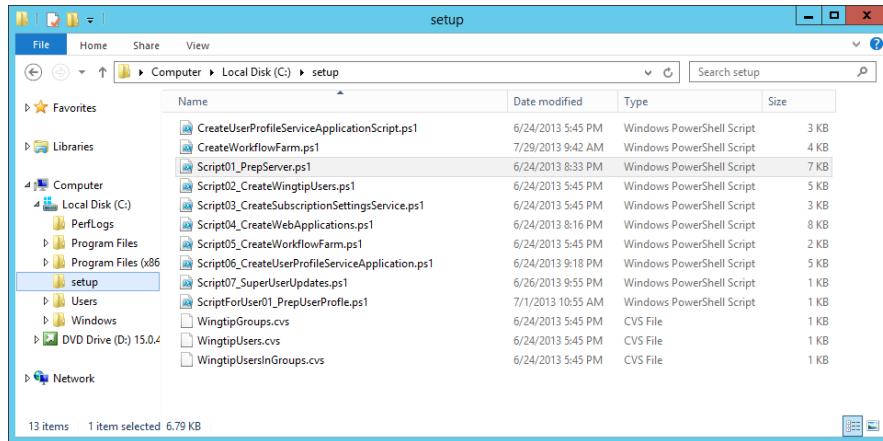
- b) Download the installation file to the **WingtipServer** VM at the path **c:\Install\ fiddler4setup.exe**

At this point you have downloaded the installation files for SharePoint Server 2013 and SharePoint Designer 2013 and made them available on the local hard drive of the WingtipServer VM.

Task 8: Create Service Accounts for SharePoint Server 2013.

In this task you will configure service accounts and user accounts for SharePoint 2013

1. Copy the setup scripts to your VM.
 - a) Locate the zip archive named **VmSetupGuideScripts.zip** that was distributed along with this setup guide.
 - b) Extract all files from **VmSetupGuideScripts.zip** to a new folder on the VM at the path **C:\Setup**.
 - c) Use the Windows Explorer to verify the files extracted properly and that the **C:\Setup** folder looks like the following screenshot.



2. Enable the execution of PowerShell scripts.
 - a) Launch a PowerShell console window.
 - b) Type the following command into the PowerShell console window and press ENTER to execute it.

Set-ExecutionPolicy Bypass

- c) Confirm your action by typing 'Y' and pressing ENTER.

```
PS C:\setup> Set-ExecutionPolicy Bypass
Execution Policy Change
The execution policy helps protect you from scripts that you do not trust. Changing the execution policy might expose
you to the security risks described in the about_Execution_Policies help topic at
http://go.microsoft.com/fwlink/?LinkId=135170. Do you want to change the execution policy?
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y
PS C:\setup>
```

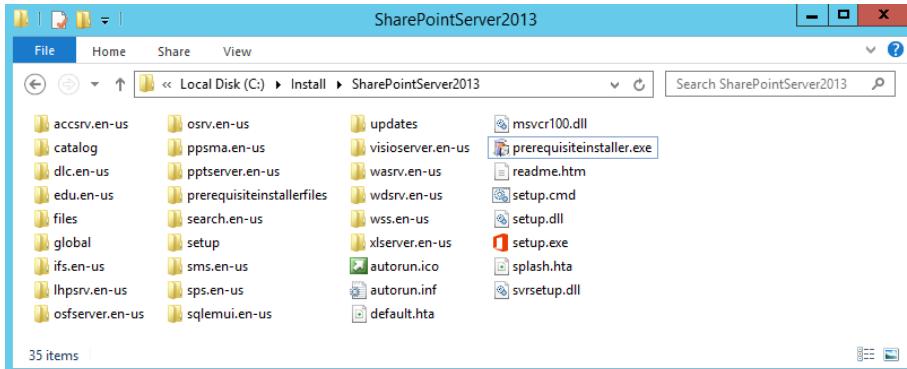
3. Return to the Windows Explorer and navigate to the folder at **C:\Setup**.
4. Right click on the **Script01_PrepServer.ps1** script and select **Run with PowerShell**.
 - a) This script will:
 - i) Disable the internal loopback check for accessing host header sites
 - ii) Create a Self-Signed Certificate for use later.
 - iii) Add a required DNS wildcard A record for *.wingtip.com with IP address of 127.0.0.1
 - iv) Create the needed SharePoint Service accounts in a new OU
 - b) Press ENTER or close the console window when complete
5. Right Click on the **Script02_CreateWingtipUsers** and select **Run with PowerShell**.
 - a) This script will:
 - i) Create 3 Groups
 - ii) Create 15 Users
 - iii) Set the Manager for 14 Users
 - iv) Add some users to the three groups created earlier

- b) Press ENTER or close the console window when complete

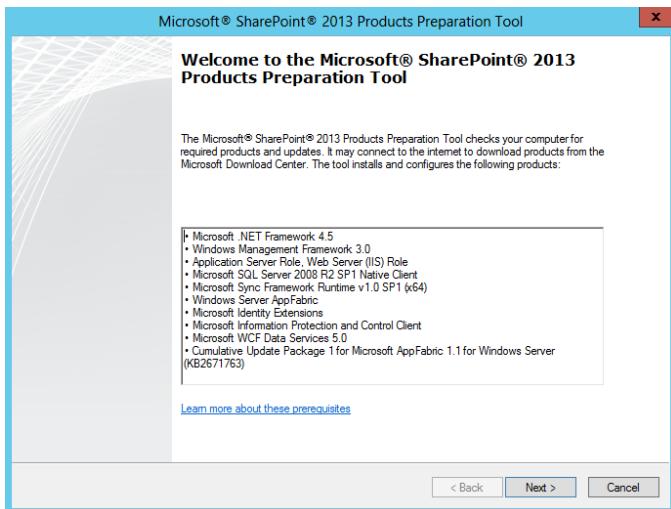
Task 9: Install SharePoint Server 2013 Prerequisites.

In this task you will configure service accounts for SharePoint 2013 and then run the SharePoint 2013 Install to prepare the Wingtip Server for SharePoint.

1. Navigate to the directory with the installation files at **C:\Install\SharePointServer2013**. Locate the file named **PrerequisiteInstaller.exe**. Now double-click this file to run Prerequisite Installer.



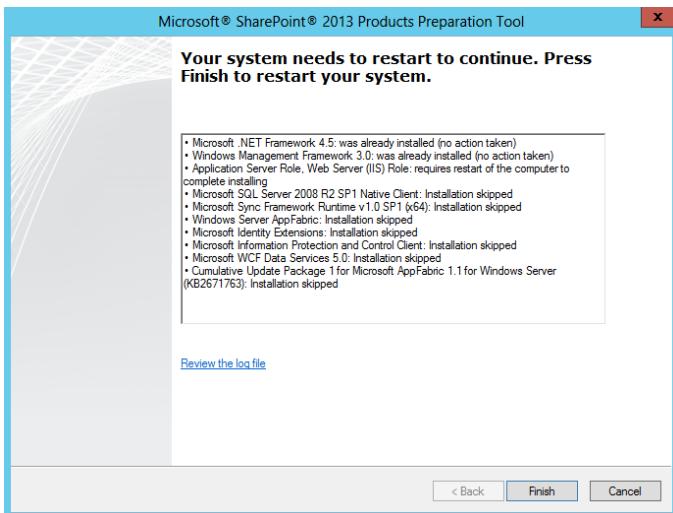
2. Click **Next** at the welcome screen.



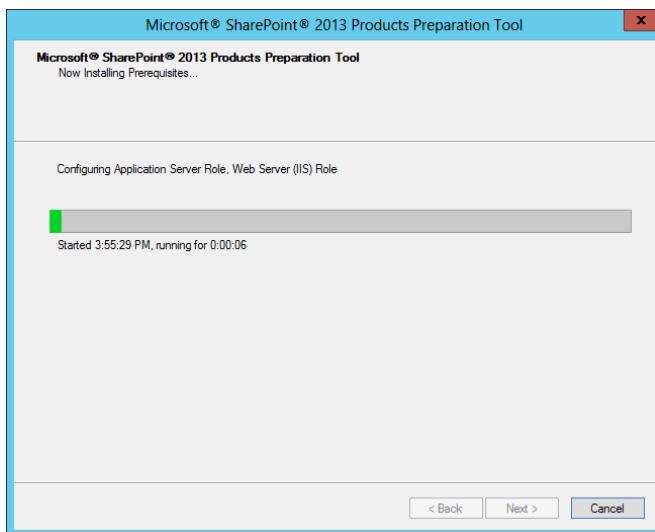
3. On the next screen, click the **check box** which states you agree to the licensing terms and then click **Next** to begin installing the SharePoint Server 2013 prerequisites. Note the prerequisite installer ensures that the following software is already installed.
 - a) .NET Framework version 4.5
 - b) Windows Management Framework 3.0

Keep in mind that the Prerequisite Installer requires an Internet connection to work properly. If your VM does not have an active connection to the Internet, the Prerequisite Installer will fail with errors.

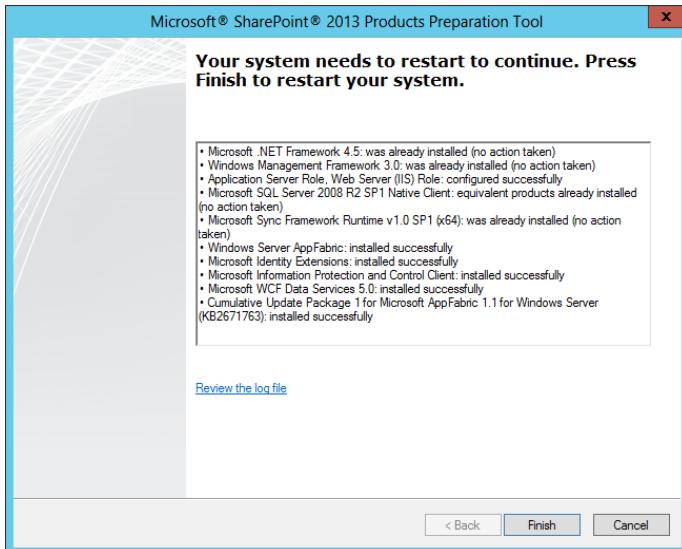
4. The Prerequisite Installer will enable the **Application Server Role** for **WingtipServer** and then prompt you to restart the VM. Reboot the VM. When prompted, click **Finish** so the Prerequisite Installer can reboot the **WingtipServer** server in order to continue installing the prerequisites for SharePoint Server 2013.



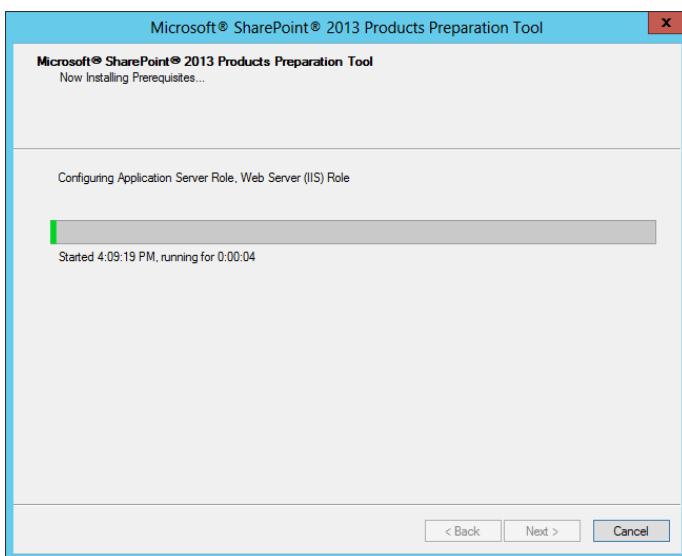
5. When the **WingtipServer** server has rebooted, log on as **WINGTIP\Administrator** with a password of **Password1**. You should notice that the Prerequisite Installer will automatically resume and continue its work.



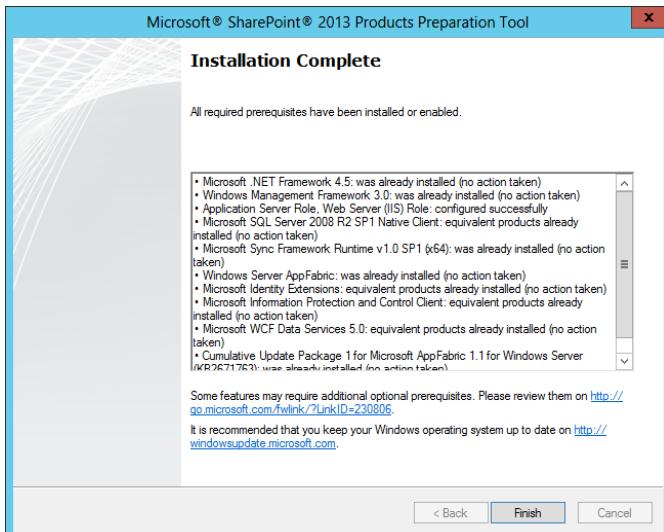
6. After the reboot, the prerequisite installer will install and configure the following components
 - a) Application Server Role, Web Server (IIS) Role
 - b) Windows Identity Foundation (KB974405)
 - c) Microsoft Sync Framework Runtime v 1.0 SP1
 - d) Windows Server App Fabric
 - e) Microsoft Identity Extensions
 - f) Microsoft Information Protection and Control Client
 - g) Microsoft WCF Data Services 5.0
 - h) Cumulative Update Package1 for Microsoft App Fabric 1.1 for Windows Server (KB2671763)
7. After the Prerequisite Installer configures these components (mentioned in step 6) for **WingtipServer**, it will prompt you to restart the VM. Reboot the VM. When prompted, click **Finish** so the Prerequisite Installer can reboot the **WingtipServer** server in order to continue installing the prerequisites for SharePoint Server 2013.



- When the **WingtipServer** server has rebooted, log on as **WINGTIP\Administrator** with a password of **Password1**. You should notice that the Prerequisite Installer will automatically resume and continue its work.



- When the Prerequisite Installer completes, it will display an **Installation Complete** dialog with a summary of everything it did. Review what has been installed.



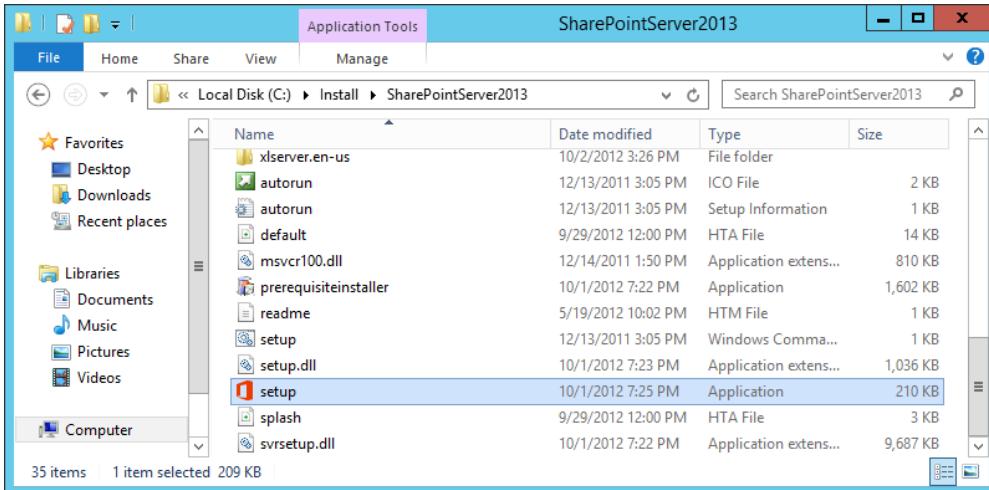
10. Click **Finish**.

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

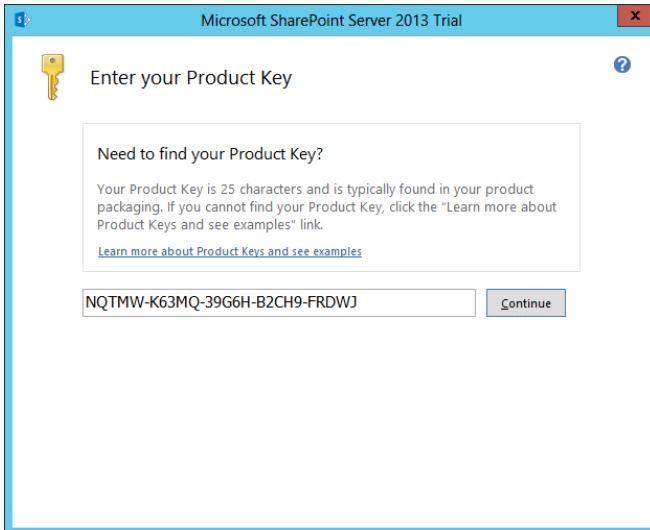
Task 10: Install SharePoint Server 2013 base files

In this section you will install SharePoint Server 2013.

1. Ensure you are logged into the **WingtipServer** VM using the account **WINGTIP\Administrator | Password1**.
2. Navigate to the directory at **C:\Install\SharePointServer2013**. Locate the file named **setup.exe**. Now double-click this file to run the installation program for SharePoint Server 2013.



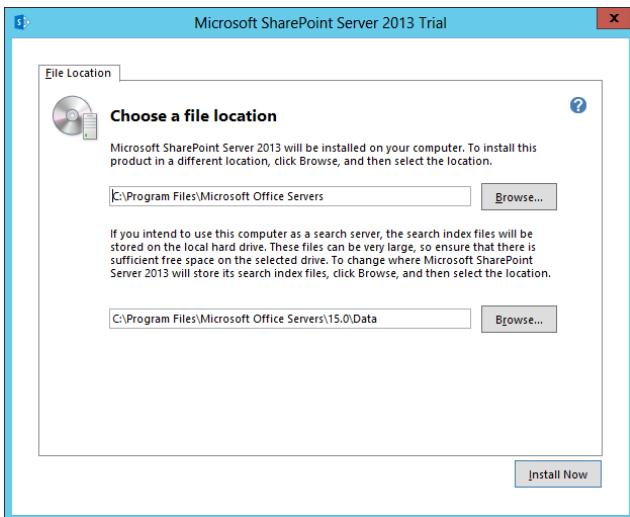
3. When prompted to **Enter your Product Key**, enter the trial key of **NQTMW-K63MQ-39G6H-B2CH9-FRDWJ** to continue with the installation of the **Microsoft SharePoint Server 2013**. Click **Continue**.



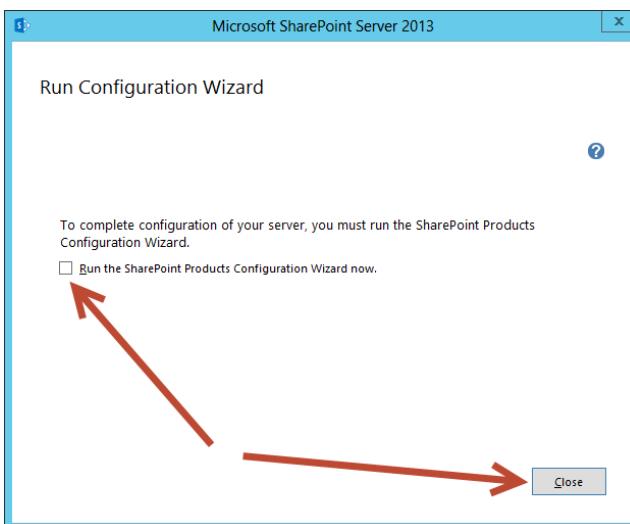
4. On the **Read the Microsoft Software License Terms** page, check the **I accept the terms of this agreement** checkbox and click **Continue**.

When you install SharePoint Server 2013 on a server computer that is not a domain controller, the SharePoint 2013 installation program displays the **Server Type** page which prompts you to select between an installation type of **Complete** or **Stand-alone**. You should always choose the **Complete** installation on any production server. Since you are installing SharePoint Server 2013 on a domain controller, the SharePoint 2013 installation program automatically selects the **Complete** installation type and does not display the Server Type page.

5. On the **Choose a file location** page, accept the default settings and click **Install Now**.



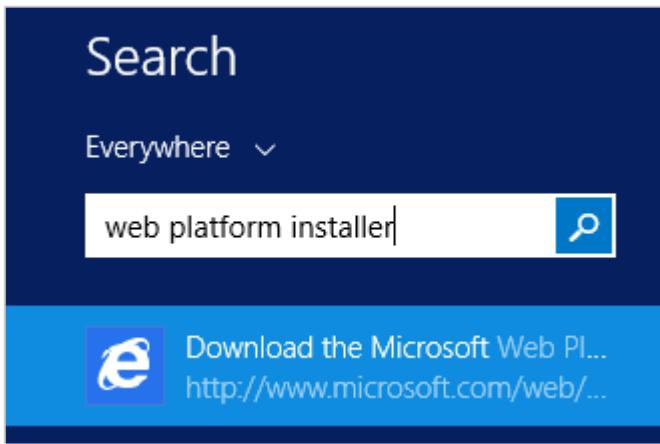
6. When the SharePoint Server 2013 installation program completes, it displays the **Run Configuration Wizard** page as shown in the following screenshot. Ensure the **Run the SharePoint Products Configuration Wizard** checkbox is **NOT** selected and click **Close**.



Task 11: Install Service Bus and Workflow Manager

In this section you will Install the Service Bus and Workflow Manager Architecture and apply the Cumulative Updates for these items (which are necessary to make the new Workflow Development model work correctly in SharePoint Server 2013 in both Development and Production environments)

7. Before you can install the Workflow Manager and its prerequisites you must first install the Visual C++ 11 Redistributable package as this is a missing prerequisite on Windows Server 2012 R2 for the Microsoft Windows Fabric V1 CU1
- Go to the Visual C++ Redistributable download page at <http://www.microsoft.com/en-gb/download/details.aspx?id=30679>.
 - On the download page, click **Download** to download the 64-bit edition named **VSU_4\vcredist_x64.exe**.
 - Click Run to download and run the installation file.
 - Agree to the license terms and follow the instructions to complete the installation.
8. **Install Microsoft Web Platform Installer**
- Press the Windows key and type Web Platform Installer then select the Download the Microsoft Web Platform Installer link.



- b) On the Web Platform Installer page click **Free Download** to download and run the latest version of the installer (at time of writing the latest version is 5.0).
9. In the **Web Platform Installer 5.0** use the Search box at the top right to search for **Service Bus**
- Click **Add for Service Bus 1.0**
 - Click **Install** at the bottom of the window and then click **I Accept**
 - If prompted to change the Microsoft Update settings, select **I don't want to use Microsoft Update**. Click **Continue** to proceed with the installation.
 - Wait for this to finish and click **Finish**
 - Type **Service Bus** into the **Search Box** again
 - Click **Add for Service Bus 1.0 Cumulative Update 1**
 - Click **Install** at the bottom of the window and then click **I Accept**
 - Wait for this to finish and click **Finish**
 - Now go back to the **Web Platform Installer 5.0** window
 - Type **Workflow** into the **Search Box**
 - Click **Add for Workflow Manager 1.0 Refresh**
 - Click **Install** at the bottom of the window and then click **I Accept**
 - If prompted to change the Microsoft Update settings, select **I don't want to use Microsoft Update**. Click **Continue** to proceed with the installation.
 - Wait for this to finish and click **Finish**
 - Click the **Continue** Button
 - Click the **x** in the top right corner of this wizard to close it (we will use a PowerShell Script to configure this later).

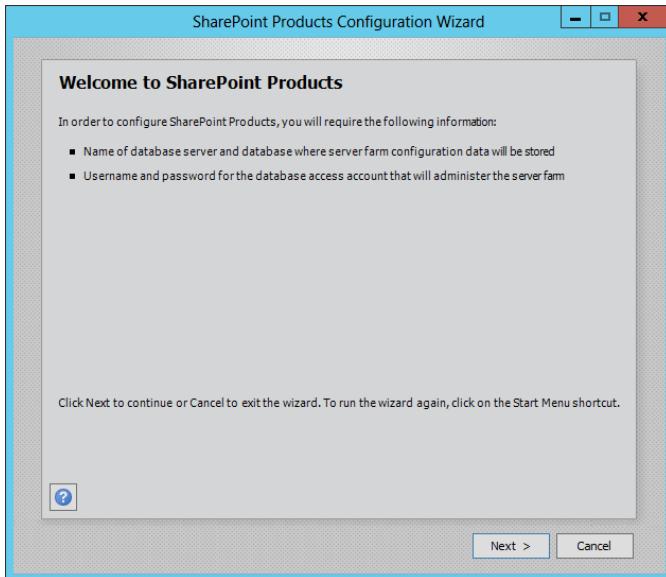
Task 13: Create and Configure the SharePoint Server 2013 Farm

In this section you will create and configure a new farm with SharePoint Server 2013.

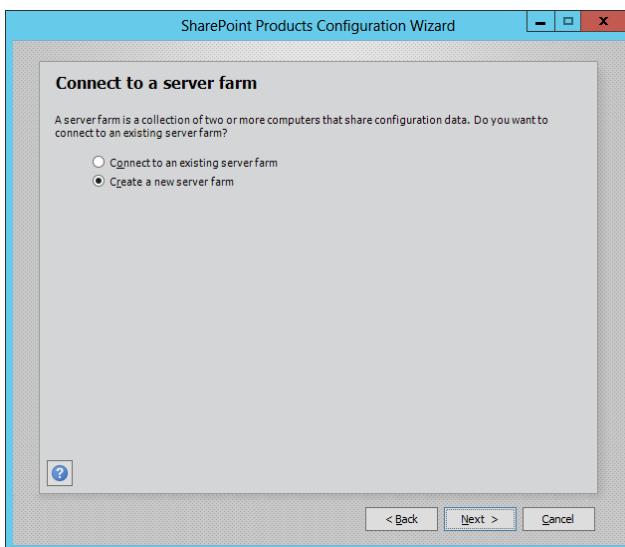
- Press the **Windows Key** to open the **Start** menu.
- On the **Start** menu find the **SharePoint 2013 Products Configuration Wizard** tile and click on it.



- On the **Welcome to SharePoint Products** page, click **Next**.

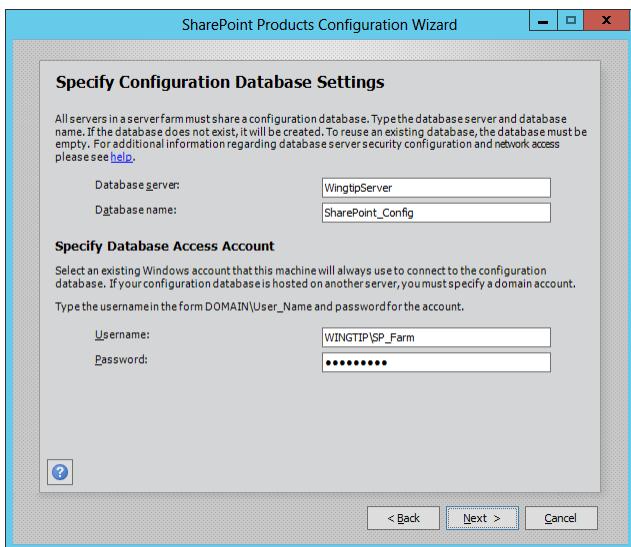


- a) If prompted to start or reset services, click **Yes**.
4. On the **Connect to a server farm** page, select **Create a new server farm** and click **Next**.

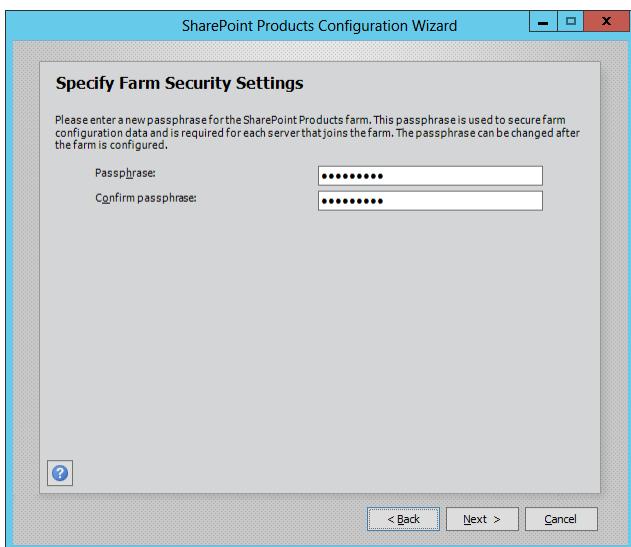


5. On the **Specify Configuration Database Settings** page, use the following to complete the page and click **Next**:

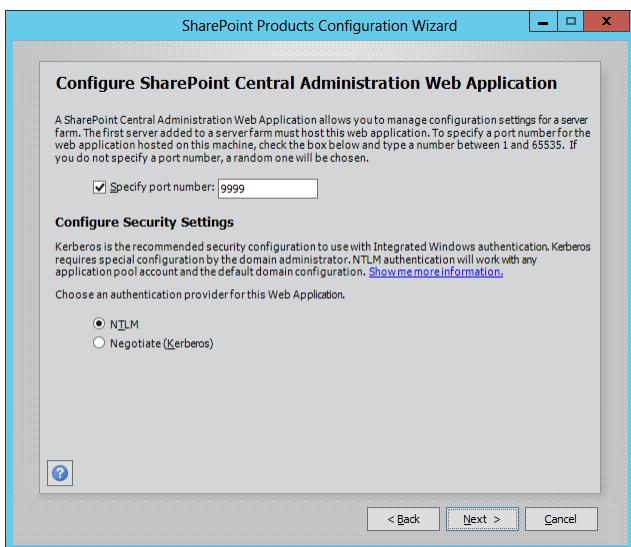
 - a) Database server: **WINGTIPSERVER**
 - b) Database name: **SharePoint_Config**
 - c) Username: **WINGTIP\SP_farm**
 - d) Password: **Password1**



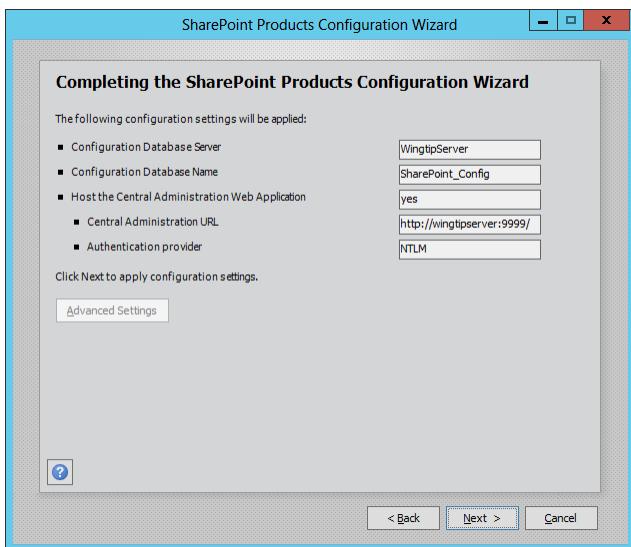
6. On the **Specify Farm Security Settings** page, enter **Password1** into both textboxes and click **Next**.



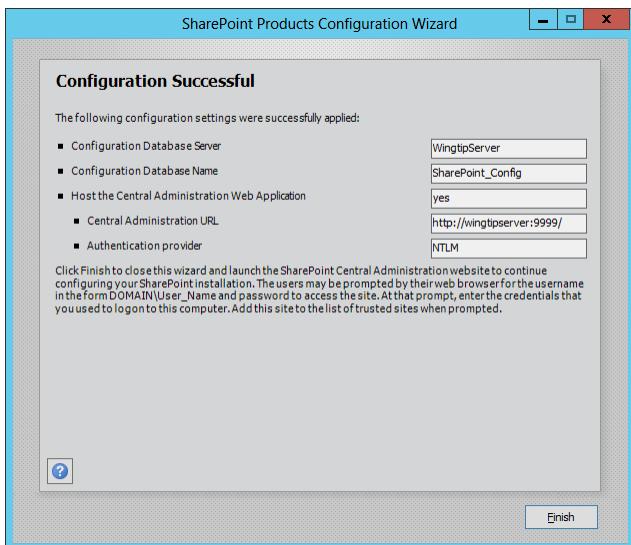
7. On the **Configure SharePoint Central Administration Web Application** page, check the **Specify port number** checkbox and enter a value of **9999**, then Click **Next**.



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



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



- Click **Finish**. This will launch Internet Explorer at a page which will prompt you to continue the configuration process.
- Click **No, I don't wish to participate** on the Customer Experience Improvement Program screen and click **OK**
- On the **Welcome** screen select **Yes, walk me through the configuration of my farm using this wizard**
- On the **Services** screen select **Create new managed account**
 - User name: **WINGTIP\SP_Services**
 - Password: **Password1**

- c) On the **Services** screen select the services as shown in the graphic below and click **Next**:

Configuration Wizards
Services

Select the services you want to run in your farm. The services you select below will run with default settings on all servers in your farm.

<input type="checkbox"/> Access Services 2010	Allows viewing, editing, and interacting with Access Services 2010 databases in a browser.
<input type="checkbox"/> Access Services	Allows viewing, editing, and interacting with Access Services databases in a browser.
<input checked="" type="checkbox"/> App Management Service	Allows you to add SharePoint Apps from the SharePoint Store or the App Catalog.
<input checked="" type="checkbox"/> Business Data Connectivity Service	Enabling this service provides the SharePoint farm with the ability to upload BDC models that describe the interfaces of your enterprises' line of business systems and thereby access the data within these systems.
<input checked="" type="checkbox"/> Excel Services Application	Allows viewing and interactivity with Excel files in a browser.
<input type="checkbox"/> Lotus Notes Connector	Search connector to crawl the data in the Lotus Notes server.
<input checked="" type="checkbox"/> Machine Translation Service	Performs automated machine translation.
<input checked="" type="checkbox"/> Managed Metadata Service	This service provides access to managed taxonomy hierarchies, keywords and social tagging infrastructure as well as Content Type publishing across site collections.
<input type="checkbox"/> PerformancePoint Service Application	Supports the monitoring and analytic capabilities of PerformancePoint Services such as the storage and publication of dashboards and related content.
<input checked="" type="checkbox"/> PowerPoint Conversion Service Application	Enables the conversion of PowerPoint presentations to various formats.
<input type="checkbox"/> Search Service Application	Index content and serve search queries.
<input checked="" type="checkbox"/> Secure Store Service	Provides capability to store data (e.g. credential set) securely and associate it to a specific identity or group of identities.
<input checked="" type="checkbox"/> State Service	Provides temporary storage of user session data for SharePoint Server components.
<input checked="" type="checkbox"/> Usage and Health data collection	This service collects farm wide usage and health data and provides the ability to view various usage and health reports.
<input type="checkbox"/> User Profile Service Application	Adds support for My Sites, Profiles pages, Social Tagging and other social computing features. Some of the features offered by this service require Search Service Application and Managed Metadata Services to be provisioned. Learn about security implications related to this option
<input checked="" type="checkbox"/> Visio Graphics Service	Enables viewing and refreshing of Visio Web Drawings.
<input checked="" type="checkbox"/> Word Automation Services	Provides a framework for performing automated document conversions.
<input checked="" type="checkbox"/> Work Management Service Application	This service provides task aggregation across work management systems.
<input checked="" type="checkbox"/> Workflow Service Application	This service connects SharePoint to an external workflow service

14. Wait for this to finish and then on the **Create Site Collection** screen set:

- a) Click **Skip**

Next we need to run a couple of PowerShell Scripts to create the Subscription Settings Service, Web Applications, 2013 Workflow Service, and User Profile Service.

15. In the Windows Explorer, navigate to the folder a **C:\Setup**.
16. Right Click on the **Script03_CreateSubscriptionSettingsService.ps1** script and select **Run with PowerShell**
 - a) This script will do just what it says (Create the Subscription Settings Service)
 - b) Wait for this to finish
 - c) Press ENTER or close the console window when complete
17. Right Click on the **Script04_CreateWebApplications.ps1** script and select **Run with PowerShell**
 - a) This script will:
 - i) Remove the existing Default SharePoint Web Application at port 80
 - ii) Create a new Web Application Pool
 - iii) Create 3 new Web Applications (WingtipServer, Intranet, and MySites Host)
 - iv) Configure the MySites Host Service Application
 - b) Wait for script to finish (this will take several minutes).
 - c) Press ENTER or close the console window when complete

When this script is finished you should see that two Internet Explorer windows have appeared. Check to see that both the <http://WingtipServer> and <http://intranet.wingtip.com> sites load successfully.

18. Right Click on the **Script05_CreateWorkflowFarm.ps1** and select **Run with Powershell**
 - a) Wait for a couple of seconds until you are prompted by User Account Control and click **Yes**
 - b) A second PowerShell window will open and a subsequent script will be autorun using a different User Account needed to correctly configure this using PowerShell. Note that this will take a couple of minutes. Be patient.
 - c) When the script runs, it will configure the Service Bus and Workflow Management Services as well as integrate these services with SharePoint 2013 to add support for SharePoint 2013 workflows.

Keep in mind that the script that ran earlier which created the Wingtip Service accounts created an account named **WINGTIP\SP_Farm** which serves as the farm account. The script also added the **WINGTIP\SP_Farm** account to the local Administrators group which is required to successfully run the next script. Keep in mind that once you have finished the initial configuration of the User Profile Service and the User Profile Synchronization Service, you will then remove the **SP_Farm** account from the local Administrators group.

19. Right Click on the **Script06_CreateUserProfileServiceApplication.ps1** and select **Run with PowerShell**
 - a) Wait for a couple of seconds until you are prompted by User Account Control and click **Yes**
 - b) A second PowerShell window will open and a subsequent script will be autorun using a different User Account needed to correctly configure this using PowerShell. This will take a couple of minutes so be patient.
 - i) When this script runs it will configure the User Profile Service Application and the User Profile Synchronization Service.
20. Now we need to complete the configuration of the User Profile Service
 - a) Press the **Windows Key** and type **SharePoint Central**.
 - b) Select the **SharePoint 2013 Central Administration** tile.
 - c) Go to the **User Profile Service Application** management page:
 - i) **Application Management → Manage Service Applications → User Profile Service Application**
21. Next, establish a connection to the wingtip.com domain in Active Directory:
 - a) Under Synchronization, select **Configure Synchronization Settings**.
 - b) Under Synchronization Options, ensure that the selected option is **Use SharePoint Profile Synchronization**.
 - c) Click **OK**
 - d) Under **Synchronization**, select **Configure Synchronization Connections**.
 - e) On the **Synchronization Connections** page, select **Create New Connection**.
 - f) Enter the following values on this form:
 - i) Connection Name: **Wingtip Users**

ii) Type: **Active Directory**

iii) **Connection Settings:**

- (1) Fully Qualified Domain Name: **wingtip.com**
- (2) Specify a domain controller: **selected**
- (3) Domain controller name: **WingtipServer**
- (4) Authentication Provider Type: **Windows Authentication**
- (5) Account Name: **WINGTIP\SP_UPS**
- (6) Password (and Confirm Password): **Password1**

Add new synchronization connection

Use this page to configure a connection to a directory service server to synchronize users.

* Indicates a required field

Connection Name: Wingtip Users

Type: Active Directory

Connection Settings

For the Active Directory directory service server, type in **Forest name** and **Domain controller name**.
For Active Directory connections to work, this account must have directory sync rights.

Forest name: wingtip.com
 Auto discover domain controller
 Specify a domain controller:
Domain controller name: wingtipserver

Authentication Provider Type: Windows Authentication
Authentication Provider Instance:

Account name: * WINGTIP\SP_UPS
Example: DOMAIN\user_name
Password: *
Confirm password: *
Port: 389
 Use SSL-secured connection

iv) **Containers:**

- (1) Click **Populate Containers**.
- (2) After it loads, expand the **WINGTIP** node and select the Organizational Unit named **Wingtip Users**.
(Note: place a check in the **Wingtip Users** checkbox as shown below)

Containers

Choose which containers you want to be synchronized.

Populate Containers

WINGTIP
 WINGTIP
 Computers
 Domain Controllers
 ForeignSecurityPrincipals
 Managed Service Accounts
 Program Data
 System
 Users
 Wingtip Service Accounts
 Wingtip Users

g) Click **OK** to save the connection. You should see the connection has been successfully created.

Synchronization Connections

Use this page to manage the list of connections to import sources such as Active Directory, LDAP Directory and Business Data Connectivity. User information will be imported from these sources.

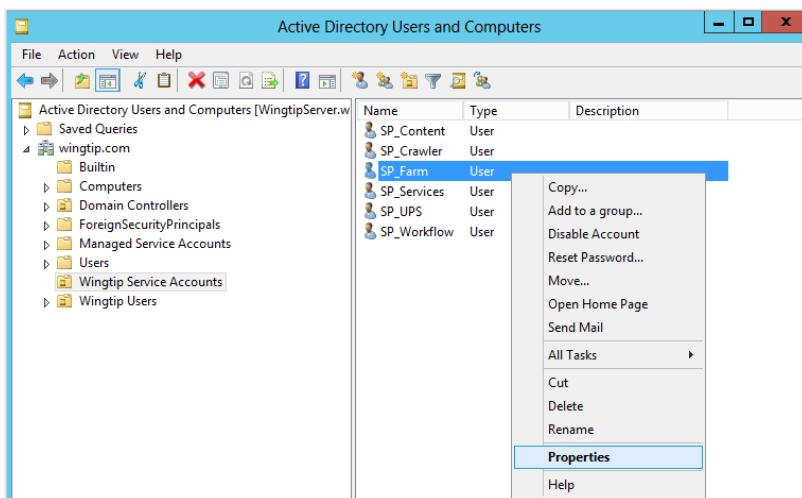
[Create New Connection](#)

Name	Type	Source
Wingtip AD Users	Active Directory	WINGTIP.COM

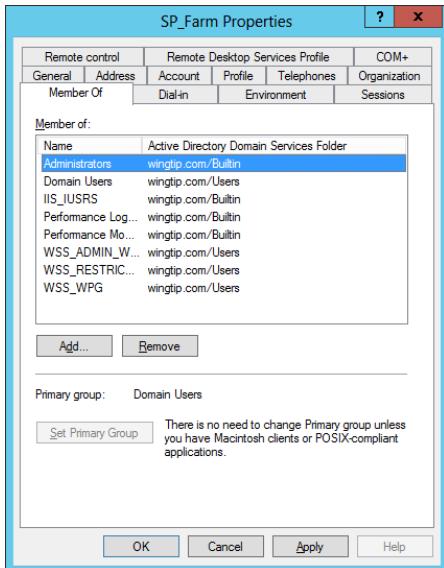
22. Go back to the **User Profile Service Application** management page: **Application Management → Manage Service Applications → User Profile Service Application**.
23. Finally, start a synchronization import:
 - a) Under **Synchronization**, select **Start Profile Synchronization**.
 - b) Select **Start Full Synchronization** and click **OK**
 - c) Wait for this to finish
 - d) You will be taken back to the **User Profile Service Application** 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.
(Note: you should have 15 User Profiles when finished)
 - e) At this point you have successfully configured the **User Profile Service Application** to import profiles from the local AD.

You are now at a point where you can remove the **SP_Farm** account from the **Administrators** group. Granting local **Administrators** group permission to the **SP_Farm** account is only needed in steps that you have already completed.

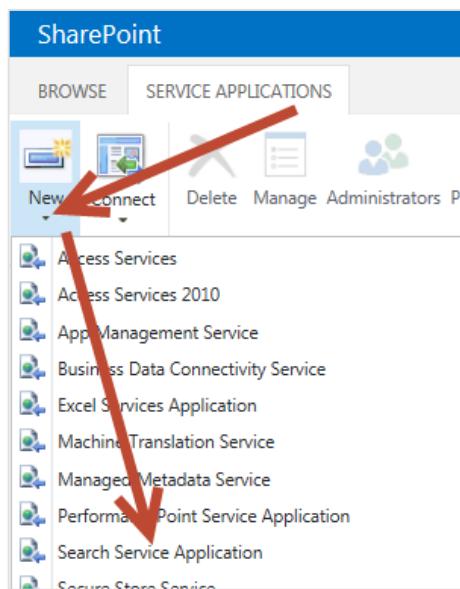
24. Remove the **WINGTIP\SP_Farm** account from the local Administrators group.
 - a) Display the Windows Start page.
 - b) Click the tile Active Directory Users and Computers.
 - c) Locate the **WINGTIP\Administrators** account.



- d) Select the **Member Of** tab on the **SP_Farm Properties** dialog. Select the **Administrators** group and click the **Remove** button to remove the **SP_Farm** account from the local **Administrators** group.



- e) Once you have removed the **Administrators** group, click the **OK** button to close the **SP_Farm Properties** dialog.
 - f) Now reboot the student VM.
 - g) Once the student VM has restarted, log in again as **WINGTIP\Administrator**.
25. Next we need to configure the Search Service in SharePoint 2013
- a) Press the **Windows** key and type “SharePoint” and select the **SharePoint 2013 Central Administration** tile
 - b) In Central Administration select **Manage Service Applications** under the **Application Management** section
 - c) On the Service Applications screen, select the drop down under **New** in the ribbon and select the **Search Service Application** option.

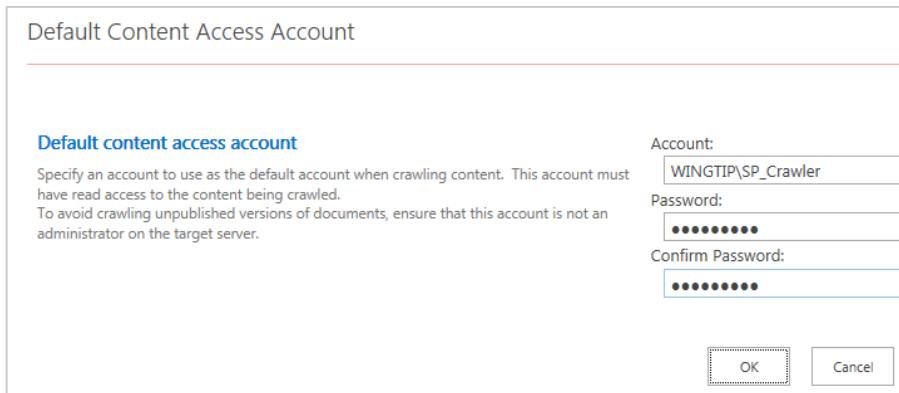


- d) On the Create New Search Service Application screen set the following items:
 - i) Service Application Name: **Search Service Application**
 - ii) Search Service Account: **WINGTIP\SP_Services**
 - iii) Application Pool for Search Admin Service: **Use existing application pool**
 - (1) Name: **SharePoint Web Services Default**
 - iv) Application Pool for Search Query and Site Settings Web Service
 - (1) Name: **SharePoint Web Services Default**
 - v) Click **OK** at bottom of window and wait for this to finish.
 - vi) When you see the Manage Search Topology screen with the success message, click **OK** to continue

- e) Back on the Manage Service Applications screen scroll down to find the **SharePoint Server Search Service Application** and click on this to go to the **SharePoint Server Search Service Application** configuration screen
- f) Next we need to configure the identity of the Search Service Application Crawl Account
- g) In Central Administration Navigate to the main Search Administration page of the Search Service Application.
- i) **Central Administration → Manage service applications → Search Service Application link**

If you see an error on the search administration page stating that the search service is not able to connect to the machine that hosts the administration component you can try to reboot the server and try returning to the page.

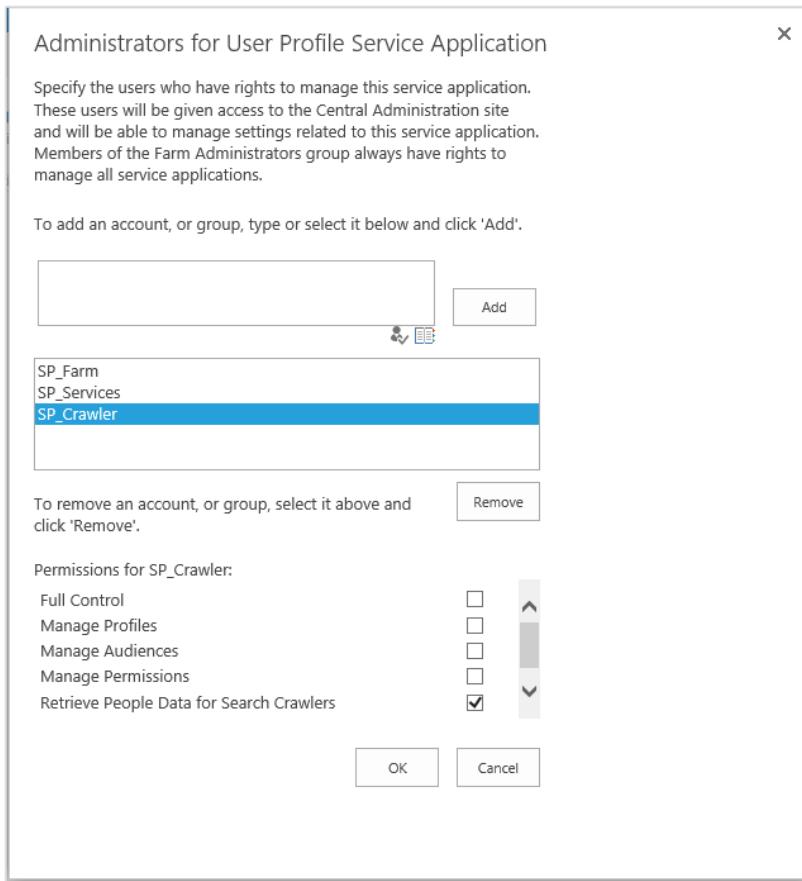
- h) Inspect the properties in the **System Status** section and locate the property named **Default content access account**.
- i) Currently, the **Default content access account** property should have a value of **WINGTIP\SP_Services**.
- ii) Click on the link which shows the property value of **WINGTIP\SP_Services** to configure it to use a different account. A dialog will appear that allows you to add a new account and password. Add the **WINGTIP\SP_Crawler** account and a password / confirm password of **Password1** and then click **OK** to save your changes.



- i) Return to the main Search Administration page of the Search Service Application.

When you configure a new identity for the crawler account by updating the **Default content access account** property, SharePoint will automatically add a user policy to each existing web application to provide the account will Full-Read access. Therefore, you do not need to worry about configuring permissions for the crawler account to access SharePoint sites. However, SharePoint will not automatically configure permissions for the crawler account to properly access the User Profile Service Application. You will configure the permissions that are required in the following step. (Note: you would also need to provide access to any external content you wished to crawl)

26. Provide the **WINGTIP\SP_Crawler** account with access to the User Profile Service Application.
- a) Navigate to the Manage service applications page and select the User Profile Service Application
 - i) **Central Administration → Manage service applications** → just select **User Profile Service Application** (but do not click the link (i.e. click anywhere on this line but the link itself to highlight/select this application))
 - b) With the **User Profile Application Service** selected, click the **Administrators** button in the Ribbon.
 - c) In the textbox in the Administrators for User Profile Service Application dialog, enter the account **WINGTIP\SP_Crawler** and then click **Add**.
 - d) Configure the **WINGTIP\SP_Crawler** account with the **Retrieve People Data for Search Crawlers** permission.



- i) Click **OK** to save your configuration changes.
- ii) Return to the main Search Administration page of the Search Service Application
 - (1) Click on the **Search Service Application** link in the **Manage service applications** screen (i.e. the screen you are currently on).
- e) On the main Search Administration page of the Search Service Application, locate and click the **Content Sources** link in the **Crawling** section of the Quick launch. This will redirect you to the **Manage Content Source** page where you should be able to see that there is a single content source named **Local SharePoint Sites**.

Search Service Application: Manage Content Sources

Use this page to add, edit, or delete content sources, and to manage crawls.

[New Content Source](#) | [Refresh](#) | [Start all crawls](#)

Type	Name	Status	Current crawl duration	Last crawl duration	Last crawl completed	Next Full Crawl
Local SharePoint sites	Local SharePoint sites	Idle				

- f) Use the drop down menu on **Local SharePoint sites content source** to start a full crawl of the content.

Search Service Application: Manage

Use this page to add, edit, or delete content sources, and to manage crawls.

[New Content Source](#) | [Refresh](#) | [Start all crawls](#)

Type	Name	Status	Current crawl duration
Local SharePoint sites	Local SharePoint sites	Idle	

Local SharePoint sites

- [Edit](#)
- [View Crawl Log](#)
- [Start Full Crawl](#)
- [Start Incremental Crawl](#)

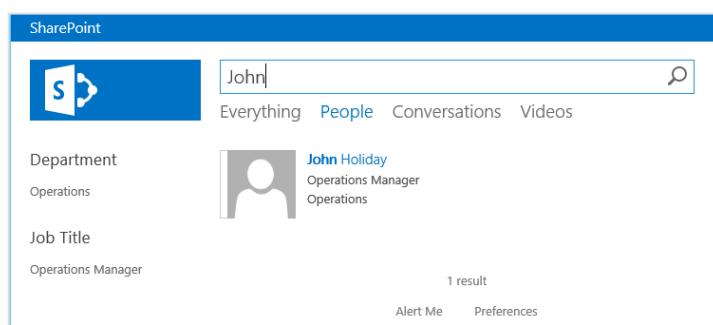
The full crawl process will likely take about 5 minutes or so to complete. However, you don't have to wait for it to complete. You can move ahead to the next step and continue with the setup.

27. Next we need to configure a Search Center on our Main Intranet site:

- a) In Central Administration Select **Manage Web Applications** under the Application Management section
- b) Select **Wingtip Intranet** and then in the Ribbon select **Managed Paths** and then set:
 - i) Path: **Search**
 - ii) Type: **Explicit inclusion**
 - iii) Click **Add Path** and then click **OK**
- c) Select **Application Management** then **Create site collections** and set:
 - i) Web Application: <http://intranet.wingtip.com/>
 - ii) Title: **Search Center**
 - iii) URL: <http://intranet.wingtip.com/search>
 - iv) Template Selection
 - (1) Experience version: **2013**
 - (2) Select a template: **Enterprise** tab then **Enterprise Search Center**

The screenshot shows the 'Create Site Collection' wizard. The 'Template Selection' step is active. Under 'Select a template:', the 'Enterprise Search Center' option is highlighted with a blue background. Other options like 'Collaboration', 'Publishing', and 'Custom' are visible but not selected.

- v) Primary Site Collection Administrator: **Administrator**
- vi) Click **OK** at bottom of window
- d) When the site has been created click the link <http://intranet.wingtip.com/search> to open the new search center.
- e) Test the search center:
 - i) Type **Administrator** in the search box and press **Enter**
 - (1) You should receive at least one hit (**Wingtip Team Site**)
 - ii) Type **John** in the search box, select **People** for the category of the search
 - (1) You should see **John Holliday** in the results list.



- f) Congratulations! Search appears to be working correctly... but wait there's more...
 - i) We should set this as the Global Search Center URL in the Search Service Application

- (1) Go back to the **Search Service Application** management page: **Application Management** → **Manage Service Applications** → **Search Service Application**.
- (2) Under **System Status** click on **Set a Search Center URL**
 - (a) Set this to: <http://intranet.wingtip.com/search/Pages/results.aspx>
 - (b) Click **OK**

Search Configuration is now completed...

28. Finally, we need to finish the SQL Server Reporting Services (SSRS) integration into SharePoint 2013 configuration

- a) Press the window key and type “SharePoint Management” and **Right Click** on the **SharePoint 2013 Management Shell** tile
- b) Now select **Run as Administrator** from the bottom of the screen
(Note: these commands will only work if you run this shell as an administrator)
- c) In the Management shell type each of the following commands followed by the **Enter** key.

```
Install-SPRSService
Install-SPRSServiceProxy
get-spserviceinstance -all |
  where {$_.TypeName -like "SQL Server Reporting*"} |
  Start-SPServiceInstance
```

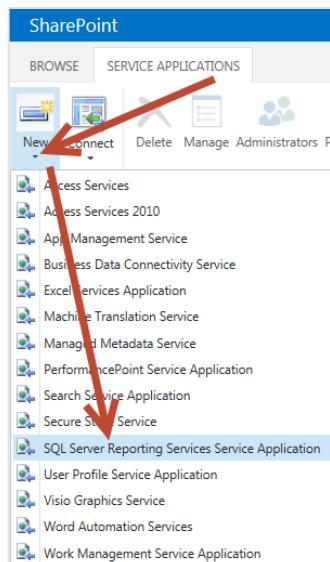
The screenshot shows a Windows command prompt window titled "Administrator: SharePoint 2013 Management Shell". The commands entered are:

```
PS C:\Users\Administrator> Install-SPRSService
PS C:\Users\Administrator> Install-SPRSServiceProxy
PS C:\Users\Administrator> get-spserviceinstance -all | where {$_.TypeName -like "SQL Server Reporting*"} | Start-SPServiceInstance
```

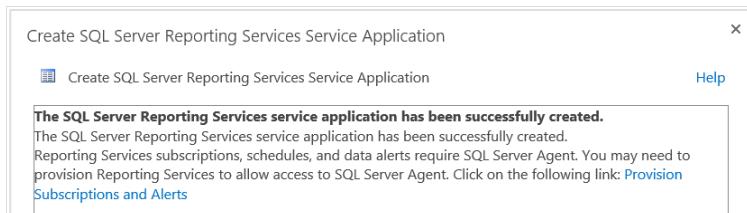
The output shows a table with columns "TypeName", "Status", and "Id". One row is visible:

Type Name	Status	Id
SQL Server Reporting Services...	Provi...	4a33c18c-3294-497f-9903-92b735e19fdc

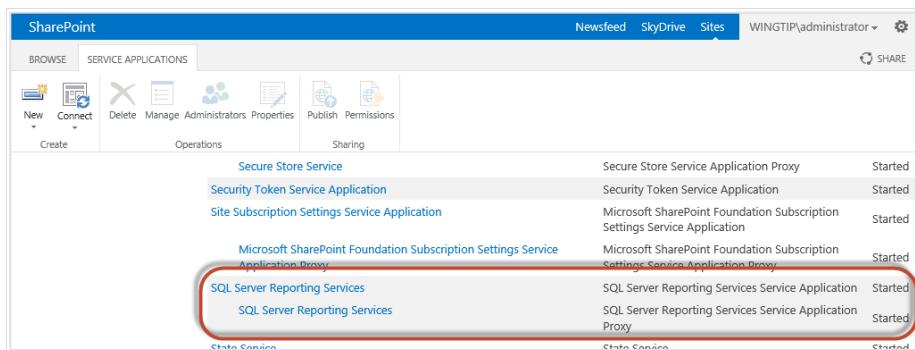
- d) **Close** the SharePoint 2013 Management Shell window
- e) Press the **Windows** key and type “SharePoint Central” and select the **SharePoint 2013 Central Administration** tile
- f) In Central Administration select **Manage Service Applications** under the **Application Management** section
- g) On the Service Applications screen, select the drop down under **New** in the ribbon and select the **SQL Server Reporting Services Service Application** option.



- h) On the Create SQL Server Reporting Services Service Application screen set the following items:
- Name: **SharePoint SQL Server Reporting Services**
 - Application Pool: **Use existing application pool**
 - Name: **SharePoint Web Services Default**
 - Database Name: **SharePoint_SSRS_Data**
 - Web Application Association (Place a **check** next to):
 - Wingtip HNSC Web Application**
 - Wingtip Intranet**
 - Click **OK**
 - Wait for this to finish and on the final screen (i.e. with the success message) click **OK**.



- i) Back on the Manage Service Applications screen scroll down to see the **SQL Server Reporting Services** Service. It should show up as **Started** as shown below:



29. Close the Internet Explorer window which was launched at the end of the SharePoint Server 2013 installation program. Close any other Internet Explorer windows that are open on the **WingtipServer** VM.

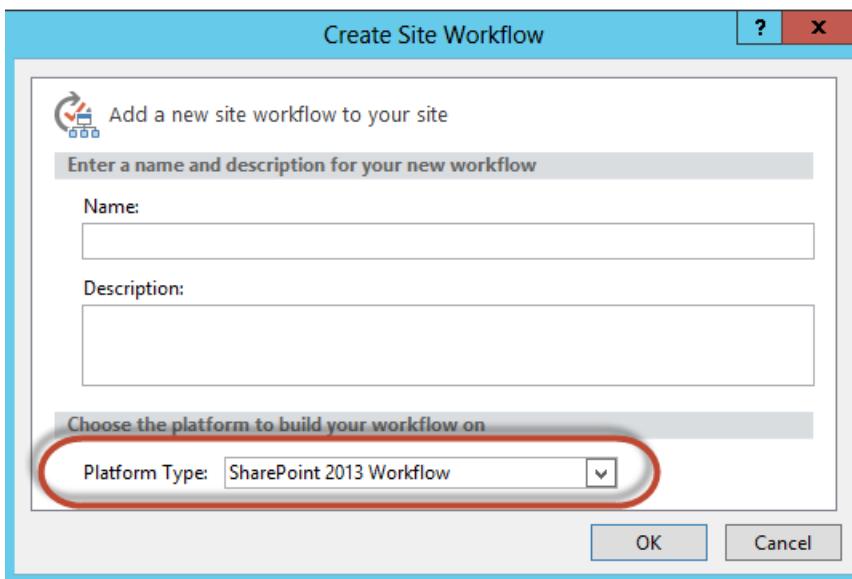
At this point you have successfully configured the base install of SharePoint Server 2013

Task 14: Install Fiddler, SharePoint Designer 2013, and test Workflow Services in SharePoint 2013

In this section you will finish the Install SharePoint Designer 2013 and test the Workflow Service Manager integration into SharePoint 2013 by using SharePoint Designer to create a new 2013 style Workflow

1. Navigate to C:\Install
2. Double click on the **fiddler4setup.exe** file to install Fiddler
 - Click **I Agree** to the License Agreement
 - Click **Install**
 - Click **Close**
 - Internet explorer should appear with a **First Run Screen for Fiddler**
 - Close **Internet Explorer**
3. Double click on the **sharepointdesigner_64bit.exe** file to install SharePoint Designer 2013
 - Accept the License Terms and click **Continue**
 - Click **Install Now**
 - When finished installing click **OK**.

4. Apply Service Pack 1 for Microsoft SharePoint Designer 2013 64-Bit Edition.
 - a) Download the update from here: <http://www.microsoft.com/en-us/download/details.aspx?id=42009>
 - b) Once the update has downloaded, apply it by double-clicking on the update installation file which is named **spdsp2013-kb2817441-fullfile-x64-en-us.exe**.
 - c) Wait until the update has been applied and then close all windows.
5. Open SharePoint Designer 2013:
 - a) Press the **Windows** key and type **SharePoint Designer**
 - b) Select the **SharePoint Designer 2013** tile
 - c) Select **Use recommended settings** and click **Accept**
 - d) **Close** the Office Welcome pop-up window
 - e) Click **Open Site** and set the site name to **http://wingtipserver/** and click **Open**
6. On the Ribbon click on **Site Workflow** and note the Platform Type in the **Create Site Workflow** dialog box. You should now see **SharePoint 2013 Workflow** as a choice. As long as you see **SharePoint 2013 Workflow** as a choice, you know that you have successfully configured support for SharePoint 2013 workflows in the local farm.



7. Click **Cancel** and then **Close** SharePoint Designer 2013

You have now successfully installed Fiddler, SharePoint Designer 2013, and demonstrated that the new 2013 style SharePoint Workflows have been installed correctly into your environment.

Task 15: Install, Update, and Configure Visual Studio 2013

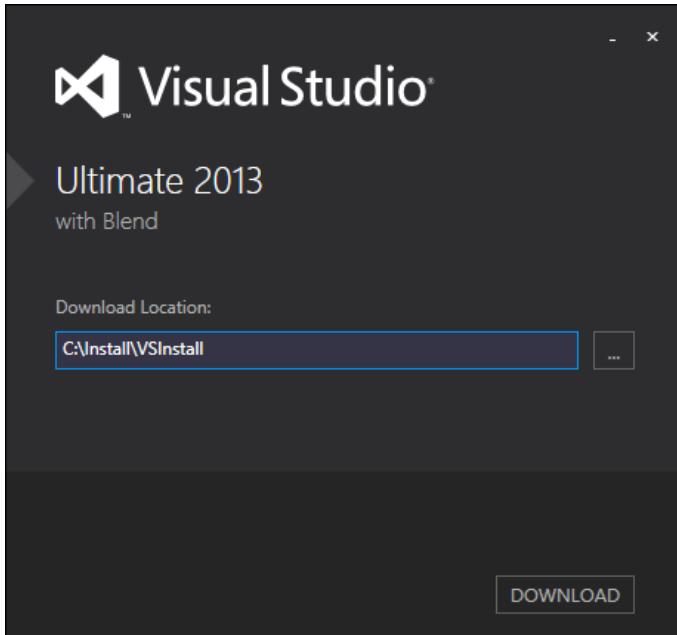
In this section you will Install Visual Studio 2013, Update, and configure it for use with SharePoint 2013.

1. Create a new directory named **VSIInstall** in the **C:\Install** directory of the **WingtipServer** VM.
 - a) Once created, the path to this directory should be **c:\Install\VSIInstall**

Note that minimally you will need Visual Studio Professional 2013 if you wish to use an MSDN licensed copy for this setup.

2. Download the installation files for the trial edition of Visual Studio 2013.
 - a) Go to the Visual Studio Ultimate 2013 trial download page at <http://www.visualstudio.com/en-us/downloads/download-visual-studio-vs>.
 - b) Click the Visual Studio Ultimate 2013 category.
 - c) Click the **Download Now** link to download to the VM.
 - d) If prompted, login using your Microsoft Account.
 - e) Click the **Ultimate 2013** tile to begin the download.
3. Download the installation file named **vs_ultimate_download.exe** to the **c:\Install\VSIInstall** directory.
4. Double-click on the **vs_ultimate_download.exe** program to download the application.

- a) Specify **c:\Install\VSInstall** as the download location and click **Download** to begin the download.



- b) Click **Close** when complete.

5. Double-click the **vs_ultimate.exe** program to begin the installation.

- a) **Agree** to the license terms and conditions and click **Next**.



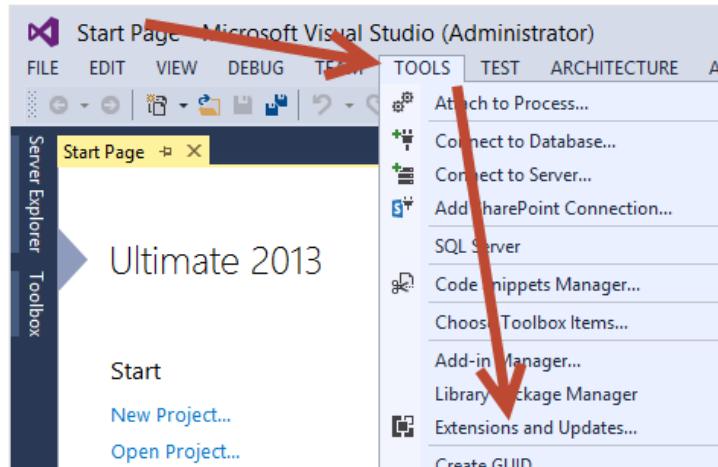
- b) Make sure that everything except the Windows Phone 8.0 SDK and the Tools for Maintaining Store apps for Windows 8 is selected and click **INSTALL**

(Note: you must have Microsoft Office Developer Tools, Silverlight Development Kit, and Microsoft Web Developer Tools selected).



- c) Wait for the install to finish (this will take approximately 20 minutes to finish... relax, grab a muffin and another cup of coffee; decaf this time (don't want to overdo it...)).
 - d) When finished go ahead and run Visual Studio 2013 by clicking the **LAUNCH** button
 - e) When asked to sign in click **Not now, maybe later**
 - f) Click **Start Visual Studio** to accept the default environment settings
6. Next we need to update Visual Studio 2013

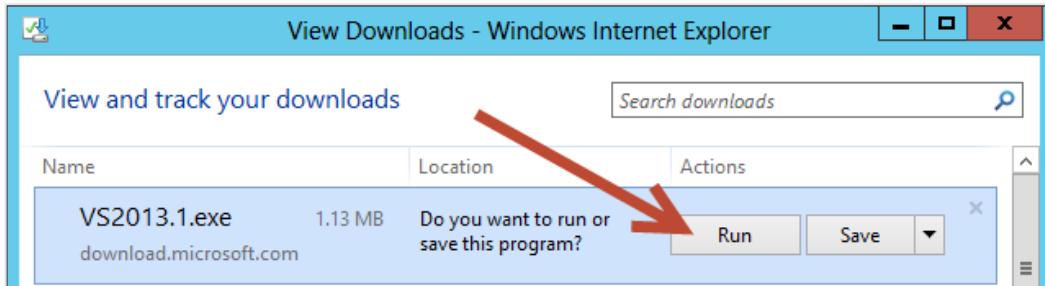
- a) In Visual Studio 2013 on the **TOOLS** menu select **Extensions and Updates...**



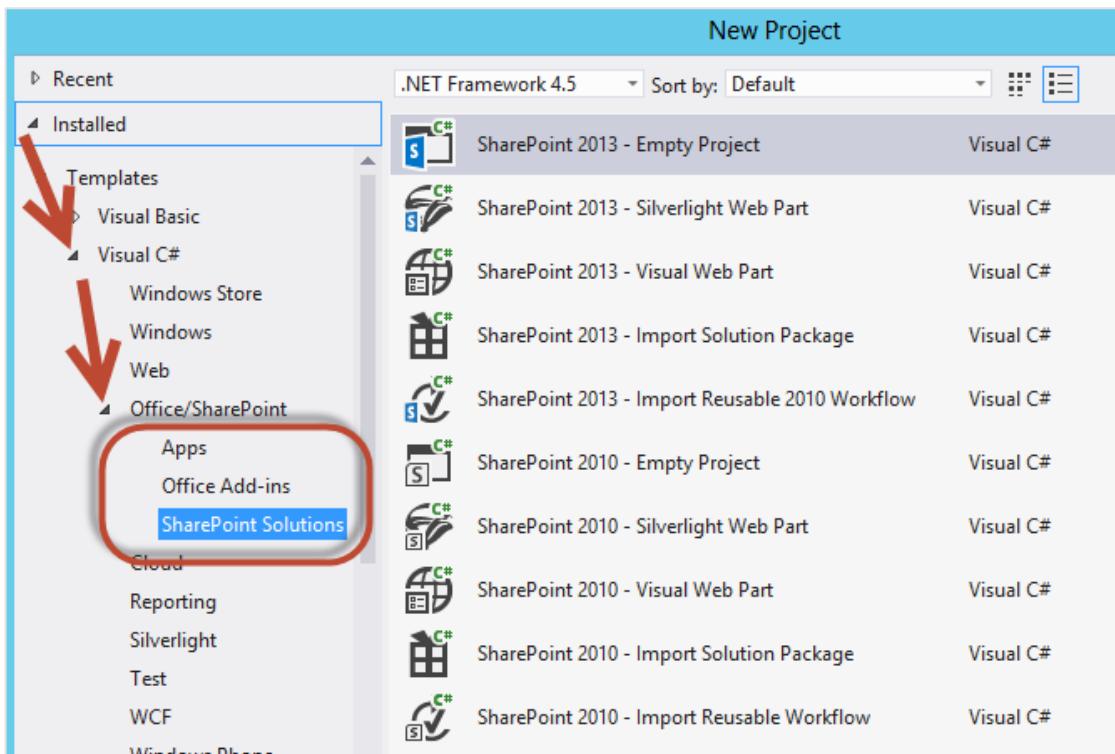
- b) On the Extensions and Updates window select **Updates** then **Product Updates** Then **Visual Studio 2013 Update [X]** where [X] represents the currently available update for Visual Studio 2013 and click **Update**.



- c) Then click **Run**.



- d) **Close** Visual Studio 2013 when prompted by the update and then click **Retry** on the Update install screen
- e) **Agree** to the License terms and conditions and click **INSTALL**
- f) When finished run Visual Studio 2013 again by clicking the **LAUNCH** button.
7. Next we will check for the ability to create SharePoint 2013 projects using Visual Studio
- Using the **File** Menu select **New Project**
 - Expand **Visual C#**
 - Expand **Office/SharePoint**
 - Notice the three categories of projects you can now create for SharePoint 2013.



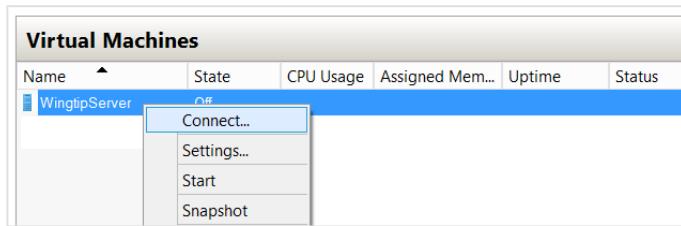
Task 16: Install Office 2013 Professional and Visio 2013

In this step you will install Microsoft Office 2013 Professional. Note that if you are using a trial version of Microsoft Office 2013 Professional, you may wish to wait until closer to your actual class date to install these as you only have a 30 day trial period with these.

1. Obtain a copy of the 64-bit installation binaries for Office 2013 Professional
 - a) Choose between using your own licensed copy of Office 2013 Professional or using the free trial version.
 - b) If you plan to use a licensed copy, you must acquire the install image (*.iso) for Office 2013 Professional as well as a product key.
 - c) If you plan to use a free trial copy of Office 2013 Professional, follow these steps:
 - i) Navigate to the Office 2013 Professional trial download site: <http://msdn.microsoft.com/en-US/evalcenter/jj720319.aspx> or you can use an MSDN version of this if you have an MSDN subscription
 - ii) Download the install files to a location on your host computer (these will typically be in .iso or .img format).
 - iii) Once this has been downloaded you may either 1) burn this to a blank dvd or 2) attempt to attach to this file. We will attempt to attach the VM to this file using Hyper-V Manager

This download is over a gigabyte in size so it will take some time to download. The amount of time it takes to download will depend upon the speed of your Internet connection.

2. Navigate to the Hyper-V Manager. Right-click the **WingtipServer** VM and select the **Connect...** command to display the Hyper-V console window for this VM.

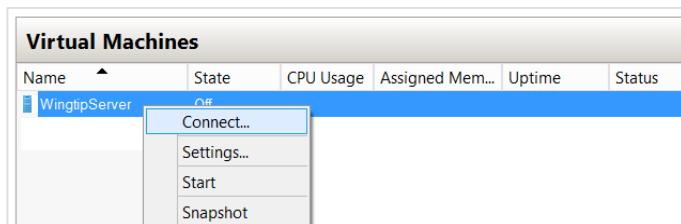


3. In this step you will configure the VM to load the .ISO file with the Office 2013 Professional installation files as a DVD drive.
 - a) In the Hyper-V console windows for the **WingtipServer** VM, select the **Insert Disk...** command.

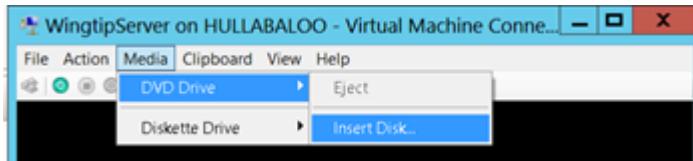


4. Navigate back into the user interface of the **WingtipServer** VM.
5. Depending on your configuration, the Office 2013 Professional installation program in the DVD might or might not start automatically.
 - a) If the **AutoPlay** dialog box is open, click run **setup.exe**.
 - b) If the **AutoPlay** dialog box is not open, use Windows Explorer to navigate to the DVD drive and execute the **setup.exe** file in the root of the DVD drive.
 - c) Wait for the Microsoft Office Professional 2013 installation program to initialize and display the **License Terms** dialog.
6. In the **Microsoft Office Professional 2013 Installation** dialog, complete the following steps:
 - a) **Accept** the terms of the license agreement and click **Continue**
 - b) Click **Install Now** to install the application
 - c) Wait for this to finish and click **Close** when done.
 - d) Start Word
 - i) Press the **Windows** key and type Word.

- ii) Select the **Word 2013** tile
 - iii) When Word starts you will see an **Activate Office** window
 - iv) Click **Enter a product key instead**
 - v) Enter your product key and click **Install**
 - e) Your Office 2013 Professional installation is now ready to use.
7. The final thing we need to do is download and install Visio 2013.
8. Obtain a copy of the 64 bit installation binaries/executable for Visio Professional 2013
- a) Choose between using your own licensed copy of Visio Professional 2013 or use the free trial version.
 - b) If you plan to use a licensed copy, acquire the install image (*.iso or .exe) for Visio Professional 2013 and the product key.
 - c) If you plan to use a free trial copy of Visio Professional 2013, follow these steps:
 - d) Navigate to the Visio Professional 2013 trial download site:
- <http://technet.microsoft.com/en-us/evalcenter/hh973399?WT%2Eintid1=ODC%5FENUS%5FFX103791368%5FXT104000916>
- or you can use an MSDN version of this if you have an MSDN subscription
- i) Download the install files to a location on your host computer (these will typically be in .iso, .img, or .exe format).
9. Once this has been downloaded, if you have an iso/img file, you may either 1) burn this to a blank dvd or 2) attempt to attach to this file. We will attempt to attach the VM to this file using Hyper-V Manager
(Note: if you have an .exe file skip ahead to step 18.
- i) Navigate to the Hyper-V Manager. Right-click the **WingtipServer** VM and select the **Connect...** command to display the Hyper-V console window for this VM.



- ii) In this step you will configure the VM to load the .ISO file with the Visio Professional 2013 installation files as a DVD drive.
- (1) In the Hyper-V console windows for the **WingtipServer** VM, select the **Insert Disk...** command.



Skip ahead to **step f.**

- (2) When the **Open File** dialog appears, enter the path to the .ISO/.IMG file with the Visio Professional 2013 installation files. Click **OK**.
- b) Navigate back into the user interface of the **WingtipServer** VM.
- c) Depending on your configuration, the Visio Professional 2013 installation program in the DVD might or might not start automatically.
 - i) If the **AutoPlay** dialog box is open, click run **setup.exe**.
 - ii) If the **AutoPlay** dialog box is not open, use Windows Explorer to navigate to the DVD drive and execute the **setup.exe** file in the root of the DVD drive.
 - iii) Wait for the Microsoft Visio Professional 2013 installation program to initialize and display the **License Terms** dialog
 - iv) Skip to step 19.

10. Once this has been downloaded, if you have an .exe file you will **copy** this file into your image at the c:\Install location.
 - a) **Double Click** on the .exe file to begin the Install.
 - i) Wait for the Microsoft Visio Professional 2013 installation program to initialize and display the **License Terms** dialog
11. Now let's install and activate Visio Professional 2013
 - a) **Accept** the terms of the license agreement and click **Continue**
 - b) Click **Install Now**
 - c) Click the **Close** button
 - d) Press the **Windows** key and type **Visio**
 - e) Select the Visio Professional tile
 - f) When Visio starts you will see an **Activate Office** window
 - g) Click **Enter a product key instead**
 - h) Enter your product key and click **Install**
 - i) Your Visio Professional 2013 installation is now ready to use
12. Close all windows and prepare to shut down your Virtual Machine...

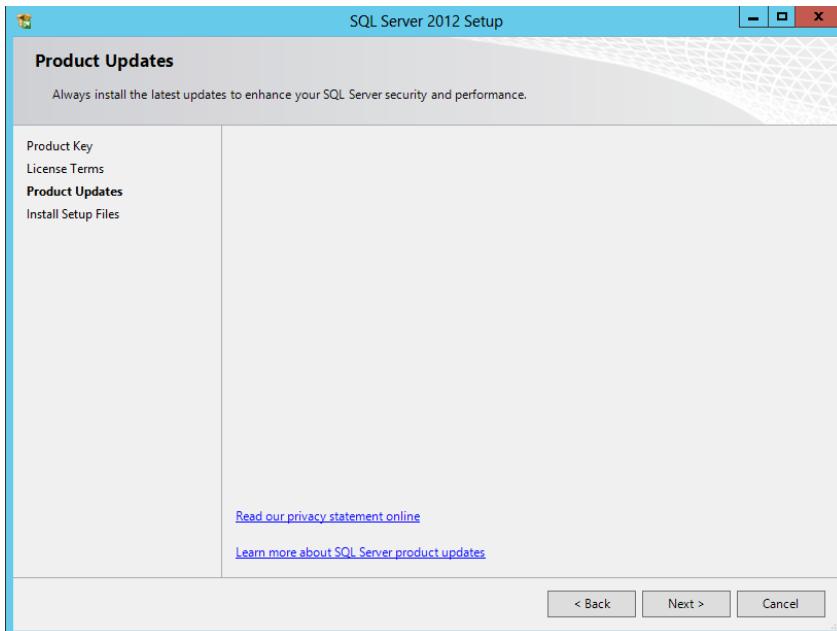
You have now completed building the VM that can be used as the starting point to complete the lab exercises for the SharePoint 2013 Developer courses offered by Critical Path Training. You may now shut down the VM in preparation for the course start. If you are building the VM for the Critical Path Training Business Intelligence Course please continue to task 17.

To shut down the VM press **Windows Key + I** and then on the Settings window select the **Power** button.
 (Note: it is always a good idea to take a backup of this VM Image just in case you would like to try something again after you begin the course)

Task 17: Create SQL and SSAS Instances for SharePoint BI

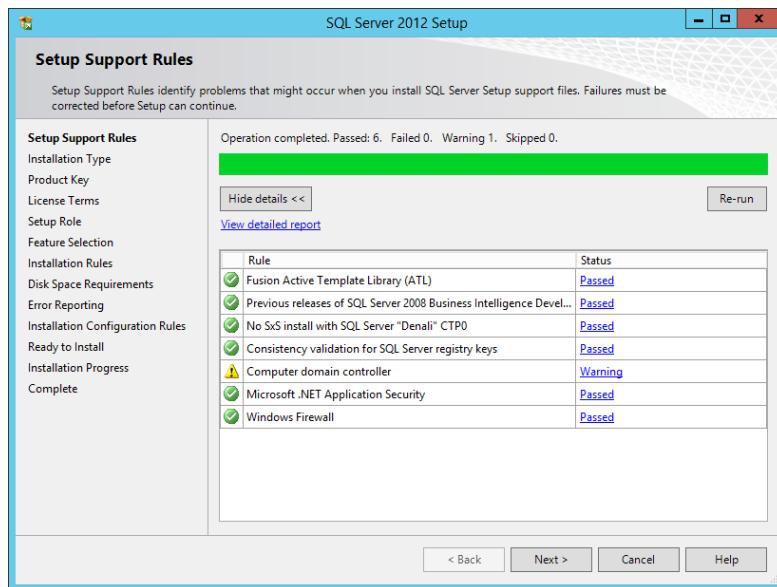
In this step you will create two SQL Server Analytics Service (SSAS) instances and one SQL Server instance for use with SharePoint Business Intelligence features, namely PowerPivot and Access Services 2013.

1. Complete Task 6, steps 2 – 7 to mount the SQL Server 2012 installation media and begin the installation process.
2. On the Product Updates page update any needed items and then click **Next**.

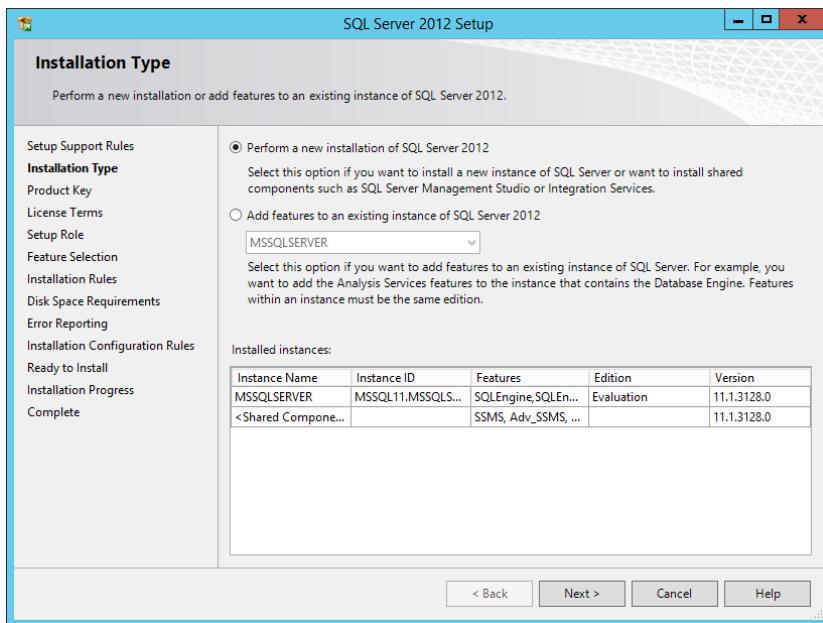


3. The next page is the **Setup Support Rules** page which runs checks on the **WingtipServer** VM to detect if there are any potential problems you might encounter when installing SQL Server 2012 with SP1.

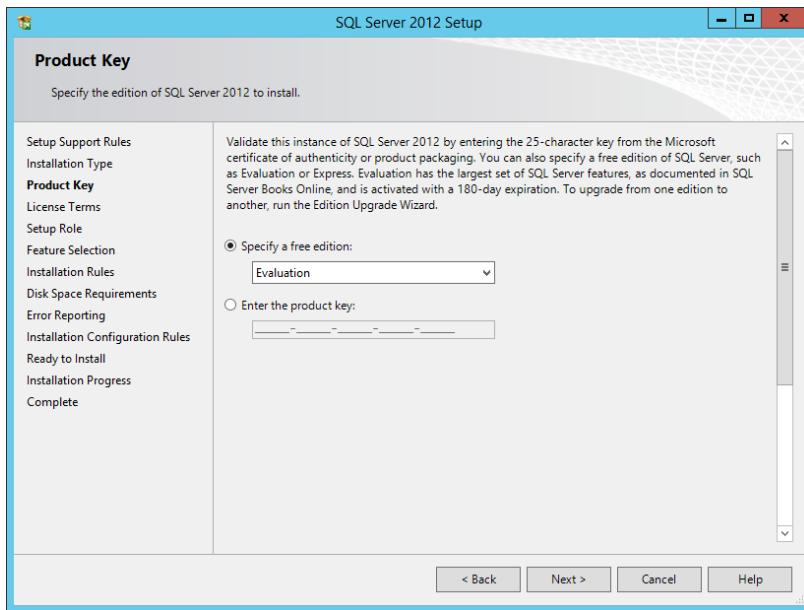
- As was the case the first time you ran the installer, you should see all the tests were passed except the one that warns that the **WingtipServer** VM is a domain controller.
- Click **Next** to move to the next page.



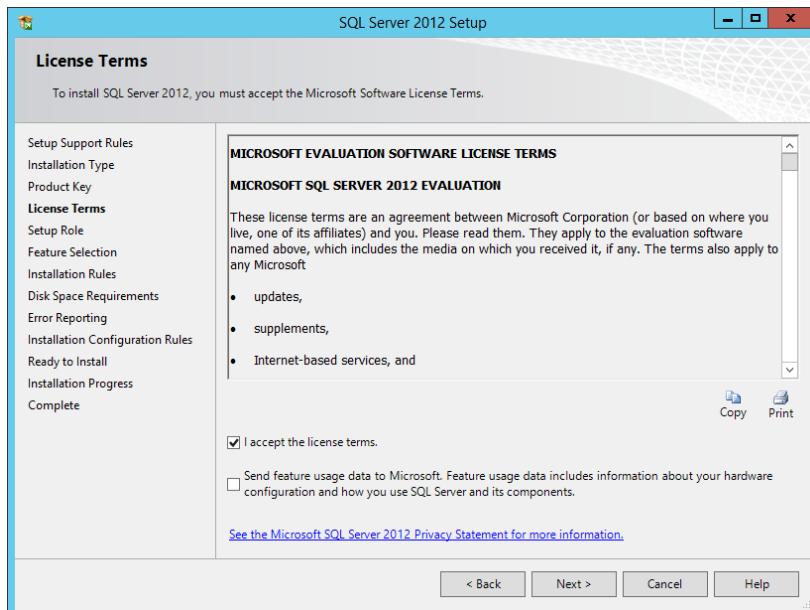
- On the Installation Type page select **Perform a new installation of SQL Server 2012** and click **Next** to continue.



- What you do on the **Product Key** page depends on whether you are using the free trial or a licensed version of SQL Server 2012 with SP1.
 - If you are using the free trial version, click the **Specify a free edition** radio box and select **Evaluation**.
 - If you are using a licensed version, enter your 25-character product key.
 - You should select the same option you selected when you did the initial install in Task 6.
 - Click **Next** to move to the next page.

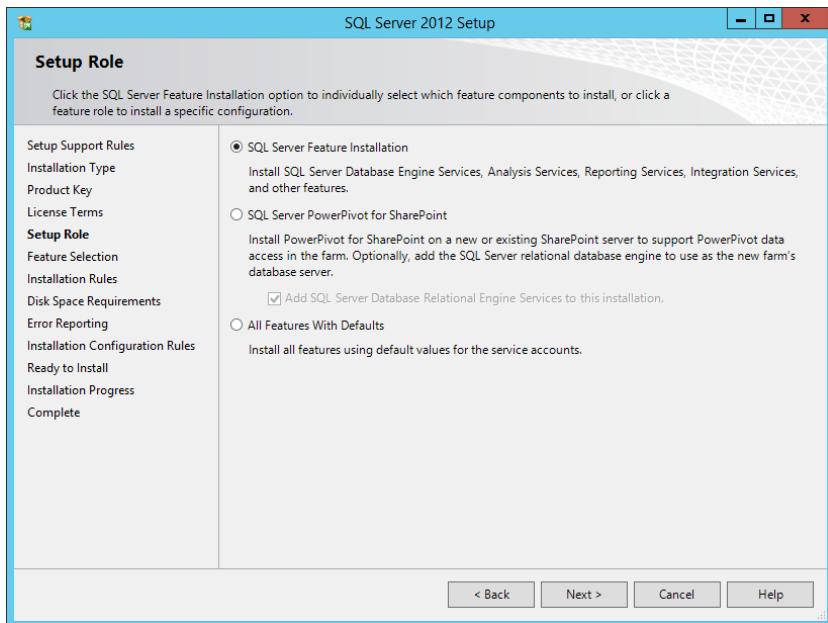


6. On the **License Terms** page, check the option **I accept the license terms** and click **Next**.



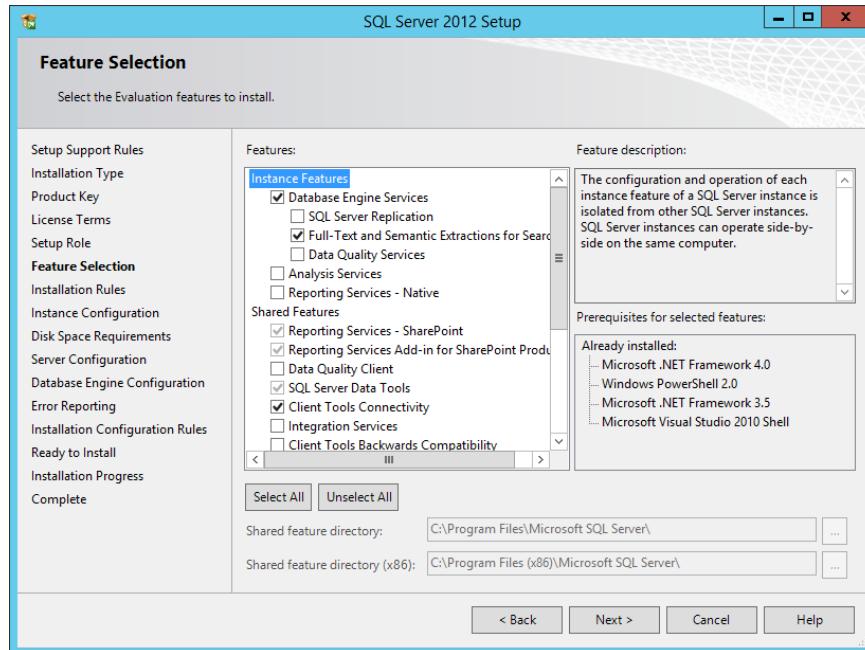
7. On the **Setup Role** page, select **SQL Server Feature Installation** and click **Next**.

- We will first create a new SQL Server instance for use with Access Services 2013. We will return to this screen later to provision a new Analysis Services instance to store tabular data and PowerPivot for SharePoint.



8. On the **Feature Selection** page, check the following options and click **Next**:

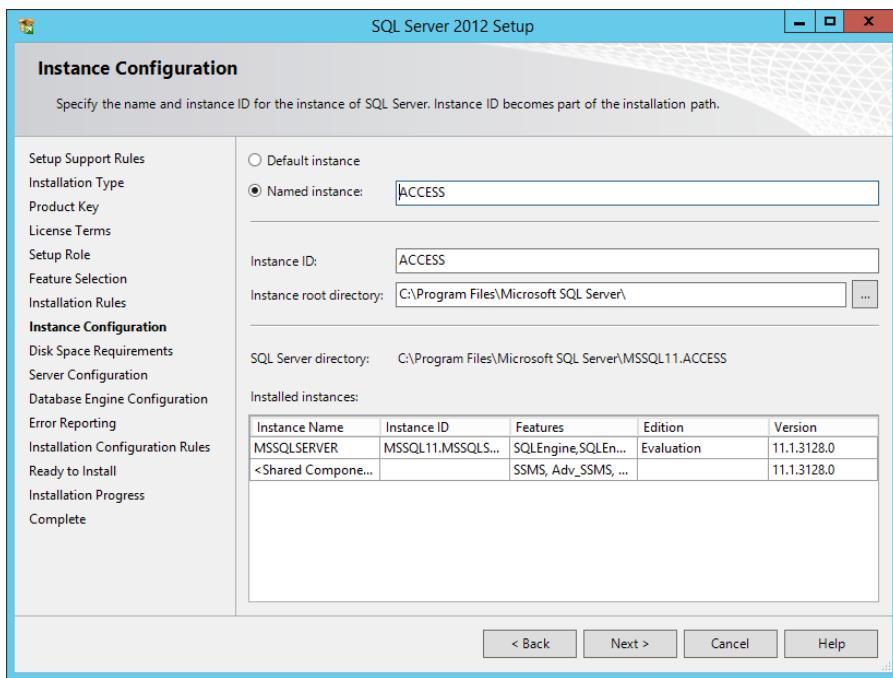
- Instances Features:
 - Database Engine Services
 - Full-Text and Semantic Extractions for Search
- Shared Features:
 - Client Tools Connectivity



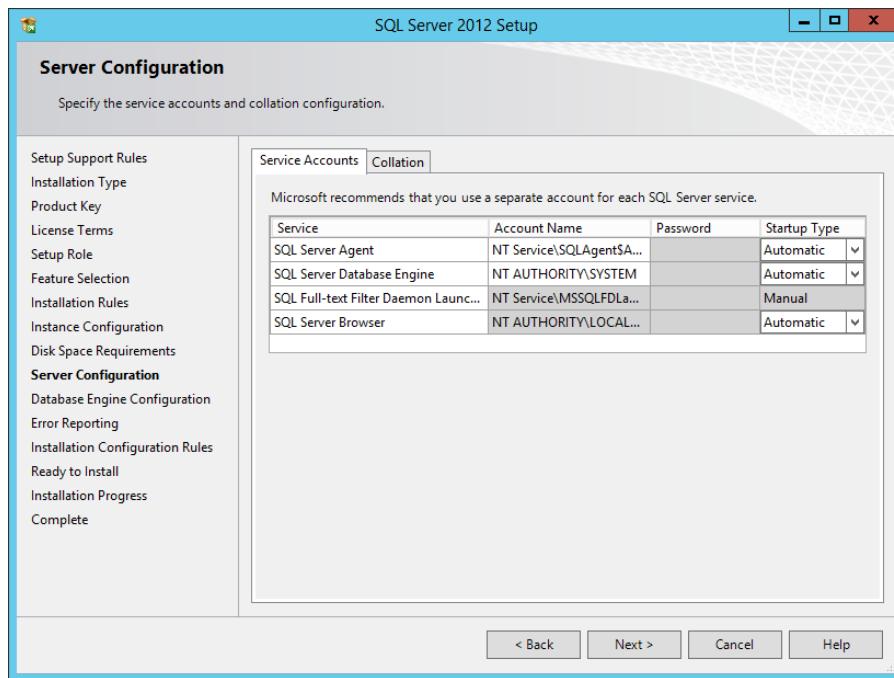
9. On the **Installation Rules** page, click **Next**.

10. On the **Instance Configuration** page, provide the following values and click **Next** to continue:

- Check **Named instance**
- Named instance value: **ACCESS**
- Instance ID: **ACCESS**

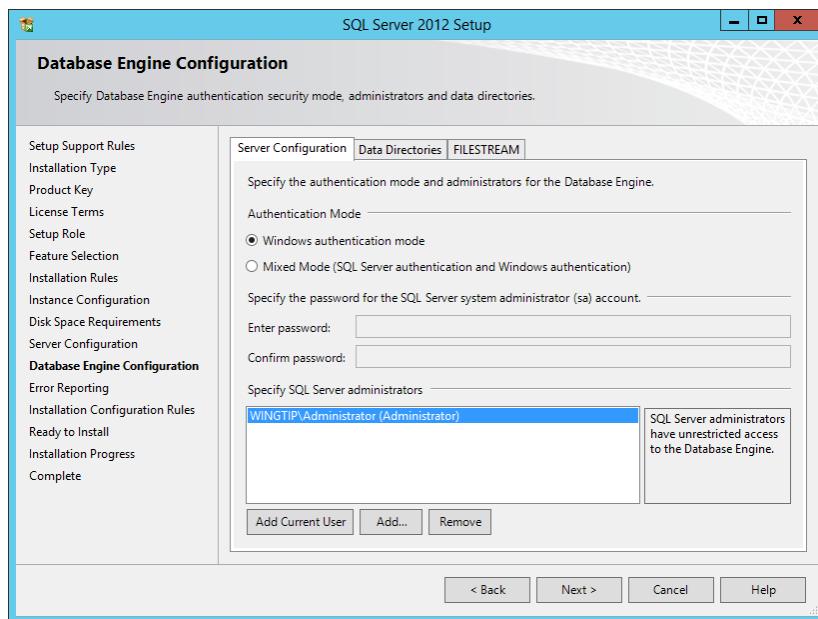


11. On the **Disk Space Requirements** page, click **Next**.
12. On the **Service Account** tab of the **Server Configuration** page, do the following:
 - a) Change the **Startup Type** for the **SQL Server Agent** to **Automatic**.
 - b) Change the **Account Name** for the **SQL Server Database Engine** to **NT AUTHORITY\SYSTEM**.
 - c) Click **Next** to move to the next page.



In a real-world installation of SQL Server in a production environment, you should consider using dedicated user accounts to provide the identity for the SQL Server services instead of using the SYSTEM account. This setup guide is using the SYSTEM account for the SQL Server worker processes to simplify the installation of SQL Server which is acceptable in a lab environment.

13. On the **Database Engine Configuration** page, do the following:
 - a) On the **Server Configuration** tab, click the **Add Current User** button to configure the **WINGTIP\Administrator** account as a system administrator for this SQL Server instance.

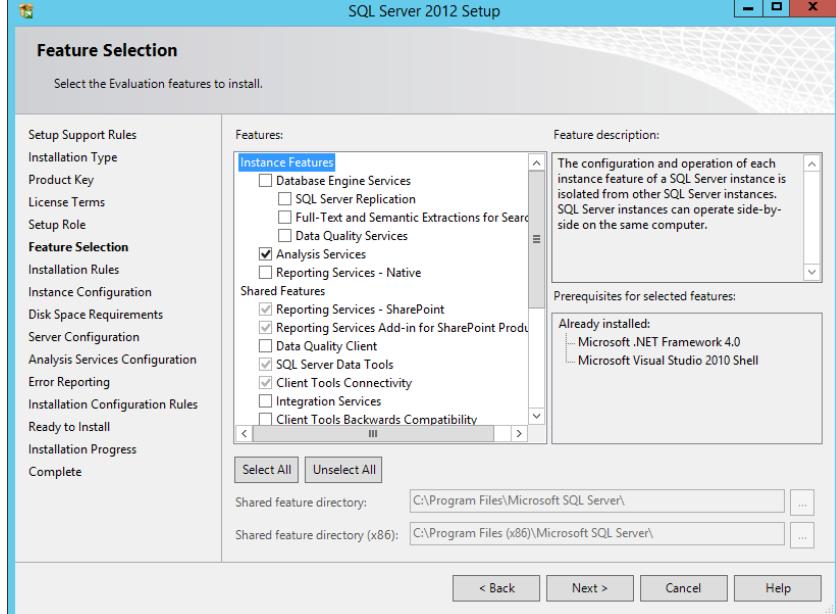


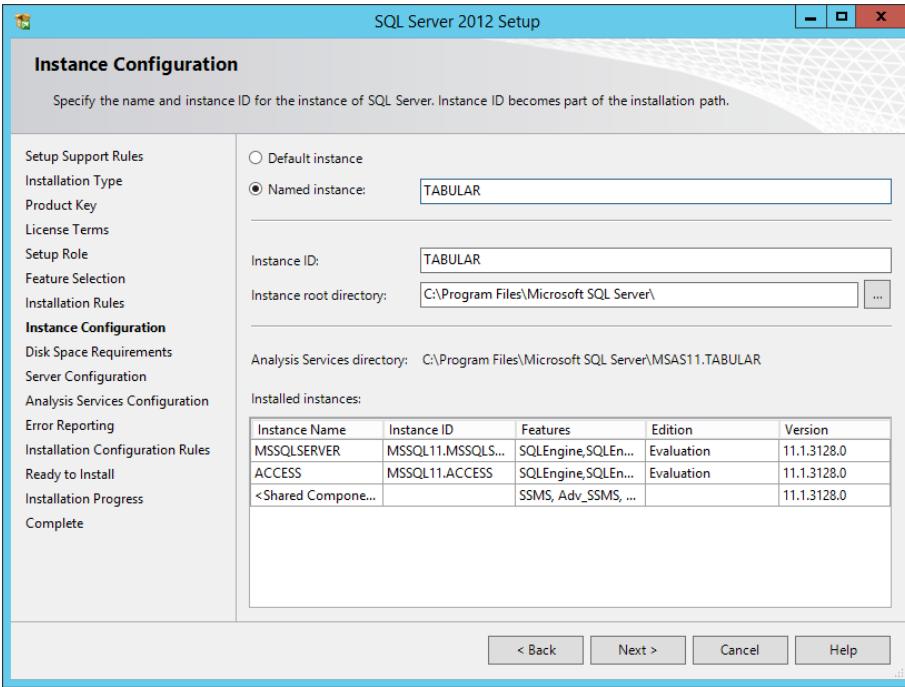
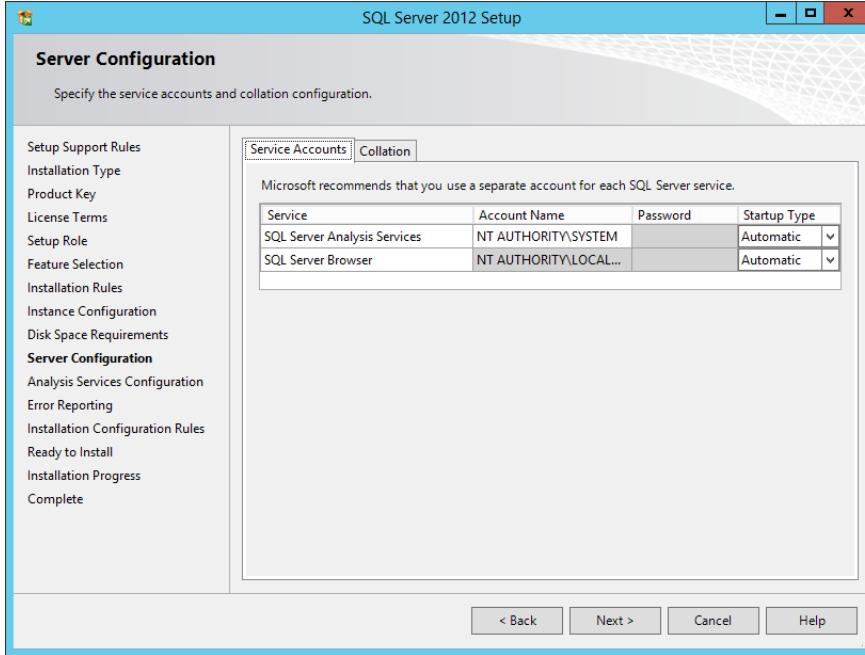
- b) Click **Next** to move to the next page
14. On the **Error Reporting** page, accept the default values and click **Next**.
 15. On the **Installation Configuration Rules** page, click **Next**.
 16. When you get to the **Ready to Install** page, you are finally at the point where you can begin the installation. Click the **Install** button and wait for the SQL Server installation program to complete.
 17. When the installation finishes, the **Complete** page is displayed showing the features that were successfully installed.
 18. Click **Close** to complete the installation.

You have now created the Access Services 2013 SQL instance. We will configure this instance to work with Access Services 2013 in a later step. The next steps will configure a tabular mode Analytics Services instance and PowerPivot for SharePoint.

19. Repeat steps 1 – 7 to return to the **Feature Selection** page of the SQL Server installer.
20. On the **Feature Selection** page, check the following options and click **Next**:

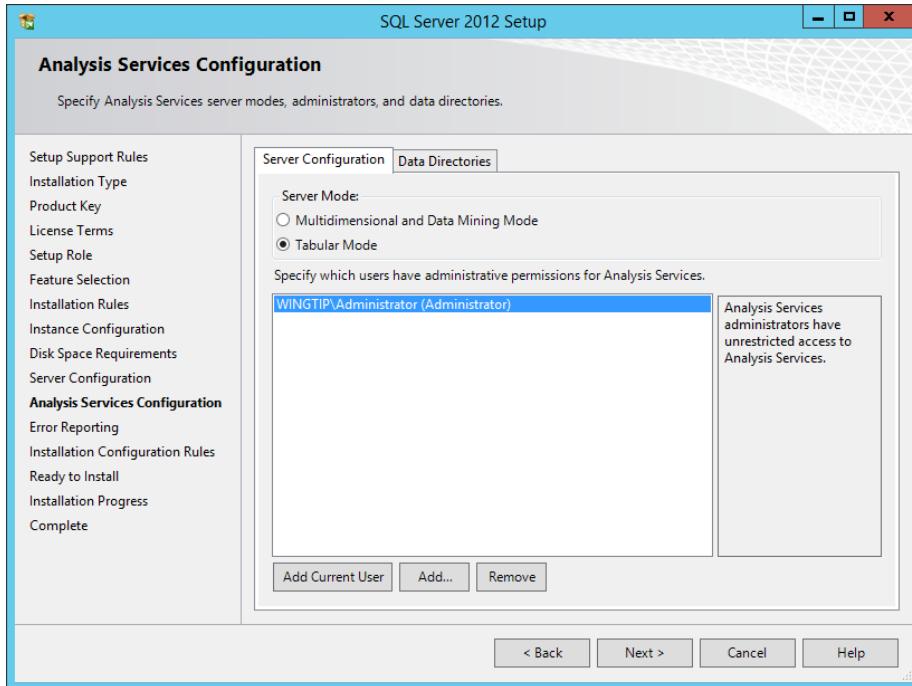
- a) Instances Features:
 - i) Analysis Services



21. On the **Installation Rules** page, click **Next**.
22. On the **Instance Configuration** page, provide the following values and click **Next** to continue:
- Check **Named instance**
 - Named instance value: **TABULAR**
 - Instance ID: **TABULAR**
- 
23. On the **Disk Space Requirements** page, click **Next**.
24. On the **Service Account** tab of the **Server Configuration** page, do the following:
- Change the **Account Name** for the **SQL Server Analysis Services** to **NT AUTHORITY\SYSTEM**.
 - Click **Next** to move to the next page.
- 
25. On the **Analysis Services Configuration** page, do the following:
- On the **Server Configuration** tab, click the **Add Current User** button to configure the **WINGTIP\Administrator** account as a system administrator for this SQL Server instance.

b) Select **Tabular Mode** in the **Server Mode** group box.

c) Click **Next** to move to the next page



26. On the **Error Reporting** page, accept the default values and click **Next**.

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

28. When you get to the **Ready to Install** page, you are finally at the point where you can begin the installation. Click the **Install** button and wait for the SQL Server installation program to complete.

29. When the installation finishes, the **Complete** page is displayed showing the features that were successfully installed.

30. Click **Close** to complete the installation.

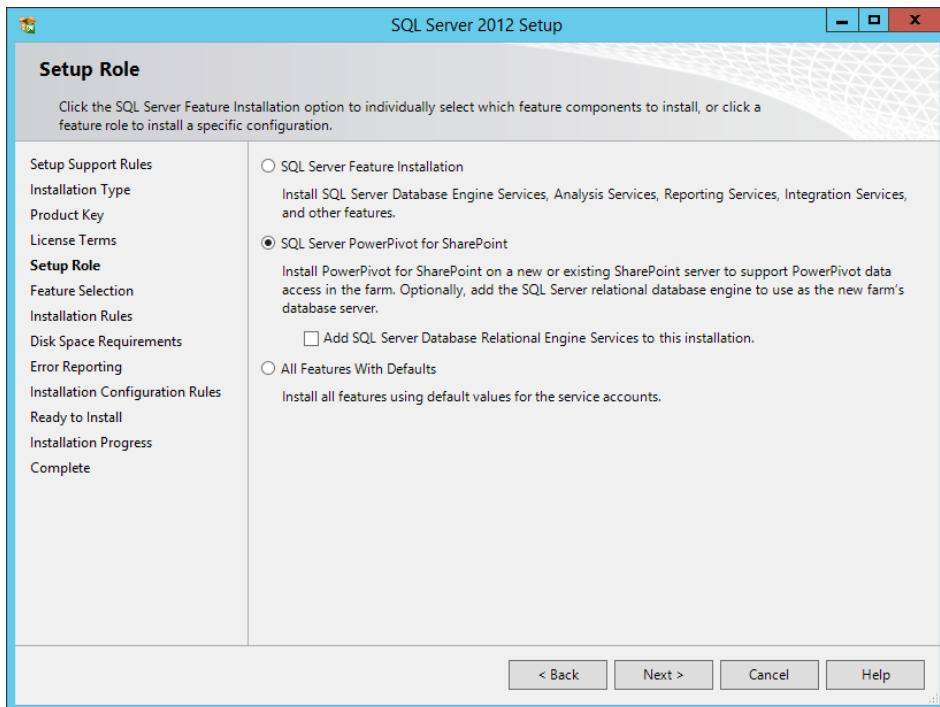
You have now created the Tabular Mode Analytics Services instance. We will add data to this instance in a later step. The next steps will configure PowerPivot for SharePoint.

31. Repeat steps 1 – 6 to return to the **Setup Role** page of the SQL Server installer.

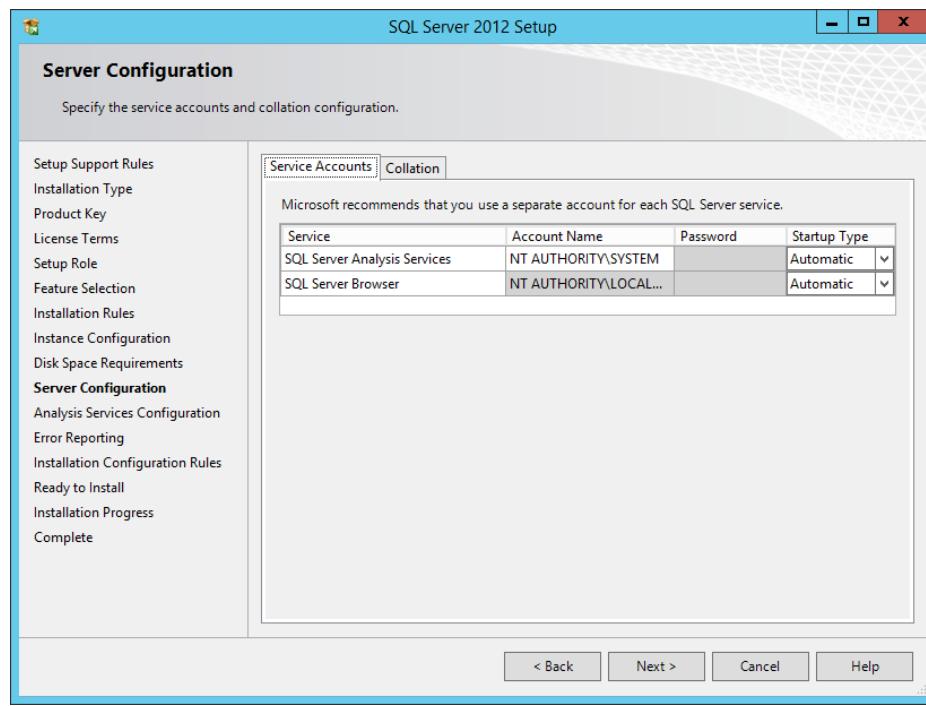
32. In the **Setup Role** page select **SQL Server PowerPivot for SharePoint**.

a) Be sure to uncheck the **Add SQL Server Database Relational Engine Services to this installation** option as we do not require another SQL Server instance.

b) Click **Next** to move to the next page.

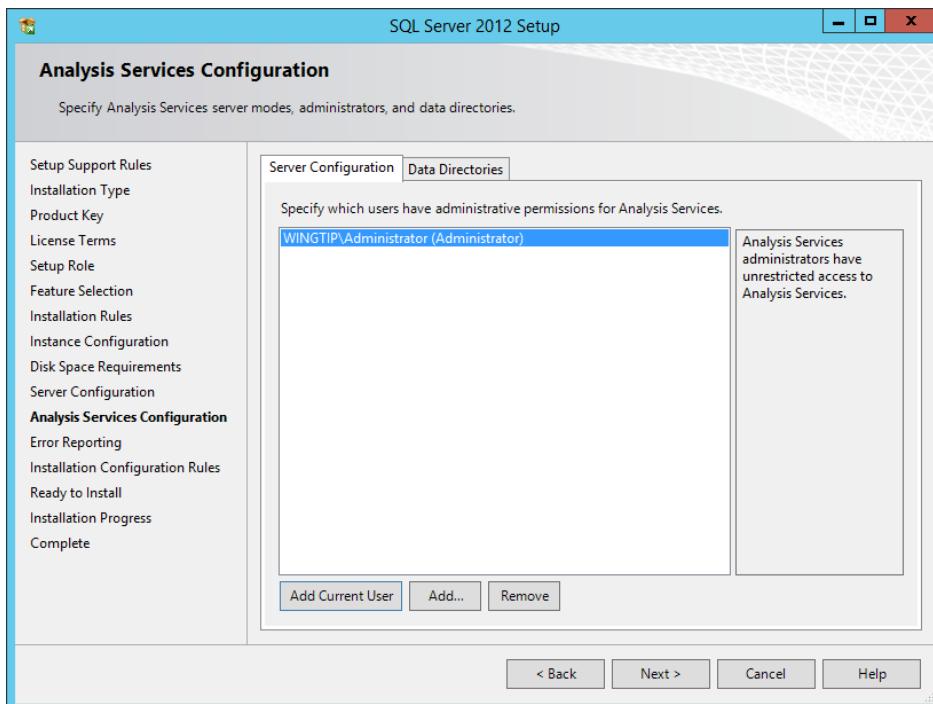


33. On the **Feature Selection** page, click **Next** to continue to the next page.
34. On the **Installation Rules** page, click **Next**.
35. On the **Instance Configuration** page leave the default values and click **Next**.
36. On the **Disk Space Requirements** page, click **Next**.
37. On the **Service Account** tab of the **Server Configuration** page, do the following:
 - a) Change the **Account Name** for the **SQL Server Analysis Services** to **NT AUTHORITY\SYSTEM**.
 - b) Click **Next** to move to the next page.



38. On the **Analysis Services Configuration** page, do the following:
 - a) On the **Server Configuration** tab, click the **Add Current User** button to configure the **WINGTIP\Administrator** account as a system administrator for this SQL Server instance.

- b) Click **Next** to move to the next page



39. On the **Error Reporting** page, accept the default values and click **Next**.
40. On the **Installation Configuration Rules** page, click **Next**.
41. When you get to the **Ready to Install** page, you are finally at the point where you can begin the installation. Click the **Install** button and wait for the SQL Server installation program to complete.
42. When the installation finishes, the **Complete** page is displayed showing the features that were successfully installed.
43. Click **Close** to complete the installation.
44. At this point it is recommended that you restart your VM.

You have now created the Analysis Services instance in SharePoint mode (PowerPivot). It is now necessary to grant the SP_Services account rights to the PowerPivot SSAS instance.

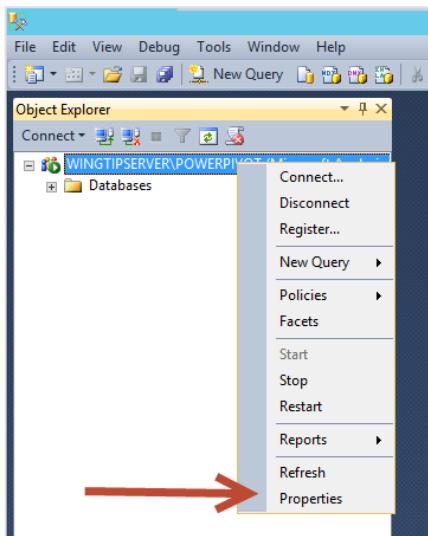
45. Install the SharePoint PowerPivot configuration tool.
 - a) Run the **spPowerPivot.msi** install file from **D:\PCUSOURCE\1033_ENU_LP\x64\Setup**.
 - b) Click **Next** on the welcome screen to continue.
 - c) Check the **I accept** radio button and click **Next** to continue.
 - d) On the **Feature Selection** page accept the defaults and click **Next** to continue.
 - e) Click the **Install** button to install the files.
46. In order for Analysis Services to work properly on Windows Server 2012 R2 it is necessary to install a cumulative update (CU) for SQL Server 2012 with Service Pack 1. The minimum CU required is CU #7, at the time of writing CU #10 is the latest so we'll install that one.
 - a) Navigate to the download page for the update at <http://support.microsoft.com/kb/2954099/en-us>.
 - b) Click the **Hotfix Download Available** button.
 - c) When prompted, accept the agreement and select **SQLServer2012_SP1_CU10_2954099_11_0_3431_x64** file (you can choose to download all the files if you want but for our purposes we just need this one file). You must then provide the email address where the link to the file will be emailed. (It may take some time for you to receive the email so be patient).
 - d) When you receive the email, download the file to the C:\Install folder of the VM and double-click the file to extract the installer. When extracted, run the extracted installation file, **SQLServer2012-KB295409-x64.exe**, by double-clicking it and following the instructions, selecting defaults where appropriate.
47. Connect the SQL Server Analytics Service using SQL Server Management Studio and grant SP_Services rights.
 - a) Press the **Windows** key to navigate to the Windows Start page.
 - b) Locate and click the SQL Server Management Studio tile to launch SQL Server Management Studio.



- c) When you are prompted with the **Connect to Server** dialog, enter **Analysis Services** for the Server Type and **WINGTIPSERVER\POWERPIVOT** as the Server name. Click the **Connect** button to connect to the Database Engine.



- d) Once **SQL Server Management Studio** has connected to the **Analysis Services** instance, you should see the **Object Explorer** with a tree view control with **WINGTIPSERVER\POWERPIVOT** as its top-level node.
i) Right-click the server node and choose properties.

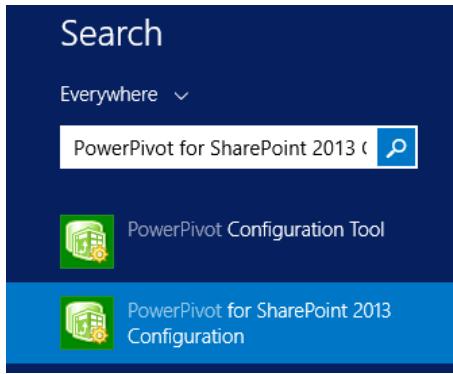


48. In the Server Properties dialog select the **Security** page and click the **Add** button to add a new account:

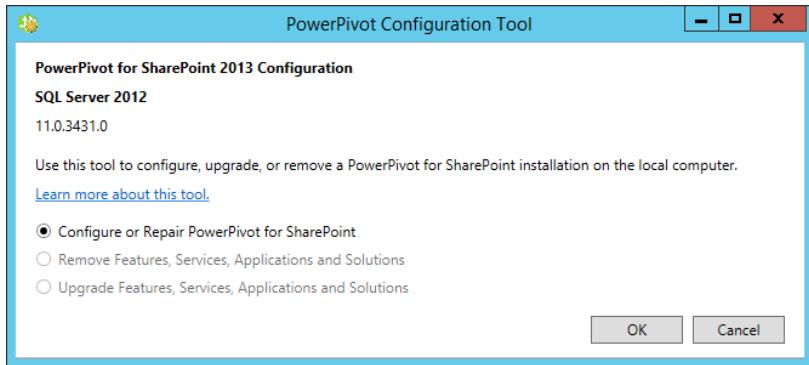
- Add the **WINGTIP\SP_Services** account and the **WINGTIP\SP_Farm** account
- Click **OK** to commit the change.

49. Run the PowerPivot for SharePoint 2013 Configuration Tool to deploy and configure the PowerPivot features.

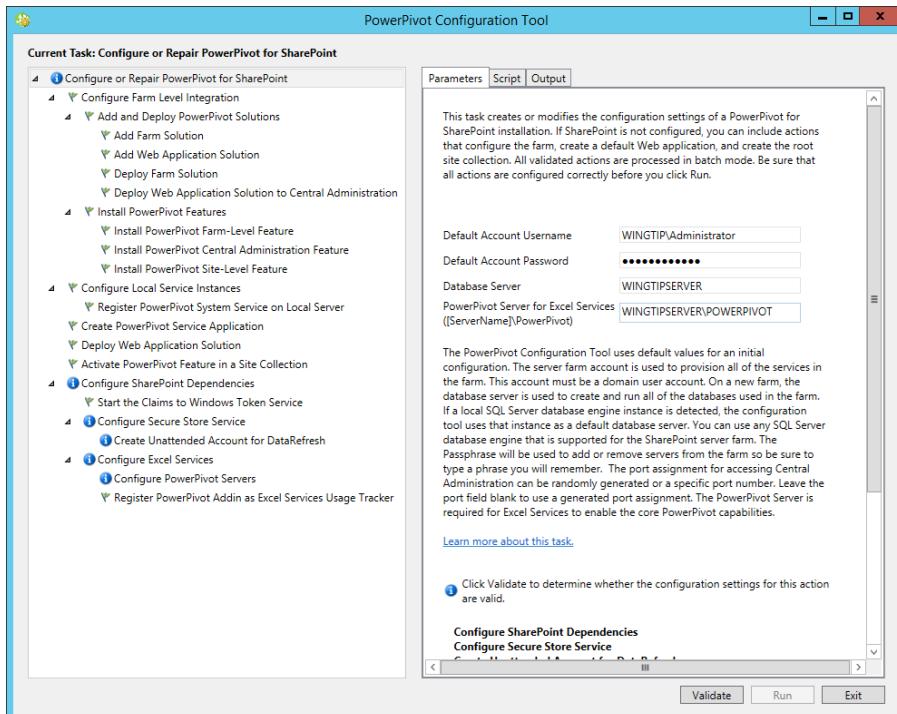
- Press the **Windows** key to navigate to the Windows Start Page.
- Type **PowerPivot** and click the **PowerPivot for SharePoint 2013 Configuration** tile to load the tool.



- c) Click **OK** to configure PowerPivot for SharePoint



- d) Within the PowerPivot Configuration Tool make sure the **Configure or Repair PowerPivot for SharePoint** is selected in the left tree node. In the Parameters tab on the right, provide the following values:
- Default Account Username: **WINGTIP\Administrator**
 - Default Account Password: **Password1**
 - Database Server: **WINGTIPSERVER**
 - PowerPivot Server for Excel Services: **WINGTIPSERVER\POWERPIVOT**

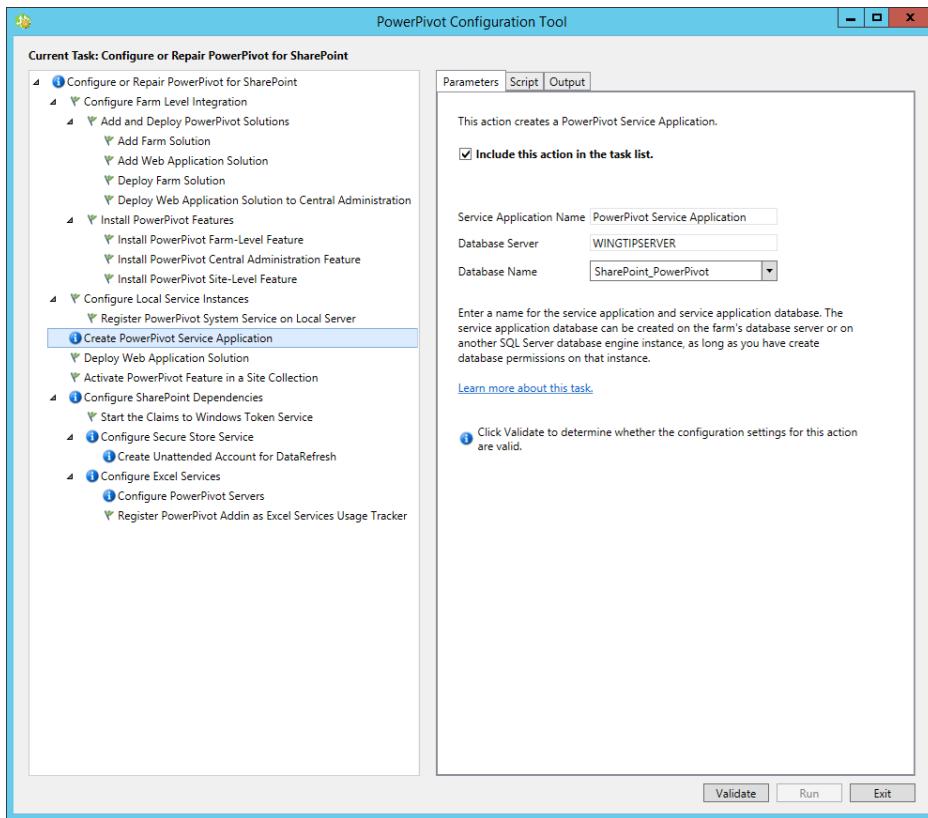


- e) Click the **Create PowerPivot Service Application** node in the left tree. In the Parameters tab on the right, provide the following values:

i) Service Application Name: **PowerPivot Service Application**

ii) Database Server: **WINGTIPSERVER**

iii) Database Name: **SharePoint_PowerPivot**



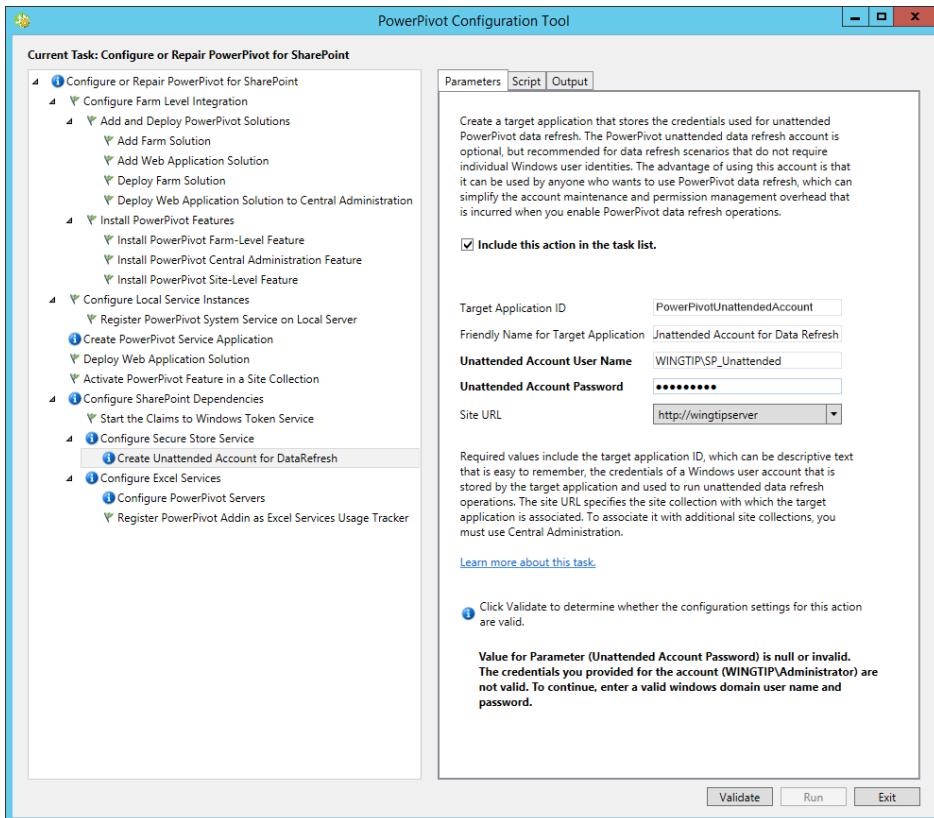
f) Click the **Create Unattended Account for DataRefresh** node in the left tree. In the Parameters tab on the right, provide the following values:

i) Target Application ID: **PowerPivotUnattendedAccount**

ii) Friendly Name for Target Application: **PowerPivot Unattended Account for Data Refresh**

iii) Unattended Account User Name: **WINGTIP\SP_Unattended**

iv) Unattended Account Password: **Password1**

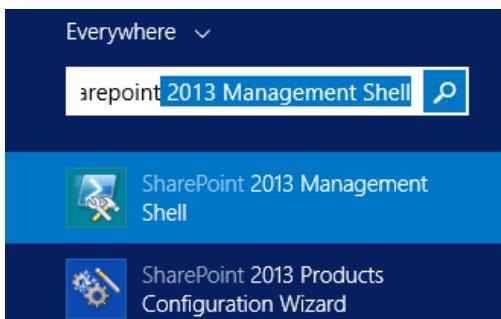


- g) Click the **Validate** button to validate all your changes.
- h) If validation was successful click the **Run** button to begin the configuration; otherwise, address any errors identified.
- i) When complete, click **Exit** to exit the configuration tool.

In our case the account name SP_Unattended is perhaps a bit inaccurate as we'll use it for both unattended data refreshes as well as interactive connections using Secure Store Services Target Applications. Likewise, when we create the target applications they'll use Unattended in their names; again, this is somewhat inaccurate and an account name of SP_BI and target applications without the word unattended in them may be more accurate as they are generally more generic. However, we've stuck with unattended to be consistent with some of the wording that is used throughout the various screens and dialogs presented by SharePoint.

50. Grant the WINGTIP\SP_Services account rights to the content databases.

- a) Press the **Windows** key to navigate to the Windows Start page and type **SharePoint**.
- b) Click the SharePoint 2013 Management Shell tile.



- c) In the SharePoint 2013 Management Shell enter the following commands to set the necessary security, deploy the solution to the intranet web application, and update the maximum Excel Workbook size (each command must be entered on one line):
 - i) `(Get-SPWebApplication -IncludeCentralAdministration).GrantAccessToProcessIdentity("wingtip\sp_services")`
 - ii) `Install-SPSolution -Identity PowerPivotWebApplicationSolution.wsp -FullTrustBinDeployment -WebApplication http://intranet.wingtip.com`
 - iii) `Set-SPEExcelFileLocation -Identity "http://" -ExcelServiceApplication "Excel Services Application" -WorkbookSizeMax 250`

51. The maximum default file upload size, as specified by SharePoint is 250MB, however, the web.config files restrict the limit to 50MB so we need to adjust the maximum upload size for the web applications by modifying the associated web.config files.

- Navigate to **C:\inetpub\wwwroot\wss\VirtualDirectories\intranet.wingtip.com80**.
- Double-click the **web.config** file to open it in the default editor (Visual Studio)
- Locate the **httpRuntime** element under the **system.web** element and change the **maxRequestLength** attribute to **256000**.

```
<system.web>
  <httpHandlers />
  <customErrors mode="On" />
  <httpRuntime maxRequestLength="256000" requestValidationMode="2.0" />
  <authentication mode="Forms">
    <forms loginUrl="/_login/default.aspx" />
  </authentication>
```

- Save and close the file.
- Repeat for the web.config file in **C:\inetpub\wwwroot\wss\VirtualDirectories\80**.

52. Next we need to validate the configuration which we will first do via the Service Application management page.

- Press the **Windows** key and type “SharePoint” and select the **SharePoint 2013 Central Administration** tile
- In Central Administration select **Manage Service Applications** under the **Application Management** section
- Click **PowerPivot Service Application** to navigate to the PowerPivot Service management page:

The screenshot shows the SharePoint Central Administration interface. In the top navigation bar, 'BROWSE' and 'SERVICE APPLICATIONS' are selected. Under 'Operations', there is a list of service applications. A red arrow points to the 'PowerPivot Service Application' link, which is highlighted with a blue background. Other listed services include Machine Translation Service, Managed Metadata Service, and PowerPoint Conversion Service Application.

- If everything was successful then the Infrastructure – Server Health web part should show a drop down to select from various views; if unsuccessful then you may see an error on this screen.

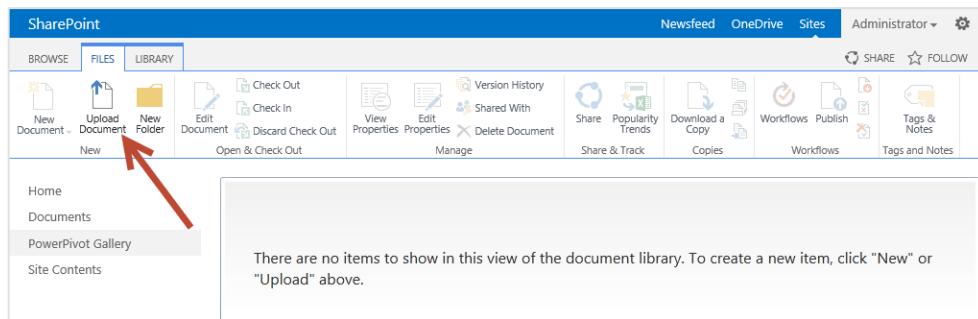
The screenshot shows the PowerPivot Management Dashboard. On the left, a navigation menu includes 'Central Administration', 'Application Management', 'System Settings', 'Monitoring', 'Backup and Restore', 'Security', 'Upgrade and Migration', 'General Application Settings', 'Apps', 'Office 365', and 'Configuration Wizards'. The main content area has three sections: 'Infrastructure - Server Health' (with dropdowns for 'Machine', 'Date', 'Connections', and 'Queries'), 'Workbook Activity - Chart' (with a 'Install Microsoft Silverlight' button), and 'Workbook Activity - List' (which is empty). A red arrow points to the 'Install Microsoft Silverlight' button in the chart section.

- If you see the **Install Microsoft Silverlight** button then click that button and select **Run** when prompted. (Silverlight is required for many BI functions and should be installed if not already installed).
 - Click **Install Now** to install Silverlight.
 - Close the dialog when complete.
 - Refresh the PowerPivot Management Dashboard page to confirm

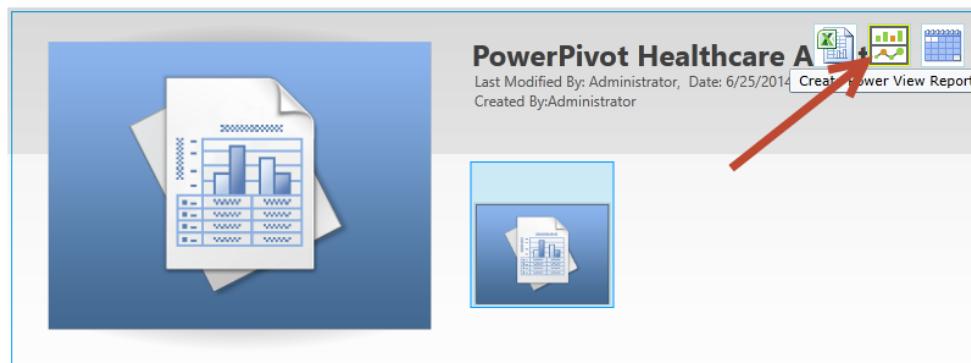
53. The next step to validate the configuration is to create a new PowerPivot site and upload a sample worksheet to the PowerPivot Gallery so that you can then create a Power View report.

- Return to the SharePoint 2013 Management Shell and run the following command to create the new site:
 - New-SPWeb -Url http://intranet.wingtip.com/PowerPivot -Template PowerPivot#0 -Name PowerPivot**

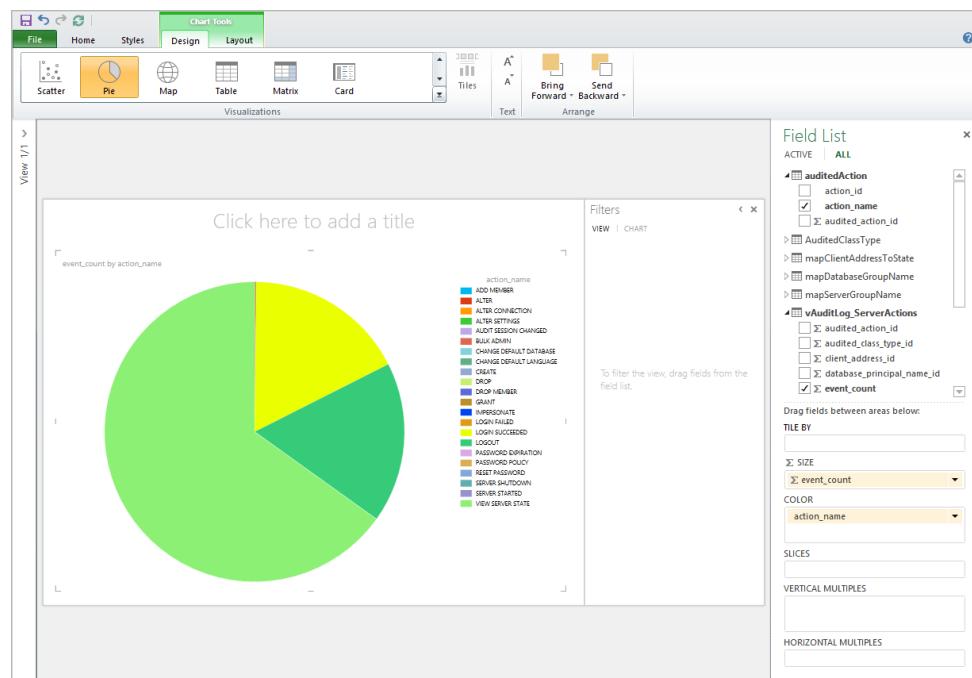
- b) Navigate to <http://intranet.wingtip.com/PowerPivot> and click **PowerPivot Gallery** from the quick launch menu on the left side of the page.
- c) In the PowerPivot Gallery, click the **Upload Document** button in the ribbon.



- d) In the upload file dialog, select the sample file **C:\Setup\PowerPivot Healthcare Audit.xlsx** and click **OK** to upload the file.
- e) Once uploaded, click the **Create Power View Report** button in the top right of the document tile.



- f) In the Power View report designer, add some fields to validate that the designer is working, as shown in the following screenshot:



You have now successfully configured PowerPivot for SharePoint 2013.

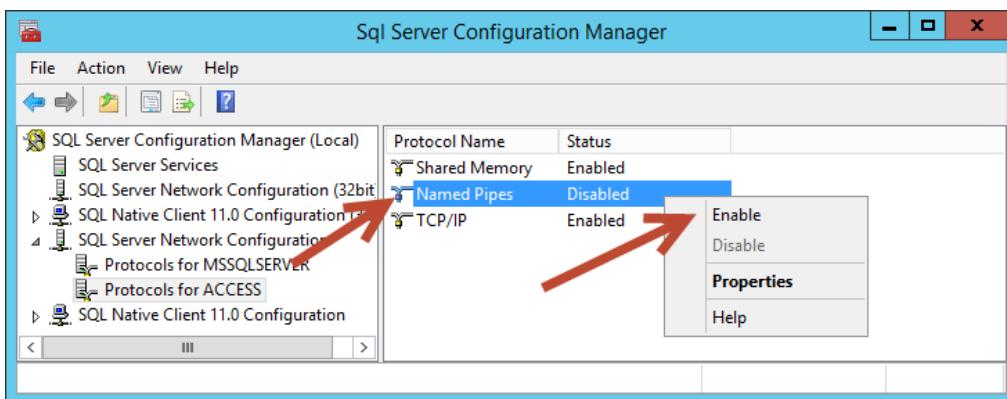
Task 18: Configure Access Services 2013

In this step you will configure Access Services 2013 by updating the WINGTIPSERVER\ACCESS SQL instance previously created and by creating the Access Services 2013 Service Application.

1. Configure the **Named Pipes** protocol using the **SQL Server Configuration Manager**.
 - a) Press the **Windows** key to navigate to the Windows Start page.
 - b) Locate and click the **SQL Server Configuration** tile to launch the **SQL Server Configuration Manager**.



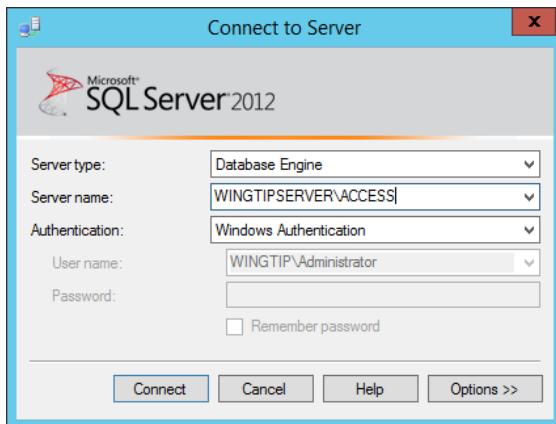
- c) In the SQL Server Configuration Manager, expand the nodes of the tree view control on the left to the following path.
 - i) **SQL Server Configuration Manager >> SQL Server Network Configuration >> Protocols for ACCESS.**
Note: Make certain to expand **SQL Server Network Configuration** and NOT **SQL Server Network Configuration (32bit)**.
 - ii) On the right-hand side, locate the property setting for the **Named Pipes** protocol. This protocol is initially in a disabled state.
 - iii) Right click on the **Named Pipes** property and select the **Enabled** command.



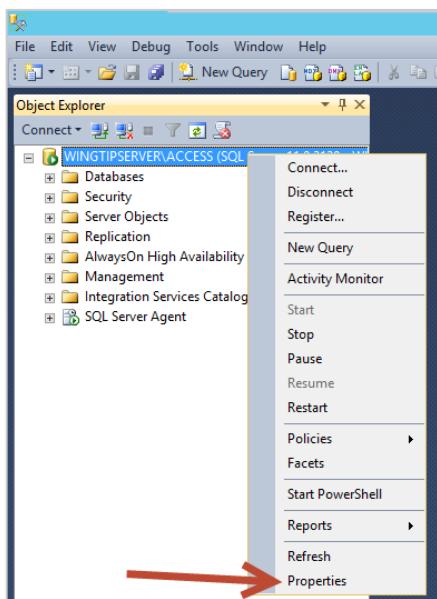
- iv) Verify that all three protocols are in an enabled state.
- d) Close the **SQL Server Configuration Manager**.
2. Connect the **SQL Server Database Engine** using **SQL Server Management Studio**.
 - a) Press the **Windows** key to navigate to the Windows Start page.
 - b) Locate and click the **SQL Server Management Studio** tile to launch **SQL Server Management Studio**.



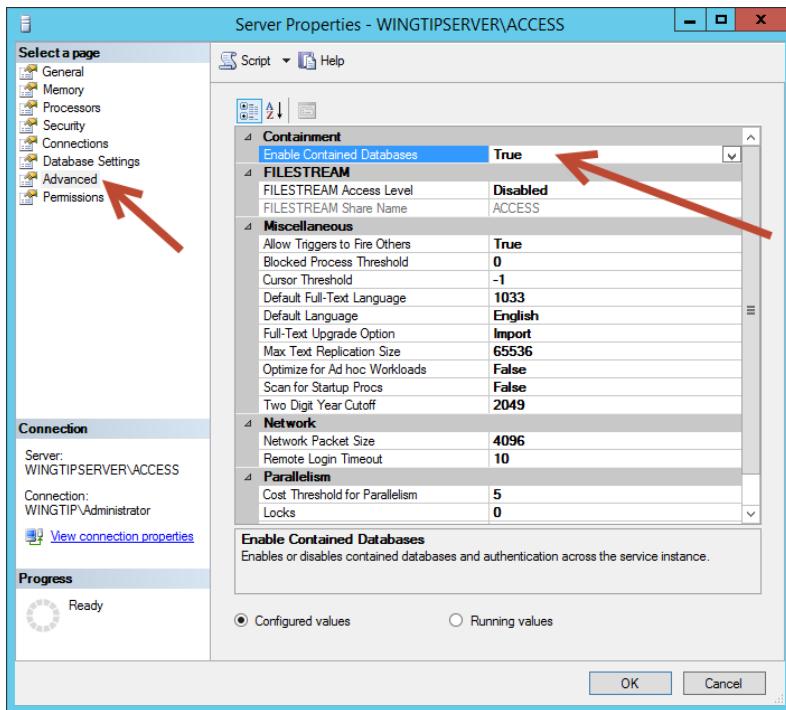
- c) When you are prompted with the **Connect to Server** dialog, enter **WINGTIPSERVER\ACCESS** as the Server name. Click the **Connect** button to connect to the Database Engine.



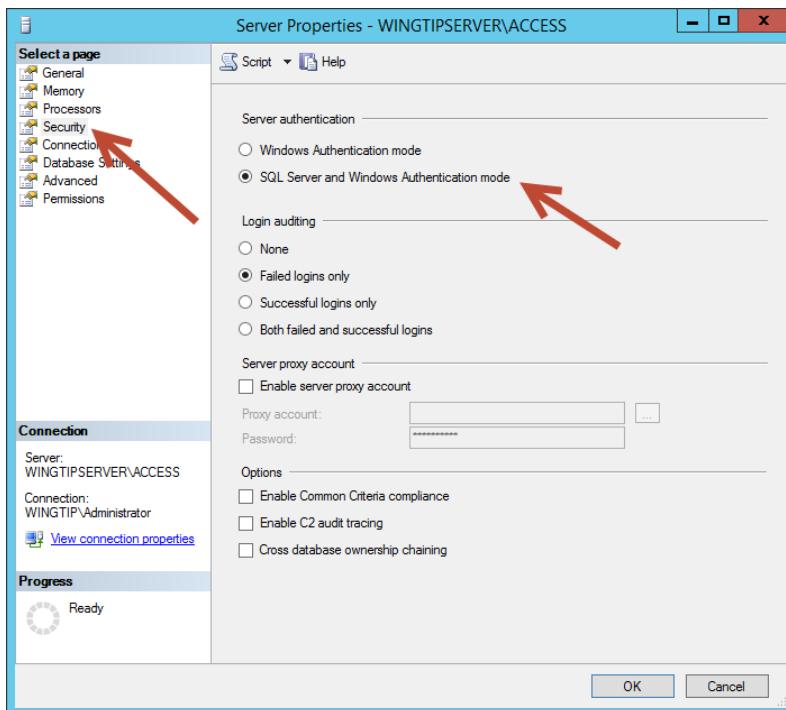
- d) Once **SQL Server Management Studio** has connected to the **SQL Server Database Engine**, you should see the **Object Explorer** with a tree view control with **WINGTIPSERVER\ACCESS** as its top-level node.
- Right-click the server node and choose properties.



- In the Server Properties dialog configure the following settings:
 - Select the **Advanced** page and set **Enable Contained Databases** to **True**.

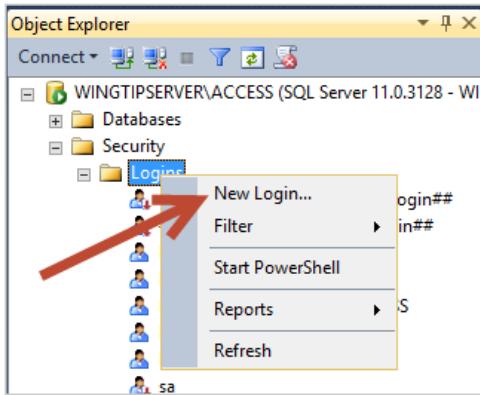


- b) Select the **Security** page and check **SQL Server and Windows Authentication mode**.

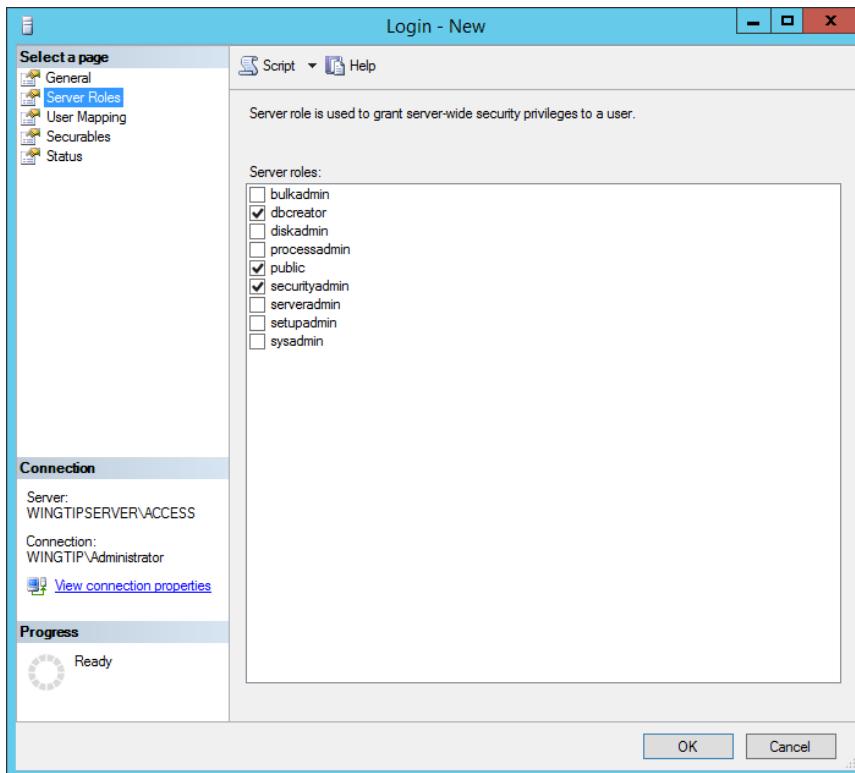


- c) Click **OK** to commit the changes.

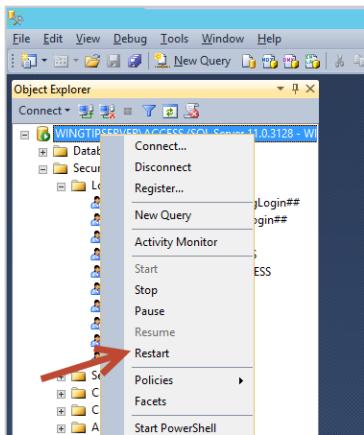
4. Grant the **WINGTIP\SP_Access** account permissions to the database.
 a) Expand the **Security** node, right-click the **Login** node and select **New Login...**



- b) On the **General** page specify the login name of **WINGTIP\SP_Access**.
- c) On the **Server Roles** page select **dbcreator**, **public**, and **securityadmin**.

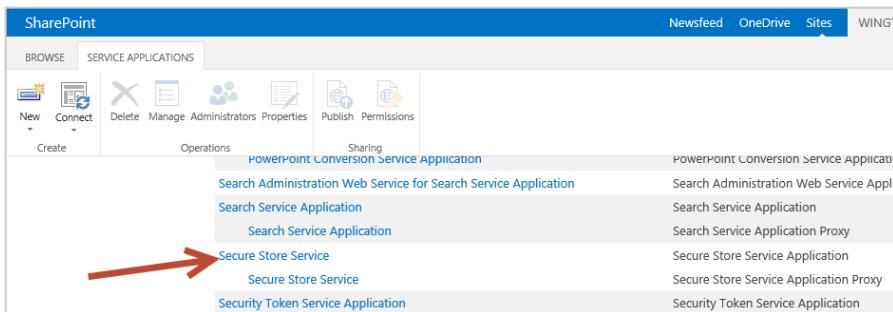


- d) Click **OK** to create the login.
- e) Repeat steps a – d to add the **WINGTIP\SP_Farm** account (this is necessary so that the database can be validated during service application creation).
- f) Right-click the server node and click **Restart** to restart the SQL instance.
 - i) Click **Yes** when prompted.

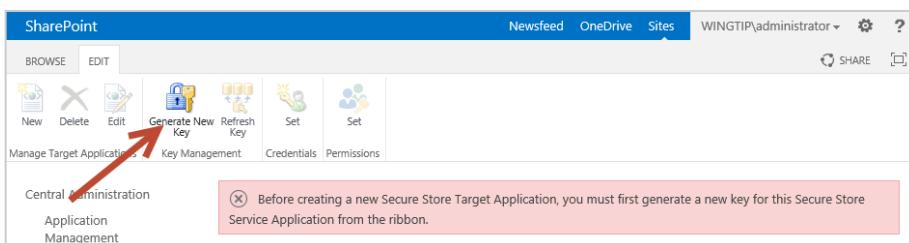


g) Keep the SQL Management Studio open as you'll need it again later.

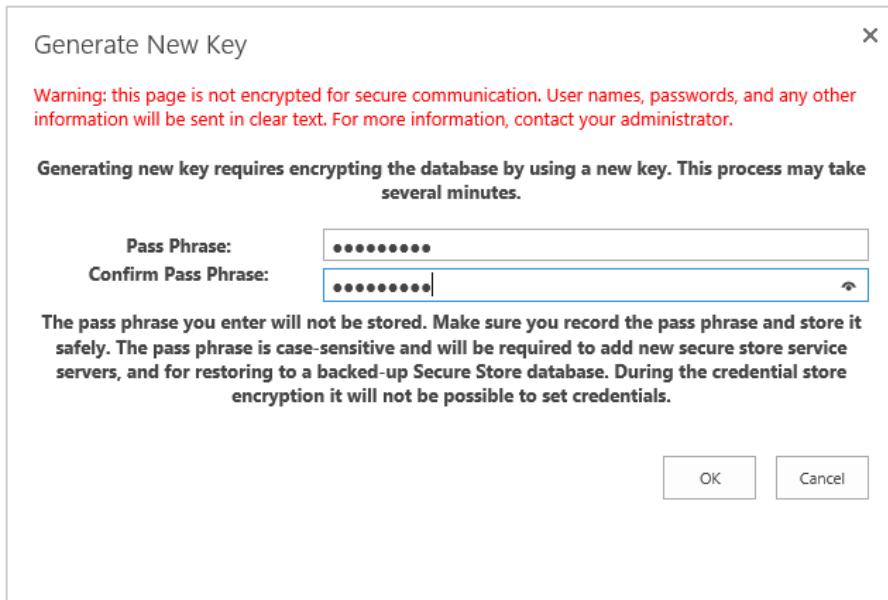
5. Next we need to configure the Secure Store Service to make sure that the Master Key has been generated.
 - a) Press the **Windows** key and type “SharePoint” and select the **SharePoint 2013 Central Administration** tile
 - b) In Central Administration select **Manage Service Applications** under the **Application Management** section
 - c) Click **Secure Store Service** to navigate to the Secure Store Service management page:



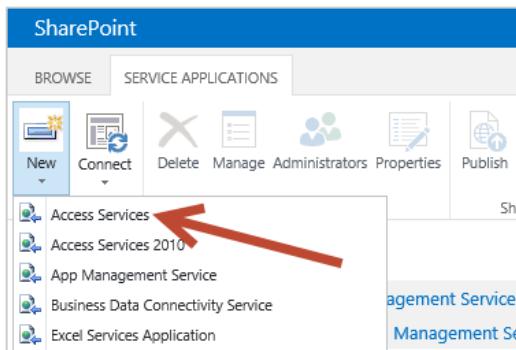
- d) If you see a message indicating that you must generate a new key then click the **Generate New Key** button in the ribbon:



- e) Provide a passphrase of **Password1** and click **OK** to set the key:



6. Next we need to create the Access Services 2013 Service Application.
 - a) In Central Administration select **Configure managed accounts** under the **Security** section.
 - b) Click **Register Managed Account** to open the new managed account page.
 - c) Specify **WINGTIP\SP_Access** for the username and **Password1** as the password
-
- d) Click **OK** to create the managed account.
 - e) In Central Administration select **Manage Service Applications** under the **Application Management** section
 - f) In the Ribbon click the **New** button and select **Access Services**.



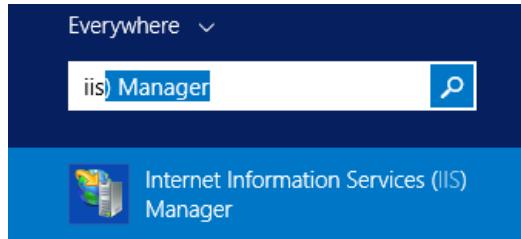
- g) In the Create New Access Services Application dialog specify the following values:
 - i) Name: **Access Services 2013**
 - ii) Application Database Server: **WINGTIP SERVER\ACCESS**
 - iii) Create new application pool

- (1) Application pool name: **SharePoint Access Services App Pool**
- (2) Check **Configurable** for the security account and select **WINGTIP\SP_Access**.
- iv) Click **OK** to create the service application.
- h) In Central Administration select **Manage services on server** under the **Service Applications** section.
- i) Start the Access Services service instance if not already started.

Service	Status	Action
Access Database Service 2010	Stopped	Start
Access Services	Stopped	Start

In order for Access Services 2013 to work properly there are some additional permissions that must be configured. This includes setting IIS to load a user profile for the application pool and granting the application pool account rights to the content databases as well as a stored procedure in the configuration database, and finally, it must have rights to the application management service. The following steps walk you through each of these.

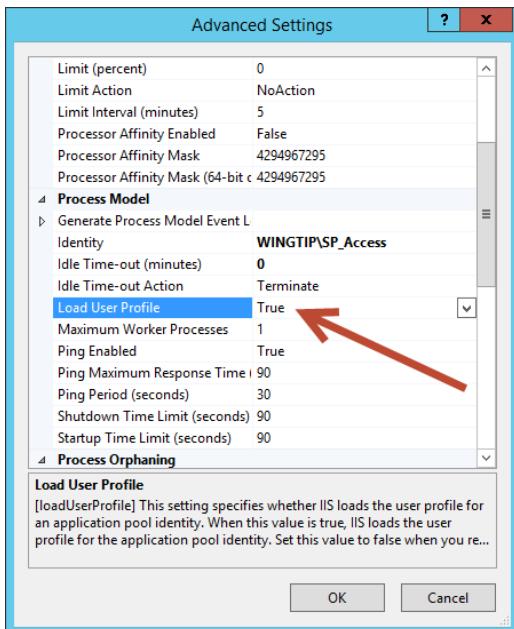
7. Configure IIS to load the user profile for the application pool identity.
- a) Press the **Windows** key to navigate to the Windows Start page and type **IIS** and select the **Internet Information Services (IIS) Manager** tile



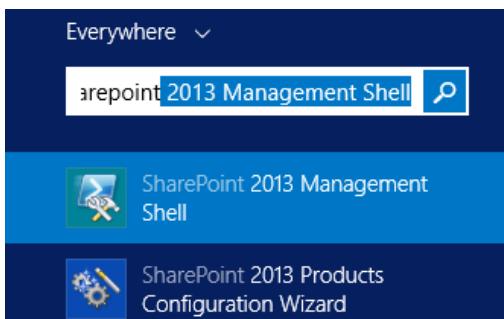
- b) In the IIS Manager right click the application pool whose identity is **WINGTIP\SP_Access** and click **Advanced Settings**.

Name	Status	.NET CLR V...	Managed Pipe...	Identity	Applications
.NET v2.0	Started	v2.0	Integrated	ApplicationPoolIdentity	0
.NET v2.0 Classic	Started	v2.0	Classic	ApplicationPoolIdentity	0
.NET v4.5	Started	v4.0	Integrated	ApplicationPoolIdentity	0
.NET v4.5 Classic	Started	v4.0	Classic	ApplicationPoolIdentity	0
82d1baac7be04	Started	v4.0	Integrated	ApplicationPoolIdentity	1
9978dc788d054	Started	v4.0	Integrated	ApplicationPoolIdentity	1
acdefe196a14d	Started	v4.0	Integrated	ApplicationPoolIdentity	1
Classic .NET Ap...	Started	v4.0	Integrated	ApplicationPoolIdentity	1
DefaultAppPool	Started	v4.0	Integrated	ApplicationPoolIdentity	1
SecurityTokenS...	Started	v4.0	Integrated	ApplicationPoolIdentity	1
SharePoint Cen...	Started	v4.0	Integrated	ApplicationPoolIdentity	1
SharePoint Defa...	Started	v4.0	Integrated	ApplicationPoolIdentity	1
SharePoint Web...	Started	v4.0	Integrated	ApplicationPoolIdentity	1
WorkflowMgmt	Started	v4.0	Integrated	ApplicationPoolIdentity	1

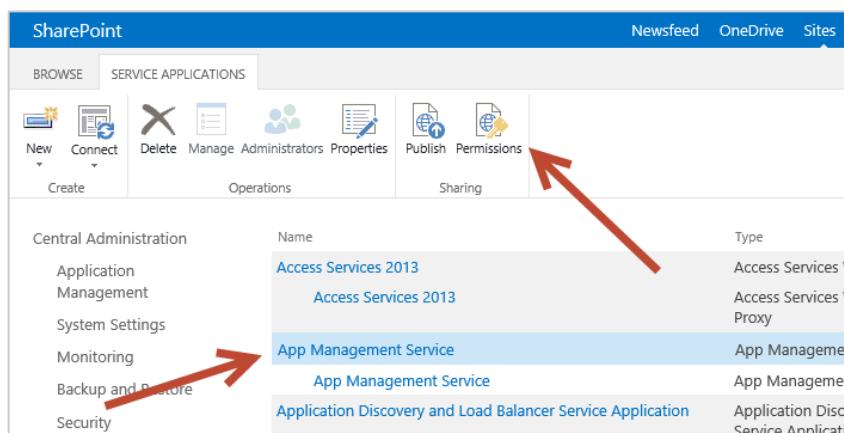
- c) Locate the **Load User Profile** property and change it to **True**.



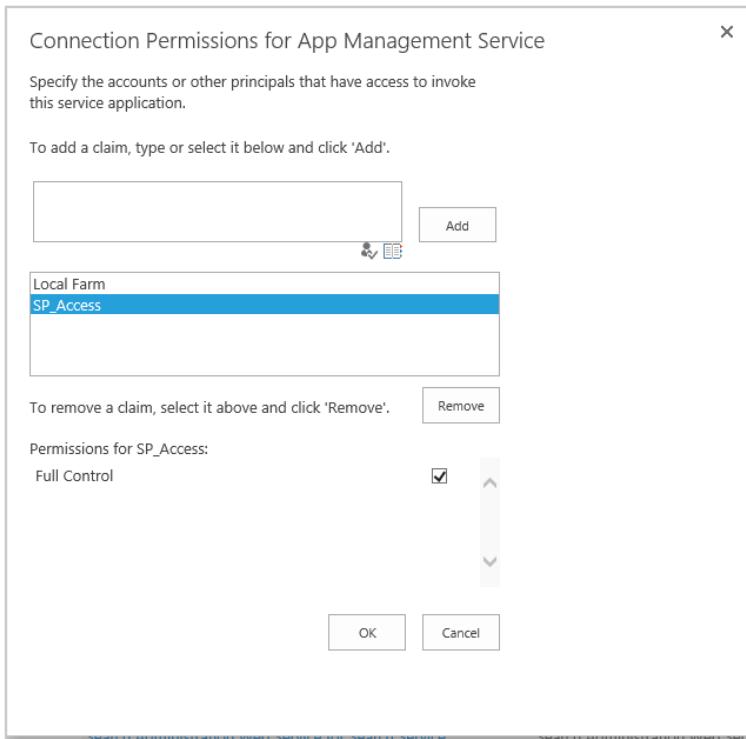
8. Grant the WINGTIP\SP_Access account rights to the content databases.
 - a) Press the **Windows** key to navigate to the Windows Start page and type **SharePoint**.
 - b) Click the **SharePoint 2013 Management Shell** tile.



- c) In the SharePoint 2013 Management Shell enter the following commands:
 - i) `(Get-SPWebApplication).GrantAccessToProcessIdentity("wingtip\sp_access")`
 - ii) `Add-ADGroupMember -Identity WSS_ADMIN_WPG -Members (Get-ADUser "sp_access")`
9. Grant the WINGTIP\SP_Access account full control to the application management service.
 - a) In Central Administration select **Manage Service Applications** under the **Application Management** section
 - b) Select the **App Management Service** and click **Permissions** in the ribbon

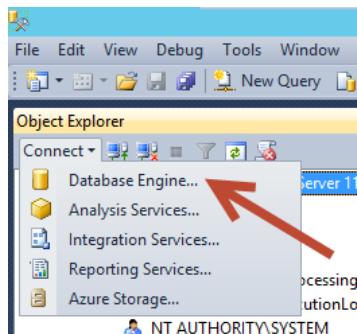


- c) Add the WINGTIP\SP_Access account and give it the **Full Control** permission

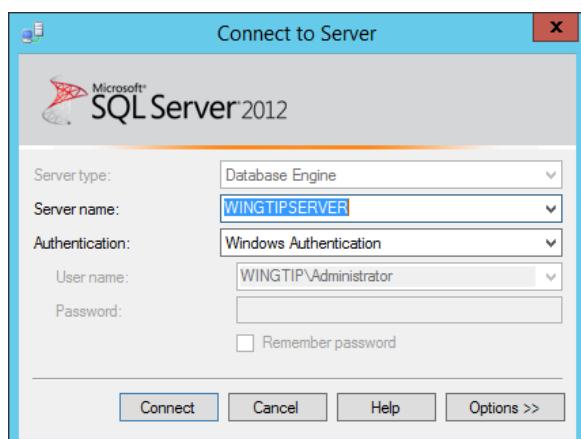


d) Click **OK** to commit the change.

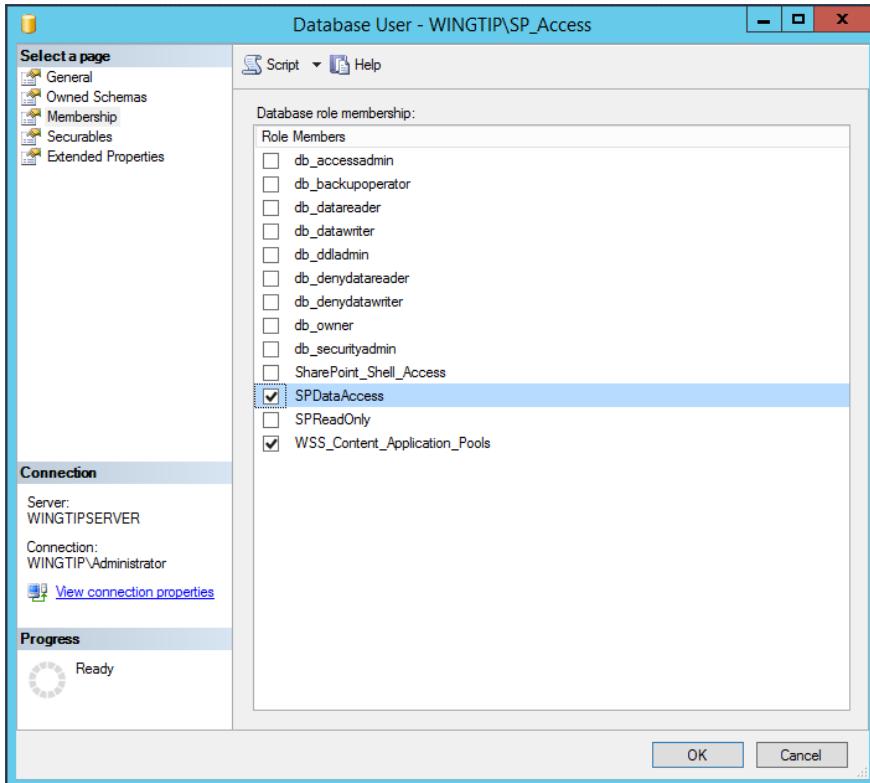
10. Grant the WINGTIP\SP_Access account execute rights to the proc_putObjectTVP stored procedure in the configuration database. This will be done by adding the account to the SPDataAccess role.
- Drop down the **Connect** menu in the **Object Explorer** of the SQL Management Studio and select the **Database Engine...** command



- When you are prompted with the **Connect to Server** dialog, ensure it is filled out as the screenshot below. Click the **Connect** button to connect to the default SQL Server instance.



- c) Navigate to Databases > SharePoint_Config > Security > Users and double-click the **WINGTIP\SP_Access** user.
- d) On the **Membership** page click **SPDataAccess**.



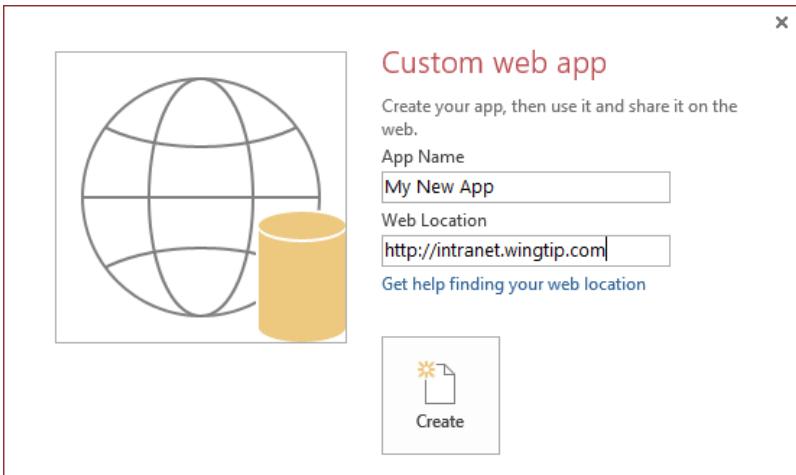
- e) Click **OK** to commit the change.

11. Now that Access Services 2013 is configured it's worth doing a quick test to validate it.

- a) Press the **Windows** key to navigate to the Windows Start page and select Access 2013 to load the Access 2013 client application (the tile will be on the applications page of the start menu so make sure you hit the little down arrow in the bottom left corner to get to the application page).



- b) When prompted, click **Custom web app** to create a new Access 2013 web application
- c) On the **Custom web app** dialog leave the **App Name** the default value and set the **Web Location** to <http://intranet.wingtip.com>.



- d) When the app has been created you have the option of adding some tables. Enter **Contacts** in the search box and select the **Contacts** table when presented.

Add Tables

Create a new table using our templates

Contacts

- Contacts** People you want to keep track of - includes phone, email and address details.
- People People you want to keep track of - includes phone, email and address details.
- Customers People who purchase a product or service - includes phone, email and address details.
- Clients People to whom you sell a service or product - includes email, address and phone numbers.

Don't see what you're looking for? [Add a new blank table.](#)

- e) After adding the Contacts table, click **Launch App** to launch the application in the browser.

FILE HOME

Launch App Table View Advanced Navigation Pane

My New App

Add Tables

Create a new table using our tem

What would you like to track?

- f) If you've configured everything successfully you should now see the custom web application:

Back to Site > My New App

★ Contacts

List Datasheet By Group

Filter the list...

(New)

First Name <input type="text"/>	Last Name <input type="text"/>
Company <input type="text"/>	Email <input type="text"/>
Job Title <input type="text"/>	Work Phone <input type="text"/>
Home Phone <input type="text"/>	Mobile Phone <input type="text"/>
Address 1 <input type="text"/>	Address 2 <input type="text"/>
City <input type="text"/>	State/Province <input type="text"/>
ZIP/Postal Code <input type="text"/>	Country/Region <input type="text"/>
Web Page <input type="text"/>	Notes <input type="text"/>
Group <input type="button"/>	Business <input type="button"/>

You have now finished the setup and configuration of Access Services 2013.

Task 19: Install ADOMD.NET 10 + 11

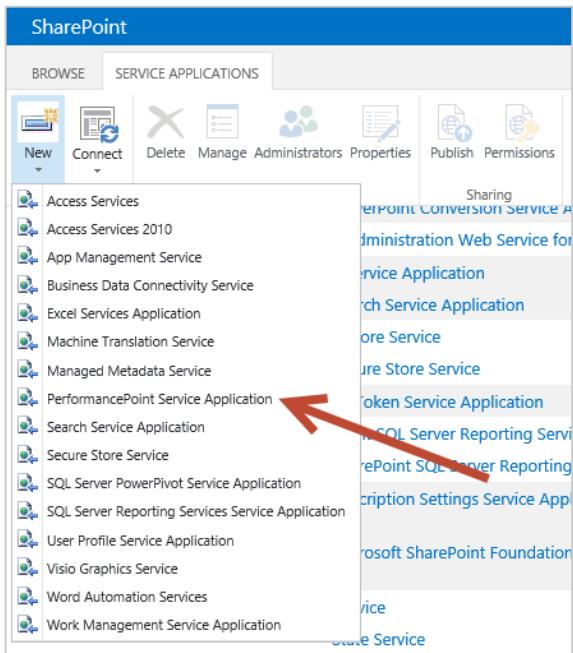
In this step you will install the ADOMD.NET versions 10 and 11 the applicable SQL Server Feature Packs. These components are necessary for proper operation of various SharePoint BI capabilities, including the PerformancePoint Dashboard Designer

1. Install ADMOMD.NET version 10.
 - a) Navigate to the SQL Server 2012 SP1 Feature Pack download page at <http://www.microsoft.com/en-us/download/details.aspx?id=26728>.
 - b) Click the **Download** button to open the file selection dialog.
 - c) Select the **1033\x64\SQLSERVER2008_ASADOMD.msi** installation file.
 - d) Click **Next** to download the file.
 - e) When prompted click **Run** to begin the installation.
 - i) Click **Next** to continue.
 - ii) Check the **I accept** radio button and click **Next** to continue.
 - iii) Click **Next** on the registration information screen.
 - iv) Click **Install** to begin the installation.
 - v) Click **Finish** to complete the installation.
2. Install ADMOMD.NET version 11.
 - a) Navigate to the SQL Server 2012 SP1 Feature Pack download page at <http://www.microsoft.com/en-us/download/details.aspx?id=35580>.
 - b) Click the **Download** button to open the file selection dialog.
 - c) Select the **ENU\x64\SQL_AS_ADOMD.msi** installation file.
 - d) Click **Next** to download the file.
 - e) When prompted click **Run** to begin the installation.
 - i) Click **Next** to continue.
 - ii) Check the **I accept** radio button and click **Next** to continue.
 - iii) Click **Install** to begin the installation.
 - iv) Click **Finish** to complete the installation.

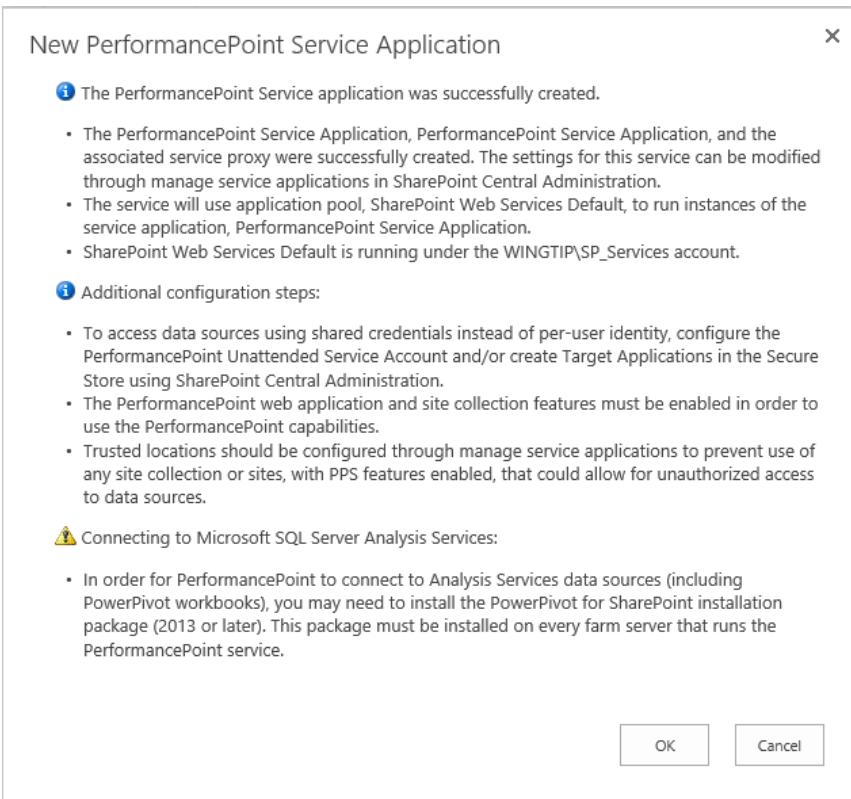
Task 20: Create the PerformancePoint Service Application

In this step you will create the PerformancePoint Service Application.

1. Create the PerformancePoint Service Application
 - a) Press the **Windows** key and type “SharePoint” and select the **SharePoint 2013 Central Administration** tile
 - b) In Central Administration select **Manage Service Applications** under the **Application Management** section
 - c) Click the **New** button in the ribbon and select **PerformancePoint Service Application**.



- d) Provide the following values in the **New PerformancePoint Service Application** dialog:
- Name: **PerformancePoint Service Application**
 - Check **Add this service application's proxy to the farm's default proxy list**
 - Database Server: **WINGTIPSERVER**
 - Database Name: **SharePoint_PerformancePoint**
 - Use existing application pool: **SharePoint Web Services Default**
- e) Click **Create** to create the service application.
- f) When complete you will receive an information message indicating any additional steps you should perform.



- g) Click **OK** to close the dialog.
2. Start the Performance Point Service instance.

- a) In Central Administration select **Manage services on server** under the **Service Applications** section.

Start the Access Services service instance if not already started.



You have now successfully configured the PerformancePoint Service Application. In later steps you will configure the unattended user account as suggested in the additional configuration steps section.

Task 21: Associate Unattended User Account with Services

In this step you will create target applications for Excel Services, Visio Services, and PerformancePoint Services and associate those target applications with each service.

- Configure PerformancePoint Service Application to use the Unattended User Account.

- Press the **Windows** key and type “SharePoint” and select the **SharePoint 2013 Central Administration** tile
- In Central Administration select **Manage Service Applications** under the **Application Management** section
- Click **Secure Store Service** to open the Secure Store Services management page.

Service Application	Proxy
PowerPoint Conversion Service Application	PowerPoint Conversion Service Application Proxy
Search Administration Web Service for Search Service Application	Search Administration Web Service Application
Search Service Application	Search Service Application
Search Service Application	Search Service Application Proxy
Secure Store Service	Secure Store Service Application
Secure Store Service	Secure Store Service Application Proxy
Security Token Service Application	Security Token Service Application

- Click **New** in the ribbon on the Secure Store Services management page.
- Specify the following values on the **Create New Secure Store Target Application** page:
 - Target Application ID: **PPSUnattendedAccount**
 - Display Name: **PPS Unattended Account for Data Refresh**
 - Contact E-mail: **administrator@wingtip.com**
 - Target Application Type: **Group**

Create New Secure Store Target Application

Target Application Settings

The Secure Store Target Application ID is a unique identifier. You cannot change this property after you create the Target Application.

The display name is used for display purposes only.

The contact e-mail should be a valid e-mail address of the primary contact for this Target Application.

The Target Application type determines whether this application uses a group mapping or individual mapping. Ticketing indicates whether tickets are used for this Target Application. You cannot change this property after you create the Target Application.

The Target Application page URL can be used to set the values for the credential fields for the Target Application by individual users.

Target Application ID	<input type="text" value="PPSUnattendedAccount"/>
Display Name	<input type="text" value="PPS Unattended Account for Data Refresh"/>
Contact E-mail	<input type="text" value="administrator@wingtip.com"/>
Target Application Type	<input type="button" value="Group"/>
Target Application Page URL	<input type="radio"/> Use default page <input type="radio"/> Use custom page <input checked="" type="radio"/> None
<input type="button" value="Next"/> <input type="button" value="Cancel"/>	

- f) Click **Next** to continue.
- g) Leave all the fields set to their default values on the field mapping page and click **Next** to continue.

Create New Secure Store Target Application ⓘ

Field Name	Field Type	Masked	Delete
Windows User Name	Windows User Name <input checked="" type="button"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Windows Password	Windows Password <input checked="" type="button"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add Field

Important: The field names and field types cannot be edited later.

Next Cancel

- h) On the administrators and members screen specify **WINGTIP\Administrator** for the Target Application Administrators and **Everyone** for the Members fields and click **OK** to create the target application.

Create New Secure Store Target Application ⓘ

Target Application Administrators The list of users who have access to manage the Target Application settings. The farm administrator will have access by default.	<input type="text"/> WINGTIP\administrator
Users who have Full Control or All Target Applications privileges can administer this Secure Store Target Application.	
Members The users and groups that are mapped to the credentials defined for this Target Application.	<input type="text"/> Everyone
After creating the new application, you can add credential mappings by using the "Set Credentials" button for the selected application. You can edit the settings of this application later at the Manage Target Applications page.	

OK Cancel

- i) You now need to set the credentials for the target application. Click the drop-down for the PPSUnattendedAccount target application and select **Set Credentials**.

<input type="checkbox"/> Target Application ID↑	Type	Target Application Name
<input type="checkbox"/> PowerPivotUnattendedAccount	Individual	PowerPivot Unattended Account for Data Refresh
<input type="checkbox"/> PPSUnattendedAccount	Group	PPS Unattended Account for Data Refresh
<div style="border: 1px solid #ccc; padding: 5px; text-align: center;"> Delete Edit Set Credentials Set Permissions </div>		

- j) Specify **WINGTIP\SP_Unattended** for the Windows User Name field and **Password1** for the two password fields. Click **OK** to save the credentials.

Set Credentials for Secure Store Target Application (Group)

Warning: this page is not encrypted for secure communication. User names, passwords, and any other information will be sent in clear text. For more information, contact your administrator.

Target Application Name:	PPS Unattended Account
Target Application ID:	PPSUUnattendedAccount
Credential Owners:	Everyone

Name	Value
Windows User Name	WINGTIP\SP_Unattended
Windows Password	*****
Confirm Windows Password	*****

Note: Once the credentials are set, they cannot be retrieved by the administrator. Any existing credentials for this credential owner will be overwritten.

OK **Cancel**

- k) Return to the **Manage Service Applications** page and click **PerformancePoint Service Application**.

The screenshot shows the SharePoint ribbon with the "SERVICE APPLICATIONS" tab selected. Below the ribbon, there are buttons for New, Connect, Delete, Manage Administrators, Properties, Publish, and Permissions. A red arrow points to the "PerformancePoint Service Application" link in the list of service applications.

Machine Translation Service	Machine Translation Service Proxy
Managed Metadata Service	Managed Metadata Service
Managed Metadata Service	Managed Metadata Service Connection
PerformancePoint Service Application	PerformancePoint Service Application
PerformancePoint Service Application	PerformancePoint Service Application Proxy
PowerPivot Service Application	PowerPivot Service Application
PowerPivot Service Application	PowerPivot Service Application Proxy

- l) Click **PerformancePoint Service Application Settings** on the Manage PerformancePoint Services page.

The screenshot shows the SharePoint ribbon with the "Central Administration" tab selected. Below the ribbon, there are links for Application Management, System Settings, and Monitoring. A red arrow points to the "PerformancePoint Service Application Settings" link in the list of options.

Manage PerformancePoint Services

- Central Administration
- Application Management**
- System Settings
- Monitoring

PerformancePoint Service Application Settings
 Configure settings such as cache durations, filter behavior, and query time-out.
Trusted Data Source Locations
 Define SharePoint locations to store data sources.
Trusted Content Locations
 Define SharePoint locations to store content such as dashboards and scorecards.

- m) At the top of the page, make sure **Unattended Service Account Target Application ID** is checked and enter **PPSUUnattendedAccount** for the target application ID field.

Secure Store Service Application:

Secure Store Service

Unattended Service Account:
User Name: (Domain\Username)

Password:

Unattended Service Account Target Application ID:
PPSUnattendedAccount

- n) Click **OK** to save the change.
2. Configure Excel Services to use the Unattended User Account.
- Repeat steps 1a – 1j to create a new target application. Use the following values as the Target Application ID and name (keep all other values the same):
 - Target Application ID: **ExcelUnattendedAccount**
 - Display Name: **Excel Unattended Account for Data Refresh**
 - Return to the **Manage Service Applications** page and click **Excel Services Application** to navigate to the Excel Service management page:

The screenshot shows the SharePoint ribbon with the "SERVICE APPLICATIONS" tab selected. Below the ribbon, there are several icons for creating new applications, connecting to existing ones, deleting, managing administrators, publishing, and setting permissions. A red arrow points to the "Excel Services Application" link in the list of applications. The list includes:

Application	Description
Proxy_68b935de-3c86-46dc-9ee2-951d83f9ba80	Application Proxy
Business Data Connectivity Service	Business Data Connectivity Service Application
Business Data Connectivity Service	Business Data Connectivity Service Application Proxy
Excel Services Application	Excel Services Application Web Service Application
Excel Services Application	Excel Services Application Web Service Application Proxy

- c) Click **Global Settings** on the Manage Excel Services Application page.

The screenshot shows the SharePoint ribbon with the "Central Administration" tab selected. Below the ribbon, there are links for "Application Management", "System Settings", and "Monitoring". A red arrow points to the "Global Settings" link, which is described as defining load balancing, memory, and throttling thresholds. The page title is "Manage Excel Services Application".

- d) At the bottom of the page, check the **Use an existing Unattended Service Account** radio button and enter a value of **ExcelUnattendedAccount**.

Use an existing Unattended Service Account:

Target Application ID:

- e) Click **OK** to save the change.
3. Configure Visio Services to use the Unattended User Account.
- Repeat steps 1a – 1j to create a new target application. Use the following values as the Target Application ID and name (keep all other values the same):
 - Target Application ID: **VisioUnattendedAccount**
 - Display Name: **Visio Unattended Account for Data Refresh**
 - Return to the **Manage Service Applications** page and click **Visio Graphics Service**.

The screenshot shows the SharePoint ribbon with the 'Service Applications' tab selected. Below the ribbon, there is a toolbar with icons for Create, Connect, Delete, Manage, Administrators, Properties, Publish, and Permissions. The main area displays a list of service applications:

	Usage and Health data collection	Usage and Health Data Collection Proxy
User Profile Service Application	User Profile Service Application	User Profile Service Application Proxy
User Profile Service Application	Visio Graphics Service Application	Visio Graphics Service Application Proxy
Visio Graphics Service	Visio Graphics Service	Visio Graphics Service Application Proxy

- c) Click **Global Settings** on the Manage Visio Graphics Service page.

The screenshot shows the 'Manage the Visio Graphics Service' page. On the left, there is a navigation menu with links: Central Administration, Application Management, System Settings, and Monitoring. A red arrow points to the 'Central Administration' link. To the right, there are two main sections: 'Global Settings' (Manage settings for performance, security, and refreshing data connections) and 'Trusted Data Providers' (Add or remove data providers that can be used when refreshing data connections).

- d) At the bottom of the page, enter a value of **VisioUnattendedAccount** for the **Application ID** field.

The screenshot shows the 'Unattended Service Account' configuration page. It includes a description of what an unattended service account is and a form for entering an application ID. The 'Application ID:' field contains 'VisioUnattendedAccount'. A red box highlights this field, and a red arrow points to it from the previous screenshot.

- e) Click **OK** to save the change.

4. When complete you should have four Target Applications within the Secure Store Management page.

<input type="checkbox"/> Target Application ID↑	Type	Target Application Name
<input type="checkbox"/> ExcelUnattendedAccount	Group	Excel Unattended Account for Data Refresh
<input type="checkbox"/> PowerPivotUnattendedAccount	Individual	PowerPivot Unattended Account for Data Refresh
<input type="checkbox"/> PPSUnattendedAccount	Group	PPS Unattended Account for Data Refresh
<input type="checkbox"/> VisioUnattendedAccount	Group	Visio Unattended Account for Data Refresh

5. The final step is to grant the unattended data refresh account rights to our SQL Server Analysis Services database so that we can eventually test our services.

- a) Connect the **SQL Server Analysis Services** using **SQL Server Management Studio**.

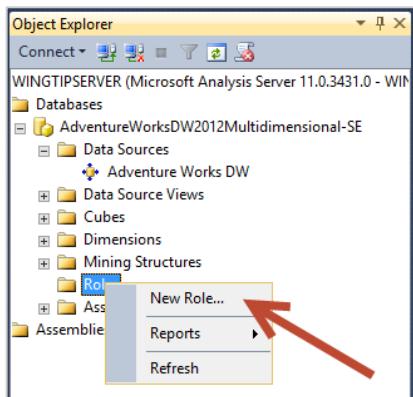
- i) Press the **Windows** key to navigate to the Windows Start page.
- ii) Locate and click the **SQL Server Management Studio** tile to launch **SQL Server Management Studio**.



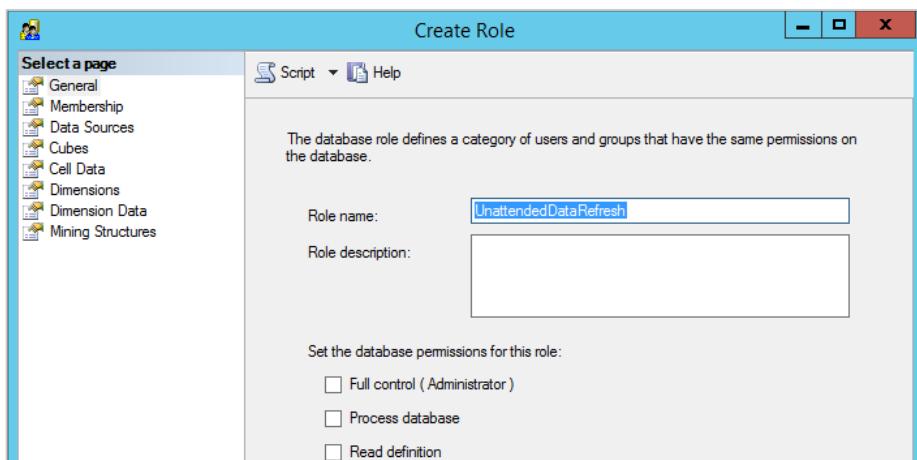
- iii) When you are prompted with the **Connect to Server** dialog, select **Analysis Services** as the Server type and enter **WINGTIPSERVER** as the Server name. Click the **Connect** button to connect.



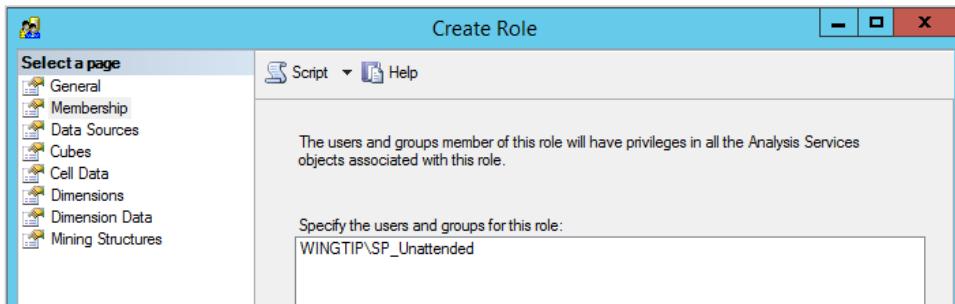
- iv) Once **SQL Server Management Studio** has connected to the **SQL Server Analysis Services**, you should see the **Object Explorer** with a tree view control with **WINGTIPSERVER** as its top-level node.
- b) Expand the server node then the Databases node and finally the AdventureWorksDW2012Multidimensional-SE node and right-click the **Roles** node and select **New Role...** to create a new role.



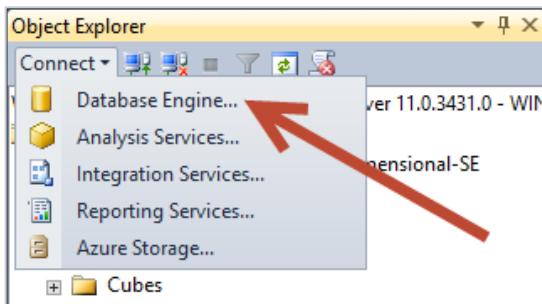
- c) On the **General** page enter **UnattendedDataRefresh** as the Role name.



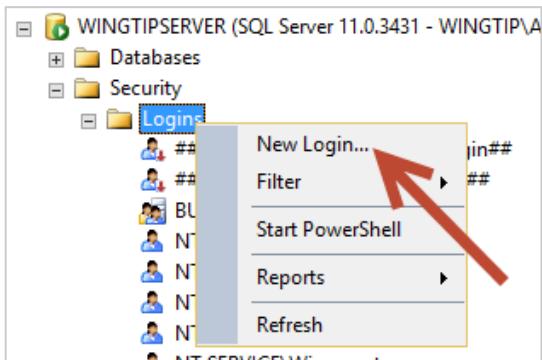
- d) On the **Membership** page click **Add** and add the **WINGTIP\SP_Unattended** account.



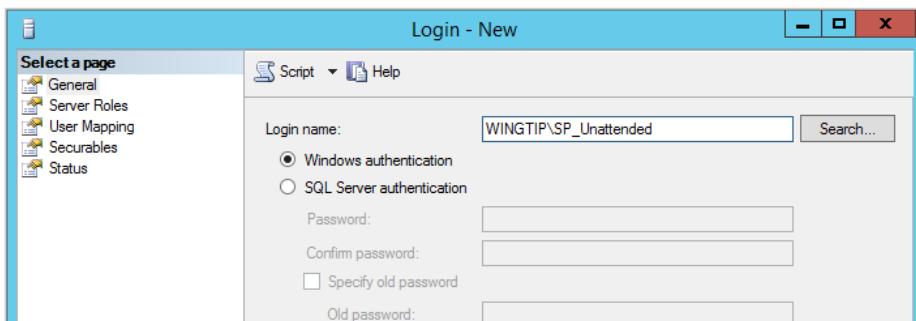
- e) Click **OK** to add the role.
f) Click the **Connect** drop down in the Object Explorer and select **Database Engine**.



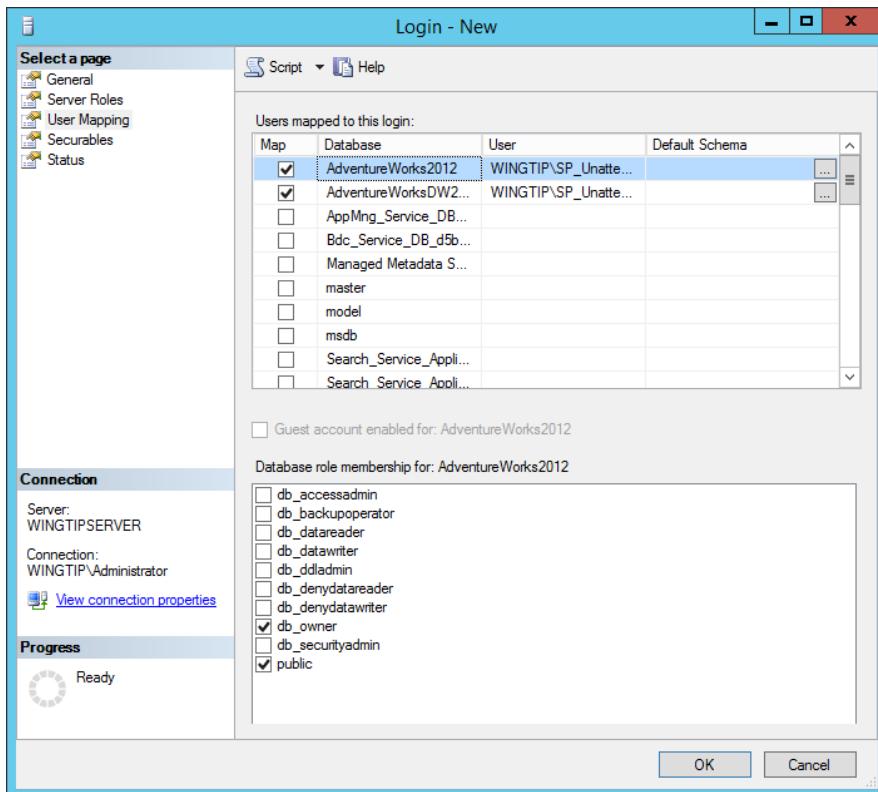
- g) On the **Connect to Server** dialog click **Connect** to connect to the default SQL Server Database Engine instance.
h) Expand **WINGTIPSERVER > Security** and right-click **Logins**. Select **New Login...** to add a new login.



- i) Enter **WINGTIP\SP_Unattended** for the **Login name** field on the **General** page.



- j) On the **User Mapping** page check the box next to **AdventureWorks2012** and **AdventureWorksDW2012**. Leave the default values for the database membership roles for each database.

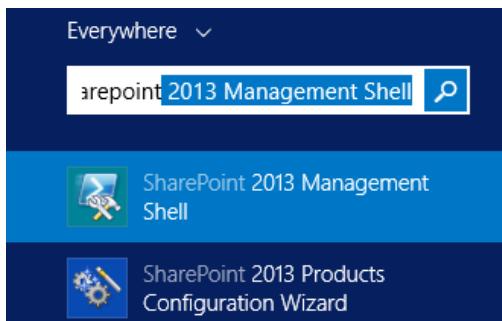


- k) Click **OK** to commit the changes.

Task 22: Test PerformancePoint Services

In this step you will do a test of the PerformancePoint Services Service Application and, in doing so, validate that the Unattended Data Refresh user account has the appropriate rights to the data source.

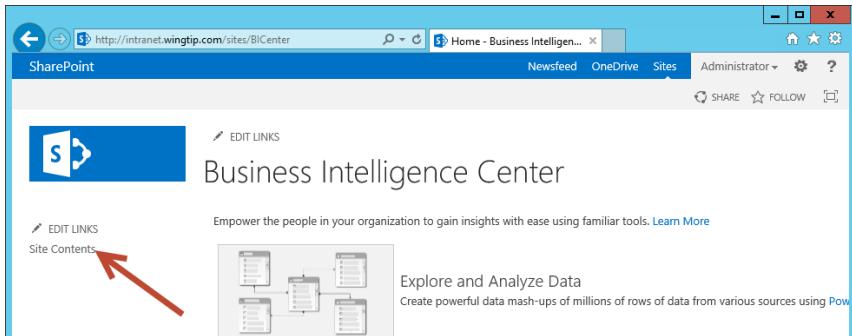
1. Create a PerformancePoint Site Collection
 - a) Press the **Windows** key to navigate to the Windows Start page and type **SharePoint**.
 - b) Click the **SharePoint 2013 Management Shell** tile.



- c) In the SharePoint 2013 Management Shell enter the following command on a single line:

```
New-SPSite -Url "http://intranet.wingtip.com/sites/BICenter" -Template "BICenterSite#0"
-Name "Business Intelligence Center" -OwnerAlias "wingtip\administrator"
```

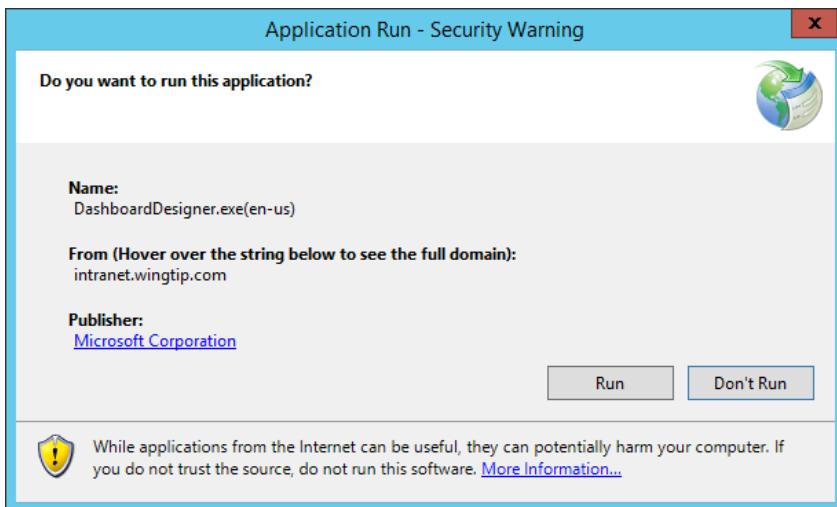
2. Install and start the Dashboard Designer.
 - a) Navigate to <http://intranet.wingtip.com/sites/BICenter> and click **Site Contents**.



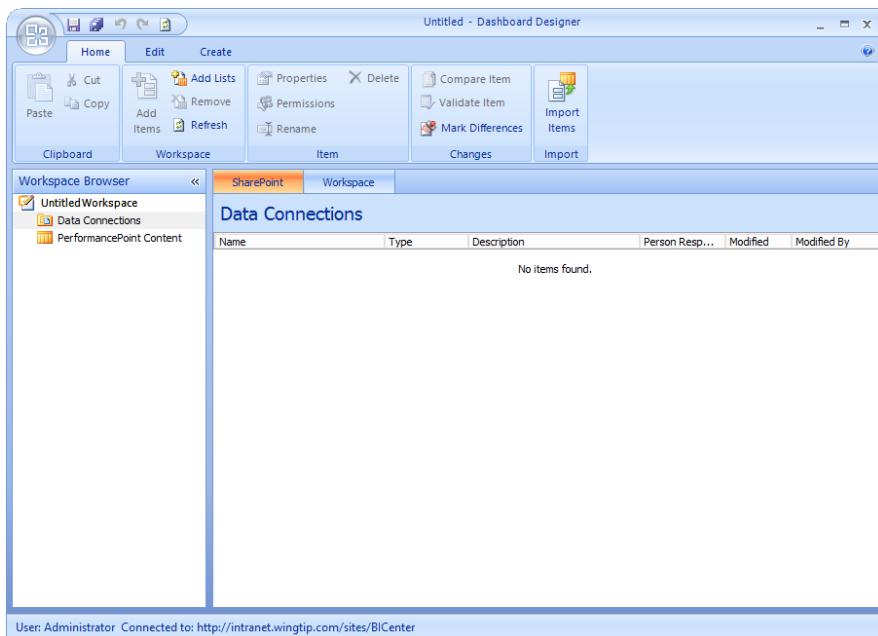
- b) From the Site Contents page click **PerformancePoint Content** to open the PerformancePoint Content library.
- c) Click **new item** to install and launch the Dashboard Designer.

A screenshot of the "PerformancePoint Content" library page. The title is "PerformancePoint Content". Below it is a search bar and a "new item" button with a plus sign. A red arrow points to this "new item" button. There are also filters for "By Content Type" and "All Items". A message at the bottom says "There are no items to show in this view of the 'PerformancePoint Content' list."

- d) When prompted, click **Run** to install and run the application.

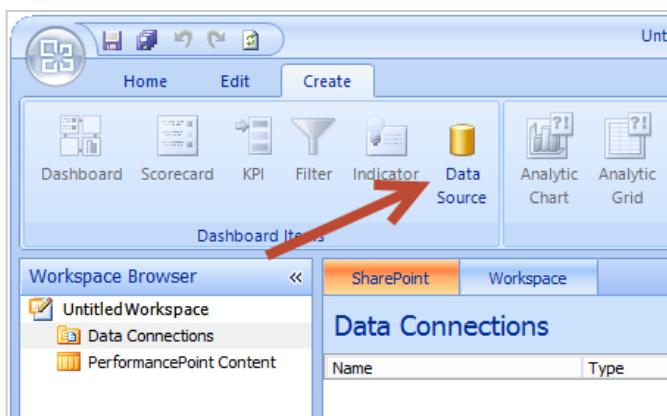


- e) When complete the Dashboard Designer should be loaded:

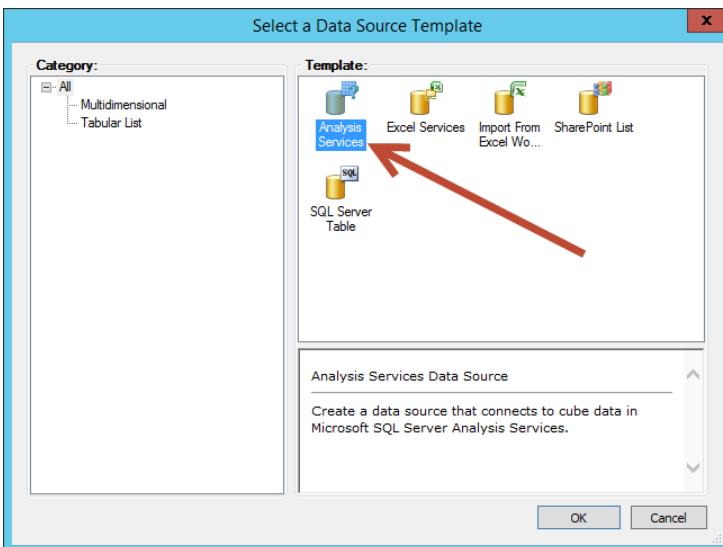


3. Create a new Data Source to connect to the previously created AdventureWorks DW Cube.

- Select the **Create** tab in the ribbon and click **Data Source**.

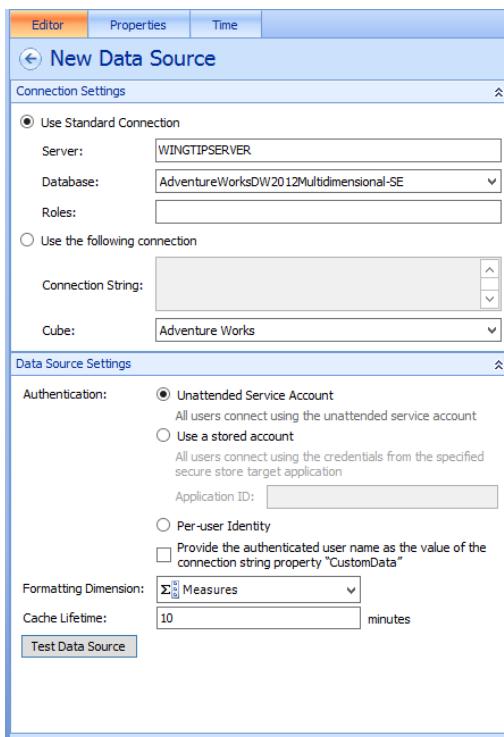


- Select **Analysis Services** from the list of templates and click **OK** to continue.

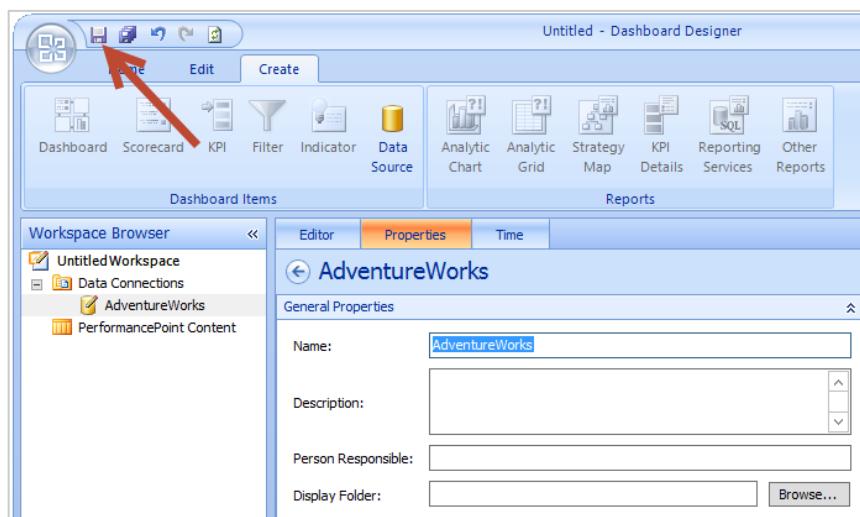


If you receive an error stating that the Dashboard Designer cannot connect to PerformancePoint Services then it is possible that you forgot to check the box to associate PerformancePoint Services with the farms default proxy list. If this is the case then navigate to the Service Application Associations page and adjust the default proxy group to add the PerformancePoint Service Application.

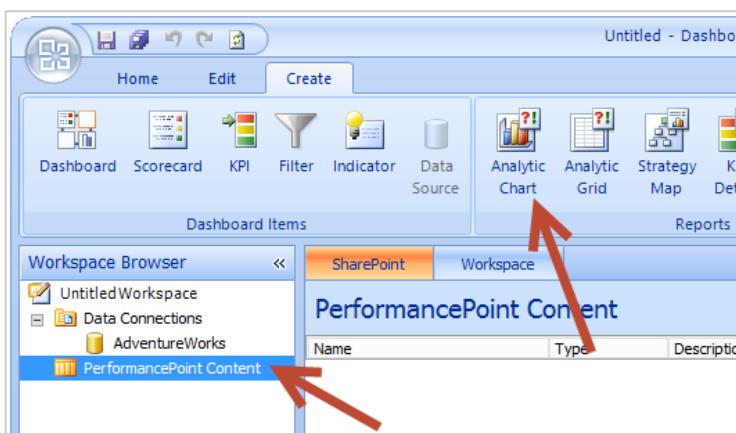
- c) On the **Editor** tab of the **New Data Source** enter the following values:
 - i) Check **Use Standard Connection**
 - ii) Server: **WINGTIPSERVER**
 - iii) Database: **AdventureWorksDW2012Multidimensional-SE**
 - iv) Cube: **Adventure Works**
 - v) Authentication: **Unattended Service Account**
 - vi) Formatting Dimension: **Measures**
 - vii) Cache Lifetime: **10**



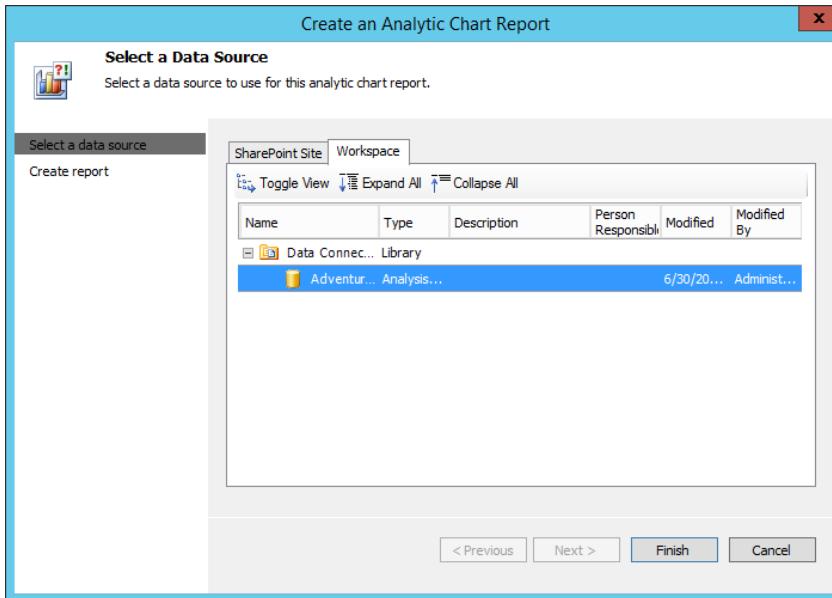
- d) Click **Test Data Source** to test the connection.
- e) Click the **Properties** tab and enter **AdventureWorks** for the name of the data source. Click the save icon in the top bar to save the data source.



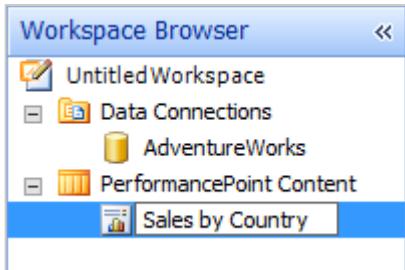
4. Create a new report to validate the connection.
 - a) Click **PerformancePoint Content** in the Workspace Browser.
 - b) Switch to the **Create** tab in the ribbon and click **Analytic Chart**.



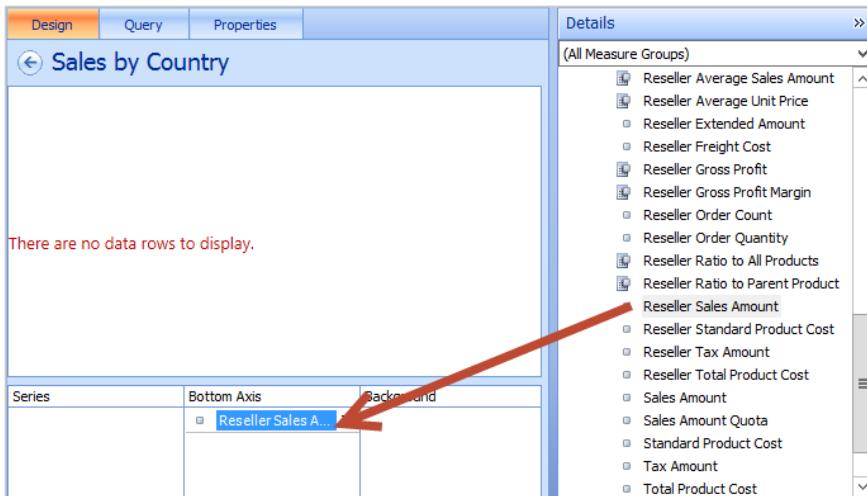
- c) Select the **AdventureWorks** data source and click **Finish** to close the dialog.



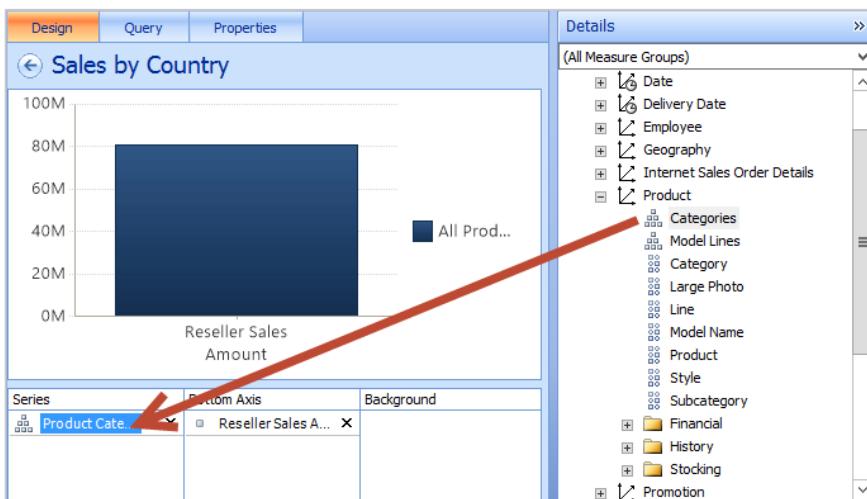
- d) When prompted, enter a value of **Sales by Country** for the report name.



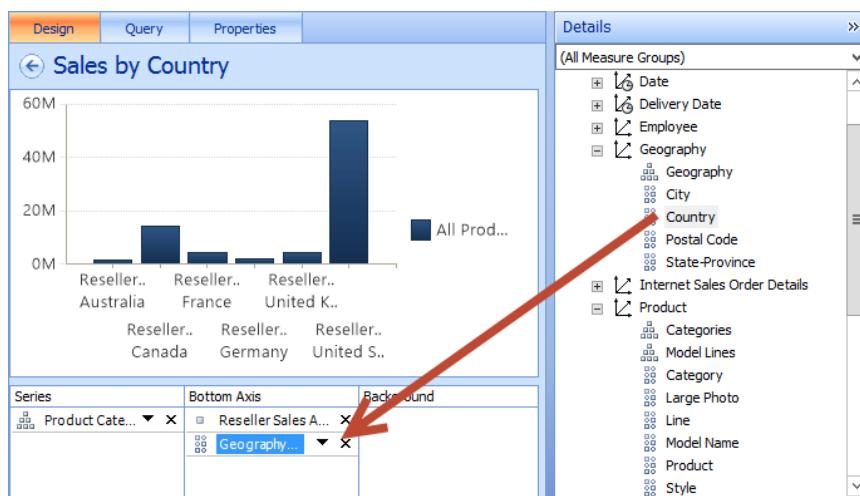
- e) Expand the **Measures** node in the **Details** pane on the right and drag **Reseller Sales Amount** to the **Bottom Axis** pane in the bottom center panel.



- f) Expand the **Dimensions** node in the **Details** pane on the right. Locate and expand the **Product** node and drag **Categories** to the **Series** pane in the bottom left panel.

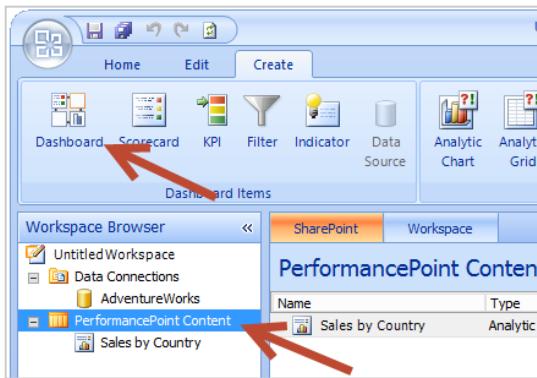


- g) Locate the **Geography** node and drag **Country** to the **Bottom Axis** pane in the bottom center panel.

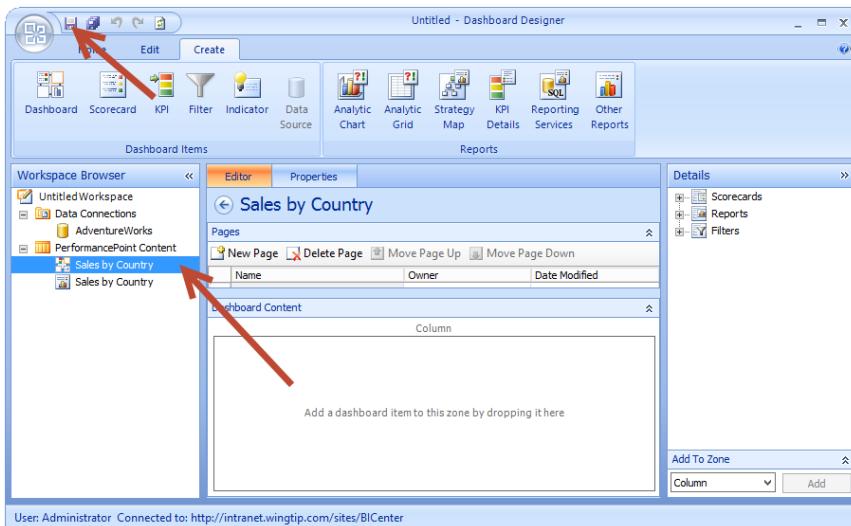


- h) Click the save icon in the top toolbar to save the chart.

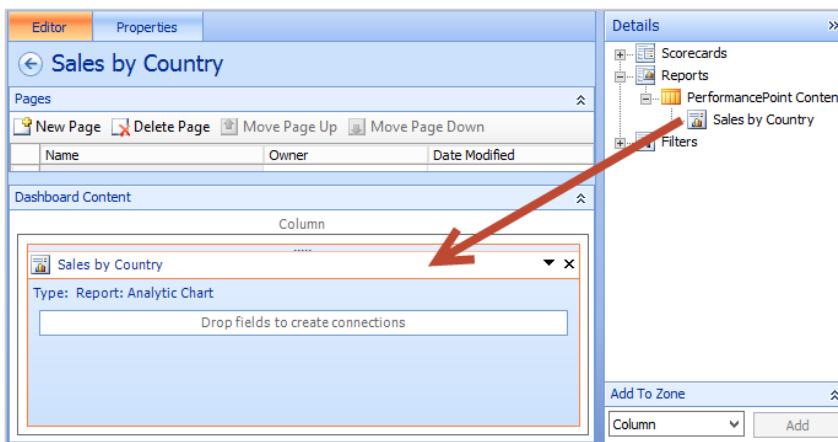
5. Now that the analytics chart is created we need to create a dashboard which will expose the chart.
a) Select the **PerformancePoint Content** node in the Workspace Browser and click the **Dashboard** ribbon icon.



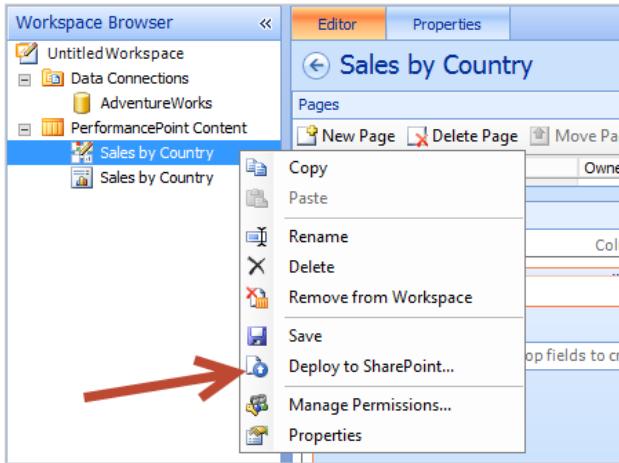
- b) Select **1 Zone** and click **OK** to create the dashboard.
- c) Enter a name of **Sales by Country** and click the save icon in the top toolbar to save the dashboard.



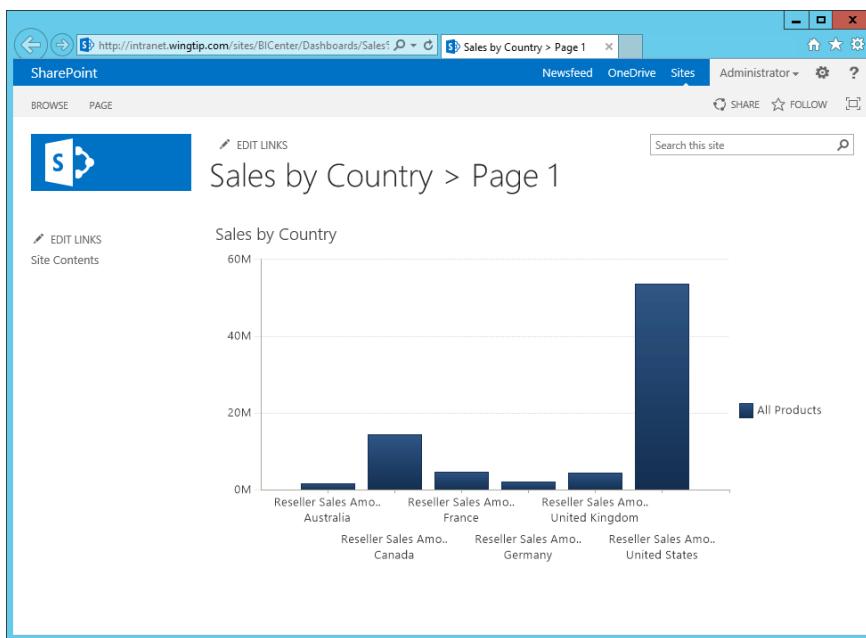
- d) In the **Details** pane on the right, expand the **Reports** node and the **PerformancePoint Content** node and drag the **Sales by Country** report to the **Dashboard Content** pane.



- e) Right-click the dashboard file in the Workspace Browser and select **Deploy to SharePoint...** to deploy the file to SharePoint.



- f) In the **Deploy To** dialog click **OK** to deploy to SharePoint.
- g) When complete, the dashboard page should load in the browser.



- h) Click on various columns of the chart to drill down into the report data and validate that the report is functioning correctly.

Congratulations! You have now successfully configured and tested PerformancePoint Services and are now at the end of this setup guide – now go get some sleep!