



Test Lab Guide: eBook for SharePoint Server 2013 Intranet and Team Sites

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Test Lab Guide: eBook for SharePoint Server 2013 Intranet and Team Sites

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Summary: This Microsoft Test Lab Guide (TLG) e-Book provides you with step-by-step instructions to create the SharePoint Server 2013 three-tier farm with intranet and team sites test lab. This paper does not describe how to install and configure SharePoint Server 2013 in a pilot or production environment. For more information, see [Install and deploy SharePoint 2013](#).

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Introduction

Test Lab Guides (TLGs) allow you to get valuable hands-on experience with new products and technologies using a pre-defined and tested methodology that results in a working configuration. When you use a TLG to create a test lab, instructions define what servers to create, how to configure the operating systems and system services, and how to install and configure any additional products or technologies. A TLG experience enables you to see all of the components and the configuration steps on both the front-end and back-end that are required for a product or technology or for a multi-product or technology solution.

A challenge in creating useful TLGs is to enable their reusability and extensibility. Because creating a test lab can represent a significant investment of time and resources, your ability to reuse and extend the work required to create test labs is important. An ideal test lab environment would enable you to create a basic lab configuration, save that configuration, and then build out multiple test labs in the future by starting with the base configuration.

The purpose of this TLG eBook is to enable you to create the SharePoint Server 2013 three-tier farm test lab and then configure a set of intranet and team sites. Depending on how you deploy your test lab environment, you can image the drives for test lab if you are using physical

computers or you can create snapshots of the test lab virtual machines. This enables you to easily return to baseline configuration where most of the routine client, server, and networking services have already been configured so that you can focus on learning about specific aspects of SharePoint Server 2013. For this reason, make sure that you create disk images or virtual machine snapshots after completing all the steps in this TLG.

In this guide

This document contains instructions for setting up the SharePoint Server 2013 three-tier farm test lab by deploying four server computers running Windows Server 2008 R2 Enterprise Edition and one client computer running Windows 7 Enterprise or Ultimate. The resulting configuration simulates a private intranet subnet containing a SharePoint three-tier farm.

Important

The following instructions are for configuring the SharePoint three-tier farm test lab. Individual computers are needed to separate the services provided on the network and to clearly show the desired functionality. This configuration is neither designed to reflect best practices nor does it reflect a desired or recommended configuration for a production network. The configuration, including IP addresses and all other configuration parameters, is designed only to work on a separate test lab network.

Note This document is a customized, end-to-end version of the following set of TLGs published by Microsoft:

- [Test Lab Guide: Base Configuration](#)
- [Test Lab Guide: Install SQL Server 2012 Enterprise](#)
- [Test Lab Guide: Configure SharePoint Server 2013 in a Three-Tier Farm](#)
- [Test Lab Guide: Configure Intranet and Team Sites with SharePoint Server 2013](#)

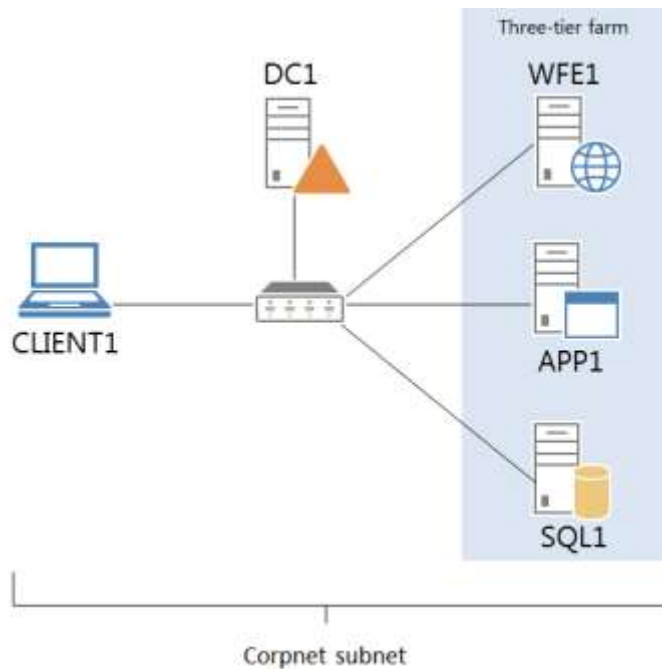
Test lab overview

The SharePoint three-tier farm test lab consists of the following:

- One computer running Windows Server 2008 R2 Enterprise Edition named DC1 that is configured as an intranet domain controller, Domain Name System (DNS) server, Dynamic Host Configuration Protocol (DHCP) server, and an enterprise root certification authority (CA).
- One intranet member server running Windows Server 2008 R2 Enterprise Edition with Service Pack 1 named SQL1 that is configured as a SQL database server.

- One intranet member server running Windows Server 2008 R2 Enterprise Edition with Service Pack 1 named APP1 that is configured as the SharePoint Server 2013 application server.
- One intranet member server running Windows Server 2008 R2 Enterprise Edition with Service Pack 1 named WFE1 that is configured as the SharePoint front-end web server.
- One web client computer running Windows 7 Enterprise or Ultimate named CLIENT1.

The SharePoint three-tier farm test lab consists of the Corpnet subnet. Computers on the Corpnet subnet can connect using a physical hub, switch, or virtual switch. See the following figure for the configuration of the SharePoint three-tier farm test lab.



This document describes how to build out the SharePoint three-tier farm test lab and then create intranet and team sites in the following sections:

- Steps for configuring the Corpnet subnet (DC1, APP1, and CLIENT1)
- Steps for configuring the SQL server (SQL1)
- Steps for configuring the SharePoint Server 2013 three-tier farm (WFE1)
- Steps for configuring intranet and team sites

Hardware and software requirements

The following are required components of the test lab:

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- The product disc or files for Windows Server 2008 R2 Enterprise Edition.

For an evaluation copy of Windows Server 2008 R2 Enterprise Edition in download and virtual hard disk (VHD) form, see [Windows Server 2008 R2 Evaluation Free 180-Day Trial](http://go.microsoft.com/fwlink/?LinkID=102582) (<http://go.microsoft.com/fwlink/?LinkID=102582>).
- The product disc or files for Windows 7 Enterprise or Ultimate.
- Four computers that meet the minimum hardware requirements for Windows Server 2008 R2 Enterprise Edition.
- One computer that meets the minimum hardware requirements for Windows 7 Enterprise or Ultimate.
- The product disc or files for Microsoft SQL Server 2012. See [SQL Server 2012 Evaluation](#) for an evaluation version of Microsoft SQL Server 2012. Alternately, the product disc or files for Microsoft SQL Server 2008 R2 with Service Pack 1. See [SQL Server 2008 R2 Trial](#) for a trial version of Microsoft SQL Server 2008 R2.
- The [product disc or files for SharePoint Server 2013](#).
- If you wish to deploy the SharePoint three-tier farm test lab in a virtualized environment, your virtualization solution must support Windows Server 2008 R2 Enterprise Edition and Windows 7 Enterprise or Ultimate 64-bit virtual machines. The server hardware must support the amount of RAM required to run the virtual operating systems included in the Base Configuration test lab and any other virtual machines required by additional TLGs.

**Important**

Run Windows Update on all computers or virtual machines either during the installation or immediately after installing the operating systems. After running Windows Update, you can isolate your physical or virtual SharePoint three-tier farm test lab from your production network.

Steps for Configuring the Corpnet Subnet

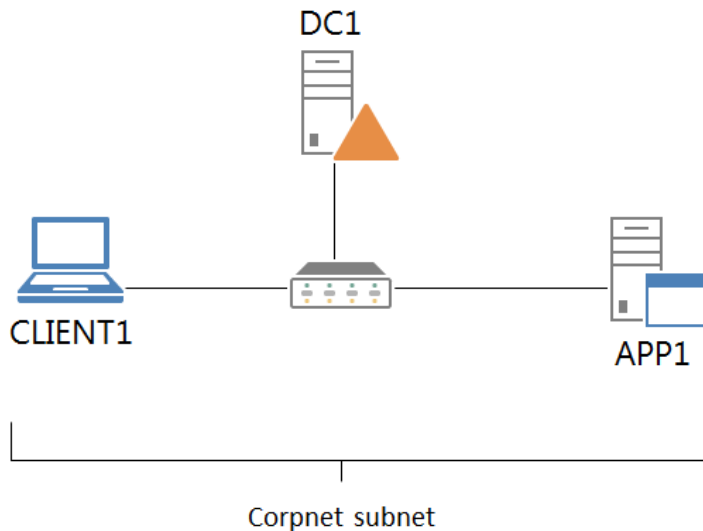
There are three steps to setting up the Corpnet subnet of the Base Configuration test lab.

1. Configure DC1.
2. Configure APP1.
3. Configure CLIENT1.

**Note**

You must be logged on as a member of the Domain Admins group or a member of the Administrators group on each computer to complete the tasks described in this guide. If you cannot complete a task while you are logged on with an account that is a member of the Administrators group, try performing the task while you are logged on with an account that is a member of the Domain Admins group.

The following figure shows the resulting test lab for these steps.



The following sections provide details about how to perform these steps.

Step 1: Configure DC1

DC1 configuration consists of the following:

- Install the operating system.
- Configure TCP/IP.
- Install Active Directory and DNS.
- Install DHCP.
- Install an enterprise root CA.
- Create a user account in Active Directory.
- Configure computer certificate auto-enrollment.
- Configure computer account maximum password age.

In this procedure, you install Windows Server 2008 R2 Enterprise Edition as a standalone server.

▶ **To install the operating system on DC1**

1. Start the installation of Windows Server 2008 R2.
2. Follow the instructions to complete the installation, specifying Windows Server 2008 R2 Enterprise Edition (full installation) and a strong password for the local Administrator account. Log on using the local Administrator account.
3. Connect DC1 to a network that has Internet access and run Windows Update to install the latest updates for Windows Server 2008 R2.
4. Connect DC1 to the Corpnet subnet.

In this procedure, you configure the TCP/IP protocol with a static IP address of 10.0.0.1 and the subnet mask of 255.255.255.0.

▶ **To configure TCP/IP on DC1**

1. In **Initial Configuration Tasks**, click **Configure networking**.
2. In **Network Connections**, right-click **Local Area Connection**, and then click **Properties**.
3. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
4. Select **Use the following IP address**. In **IP address**, type **10.0.0.1**. In **Subnet mask**, type **255.255.255.0**. Select **Use the following DNS server addresses**. In **Preferred DNS server**, type **10.0.0.1**.
5. Click **Advanced**, and then click the **DNS** tab.
6. In **DNS suffix for this connection**, type **corp.contoso.com**, click **OK** twice, and then click **Close**.
7. Close the **Network Connections** window.
8. In **Initial Configuration Tasks**, click **Provide computer name and domain**.
9. In **System Properties**, click **Change**. In **Computer name**, type **DC1**, click **OK** twice, and then click **Close**. When you are prompted to restart the computer, click **Restart Now**.
10. After restarting, login using the local administrator account.
11. In **Initial Configuration Tasks**, click **Do not show this window at logon**, and then click **Close**.

In this procedure, you configure DC1 as a domain controller and DNS server for the corp.contoso.com domain.

▶ **To configure DC1 as a domain controller and DNS server**

1. In the console tree of **Server Manager**, click **Roles**. In the details pane, click **Add Roles**, and then click **Next**.
2. On the Select Server Roles page, click **Active Directory Domain Services**, click **Add Required Features**, click **Next** twice, and then click **Install**. When installation is complete, click **Close**.
3. To start the Active Directory Installation Wizard, click **Start**, type **dcpromo**, and then press ENTER.
4. In the **Active Directory Installation Wizard** dialog box, click **Next** twice.
5. On the Choose a Deployment Configuration page, click **Create a new domain in a new forest**, and then click **Next**.
6. On the Name the Forest Root Domain page, type **corp.contoso.com**, and then click **Next**.
7. On the Set Forest Functional Level page, in **Forest Functional Level**, click **Windows Server 2008 R2**, and then click **Next**.
8. On the Additional Domain Controller Options page, click **Next**, click **Yes** to continue, and then click **Next**.
9. On the Directory Services Restore Mode Administrator Password page, type a strong password twice, and then click **Next**.
10. On the Summary page, click **Next**.
11. Wait while the wizard completes the configuration of Active Directory and DNS services, and then click **Finish**.
12. When you are prompted to restart the computer, click **Restart Now**.
13. After the computer restarts, log in to the CORP domain using the Administrator account.

In this procedure, you configure DC1 as a DHCP server so that CLIENT1 can automatically configure itself when it connects to the CorpNet subnet.

 **To install and configure the DHCP server role**

1. In the console tree of **Server Manager**, click **Roles**.
2. In the details pane, under **Roles Summary**, click **Add roles**, and then click **Next**.
3. On the Select Server Roles page, click **DHCP Server**, and then click **Next** twice.
4. On the Select Network Connection Bindings page, verify that **10.0.0.1** is selected, and then click **Next**.
5. On the Specify IPv4 DNS Server Settings page, verify that **corp.contoso.com** is listed under **Parent domain**.

6. Type **10.0.0.1** under **Preferred DNS server IP address**, and then click **Validate**. Verify that the result returned is **Valid**, and then click **Next**.
7. On the **Specify WINS Server Settings** page, accept the default setting of **WINS is not required on this network**, and then click **Next**.
8. On the **Add or Edit DHCP Scopes** page, click **Add**.
9. In the **Add Scope** dialog box, type **Corpnet** next to **Scope Name**. Next to **Starting IP Address**, type **10.0.0.100**, next to **Ending IP Address**, type **10.0.0.150**, and next to **Subnet Mask**, type **255.255.255.0**. Click **OK**, and then click **Next**.
10. On the **Configure DHCPv6 Stateless Mode** page, select **Disable DHCPv6 stateless mode for this server**, and then click **Next**.
11. On the **Authorize DHCP Server** page, select **Use current credentials**. Verify that **CORP\Administrator** is displayed next to **User Name**, and then click **Next**.
12. On the **Confirm Installation Selections** page, click **Install**.
13. Verify the installation was successful, and then click **Close**.

In this procedure, you install an enterprise root CA on DC1 to provide digital certificates for domain member computers.

▶ **To install an enterprise root CA on DC1**

1. In the console tree of **Server Manager**, click **Roles**.
2. Under **Roles Summary**, click **Add roles**, and then click **Next**.
3. On the **Select Server Roles** page, click **Active Directory Certificate Services**, and then click **Next** twice.
4. On the **Role Services** page, click **Next**.
5. On the **Setup Type** page, click **Enterprise**, and then click **Next**.
6. On the **CA Type** page, click **Root CA**, and then click **Next**.
7. On the **Private Key** page, click **Create a new private key**, and then click **Next**.
8. On the **Cryptography** page, click **Next**.
9. On the **CA Name** page, click **Next**.
10. On the **Validity Period** page, click **Next**.
11. On the **Certificate Database** page, click **Next**.
12. On the **Confirm Installation Selections** page, click **Install**.

13. On the Results page, click **Close**.

In this procedure, you create a user account in Active Directory that will be used when logging in to CORP domain member computers.

▶ **To create a user account in Active Directory**

1. Click **Start**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.
2. In the console tree, open **corp.contoso.com**, right-click **Users**, point to **New**, and then click **User**.
3. In the **New Object - User** dialog box, in **Full name**, type **User1**, and in **User logon name**, type **User1**.
4. Click **Next**.
5. In **Password**, type the password that you want to use for this account, and in **Confirm password**, type the password again.
6. Clear **User must change password at next logon** and select **Password never expires**.
7. Click **Next**, and then click **Finish**.
8. In the console tree, click **Users**.
9. In the details pane, double-click **Domain Admins**.
10. In the **Domain Admins Properties** dialog box, click the **Members** tab, and then click **Add**.
11. Under **Enter the object names to select (examples)**, type **User1**, and then click **OK** twice.
12. Close the Active Directory Users and Computers console.

In this procedure, you configure Group Policy so that domain members automatically request computer certificates.

▶ **To configure computer certificate auto-enrollment in Group Policy**

1. Click **Start**, click **Administrative Tools**, and then click **Group Policy Management**.
2. In the console tree, open **Forest: corp.contoso.com\Domains\corp.contoso.com**.
3. In the details pane, right-click **Default Domain Policy**, and then click **Edit**.
4. In the console tree of the Group Policy Management Editor, open **Computer Configuration\Policies\Windows Settings\Security Settings\Public Key Policies**.
5. In the details pane, right-click **Automatic Certificate Request Settings**, point to **New**, and then click **Automatic Certificate Request**.

6. In the Automatic Certificate Request Wizard, click **Next**.
7. On the Certificate Template page, click **Computer**, click **Next**, and then click **Finish**.
8. Leave the Group Policy Management Editor and Group Policy Management consoles open for the next procedure.

In this procedure, you configure Group Policy so that computer accounts have a maximum password age of 999 days. By default, computer accounts change their passwords automatically every 30 days. If you are saving computer images or snapshots and restoring them later, this setting ensures that the disk images or virtual snapshots will be restorable for up to 999 days.

▶ **To configure the maximum computer account password age in Group Policy**

1. In the console tree of the Group Policy Management Editor, open **Computer Configuration\Policies\Windows Settings\Security Settings\Local Policies\Security Options**.
2. In the details pane, double-click **Domain member: Maximum machine account password age**.
3. On the **Security Policy Setting** tab, select **Define this policy setting**, type **999**, and then click **OK**.
4. Close the Group Policy Management Editor and Group Policy Management consoles.

Step 2: Configure APP1

APP1 configuration consists of the following:

- Install the operating system.
- Configure TCP/IP.
- Join the computer to the domain.
- Install the Web Server (IIS) role.
- Configure the Secure Hypertext Transfer Protocol (HTTPS) security binding.
- Create a shared folder on APP1.

In this procedure, you install Windows Server 2008 R2 Enterprise Edition.

▶ **To install the operating system on APP1**

1. Start the installation of Windows Server 2008 R2 Enterprise Edition.

2. Follow the instructions to complete the installation, specifying a strong password for the local Administrator account. Log on using the local Administrator account.
3. Connect APP1 to a network that has Internet access and run Windows Update to install the latest updates for Windows Server 2008 R2.
4. Connect APP1 to the CorpNet subnet.

In this procedure, you configure TCP/IP.

▶ **To configure TCP/IP properties**

1. In **Initial Configuration Tasks**, click **Configure networking**.
2. In the **Network Connections** window, right-click **Local Area Connection**, and then click **Properties**.
3. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
4. Select **Use the following IP address**. In **IP address**, type **10.0.0.3**. In **Subnet mask**, type **255.255.255.0**.
5. Select **Use the following DNS server addresses**. In **Preferred DNS server**, type **10.0.0.1**.
6. Click **Advanced**, and then click the **DNS** tab. In **DNS suffix for this connection**, type **corp.contoso.com**, click **OK** twice, and then click **Close**.
7. Close the **Network Connections** window and leave the **Initial Configuration Tasks** window open.
8. To check name resolution and network communication between APP1 and DC1, click **Start**, click **All Programs**, click **Accessories**, and then click **Command Prompt**.
9. In the Command Prompt window, type **ping dc1.corp.contoso.com**.
10. Verify that there are four replies from 10.0.0.1.
11. Close the Command Prompt window.

In this procedure, you join APP1 to the corp.contoso.com domain.

▶ **To join APP1 to the CORP domain**

1. In **Initial Configuration Tasks**, click **Provide Computer Name and Domain**.
2. In the **System Properties** dialog box, on the **Computer Name** tab, click **Change**.
3. In **Computer Name**, type **APP1**. In **Member of**, click **Domain**, and then type **corp.contoso.com**.

4. Click **OK**.
5. When you are prompted for a user name and password, type **User1** and its password, and then click **OK**.
6. When you see a dialog box welcoming you to the corp.contoso.com domain, click **OK**.
7. When you are prompted that you must restart the computer, click **OK**.
8. On the **System Properties** dialog box, click **Close**.
9. When you are prompted to restart the computer, click **Restart Now**.
10. After the computer restarts, click **Switch User**, and then click **Other User** and log on to the CORP domain with the User1 account.
11. In **Initial Configuration Tasks**, click **Do not show this window at logon**, and then click **Close**.

In this procedure, you install the Web Server (IIS) role to make APP1 a web server.

▶ **To install the Web Server (IIS) role**

1. In the console tree of **Server Manager**, click **Roles**. In the details pane, click **Add Roles**, and then click **Next**.
2. On the Select Server Roles page, select **Web Server (IIS)**, and then click **Next** three times.
3. Click **Install**.
4. Verify that the installation was successful, and then click **Close**.

In this procedure, you configure the HTTPS security binding so that APP1 can host HTTPS-based URLs.

▶ **To configure the HTTPS security binding**

1. Click **Default Web site**.
2. In the **Actions** pane, click **Bindings**.
3. In the **Site Bindings** dialog box, click **Add**.
4. In the **Add Site Binding** dialog box, in the **Type** list, click **https**. In **SSL Certificate**, click the certificate with the name **app1.corp.contoso.com**. Click **OK**, and then click **Close**.
5. Close the Internet Information Services (IIS) Manager console.

In this procedure, you create a shared folder and a text file within the folder on APP1.

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▶ **To create a shared folder**

1. On APP1, click **Start**, and then click **Computer**.
2. Double-click **Local Disk (C:)**.
3. Click **New Folder**, type **Files**, and then press ENTER. Leave the **Local Disk** window open.
4. Click **Start**, click **All Programs**, click **Accessories**, right-click **Notepad**, and then click **Run as administrator**.
5. In the **Untitled – Notepad** window, type **This is a shared file**.
6. Click **File**, click **Save**, double-click **Computer**, double-click **Local Disk (C:)**, and then double-click the **Files** folder.
7. In **File name**, type **example.txt**, and then click **Save**. Close the **Notepad** window.
8. In the **Local Disk** window, right-click the **Files** folder, point to **Share with**, and then click **Specific people**.
9. Click **Share**, and then click **Done**.
10. Close the **Local Disk** window.

Step 3: Configure CLIENT1

CLIENT1 configuration consists of the following:

- Install the operating system.
- Join CLIENT1 to the CORP domain.
- Verify the computer certificate.
- Test access to intranet resources on the Corpnet subnet.

In this procedure, you install Windows 7 Enterprise or Ultimate on CLIENT1.

▶ **To install the operating system on CLIENT1**

1. Start the installation of Windows 7 Enterprise or Ultimate.
2. When you are prompted for a user name, type **User1**. When you are prompted for a computer name, type **CLIENT1**.
3. When you are prompted for a password, type a strong password twice.

4. When you are prompted for protection settings, click **Use recommended settings**.
5. When you are prompted for your computer's current location, click **Work**.
6. Connect CLIENT1 to a network that has Internet access and run Windows Update to install the latest updates for Windows 7.
7. Connect CLIENT1 to the CorpNet subnet.

In this procedure, you join CLIENT1 to the corp.contoso.com domain.

▶ **To join CLIENT1 to the CORP domain**

1. Click **Start**, right-click **Computer**, and then click **Properties**.
2. On the **System** page, click **Advanced system settings**.
3. In the **System Properties** dialog box, click the **Computer Name** tab. On the **Computer Name** tab, click **Change**.
4. In the **Computer Name/Domain Changes** dialog box, click **Domain**, type **corp.contoso.com**, and then click **OK**.
5. When you are prompted for a user name and password, type the user name and password for the User1 domain account, and then click **OK**.
6. When you see a dialog box that welcomes you to the corp.contoso.com domain, click **OK**.
7. When you see a dialog box that prompts you to restart the computer, click **OK**.
8. In the **System Properties** dialog box, click **Close**. Click the button that restarts the computer.
9. After the computer restarts, log on as CORP\User1.

In this procedure, you verify that a computer certificate has been installed on CLIENT1.

▶ **To verify that CLIENT1 has a computer certificate installed**

1. On CLIENT1, click **Start**, type **mmc**, and then press ENTER.
2. Click **File**, and then click **Add/Remove Snap-in**.
3. Click **Certificates**, click **Add**, select **Computer account**, click **Next**, select **Local computer**, click **Finish**, and then click **OK**.
4. In the console tree, open **Certificates (Local Computer)\Personal\Certificates**.
5. In the details pane, verify that a certificate with the name CLIENT1.corp.contoso.com is

present with **Intended Purposes of Client Authentication and Server Authentication**.

6. Close the console window. When you are prompted to save settings, click **No**.

In this procedure, you verify that intranet web and file share resources on APP1 can be accessed by CLIENT1.

To test access to intranet resources

1. From the taskbar, click the Internet Explorer icon.
2. In the **Welcome to Internet Explorer 8** window, click **Next**. In the **Turn on Suggested Sites** window, click **No, don't turn on**, and then click **Next**. In the **Choose your settings** dialog box, click **Use express settings**, and then click **Finish**.
3. In the toolbar, click **Tools**, and then click **Internet Options**. For **Home page**, click **Use blank**, and then click **OK**.
4. In the **Address** bar, type **http://app1.corp.contoso.com/**, and then press ENTER. You should see the default IIS 7 web page for APP1.
5. In the **Address** bar, type **https://app1.corp.contoso.com/**, and then press ENTER. You should see the default IIS 7 web page for APP1.
6. Leave the Internet Explorer window open.
7. Click **Start**, type **\\app1\Files**, and then press ENTER.
8. You should see a folder window with the contents of the Files shared folder.
9. In the **Files** shared folder window, double-click the **Example.txt** file. You should see the contents of the Example.txt file.
10. Close the **example.txt - Notepad** and the **Files** shared folder windows.

Snapshot the configuration

This completes the Base Configuration test lab. To save this configuration for additional test labs, do the following:

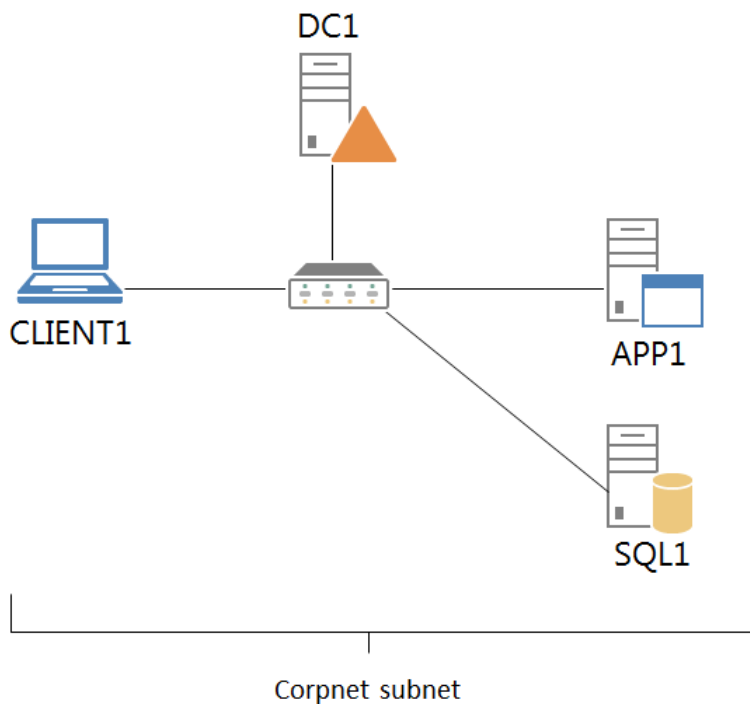
1. On all physical computers or virtual machines in the test lab, close all windows and then perform a graceful shutdown.
2. If your lab is based on virtual machines, save a snapshot of each virtual machine and name the snapshots **Base Configuration**. If your lab uses physical computers, create disk images to save the Base Configuration.

Steps for Configuring the SQL Server

There are four steps to setting up the SQL server (SQL1) in the test lab.

1. Install and configure a new server named SQL1.
2. Install SQL Server prerequisites.
3. Install SQL Server 2012 Enterprise.
4. Verify the installation.

The following figure shows the resulting test lab for these steps.



Step 1: Install and configure a new server named SQL1

SQL1 configuration consists of the following:

- Install the operating system.
- Configure TCP/IP properties.
- Join SQL1 to the CORP domain.

In this procedure, you install the Windows Server 2008 R2 operating system and the latest updates on a new server named SQL1.

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▶ **To install Windows Server 2008 R2 on SQL1**

1. Start the installation of Windows Server 2008 R2.
2. Follow the instructions to complete the installation, specifying Windows Server 2008 R2 Enterprise Edition (full installation), the computer name SQL1, and a strong password for the local Administrator account.
3. Once the installation completes, log on using the local Administrator account.
4. Connect SQL1 to a network that has Internet access and run Windows Update to install the latest updates for Windows Server 2008 R2, including Windows Server 2008 R2 Service Pack 1.
5. Once the updates are complete, restart SQL1 and log on as the local Administrator.
6. Connect SQL1 to the Corpnet subnet.

In this procedure, you configure the TCP/IP properties on SQL1 so that it can join the corp.contoso.com domain.

▶ **To configure the TCP/IP properties on SQL1**

1. In **Initial Configuration Tasks**, click **Configure networking**.
2. In the **Network Connections** window, right-click **Local Area Connection**, and then click **Properties**.
3. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
4. Select **Use the following IP address**. In **IP address**, type **10.0.0.4**. In **Subnet mask**, type **255.255.255.0**. In **Default Gateway**, type **10.0.0.1**. In **Preferred DNS server**, type **10.0.0.1**.
5. Click **Advanced**, and then click the **DNS** tab. In **DNS suffix for this connection**, type **corp.contoso.com**, click **OK** twice, and then click **Close**.
6. Close the **Network Connections** window and leave the **Initial Configuration Tasks** window open.
7. To check name resolution and network communication between SQL1 and DC1, click **Start**, click **All Programs**, click **Accessories**, and then click **Command Prompt**.
8. In the Command Prompt window, type **ping dc1.corp.contoso.com**.
9. Verify that there are four replies from 10.0.0.1.
10. Close the Command Prompt window.

In this procedure, you join SQL1 to the corp.contoso.com domain.

▶ **To join SQL1 to the corp.contoso.com domain**

1. In **Initial Configuration Tasks**, click **Provide Computer Name and Domain**.
2. In the **System Properties** dialog box, on the **Computer Name** tab, click **Change**.

3. In **Member of**, click **Domain**, type **corp.contoso.com**, and then click **OK**.
4. When you are prompted for a user name and password, type **User1** and its password, and then click **OK**.
5. When you see a dialog box welcoming you to the corp.contoso.com domain, click **OK**.
6. When you are prompted that you must restart the computer, click **OK**.
7. On the **System Properties** dialog box, click **Close**.
8. When you are prompted to restart the computer, click **Restart Now**.
9. After the computer restarts, click **Switch User**, and then click **Other User** and log on to the CORP domain with the User1 account.
10. In **Initial Configuration Tasks**, click **Do not show this window at logon**, and then click **Close**.

Step 2: Install SQL Server prerequisites

Installing SQL Server prerequisites consists of the following:

- Create the ServiceAccounts organizational unit and the service accounts.
- Install the .NET Framework 3.5.

In this procedure, you create an organizational unit in the corp.contoso.com domain named ServiceAccounts and then create two service accounts that will be used by SQL Server 2012.

To create the ServiceAccounts organizational unit and the service accounts

1. On DC1, log on with the User1 account.
2. Click **Start**, click **Administrative Tools**, and click **Active Directory Users and Computers**.
3. In the tree pane of **Active Directory Users and Computers**, right-click **corp.contoso.com**, select **New**, and then **Organizational Unit**.
4. In **Name**, type **ServiceAccounts**, and then click **OK**.
5. Right-click **ServiceAccounts**, select **New**, and then select **User**.
6. In **New Object – User**, in the **Full Name** box, type **SQL Server Agent**.
7. In **User logon name**, type **SQLAgent**, and click **Next**.
8. In **Password** and **Confirm Password**, type **Pass1word\$**.
9. Clear **User must change password at next logon**, select **Password never expires**, and click **Next**.
10. Click **Finish**.
11. Right-click **ServiceAccounts**, select **New**, and then select **User**.
12. In **New Object – User**, in the **Full Name** box, type **SQL Server Database Engine**.
13. In **User logon name**, type **SQLDatabase** and click **Next**.
14. In **Password** and **Confirm Password**, type **Pass1word\$**.

15. Clear **User must change password at next logon**, select **Password never expires**, and click **Next**.
16. Click **Finish**.

In this procedure, you install the .NET 3.5 Framework.

▶ **To install the .NET Framework 3.5**

1. On SQL1, log on with the User1 account.
2. In **Server Manager**, click **Features**, and then click **Add Features**. This will launch the **Add Features Wizard** and you will see the **Select Features** screen.
3. Select **.NET Framework 3.5.1 Features**. This will bring up a box that asks states: **You cannot install .NET Framework 3.5.1 Features unless the required role services and features are also installed**. Click **Add Required Features**. The box will disappear. On the **Select Features** screen, click **Next**.
4. On the **Web Server (IIS)** screen, click **Next**.
5. On the **Role Services** screen, click **Next**.
6. On the **Confirm Installation Selections** screen, click **Install**. This will begin the installation.
7. On the **Installation Results** screen, click **Close**.

Step 3: Install SQL Server 2012 Enterprise

Installing SQL Server 2012 Enterprise consists of the following:

- Install SQL Server 2012 Enterprise.
- Connect to SQL Server 2012 Enterprise using SQL Server Management Studio.

In this procedure, you install SQL Server 2012 Enterprise on SQL1.

▶ **To install SQL Server 2012 Enterprise**

1. On SQL1, navigate to the directory that contains the SQL Server 2012 Enterprise binaries and double-click **Setup.EXE**. This will launch the SQL Server Installation Center.
2. On the **SQL Server Installation Center**, on the left, click **Installation**.
3. On the right, click **New SQL Server stand-alone installation or add features to an existing installation**. This will launch the SQL Server 2012 Setup.
4. On the **Setup Support Rules** screen, click **OK**. This will close the Setup Support Rules screen and will bring up the **Product Key** screen. From **Specify a free version**, select **Evaluation**. Click **Next**.

5. On the **License Terms** screen, read the Licensing terms, place a check in the box next to **I accept the license terms** and click **Next**.
6. On the **Product Updates** screen, click **Next**.
7. On the **Install Setup Files** screen, click **Install**. This will take a few moments to complete. Once this completes the **Setup Support Rules** screen will appear again.
8. On the **Setup Support Rules** screen, click **Next**.
9. On the **Setup Role** screen, select **SQL Server Feature Installation** and click **Next**.
10. On the **Feature Selection** screen, under **Instance Features** place a check in **Database Engine Services**, under **Shared Features** place a check in **Management Tools – Basic** and **Management Tools – Complete**. Click **Next**.
11. On the **Installation Rules** screen, click **Next**.
12. On the **Instance Configuration** screen, click **Next**.
13. On the **Disk Space Requirements** screen, click **Next**.
14. On the **Server Configuration** screen, next to **SQL Server Agent** under **Account Name**, enter **CORP\SQLAgent**, under **Password**, enter **Pass1word\$**.
15. On the **Server Configuration** screen, next to **SQL Server Database Engine** under **Account Name**, enter **CORP\SQLDatabase**, under **Password**, enter **Pass1word\$**.
16. Click **Next**.
17. On the **Database Engine Configuration** screen, click **Add Current User** and click **Next**.
18. On the **Error Reporting** screen, click **Next**.
19. On the **Installation Configuration Rules** screen, click **Next**.
20. On the **Ready to Install** screen, click **Install**.
21. On the **Installation Progress** screen, wait until the installation completes.
22. On the **Complete** screen, click **Close**.
23. Close the **SQL Server Installation Center**.

In this procedure, you configure in inbound rule in Windows Firewall with Advanced Security to allow incoming traffic to the SQL Server service.

▶ **To configure the Windows Firewall for an inbound rule**

1. On SQL1, log on using the User1 user account.
2. From the desktop, click **Start**, point to **Administrative Tools**, and then click **Windows Firewall with Advanced Security**.
3. In the tree pane, click **Inbound Rules**, right-click **Inbound Rules**, and then click **New Rule**.
4. On the Rule Type page, click **Port**, and then click **Next**.
5. On the Protocols and Ports page, type **1433-1434** in **Specific local ports**, and then click **Next**.
6. On the **Action** page, click **Next**.
7. On the **Profile** page, click **Next**.

8. On the **Name** page, type **SQL Server TCP ports** in **Name**, and then click **Finish**.

Step 4: Verify the installation

Verifying the installation of SQL Server 2012 Enterprise consists of the following:

- Verify installed SQL Server services are running.
- Configure the Windows Firewall for an inbound rule.

In this procedure, you verify that installed SQL Server services are running.

▶ To verify installed SQL Server services are running

1. On SQL1, click **Start**, select **Administrative Tools**, and click **Services**.
2. Scroll down to **SQL Server (MSSQLSERVER)** and verify that it has a status of **Started**.
3. In **Services**, right-click **SQL Server Agent (MSSQLSERVER)**, and click **Start**. This will start the SQL Server Agent.
4. When this completes, verify the SQL Server Agent (MSSQLSERVER) has a status of **Started**.
5. Close **Services**.

In this procedure, you verify the SQL Server 2012 Enterprise installation by connecting to the database server using SQL Server Management Studio.

▶ To connect to SQL Server 2012 Enterprise using SQL Server Management Studio

1. Click **Start**, click **All Programs**, click **Microsoft SQL Server 2012**, and click **SQL Server Management Studio**.
2. On the **Connect to Server** dialog box, under **Server Type**: select **Database Engine**.
3. On the **Connect to Server** dialog box, under **Server name**: select **SQL1**.
4. On the **Connect to Server** dialog box, under **Authentication**: select **Windows Authentication**.
5. Click **Connect**. This should be successful and the database information will be displayed on the left. The SQL Server Agent should have a green arrow.
6. Close **Microsoft SQL Server Management Studio**.

Snapshot the configuration

This completes the installation of SQL Server 2012 Enterprise. To save this configuration so that you can quickly return to a working configuration from which you can test other TLGs or test lab extensions or for your own experimentation and learning, do the following:

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To comment on this paper or request more documentation on these features, contact the [Microsoft Office and Servers Team](mailto:itspdocs@microsoft.com) (itspdocs@microsoft.com).

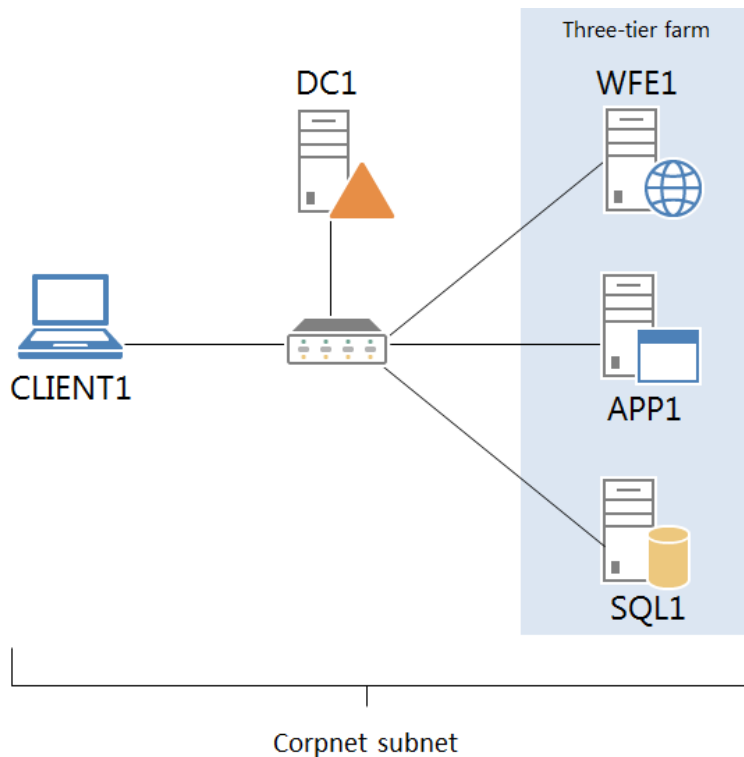
1. On all physical computers or virtual machines in the test lab, close all windows and then perform a graceful shutdown.
2. If your lab is based on virtual machines, save a snapshot of each virtual machine and name the snapshots **TestLabSQLServer**. If your lab uses physical computers, create disk images to save the test lab configuration.

Steps for Configuring the SharePoint Three-Tier Farm

There are four steps to setting up the three-tier farm in the test lab.

1. Install SharePoint Server 2013 on APP1.
2. Install and configure a new server named WFE1.
3. Install SharePoint Server 2013 on WFE1.
4. Demonstrate the facilities of the default Contoso team site.

The following figure shows the resulting test lab for these steps.



The following sections provide details about how to perform these steps.

Step 1: Install SharePoint Server 2013 on APP1

Installing SharePoint Server 2013 on APP1 consists of the following:

- Install the SharePoint Server 2013 prerequisite software.
- Prepare DC1 and SQL1.
- Install SharePoint Server 2013.

In this procedure, you install the prerequisite software components for SharePoint Server 2013 on APP1.

▶ To install the SharePoint Server 2013 prerequisite software

1. On APP1, log on using the User1 user account.
2. Connect APP1 to a network that has Internet access and configure the TCP/IP protocol on the Local Area Connection as needed. The SharePoint Server 2013 prerequisite installer must download and install components from the Microsoft Download Center. For example, if the network that has access to the Internet uses DHCP, configure the Internet Protocol version 4 (TCP/IPv4) component from the properties of the Local Area Connection in the Network Connections folder to use automatic addressing and to automatically configure a DNS server.
3. On APP1, navigate to the location that contains the SharePoint Server 2013 installation files and double-click **default.hta**.
4. On the **SharePoint 2013** page, click **Install software prerequisites**.
5. On the **Welcome to the Microsoft SharePoint Products Preparation Tool** page, click **Next**.
6. On the **License Terms for software product** page, review the terms, select the **I accept the terms of the License Agreement(s)** check box, and then click **Next**.
7. On the **Installation Complete** page, click **Finish**.

The computer might restart to install some of the prerequisites. After it does the Products Preparation Tool will run again and install the remaining prerequisites. The computer must be restarted again to install these prerequisites.

8. On the **Installation Complete** page, click **Finish**.

In this procedure, you prepare DC1 and SQL1 for the installation of SharePoint Server 2013 on APP1.

▶ To prepare DC1 and SQL1

1. On DC1, click **Start**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.

2. In the console tree, open **corp.contoso.com**, right-click **Users**, point to **New**, and then click **User**.
3. In the **New Object - User** dialog box, in **Full name**, type **SPFarmAdmin**, and in **User logon name**, type **SPFarmAdmin**.
4. Click **Next**.
5. In **Password** and in **Confirm password**, type **P@ssword1**.
6. Clear **User must change password at next logon**.
7. Click **Next**, and then click **Finish**.
8. On SQL1, log on with the User1 account.
9. Click **Start**, click **All Programs**, click **Microsoft SQL Server 2012**, and then click **SQL Server Management Studio**.
10. In **Connect to Server**, click **Connect**.
11. In **SQL Server Management Studio**, in the tree pane, open **Security**.
12. Right-click **Logins**, and click **New Login**.
13. In **Login – New**, type **CORP\SPFarmAdmin** in **Login name**.
14. In the **Select a page** pane, click **Server Roles**.
15. In the **Server Roles** pane, select **dbcreator**, and then click **OK**.
16. Close **SQL Server Management Studio**.

In this procedure, you install SharePoint Server 2013 on APP1.

► To install SharePoint Server 2013

1. Connect APP1 to the CorpNet subnet and configure the TCP/IP protocol on the Local Area Connection as needed. For example, configure the Internet Protocol version 4 (TCP/IPv4) component from the properties of the Local Area Connection in the Network Connections folder to use the address 10.0.0.3 with a subnet mask of 255.255.255.0 and the preferred DNS server of 10.0.0.1.
2. Click the **Server Manager** icon. In **Security Information**, click **Configure IE ESC**.
3. In the **Internet Explorer Enhanced Security Configuration** dialog box, click **Off** in **Administrators**, click **Off** in **Users**, and then click **OK**.
4. Close **Server Manager**.
5. Navigate to the location that contains the SharePoint Server 2013 installation files and double-click **default.hta**.
6. On the **SharePoint 2013** page, click **Install SharePoint Server**.
7. On the **Enter Your Product Key** page, enter your product key as needed, and then click **Continue**. For the 180-day trial version of SharePoint Server 2013, use the product key NQTMW-K63MQ-39G6H-B2CH9-FRDWJ.
8. On the **Read the Microsoft Software License Terms** page, review the terms, select the **I accept the terms of this agreement** check box, and then click **Continue**.
9. On the **Server Type** tab, click **Complete**, and then click **Install Now**.

10. When Setup finishes, a dialog box prompts you to complete the configuration of your server. Ensure that the **Run the SharePoint Products and Technologies Configuration Wizard now** check box is selected, and then click **Close** to start the configuration wizard.
11. On the **Welcome to SharePoint Products** page, click **Next**.
12. In the dialog box that notifies you that some services might need to be restarted during configuration, click **Yes**.
13. On the **Connect to a server farm** page, click **Create a new server farm**, and then click **Next**.
14. On the **Specify Configuration Database Settings** page, type **SQL1** in **Database server**, type **CORP\SPFarmAdmin** in **User name**, type **P@ssword1** in **Password**, and then click **Next**.
15. On the **Specify Farm Security Settings** page, type **P@ssphrase** in both **Passphrase** and **Confirm passphrase**, and then click **Next**.
16. On the **Configure SharePoint Central Administration Web Application** page, click **Next**.
17. On the **Completing the SharePoint Products Configuration Wizard** page, click **Next**.
18. On the **Configuration Successful** page, click **Finish**. Internet Explorer launches with a tab named Initial Farm Configuration Wizard.
19. In the **Help Make SharePoint Better** dialog box, click **No, I don't wish to participate**, and then click **OK**.
20. For **How do you want to configure your SharePoint farm?**, click **Start the Wizard**.
21. On the **Configure your SharePoint farm** page, in **Service account**, click **Use existing managed account**.
22. In **Services**, clear all the check boxes except the box next to **State Service**, and then click **Next**. The **Working on it** page might display for a while before it completes.
23. On the **Create Site Collection** page, click **Skip**.
24. On the **This completes the Farm Configuration Wizard** page, click **Finish**. The Internet Explorer tab shows the SharePoint 2013 Central Administration site.
25. From Central Administration, click **Configure alternate access mappings** under **System Settings**.
26. Click the **http://app1** internal URL.
27. In **URL, protocol, host and port**, type **http://wfe1/**, click **OK**, and then click **Central Administration**.

Step 2: Install and configure a new server named WFE1

WFE1 configuration consists of the following:

- Install the operating system.
- Configure TCP/IP properties.
- Join WFE1 to the CORP domain.
- Install the Web Server (IIS) server role on WFE1.

In this procedure, you install the Windows Server 2008 R2 operating system and the latest updates on a new server named WFE1.

▶ **To install Windows Server 2008 R2 on WFE1**

1. Start the installation of Windows Server 2008 R2.
2. Follow the instructions to complete the installation, specifying Windows Server 2008 R2 Enterprise Edition (full installation), the computer name WFE1, and a strong password for the local Administrator account.
3. Once the installation completes, log on using the local Administrator account.
4. Connect WFE1 to a network that has Internet access and run Windows Update to install the latest updates for Windows Server 2008 R2, including Windows Server 2008 R2 Service Pack 1.
5. Once the updates are complete, restart WFE1 and log on as the local Administrator.
6. Connect WFE1 to the CorpNet subnet.

In this procedure, you configure the TCP/IP properties on WFE1 so that it can join the corp.contoso.com domain.

▶ **To configure the TCP/IP properties on WFE1**

1. In **Initial Configuration Tasks**, click **Configure networking**.
2. In the **Network Connections** window, right-click **Local Area Connection**, and then click **Properties**.
3. Click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.
4. Select **Use the following IP address**. In **IP address**, type **10.0.0.5**. In **Subnet mask**, type **255.255.255.0**. In **Default Gateway**, type **10.0.0.1**. In **Preferred DNS server**, type **10.0.0.1**.
5. Click **Advanced**, and then click the **DNS** tab. In **DNS suffix for this connection**, type **corp.contoso.com**, click **OK** twice, and then click **Close**.
6. Close the **Network Connections** window and leave the **Initial Configuration Tasks** window open.
7. To check name resolution and network communication between WFE1 and DC1, click **Start**, click **All Programs**, click **Accessories**, and then click **Command Prompt**.
8. In the Command Prompt window, type **ping dc1.corp.contoso.com**.
9. Verify that there are four replies from 10.0.0.1.
10. Close the Command Prompt window.

In this procedure, you join WFE1 to the corp.contoso.com domain.

▶ **To join WFE1 to the corp.contoso.com domain**

1. In **Initial Configuration Tasks**, click **Provide Computer Name and Domain**.
2. In the **System Properties** dialog box, on the **Computer Name** tab, click **Change**.
3. In **Member of**, click **Domain**, type **corp.contoso.com**, and then click **OK**.
4. When you are prompted for a user name and password, type **User1** and its password, and then click **OK**.
5. When you see a dialog box welcoming you to the corp.contoso.com domain, click **OK**.
6. When you are prompted that you must restart the computer, click **OK**.
7. On the **System Properties** dialog box, click **Close**.
8. When you are prompted to restart the computer, click **Restart Now**.
9. After the computer restarts, click **Switch User**, and then click **Other User** and log on to the CORP domain with the User1 account.
10. In **Initial Configuration Tasks**, click **Do not show this window at logon**, and then click **Close**.

In this procedure, you install the Web Server (IIS) server role on WFE1.

▶ **To install the Web Server (IIS) server role on WFE1**

1. In the console tree of Server Manager, click **Roles**. In the details pane, click **Add Roles**, and then click **Next**.
2. On the **Select Server Roles** page, select **Web Server (IIS)**, and then click **Next** three times.
3. Click **Install**.
4. Verify that the installation was successful, and then click **Close**.

Step 3: Install SharePoint Server 2013 on WFE1

Installing SharePoint Server 2013 on WFE1 consists of the following:

- Install the SharePoint Server 2013 prerequisite software.
- Install SharePoint Server 2013.

In this procedure, you install the prerequisite software components for SharePoint Server 2013 on WFE1.

▶ **To install the SharePoint Server 2013 prerequisite software**

1. On WFE1, log on using the User1 user account.
2. Click the **Server Manager** icon. In **Security Information**, click **Configure IE ESC**.

3. In the **Internet Explorer Enhanced Security Configuration** dialog box, click **Off** in **Administrators**, click **Off** in **Users**, and then click **OK**.
4. Close **Server Manager**.
5. Connect WFE1 to a network that has Internet access and configure the TCP/IP protocol on the Local Area Connection as needed. The SharePoint Server 2013 prerequisite installer must download and install components from the Microsoft Download Center. For example, if the network that has access to the Internet uses DHCP, configure the Internet Protocol version 4 (TCP/IPv4) component from the properties of the Local Area Connection in the Network Connections folder to use automatic addressing and to automatically configure a DNS server.
6. On WFE1, navigate to the drive or folder that contains the SharePoint Server 2013 installation files and double-click **default.hta**.
7. On the **SharePoint Server 2013 Start** page, click **Install software prerequisites**.
8. On the Welcome to the Microsoft SharePoint 2013 Products Preparation Tool page, click **Next**.
9. On the **License Terms for software product** page, review the terms, select the **I accept the terms of the License Agreement(s)** check box, and then click **Next**.
10. On the **Installation Complete** page, click **Finish**.
11. The computer might restart to install some of the prerequisites. After it does the Products Preparation Tool will run again and install the remaining prerequisites. The computer must be restarted again to install these prerequisites.
12. On the **Installation Complete** page, click **Finish**.

In this procedure, you install SharePoint Server 2013 on WFE1 and join the existing SharePoint farm.

To install SharePoint Server 2013

1. Connect WFE1 to the Corpnet subnet and configure the TCP/IP protocol on the Local Area Connection as needed. For example, configure the Internet Protocol version 4 (TCP/IPv4) component from the properties of the Local Area Connection in the Network Connections folder to use the address 10.0.0.5 with a subnet mask of 255.255.255.0 and the preferred DNS server of 10.0.0.1.
2. On the **SharePoint Server 2013 Start** page, click **Install SharePoint Server**.
3. On the **Enter Your Product Key** page, enter your product key as needed, and then click **Continue**. For the 180-day trial version of SharePoint Server 2013, use the product key NQTMW-K63MQ-39G6H-B2CH9-FRDWJ.
4. On the **Read the Microsoft Software License Terms** page, review the terms, select the **I accept the terms of this agreement** check box, and then click **Continue**.
5. On the **Server Type** tab, click **Complete**, and then click **Install Now**.
6. When Setup finishes, a dialog box prompts you to complete the configuration of your server. Ensure that the **Run the SharePoint Products and Technologies Configuration Wizard now** check box is selected.

7. Click **Close** to start the configuration wizard.
8. On the **Welcome to SharePoint Products** page, click **Next**.
9. In the dialog box that notifies you that some services might need to be restarted during configuration, click **Yes**.
10. On the **Connect to a server farm** page, click **Connect to an existing server farm**, and then click **Next**.
11. On the **Specify Configuration Database Settings** page, type **SQL1** in **Database server**, and then click **Retrieve Database Names**.
12. Click **SharePoint_Config** in the **Database name** list, and then click **Next**.
13. On the **Specify Farm Security Settings** page, type **P@ssphrase** in **Passphrase**, and then click **Next**.
14. On the **Completing the SharePoint Products Configuration Wizard** page, click **Next**.
15. On the **Configuration Successful** page, click **Finish**. The Internet Explorer tab shows the SharePoint 2013 Central Administration site. Leave Internet Explorer open.
16. On APP1, in the Internet Explorer window for SharePoint Central Administration, in **System Settings**, click **Manage servers in this farm** and verify that WFE1 is part of the farm.
17. On WFE1, from Internet Explorer and the Central Administration tab, for **How do you want to configure your SharePoint farm?**, click **Start the Wizard**. The **Working on it** page might display for a while before it completes and you might have to start the wizard again.
18. On the **Configure your SharePoint farm** page, click **Next**.
19. On the **Create Site Collection** page, in **Title and description**, type **Contoso Corporation** in **Title**, from the URL list select **"/"**, and then click **OK**.
This step creates a team site at the URL <http://wfe1>.
20. On the **This completes the Farm Configuration Wizard** page, click **Finish**.

The Internet Explorer tab shows the SharePoint 2013 Central Administration site, from which you can configure and manage the SharePoint server.

Step 4: Demonstrate the facilities of the default Contoso team site

In this procedure, you click through the default SharePoint facilities and resources for the Contoso Corporation team site at <http://wfe1/>.

To see the facilities of the default Contoso Corporation team site

1. On CLIENT1, log on with the CORP\User1 account.
2. Start Internet Explorer on CLIENT1.
3. In the Address bar, type **<http://wfe1/>** and then press ENTER.

You should see a SharePoint team site for the Contoso Corporation. The site might take a while to render.

4. To add a new page to the site, click **Site Contents** on the Quick Launch, click the **Site Pages** icon, and then click **New wiki page**.
5. In **New page item** box, type the name of the page, and click **Create**.
6. Type the new page contents, and then click **Save**.
7. Click **Home** on the Quick Launch to return to the home page of the Contoso Corporation team site.
8. To add a site to the site collection, click **Site Contents** on the Quick Launch, and then click **New subsite**.
9. In **New SharePoint Site**, configure the title, description, web site address, template, permissions and navigation settings, and then click **Create**.
10. On the **Home** page of the Contoso Corporation site, click **Documents** on the Quick Launch or **Documents** below the **Get started with your site** section.

This is a list of shared documents that you can work on together. Multiple users can work on each document in a central location, which makes document collaboration much easier than sending files around in email. You can click **New document** to add a new document to the list of shared documents.
11. Click **Home** on the Quick Launch.
12. In the **Get started with your site** section, click **Working on a deadline?**.
13. In the **Working on a deadline** dialog box, click **Add Them** to add the Calendar and Tasks apps to your site.
14. To access the calendar, click **Calendar** on the Quick Launch.

This is a shared team calendar that can be used to manage and share events across your team. You can point to a day and then click **Add** to add a calendar event.
15. Click **Home** on the Quick Launch.
16. To access the task list, click **Tasks** on the Quick Launch.

This is a shared team task list that can be used to manage and share tasks across your team. You can click **New task** to add a task.

Snapshot the configuration

This completes the SharePoint Server 2013 three-tier test lab. To save this configuration so that you can quickly return to a working configuration from which you can test other SharePoint TLGs or test lab extensions or for your own experimentation and learning, do the following:

1. On all physical computers or virtual machines in the test lab, close all windows and then perform a graceful shutdown.

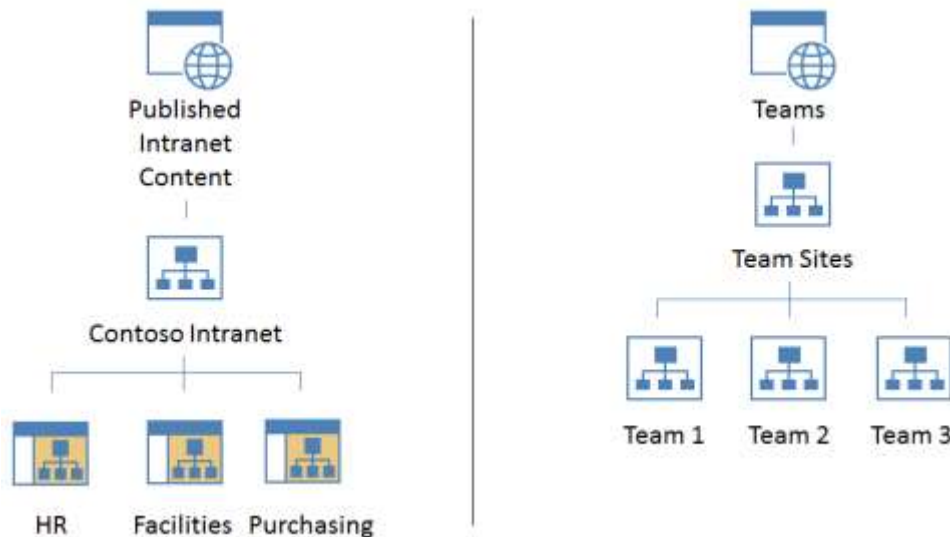
2. If your lab is based on virtual machines, save a snapshot of each virtual machine and name the snapshots **SP2013ThreeTier**. If your lab uses physical computers, create disk images to save the SharePoint Server 2013 three-tier test lab configuration.

Steps for Configuring Intranet and Team Sites

There are two steps to setting up the intranet and team sites in the test lab.

1. Configure the intranet and team sites on APP1.
2. Verify the intranet and team sites.

The following figure shows the resulting site collections and subsites for these steps.



The following sections provide details about how to perform these steps.

Step 1: Configure the intranet and team sites on APP1

Configuring the intranet and team sites on APP1 consists of the following:

- Enable DNS name resolution for the new web applications.
- Create the Published Intranet Content web application.
- Create the Teams web application.
- Create the content databases for the Teams web application.
- Create the Teams Sites quota template.

- Create the Team Sites site collections.
- Create the Published Intranet Content site collection.
- Create the Contoso Intranet subsites.

In this procedure, you create DNS address records for the names of the new intranet and team sites.

▶ **To enable DNS name resolution for the new web applications**

1. Log on to DC1 with the CORP\user1 account.
2. Click **Start**, point to **Administrative Tools**, and then click **DNS**.
3. In the console tree of the DNS Manager snap-in, open **DC1\Forward Lookup Zones**.
4. Right-click **corp.contoso.com**, and then click **New Host (A or AAAA)**.
5. In the **New Host** dialog box, type **intranet** in **Name**, type **10.0.0.3** in **IP address**, and then click **Add Host**. Click **OK**.
6. In the **New Host** dialog box, type **teams** in **Name**, type **10.0.0.3** in **IP address**, and then click **Add Host**.
7. Click **OK**, and then click **Done**.

In this procedure, you create a new web application for the intranet site collection and subsites.

▶ **To create the Published Intranet Content web application**

1. Log on to APP1 with the CORP\user1 account.
2. Click **Start**, click **All Programs**, click **Microsoft SharePoint 2013 Products**, and then click **SharePoint 2013 Central Administration**.
3. In the **Application Management** group, click **Manage web applications**.
4. On the **Web Applications** tab, in the **Contribute** group of the ribbon, click **New**.
5. In the **Create New Web Application** dialog box, in the **IIS Web Site** section, in **Name**, replace the default text with **Published Intranet Content**.
6. In **Port**, replace the default text with **80**.
7. In **Host Header**, type **intranet.corp.contoso.com**.
8. In the **Public URL** section, change the default URL to **http://intranet.corp.contoso.com**.
9. In the **Application Pool** section, in **Create new application pool**, replace the default text for **Application pool name** with **Application Pool 3**.
10. In the **Database Name and Authentication** section, change the default **Database Name** to **WSS_Content_Intranet**.
11. Click **OK** to create the web application.

In this procedure, you create a new web application for the team sites.

► **To create the Teams web application**

1. On the **Web Applications** tab, in the **Contribute** group of the ribbon, click **New**.
2. In the **Create New Web Application** dialog box, in the **IIS Web Site** section, in **Name**, replace the default text with **Team Sites**.
3. In **Port**, replace the default text with **80**.
4. In **Host Header**, type **teams.corp.contoso.com**.
5. In the **Public URL** section, change the default URL to **http://teams.corp.contoso.com**.
6. In the **Application Pool** section, click **Create new application pool** and replace the default text for **Application pool name** with **Application Pool 4**.
7. In the **Database Name and Authentication** section, change the default **Database Name** to **WSS_Content_Team1**.
8. Click **OK** to create the web application.

In this procedure, you create and configure separate content databases for each of the team sites.

► **To create the content databases for the Teams web application**

1. In the list of quick links, click **Application Management**.
2. On the **Application Management** page, in the **Databases** section, click **Manage content databases**.
3. On the **Content Databases** page, click the down arrow next to **http://intranet.corp.contoso.com**, and then click **Change Web Application**.
4. In **Select Web Application**, click **Team Sites**.
5. Click the **WSS_Content_Team1** content database.
6. On the **Manage Content Database Settings** page, in the **Database Capacity Settings** section, replace the default value in the **Number of sites before a warning event is generated** box with **5**.
7. Replace the default value in the **Maximum number of sites that can be created in this database** box with **6**.
8. Click **OK**.
9. On the **Content Databases** page, click **Add a content database**.
10. On the **Add Content Database** page, in the **Database Name and Authentication** section, type **WSS_Content_Team2** in the **Database Name** box.
11. In the **Database Capacity Settings** section, replace the default value in the **Number of sites before a warning event is generated** box with **5**.
12. Replace the default value in the **Maximum number of sites that can be created in this database** box with **6**.
13. Click **OK** to create the content database.
14. On the **Content Databases** page, click the **WSS_Content_Team2** database.

15. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Offline** from the **Database status** list.
16. Click **OK**.
17. On the **Content Databases** page, click **Add a content database**.
18. On the **Add Content Database** page, in the **Database Name and Authentication** section, type **WSS_Content_Team3** in the **Database Name** box.
19. In the **Database Capacity Settings** section, replace the default value in the **Number of sites before a warning event is generated** box with **5**.
20. Replace the default value in the **Maximum number of sites that can be created in this database** box with **6**.
21. Click **OK** to create the content database.
22. On the **Content Databases** page, click the **WSS_Content_Team3** database.
23. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Offline** from the **Database status** list.
24. Click **OK**.
This will set all of the databases, except **WSS_Content_Team1** to **Offline**.

In this procedure, you create a quota template that will be used for team sites.

► To create the Teams Sites quota template

1. In the Quick Launch list, click **Application Management**.
2. On the **Application Management** page, in the **Site Collections** section, click **Specify quota templates**.
3. On the **Quota Templates** page, in the **Template Name** section, select **Create a new template**, and select **Personal Site** from the **Template to start from** list.
4. For **New template name**, type **Contoso Team Sites**.
5. In the **Storage Limit Values** section, replace the default value in the **Limit site storage to a maximum of** box with **30000** and the default value in the **Send warning E-mail when Site Collection storage reaches** box with **20000**.
6. Click **OK** to create the template.

In this procedure, you create the team site collections in the Teams web application.

► To create the team site collections

1. On the **Application Management** page, in the **Site Collections** section, click **Create site collections**.
2. On the **Create Site Collection** page, ensure that **http://teams.corp.contoso.com** is selected in the **Web Application** list.
3. In the **Title and Description** section, in the **Title** box, type **Team Sites**.

4. In the **Web Site Address** section, select / in the list.
5. In the **Primary Site Collection Administrator** and **Secondary Site Collection Administrator** sections, type **User1**.
6. In the **Quota Template** section, select **Contoso Team Sites** from the **Select a quota template** list.
7. Click **OK** to create the top-level site collection.
This creates the top-level site collection under which the three team sites are hosted. This site collection will be created in the WSS_Content_Team1 content database.
8. On the **Top-Level Site Successfully Created** page, click **OK**.
9. On the **Application Management** page, in the **Site Collections** section, click **Create site collections**.
10. On the **Create Site Collection** page, ensure that **http://teams.corp.contoso.com** is selected in the **Web Application** list.
11. In the **Title and Description** section, in the **Title** box, type **Team 1**.
12. In the **Web Site Address** section, select **/sites/** in the list and type **team1**.
13. In the **Primary Site Collection Administrator** and **Secondary Site Collection Administrator** sections, type **User1**.
14. In the **Quota Template** section, select **Contoso Team Sites** from the **Select a quota template** list.
15. Click **OK** to create the site collection. This site collection will be created in the WSS_Content_Team1 content database.
16. On the **Top-Level Site Successfully Created** page, click **OK**.
17. On the **Application Management** page, in the **Databases** section, click **Manage content databases**.
18. On the **Content Databases** page, click the WSS_Content_Team2 database.
19. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Ready** from the **Database status** list.
20. Click **OK**.
21. On the **Content Databases** page, click the WSS_Content_Team1 database.
22. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Offline** from the **Database status** list.
23. Click **OK**.
24. On the **Application Management** page, in the **Site Collections** section, click **Create site collections**.
25. On the **Create Site Collection** page, ensure that **http://teams.corp.contoso.com** is selected in the **Web Application** list.
26. In the **Title and Description** section, in the **Title** box, type **Team 2**.
27. In the **Web Site Address** section, select **/sites/**, and then type **team2**.
28. In the **Primary Site Collection Administrator** and **Secondary Site Collection Administrator** sections, type **User1**.

29. In the **Quota Template** section, select **Contoso Team Sites** from the **Select a quota template** list.
30. Click **OK** to create the site collection. This site collection will be created in the WSS_Content_Team2 content database.
31. On the **Top-Level Site Successfully Created** page, click **OK**.
32. On the **Application Management** page, in the **Databases** section, click **Manage content databases**.
33. On the **Content Databases** page, click the WSS_Content_Team3 database.
34. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Ready** from the **Database status** list.
35. Click **OK**.
36. On the **Content Databases** page, click the WSS_Content_Team2 database.
37. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Offline** from the **Database status** list.
38. Click **OK**.
39. On the **Application Management** page, in the **Site Collections** section, click **Create site collections**.
40. On the **Create Site Collection** page, ensure that **http://teams.corp.contoso.com** is selected in the **Web Application** list.
41. In the **Title and Description** section, in the **Title** box, type **Team 3**.
42. In the **Web Site Address** section, select **/sites/**, and then type **team3**.
43. In the **Primary Site Collection Administrator** and **Secondary Site Collection Administrator** sections, type **User1**.
44. In the **Quota Template** section, select **Contoso Team Sites** in the **Select a quota template** list.
45. Click **OK** to create the site collection.
This site collection will be created in the WSS_Content_Team3 content database.
46. On the **Top-Level Site Successfully Created** page, click **OK**.
47. On the **Application Management** page, in the **Databases** section, click **Manage content databases**.
48. On the **Content Databases** page, click the WSS_Content_Team1 database.
49. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Ready** from the **Database status** list.
50. Click **OK**.
51. On the **Content Databases** page, click the WSS_Content_Team2 database.
52. On the **Manage Content Database Settings** page, in the **Database Information** section, select **Ready** from the **Database status** list.
53. Click **OK**. Now, all three content databases are ready for content storage.

In this procedure, you create the Contoso Intranet site collection in the Published Intranet Content web application.

▶ **To create the Contoso Intranet site collection on APP1**

1. On APP1, in the Quick Launch list, click **Application Management**.
2. In the **Site Collections** section, click **Create site collections**.
3. On the **Create Site Collection** page, click the down arrow next to **http://teams.corp.contosotlg.com/**, and then click **Change Web Application**.
4. In **Select Web Application**, click **Published Intranet Content**.
5. In the **Title and Description** section, in the **Title** box, type **Contoso Intranet**.
6. In the **Web Site Address** section, select **/**.
7. In the **Primary Site Collection Administrator** and **Secondary Site Collection Administrator** sections, type **User1**.
8. Click **OK** to create the top-level site collection.
This will create the top-level site collection under which the three division sites will be hosted.
9. On the **Top-Level Site Successfully Created** page, click **OK**.

In this procedure, you create three subsites in the Contoso Intranet site collection for the human resources, facilities, and purchasing departments.

▶ **To create the Contoso Intranet subsites**

1. Log on to CLIENT1 with the CORP\User1 account.
2. Start Internet Explorer, type **http://intranet.corp.contoso.com/** in the address bar, and press **ENTER**. This page might take a minute to render for the first time.
3. On the Contoso Intranet page, in the Quick Launch list, click **Site Contents**, and then click **New subsite** under **Subsites**.
4. On the **New SharePoint Site** page, in the **Title and Description** section, type **Human Resources** in the **Title** box.
5. In the **Web Site Address** section, type **hr** in the **URL name** box.
Click **Create** to create the new site. The Human Resources site will appear.
6. Type **http://intranet.corp.contoso.com/** in the address bar of Internet Explorer, and then press **ENTER**.
7. On the Contoso Intranet page, click **Site Contents** in the Quick Launch list, and then click **New subsite** under **Subsites**.
8. On the **New SharePoint Site** page, in the **Title and Description** section, type **Facilities** in the **Title** box.
9. In the **Web Site Address** section, type **facilities** in the **URL name** box.
10. Click **Create** to create the new site.
The Facilities site will appear.

11. Type **http://intranet.corp.contoso.com/** in the address bar of Internet Explorer, and then press ENTER.
12. On the Contoso Intranet page, click **Site Contents** in the Quick Launch list, and then click **New subsite** under **Subsites**.
13. On the **New SharePoint Site** page, in the **Title and Description** section, type **Purchasing** in the **Title** box.
14. In the **Web Site Address** section, type **purchasing** in the **URL name** box.
15. Click **Create** to create the new site.
The Purchasing site will appear.

Step 2: Verify the intranet and team sites

Verifying the intranet and team sites from CLIENT1 consists of the following:

- Verify the intranet sites.
- Verify the team sites.

In this procedure, you verify access to the intranet sites that were created on APP1.

▶ To verify the intranet sites on CLIENT1

1. On CLIENT1, in the address bar of Internet Explorer, type **http://intranet.corp.contoso.com/hr**.
2. In Internet Explorer, also browse to the **http://intranet.corp.contoso.com/facilities** and **http://intranet.corp.contoso.com/purchasing** sites.

In this procedure, you verify access to the team sites that were created on APP1.

▶ To verify the team sites on CLIENT1

1. On CLIENT1, in the address bar of Internet Explorer, type **http://teams.corp.contoso.com/sites/team1**. This page might take a minute to render for the first time.
2. Browse to the **http://teams.corp.contoso.com/sites/team2** and **http://teams.corp.contoso.com/sites/team3** pages.

You are now ready to begin exploring the functionality of SharePoint 2013 intranet and team sites to create and share content, such as:

- Documents (click **new document** on a site collection or subsite home page)
- Wiki pages (click **Site Contents** in the Quick Launch list, then the **Site Pages** icon)
- Tasks (click the **Working on a deadline?** icon on a home page)

- Calendars (click the **Working on a deadline?** icon on a home page)

For more information about these capabilities and more, see [SharePoint 2013 Overview](#).

Snapshot the configuration

This completes the SharePoint Server 2013 intranet and team sites test lab. To save this configuration so that you can quickly return to a working configuration from which you can test other SharePoint TLGs or test lab extensions or for your own experimentation and learning, do the following:

1. On all physical computers or virtual machines in the test lab, close all windows and then perform a graceful shutdown.
2. If your lab is based on virtual machines, save a snapshot of each virtual machine and name the snapshots **SP2013Intranet&TeamSites**. If your lab uses physical computers, create disk images to save the SharePoint Server 2013 intranet and team sites test lab configuration.

Additional Resources

For more information about SharePoint Server 2013, see the [SharePoint 2013 product information web page](#) and [SharePoint 2013 for IT pros](#).

To provide the authors of this guide with feedback or suggestions for improvement, send an email message to itspdocs@microsoft.com.

To submit your questions about this test lab or SharePoint 2013, see the [SharePoint 2013 for IT Professionals Forum](#).

For a list of TLGs related to this test lab or extensions to demonstrate additional functionality, see [SharePoint Server 2013 Test Lab](#) in the TechNet Wiki.

Microsoft strongly encourages you to develop and publish your own TLG content for SharePoint Server 2013, either in the TechNet Wiki (example: [Test Lab Guide: Demonstrate Remote Access VPNs](#)) or in your own publishing forum (example: [Test Lab Guide \(Part 1\) - Demonstrate TMG PPTP, L2TP/IPsec and SSTP Remote Access VPN Server](#)). If you want to publish your TLG content in the TechNet wiki, see the [How to contribute series of TLG blog posts](#) for information about the types of content you can create and for links to templates and guidance.

For a list of additional Microsoft TLGs, see [Test Lab Guides](#) in the TechNet Wiki.