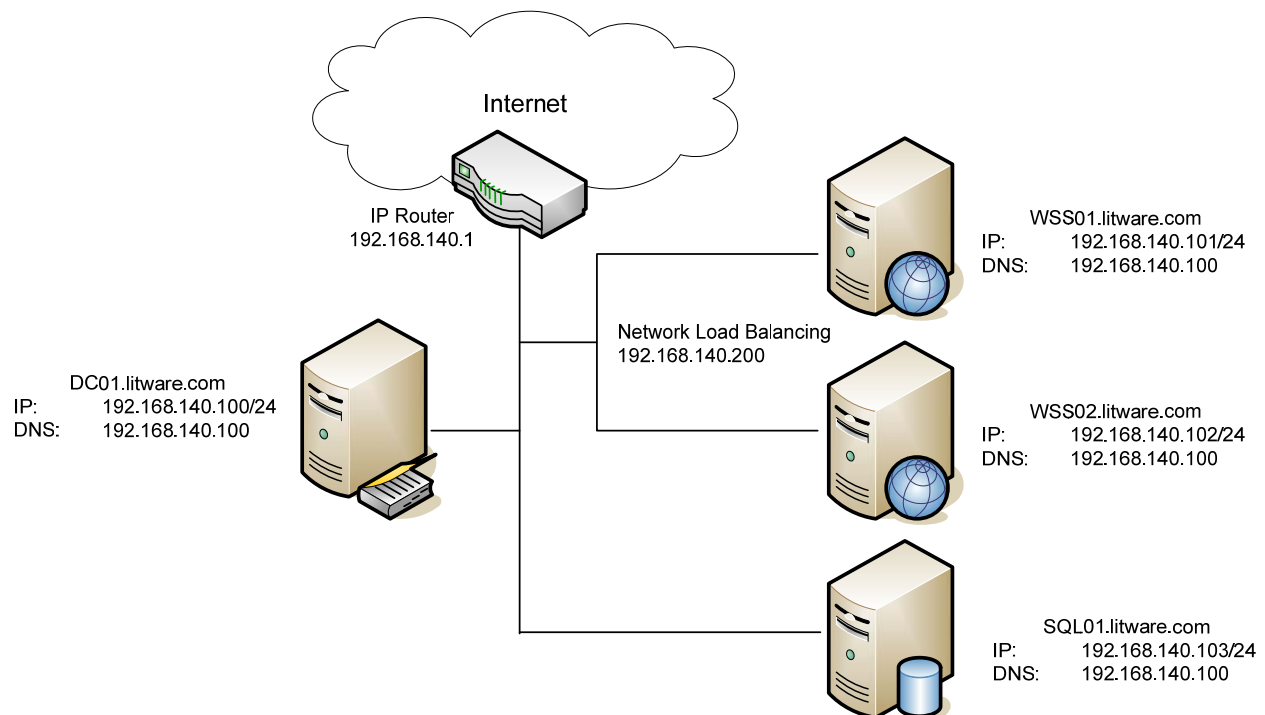


Deploying a WSS 3.0 Farm in a Test Environment

The following procedures describe step by step how to deploy a SharePoint test environment based on Windows Server 2008, as illustrated in the following graphic. This worksheet covers the installation of Windows Server 2008 and the configuration of the domain environment. It also covers the deployment of SQL Server 2008 and WSS 3.0 with network load balancing for a WSS site collection.



Prerequisites:

- Your computers are connected to the Internet through a router with the internal IP address 192.168.140.1.
- Your computer hardware is compatible with Windows Server 2008. For the latest compatibility information, and to download and install drivers for the hardware that is listed, visit the Microsoft Windows Hardware Quality Labs Web site: <http://www.microsoft.com/whdc/hcl/default.aspx>.
- The Evaluation Edition of Windows Server 2008 is available for download on Microsoft TechNet, at <http://www.microsoft.com/downloads/details.aspx?FamilyId=13C7300E-935C-415A-A79C-538E933D5424&displaylang=en>.
- A 180-day trial version of SQL Server 2008 and SQL Server 2008 Feature Pack is available for download at <http://www.microsoft.com/sqlserver/2008/en/us/trial-software.aspx>.
- Microsoft Windows SharePoint Services 3.0 with Service Pack 1 Redistributable Package is available for download at <http://www.microsoft.com/downloads/details.aspx?FamilyId=EF93E453-75F1-45DF-8C6F-4565E8549C2A&displaylang=en>.

To install Windows Server 2008 on the Test Computers:

1. Insert the **Windows Server 2008** CD-ROM into your CD-ROM drive and reboot the system from CD-ROM.
2. In the **Install Windows** dialog box, select the appropriate language, time and currency format, and keyboard layout, and then click **Next**.
3. In the next **Install Windows** dialog box, type your product key for activation purposes, and then click **Next**.
4. In the next **Install Windows** dialog box, select the operating system you want to install, such as **Standard Edition**, and click **Next**.
5. In the next **Install Windows** dialog box, read the licensing agreement and if you agree, select the checkbox **I accept the license terms**, and then click **Next**.
6. In the next **Install Windows** dialog box titled **Which type of installation do you want?**, click on the option **Custom (Advanced)** to install a clean copy of Windows Server 2008.
7. Another **Install Windows** dialog box is displayed informing you about existing partitions. Ensure that your test computer does not contain any important data, use the **Drive options (advanced)** to erase the existing partition scheme, and then configure a partition with at least 24 Gigabytes (GB) of disk space. Click **Next**.
8. Windows Server 2008 is now copying files, installing features, and completing the installation. Following the successful installation and system restart, Windows Server 2008 displays a welcome message stating that the user's password must be changed before logging on the first time. Click **OK**.
9. For the Administrator account, type a strong password, confirm the password, and then click on the arrow button to continue.
10. In the system message informing you that **Your password has been changed**, click **OK** to log on as Administrator.
11. In the **Initial Configuration Tasks** window that appears automatically, click on the **Configure networking** link.
12. In the **Network Connections** window, double-click on **Local Area Connections**.
13. In the **Local Area Connection Status** window, click on **Properties**.
14. In the **Local Area connection Properties** dialog box, deselect the **Internet Protocol Version 6 (TCP/IPv6)** checkbox.
15. In the **Local Area connection Properties** dialog box, select **Internet Protocol Version 4 (TCP/IPv4)**, and then click on **Properties**.
16. In the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box, Selection the option **Use the following IP address** and enter the following IP address information:

	DC01	WSS01	WSS02	SQL01
IP address	192.168.140.100	192.168.140.101	192.168.140.102	192.168.140.103
Subnet	255.255.255.0	255.255.255.0	255.255.255.0	255.255.255.0

mask				
Default gateway	192.168.140.1	192.168.140.1	192.168.140.1	192.168.140.1

17. Select the option **Use the following DNS server addresses**, and then in the **Preferred DNS Server** field, specify the IP address **192.168.140.100**.
18. Click **OK**, then **Close**, and then **Close** again to close all dialog boxes. Also close the **Network Connections** window.
19. In the **Initial Configuration Tasks** window, click on the **Provide computer name and domain** link.
20. In the **System Properties** dialog box, click on **Change**.
21. In the **Computer Name/Domain Changes** dialog box, under **Computer name**, type **WSS01**.
22. Leave the computer in the workgroup **WORKGROUP** and click **OK**.
23. In the **Computer Name/Domain Changes** dialog box informing you that **You must restart your computer to apply these changes**, click **OK**.
24. Click **Close** and then click **Restart Now** to restart Windows Server 2008.

To Promote DC01 to a Domain Controller:

1. Restart DC01 and log on by using the Administrator account.
2. In the **Initial Configuration Tasks** window that appears automatically, click on the **Add roles** link.
3. On the **Before you Begin** wizard page, click **Next**.
4. On the **Select Server Roles** wizard page, select the checkbox **Active Directory Domain Services**, and then click **Next**.
5. On the **Active Directory Domain Services** wizard page, click **Next**.
6. On the **Confirm Installation Selections** wizard page, click **Install**.
7. Verify that the installation completes successfully, and then on the **Installation Results** wizard page, click on the **Close this wizard and launch the Active Directory Domain Services Installation Wizard (dcpromo.exe)** link.
8. In the **Welcome to the Active Directory Domain Services Installation Wizard** dialog box, click **Next**.
9. In the **Operating System Security** dialog box, click **Next**.
10. In the **Choose a Deployment Configuration** dialog box, select **Create a new domain in a new forest**, and then click **Next**.
11. In the **Name the Forest Root Domain** dialog box, under **FQDN of the forest root domain**, type **litware.com**, and then click **Next**.
12. In the **Set Forest Functional Level** dialog box, under **Forest functional level**, select **Windows Server 2008**, and then click **Next**.
13. In the **Additional Domain Controller Options** dialog box, verify that the checkbox **DNS server** is selected, and then click **Next**.

14. If a **Static IP assignment** dialog box appears informing you that the IPv6 configuration uses a dynamic address assignment, click on **Yes, the computer will use a dynamically assigned IP address (not recommended)**.
15. If an **Active Directory Domain Services Installation Wizard** dialog box appears informing you that a delegation for this DNS server cannot be created, click **Yes** to continue.
16. In the **Location for Database, Log Files, and SYSVOL** dialog box, accept the default settings and click **Next**.
17. In the **Directory Services Restore mode Administrator Password** dialog box, under **Password** and **Confirm Password**, type a secure password, and then click **Next**.
18. In the **Summary** dialog box, click **Next** to complete the Active Directory installation process.
19. In the **Completing the Active Directory Domain Services Installation Wizard** dialog box, click **Finish**.
20. In the **Active Directory Domain Services Installation Wizard** dialog box, click **Restart Now**.

To add SQL01, WSS01, and WSS02 as Domain Members:

1. Restart the computer (WSS01, WSS02, or SQL01) that you are configuring and log on by using the Administrator account.
2. In the **Initial Configuration Tasks** window that appears automatically, click on the **Provide computer name and domain** link.
3. In the **System Properties** dialog box, click on the **Change** button.
4. In the **Computer Name/Domain Changes** dialog box, under **Member of**, select the **Domain** Option, and then in the associated textbox, type **litware.com**. Click **OK**.
5. In the **Windows Security** dialog box that appears, type **Administrator** and specify the corresponding password of the domain account, and then click **OK**.
6. In the **Computer Name/Domain Changes** dialog box welcoming you to the Litware domain, click **OK**.
7. In the **Computer Name/Domain Changes** dialog box, informing you that you must restart the computer, click **OK**.
8. Click **Close** and then click **Restart Now**.

To create Administrator and Security Accounts for SharePoint:

1. Log on to DC01 as domain administrator (LITWARE\Administrator).
2. Click the **Start** button, click on **Administrative Tools**, and then click **Active Directory Users and Computers**.
3. Expand **litware.com**, right-click on the **Users** container, point to **New**, and then click **User**. Create the following user accounts:

First name	SharePoint	SharePoint	SharePoint	SharePoint
Last name	Admin	ConfigAdmin	DefaultSite	Crawler

User logon name	SPAdmin	SPConfigAdmin	SPDefaultSite	SPCrawler
Password and Confirm Password	Enter a secure password.	Enter a secure password.	Enter a secure password.	Enter a secure password.
User must change password at next logon	deselect	deselect	deselect	deselect

4. Close Active Directory Users and Computers.

To install SQL Server 2008 on SQL01:

1. Log on to SQL01 as LITWARE\Administrator and insert the SQL Server 2008 CD into the CD-DVD drive.
2. Start **D:\Setup.exe**, assuming that D: is the drive letter of the DVD drive, otherwise you must adjust the path to the Setup executable file.
3. In the **SQL Server Installation Center** dialog box, click on **Installation** and then click on **New SQL Server stand-alone installation or add features to an existing installation**.
4. Verify that the **Setup Support Rules** finish without errors and click **OK**.
5. On the **Product Key** page, enter the product key of your SQL Server copy or select **Specify a Free Edition** and select **Enterprise Evaluation**, and then click **Next**.
6. On the **License Terms** page, select the checkbox **I accept the license terms** and then click **Next**.
7. On the **Setup Support Files** page, click **Install**.
8. On the **Setup Support Rules** page, note the **Windows Firewall** warning and click **Next**.
9. On the **Feature Selection** page, select **Database Engine Services** and **Management Tools – Complete**, and then click **Next**.
10. On the **Instance Configuration** page, verify that **Default Instance** is selected, and then click **Next**.
11. On the **Disk Space Requirements** page, verify that enough disk space is available, and then click **Next**.
12. On the **System Configuration** page, select the **NT AUTHORITY\SYSTEM** account for **SQL Server Agent** and **SQL Server Database Engine**, and then click **Next**.
13. On the **Database Engine Configuration** page, verify that **Windows Authentication Mode** is selected, under **Specify SQL Server Administrators** click **Add Current User**, and then click **Next**.
14. On the **Error and Usage Reporting** page, apply your preferred configuration, and then click **Next**.
15. On the **Installation Rules** page, verify that there are no errors and click **Next**.
16. On the **Ready to Install** page, click **Install**.
17. On the **Installation Progress** page, click **Next**, and then on the **Complete** page, click **Close**.
18. Close the **SQL Server Installation Center**, then click **Start** and then **Run** and then in the **Run** dialog box, type **netsh advfirewall firewall add rule name=SQLPort dir=in**

protocol=tcp action=allow localport=1433 and click **OK** to open TCP port 1433 for SQL Server client/server communication via TCP/IP.

19. Click **Start** and then **Run** again, type **netsh firewall set service RemoteAdmin** and click **OK** to allow RPC communication for SQL Server client/server communication.
20. Click **Start**, click on **All Programs**, click on **Microsoft SQL Server 2008**, click on **Configuration Tools**, and then click **SQL Server Configuration Manager**.
21. Open **SQL Server Network Configuration** and then select **Protocols for MSSQLSERVER**.
22. Double-click on the **TCP/IP** entry and then in the **TCP/IP Properties** dialog box under **Enabled** select **Yes** and click **OK**.
23. In the **Warning** dialog box informing you that the SQL Server service must be restarted, click **OK**.
24. Open **SQL Server Services** and then right-click **SQL Server (MSSQLSERVER)** and select **Restart**.
25. Close **SQL Server Configuration Manager**.

To install .NET Framework 3.0 on WSS01 and WSS02:

1. Log on to WSS01 as LITWARE\Administrator,
2. Click **Start**, point to **Administrative Tools**, and then click **Server Manager**.
3. If a **User Account Control** dialog box appears, click **Continue**.
4. In **Server Manager**, on the **Action** menu, click **Add features**.
5. On the **Select Features** wizard page, under **Features**, select the **.NET Framework 3.0 Features** check box, and in the **Add Features Wizard** dialog box, informing you that you must also install required role services and features, click **Add Required Role Services**.
6. On the **Select Features** wizard page, click **Next**.
7. On the **Web Server (IIS)** wizard page, click **Next**.
8. On the **Select Role Services** wizard page, click **Next**.
9. On the **Confirm Installation Selections** wizard page, click **Install**.
10. On the **Installation Results** page, verify that all components are installed successfully, and then click **Close**.
11. Repeat these steps on WSS02.

To create a Network Load Balancing Cluster on WSS01:

1. On WSS01, logged on as LITWARE\Administrator, click **Start**, and click **Command Prompt**.
2. At the command prompt, type **Servermanagercmd.exe -install nlb** and press Enter to install the Network Load Balancing feature on the server.
3. At the command prompt, type **Nlbmgr.exe** and press Enter to start the Network Load Balancing Manager.
4. Right-click **Network Load Balancing Clusters** and then click **New Cluster**.

5. In the **New Cluster: Connect** dialog box, under **Host**, type **WSS01**, which is the first node in the new load-balancing cluster, and then click **Connect**.
6. Under **Interfaces available for configuring a new cluster**, select the interface that should host the virtual IP address to receive the client traffic for load balancing with the cluster, such as **Local Area Connection 192.168.140.101**, and then click **Next**.
7. In the **New Cluster: Host Parameters** dialog box, accept the defaults and click **Next** to continue. Optionally, you can assign a unique host identifier. The host with the lowest numerical priority among the current members of the cluster handles all of the cluster's network traffic that is not covered by a port rule.
8. In the **New Cluster: Cluster IP Addresses** dialog box, click **Add** and enter a cluster **IPv4 address** of **192.168.140.200**, which is the IP address that will be shared by every host in the cluster, and a **Subnet mask** of **255.255.255.0**. NLB disables DHCP and adds this IP address to the TCP/IP stack on the selected interface of all hosts chosen to be part of the cluster.
9. Click **OK** and then click **Next** to continue.
10. In the **New Cluster: Cluster Parameters** dialog box, under **Full Internet Name**, type **WSS.litware.com**, which corresponds to the main FQDN for all hosts in the cluster, registered in DNS in a subsequent step.
11. Under **Cluster Operation Mode**, verify that **Unicast** is selected to use a unicast media access control (MAC) address for cluster operations. In unicast mode, the MAC address of the cluster is assigned to the network adapter of the computer, and the built-in MAC address of the network adapter is overridden. However, some network adapters do not support unicast mode and unicast mode might also not work reliably when running WSS01 and WSS02 in virtual machines on the same host computer, sharing the same network adapter hardware. In these cases, select **Multicast**. Click **Next** to continue.
12. In the **New Cluster: Port Rules** dialog box, accept the default port rule, or edit the port rules to narrow down the ports to 80 for HTTP and 443 for HTTPS. In the test environment, it is acceptable to load balance all TDP and UDP traffic directed to the cluster IP address through the default rule. Click **Finish** to create the load-balancing cluster.

To add WSS02 to the Network Load Balancing Cluster:

1. On WSS02, logged on as LITWARE\Administrator, click **Start**, right-click **Command Prompt**, and then select **Run as administrator**.
2. In the **User Account Control** dialog box, click **Continue**.
3. At the command prompt, type **Servermanagercmd.exe -install nlb** and press Enter to install the Network Load Balancing feature on the server.
4. At the command prompt, type **Nlbmgr.exe** and press Enter to start the Network Load Balancing Manager.
5. Right-click **Network Load Balancing Clusters**, and then click **Connect to Existing**.
6. In the **Connect to Existing: Connect** dialog box, under **Host**, type **WSS01**, which is the first node in the new load-balancing cluster, and then click **Connect**.
7. Under **Clusters**, select the cluster that you want to join with this host, such as **WSS.litware.com** with the **Cluster IP** address **192.168.140.200**, and then click **Finish**.

8. The **WSS.litware.com (192.168.140.200)** cluster is displayed in Network Load Balancing Manager. Right-click the **WSS.litware.com (192.168.140.200)** node and select **Add Host To Cluster**.
9. In the **Add Host to Cluster: Connect** dialog box, under Host, type **WSS02**, which is the host you want to join to the load-balancing cluster, and then click **Connect**.
10. Under **Interfaces available for configuring a new cluster**, select the interface that should host the virtual IP address to receive the client traffic for load balancing with the cluster, such as **Local Area Connection 192.168.140.102**, and then click **Next**.
11. In the **Add Host to Cluster: Host Parameters** dialog box, accept the defaults and click **Next** to continue. Optionally, you can assign a unique host identifier. The host with the lowest numerical priority among the current members of the cluster handles all of the cluster's network traffic that is not covered by a port rule.
12. In the **Add Host to Cluster: Port Rules** dialog box, accept the default port rule, or edit the port rules to narrow down the ports to 80 for HTTP and 443 for HTTPS. In the test environment, it is acceptable to load balance all TDP and UDP traffic directed to the cluster IP address through the default rule. Click **Finish** to add WSS02 to the load-balancing cluster.

To register the IP address of the Network Load Balancing Cluster in DNS

1. On DC01, log on as domain administrator (LITWARE\Administrator).
2. Click **Start**, point to **Administrative Tools**, and then click **DNS**.
3. Expand **DC01**, expand **Forward Lookup Zones**, expand **litware.com**, right-click **litware.com**, and then click on **New Host (A or AAAA)**.
4. In the **New Host** dialog box, under **Name (uses parent domain name if blank)**, type **WSS**.
5. Under **IP address**, type **192.168.140.200**, and then click **Add Host**.
6. In the **DNS** dialog box informing you that the host record was created successfully, click **OK**.
7. In the **New Host** dialog box, click **Done** and then close the **DNS Manager** console.

To install WSS 3.0 with SP1 on WSS01 and configure a Web farm:

1. On WSS01, logged on as LITWARE\Administrator, download the Microsoft Office SharePoint Server 2007 Trial Version and start the installation by double-clicking the *Setup.cmd* file.
2. On the **Enter Your Product Key** page, type the product key and then click **Continue**.
3. On the **Read the Microsoft Software License Terms** page, select the **I accept the terms of this agreement** check box, and then click **Continue**.
4. On the **Choose the Installation You Want** page, click **Advanced**.
5. Select the option **Web Front-End – Only install components required to render content to users. Can add servers to form a SharePoint farm**, and then click on **Install Now**.
6. In the final dialog box, ensure that the check box **Run the SharePoint Products and Technologies Configuration Wizard now** is selected, and then click **Close**.
7. On the **Welcome to SharePoint Products and Technologies** page, click **Next**.

8. In the **SharePoint Products and Technologies Configuration Wizard** dialog box that notifies you that some services might need to be restarted, click **Yes**.
9. On the **Connect to a server farm** page, click **No, I want to create a new server farm**, and then click **Next**.
10. On the **Specify Configuration Database Settings** page, in the **Database server** box, type **SQL01**, and in the **Database name** box, accept the suggested name **SharePoint_Config**.
11. In the **User name** box, type **LITWARE\SPConfigAdmin**, and in the **Password** box, type the corresponding password, and then click **Next**.
12. On the **Configure SharePoint Central Administration Web Application** page, select the **Specify port number** check box and type **12345** as the port number for the SharePoint Central Administration Web site. Click **Next**.
13. On the **Completing the SharePoint Products and Technologies Configuration Wizard** page, review the settings, and then click **Next** to start the configuration process.
14. On the **Configuration Successful** page, click **Finish**.
15. Verify that the Central Administration site opens successfully in Internet Explorer. In the **Connect to WSS01** dialog box, enter **LITWARE\Administrator** as the **User name** and the corresponding **Password** to log on.
16. In the **Internet Explorer** dialog box, informing you that the site is being blocked by enhanced security, click **Close**.
17. In the **Microsoft Phishing Filter** dialog box, select **Ask me later**, and then click **OK**.
18. In Internet Explorer, open the **Tools** menu and click on **Internet Options**.
19. Switch to the **Security** tab, select **Local Intranet**, and then click **Sites**.
20. Verify that **http://WSS01** is specified in the **Add this website to the zone** box, then click **Add**.
21. In the **Add this Site to the zone** box, type **http://WSS**, then click **Add**.
22. Click **Close**, then click **OK**, and then close Internet Explorer.

To install WSS 3.0 with SP1 on WSS02 and join the Web farm:

1. On WSS02, logged on as LITWARE\Administrator, download the Microsoft Office SharePoint Server 2007 Trial Version and start the installation by double-clicking the *Setup.cmd* file.
2. On the **Read the Microsoft Software License Terms** page, select the **I accept the terms of this agreement** check box, and then click **Continue**.
3. On the **Choose the Installation You Want** page, click **Advanced**.
4. Select the option **Web Front-End – Only install components required to render content to users. Can add servers to form a SharePoint farm**, and then click on **Install Now**.
5. In the final dialog box, ensure that the check box **Run the SharePoint Products and Technologies Configuration Wizard now** is selected, and then click **Close**.
6. On the **Welcome to SharePoint Products and Technologies** page, click **Next**.

7. In the **SharePoint Products and Technologies Configuration Wizard** dialog box that notifies you that some services might need to be restarted, click **Yes**.
8. On the **Connect to a server farm** page, click **Yes, I want to connect to an existing server farm**, and then click **Next**.
9. On the **Specify Configuration Database Settings** page, in the **Database server** box, type **SQL01**, and then click on the **Retrieve Database Names** button.
10. Verify that the **SharePoint_Config** database is selected in the **Database name** box and that the **User name** box suggests **LITWARE\SPConfigAdmin**.
11. In the **Password** box, type the password for the **LITWARE\SPConfigAdmin** account and then click **Next**.
12. On the **Completing the SharePoint Products and Technologies Configuration Wizard** page, review the settings, and then click **Next** to start the configuration process.
13. On the **Configuration Successful** page, click **Finish**.
14. Verify that SharePoint attempts to open the Central Administration site, close Internet Explorer and log off on WSS02.

To configure WSS01 and WSS02 as Search Servers:

1. On WSS01, logged on as LITWARE\Administrator, click **Start**, point to **Administrative Tools**, and then click **SharePoint 3.0 Central Administration**.
2. Click on the **Operations** tab, and then in the **Topology and Services** section, click on **Servers in farm**.
3. On the **Servers in farm** page, in the server list, click on **WSS01**.
4. Under **Server**, make sure **WSS01** is selected (or change the server selection if necessary), and then in the service list, click **Start** next to the **Windows SharePoint Services Search** entry.
5. In the **User name** box under **Service account** type **LITWARE\SPCrawler**, and in the corresponding **Password** box, type the service account password.
6. Under **Content Access Account**, type **LITWARE\SPCrawler**, and in the corresponding **Password** box, type the service account password.
7. Leave all remaining settings at their defaults and click **Start**.
8. Following the successful completion of the configuration process, verify that the service starts successfully, and then under **Server**, select **WSS02** and repeat the configuration steps.

To Create a Site Collection for WSS:

1. On WSS01, logged on as LITWARE\Administrator and working with **SharePoint 3.0 Central Administration** click the **Application Management** tab.
2. Under **SharePoint Web Application Management**, click on **Create or Extend Web Application**.
3. On the **Create or Extend Web Application** page, click **Create a new Web application**.
4. On the **Create New Web Application** page, under **Load Balanced URL**, type **http://wss**.
5. Under **Application Pool**, verify that **Create new application pool** is selected
6. Under **User name** type **LITWARE\SPDefaultSite**, and in the corresponding **Password** box, type the service account password.
7. Under **Reset Internet Information Services**, select **Restart IIS Automatically**.

8. Under **Search Server**, select **WSS01**, and then click **OK**.
9. Verify that WSS creates the Web application successfully and then click on the **Application Management** tab.
10. Click **Start** and click **Command Prompt**.
11. At the command prompt, type **iisreset /noforce** and press Enter.
12. Verify that IIS restarts successfully and then close the **Command Prompt** window.
13. Switch back to SharePoint 3.0 Central Administration, and then on the **Application Management** tab, under **SharePoint Site Management**, click on **Create site collection**.
14. On the **Create Site Collection** page, under **Web Application**, verify that **http://wss** is listed.
15. Under **Title and Description**, in the **Title** textbox type **WSS Test Site**.
16. Under **Web Site Address** textbox, verify that the **URL** is **http://wss/**.
17. Under **Select a template**, select **Team Site**.
18. Under **Primary Site Collection Administrator**, type **LITWARE\Administrator**.
19. Under **Secondary Site Collection Administrator**, type **LITWARE\SPAdmin**.
20. Click **OK** and then on the **Top-Level Site Successfully Created** page, click **OK** again.
21. Close Internet Explorer.