

IMPLEMENTATION OF A CLIENT-SERVER BASED NETWORK SYSTEM: AN
ENGINEERING AND MAINTENANCE GUIDE FOR SUBURBAN REMODELING
COMPANY.

by

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Course TS 5516: Client-Server Architecture

June 6, 2004

Abstract

This engineering document outlines the plans and procedures for the implementation of a network systems upgrade for Suburban Remodeling Company. The proposed system is a Windows Server 2003 and Windows XP based client-server network with consideration for office networking, printing, and remote connectivity. This document will serve to detail the steps necessary for the implementation of the new system, as well as underscore certain maintenance needs for the new system.

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Implementation of a Client-Server Based Network System

Introduction

The following proposal regards the networked information system of Suburban Remodeling Company.¹

Suburban Remodeling is a general contracting company which specializes in roofing, siding, and gutter remodeling construction in the suburbs of Chicago. Suburban Remodeling has grown significantly over the years, and is now considering upgrading their current information system.

The first phase of this upgrade has included the development of an information system database for the tracking of business information such as customer contact information, project information, and subcontractor information. The user application interface to this database is an on-going project. However, in order to effectively use the database, and to also resolve other issues regarding the current information system, a architectural upgrade of the current network system is proposed.

The Current System

The existing networked information system for Suburban Remodeling Company is shown in Figure 1.

The current LAN configuration of Suburban Remodeling uses Windows workgroups with a primary file server running Windows XP and a print server running Windows ME. The following devices are included:

- (1) Windows XP station acting as both the primary server and as a user workstation
- (1) Windows XP user workstation
- (1) Windows ME station acting as both print server and user workstation
- (1) Windows 98 SE user workstation
- (1) Flatbed scanner attached to the XP server
- (1) HP printer

Office connectivity to the internet is via DSL.

Remote and mobile devices include:

- (2) Mobile user laptops running Windows XP for employees in project management and estimating roles
- (1) Remote workstation for use by personnel in the workshop
- (1) Remote XP workstation for use by the estimator

¹ The name of the company and all proprietary information have been changed to protect the company's business interests.

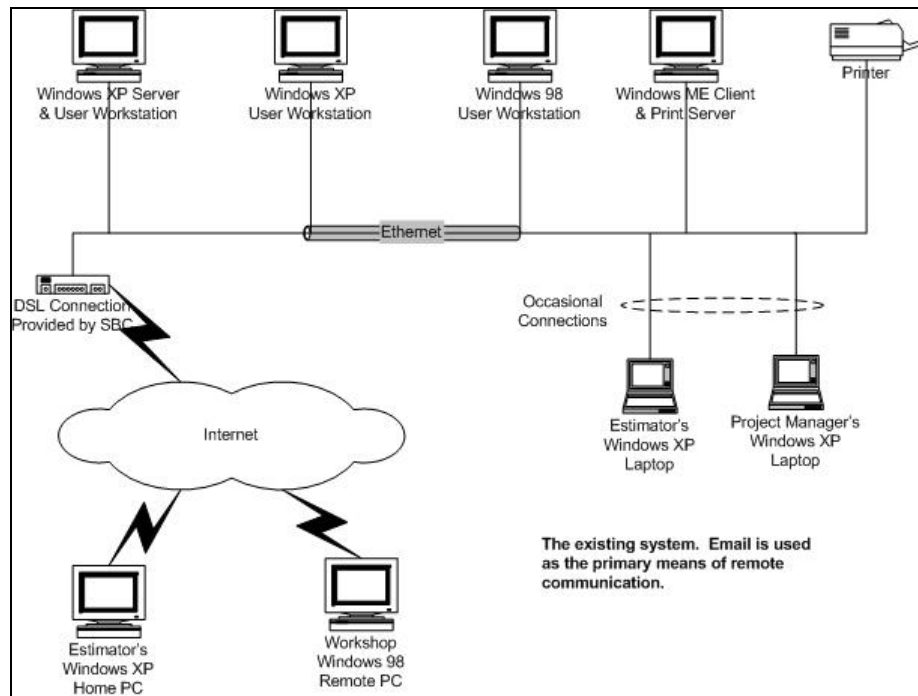


Figure 1. The Existing Networked Information System at Suburban Remodeling Company

A number of outstanding issues with this network affect current business processes and need to be addressed. These issues include:

- The lack of consistency of platforms
- No security policies in place
- No provisions for remote connectivity. Currently email provides the only means of remote communication.
- Dated status of some platforms and software.
- Lack of any documentation regarding the network topology, configuration, or administrative policies and procedures.

The Proposed System

The proposed system, which is the subject of this document, is a client-server based network utilizing Windows Server 2003 with Windows XP clients as shown in Figure 2.

The proposal of the current project is to implement an upgraded network that addresses these issues. The new network will include the following equipment:

- Windows 2003 Server
- Windows XP User Workstations
- Windows XP Remote and Mobile Workstations

- Scanner
- Printer
- Devices needed for connectivity. Currently, the continued use of DSL is assumed.

The network design and implementation documentation will address the following:

- performance
- security
- networking services
- expansion
- durability
- fault tolerance
- printing
- topologies
- remote access

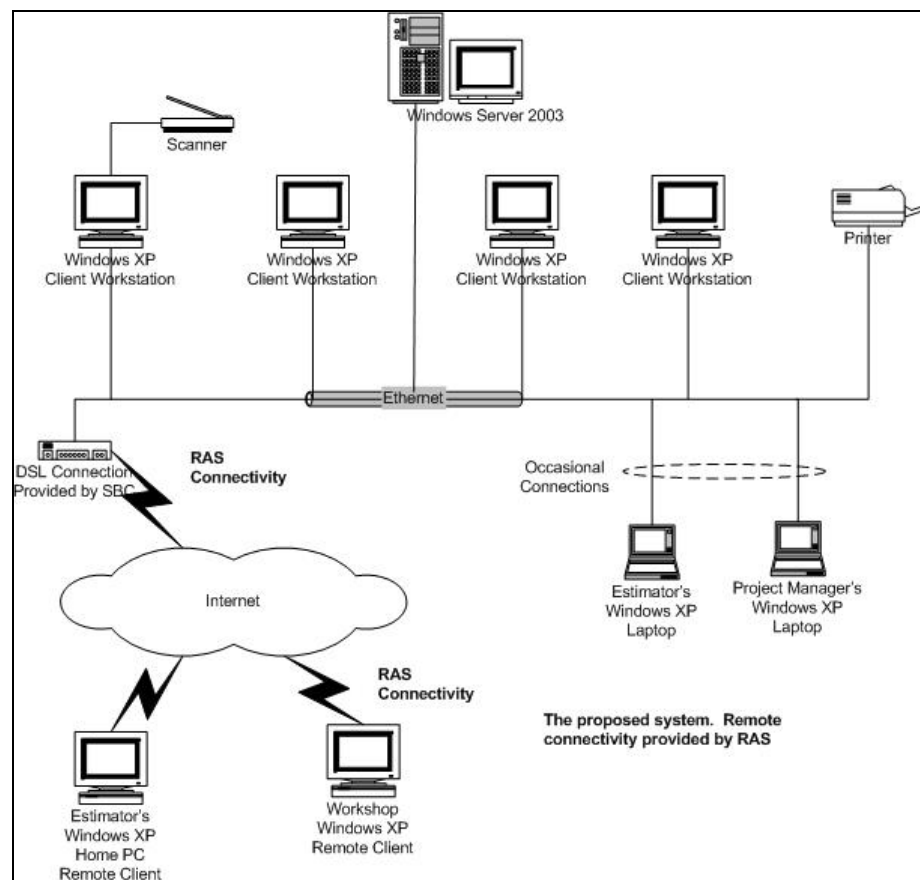


Figure 2. The Proposed Networked Information System

The following equipment will be needed for the proposed upgrade:

- (1) Windows 2003 Server including monitor
- (1) Windows XP workstation including monitor

The following existing equipment is expected to be migrated to the new system:

- (2) Office based user workstations
- (2) Remote user workstations
- (2) Mobile user laptops
- (1) HP LaserJet printer
- (1) Flatbed scanner

Project Overview

Existing Hardware and Equipment Analysis

Much of the existing equipment will be migrated to the new system. Such equipment which will be retained in the upgrade include the following:

- Windows 2003 Server
- Windows XP User Workstations
- Windows XP Remote and Mobile Workstations
- Scanner
- Printer
- Devices needed for connectivity. Currently, the continued use of DSL is assumed

Service Needs Analysis

A number of service needs for Suburban Remodeling have been addressed in the design of the upgraded system. These service needs include the following:

- performance
- security
- networking services
- expansion
- durability
- fault tolerance
- printing
- topologies
- remote access

Equipment needs analysis.

- Windows 2003 Server including monitor
- Windows XP workstation including monitor
- The following existing equipment is expected to be migrated to the new system:
 - Office based user workstations
 - Remote user workstations
 - Mobile user laptops
 - HP LaserJet printer
 - Flatbed scanner

Migration Plan

Since the current Suburban Remodeling system will be in use throughout the installation of the upgraded system, a migration plan is needed to ensure a smooth upgrade. Migration to the new system will occur through the following steps:

1. Install Server (see server installation and configuration section)
2. Network existing XP workstations
3. Migrate served resources from current file server to new server
4. Setup printing from new server
5. Install new XP workstations
6. Migrate user data from Windows 98 and Windows ME workstations

Project Procedures - Installation and Configuration

The following procedures are required:

- Install server
- Install workstations
- Perform post-installation procedures
- Perform administrative and configuration procedures

Server Installation and configuration.

The following installation procedure is taken from Donald (2003) pages 17 through 19. The post-installation procedures in the following section should be followed after the installation of Windows Server 2003.

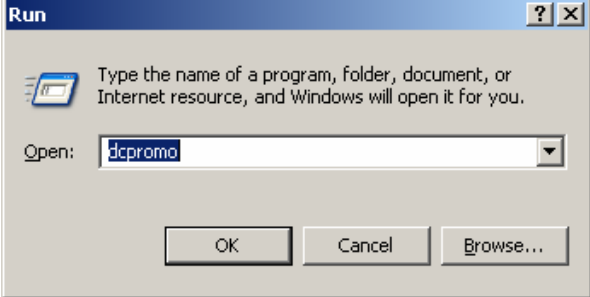
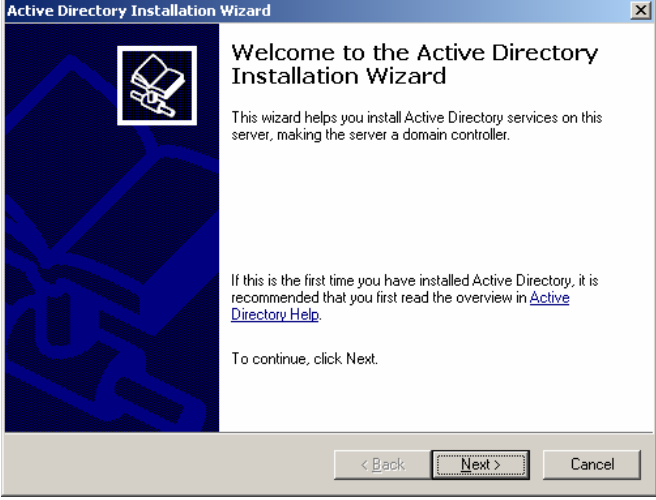
Installing Windows Server 2003:

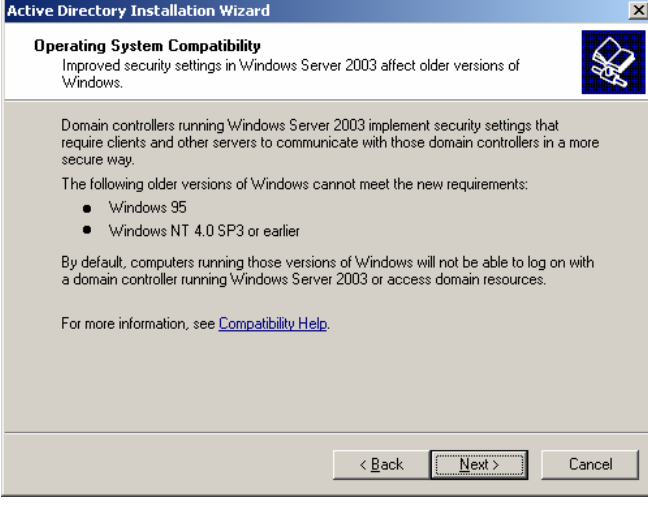
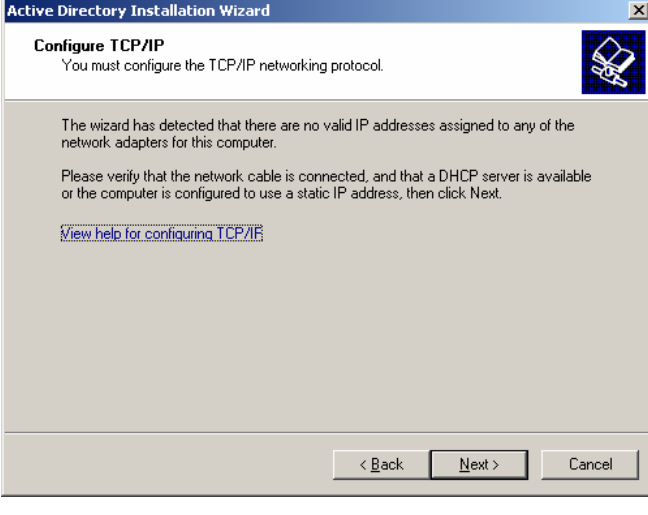
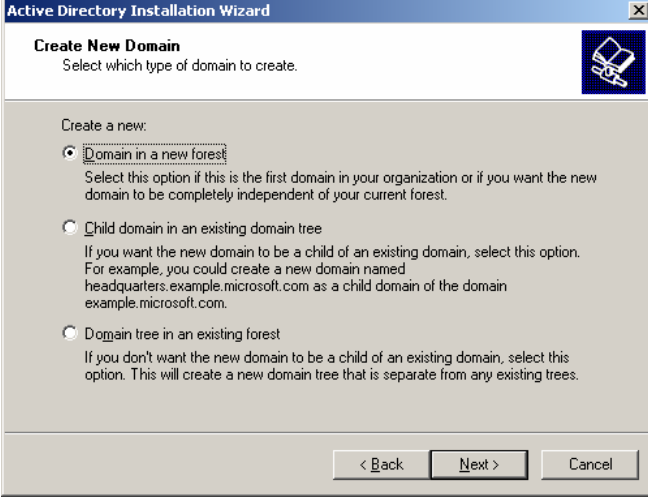
1. Boot from the installation CD
2. Press Enter when prompted to start setup
3. Accept the licensing agreement
4. Select the existing partition to install Windows on
5. After the system reboots, Windows installation will automatically resume
6. Select local language and keyboard settings
7. Enter “Suburban Remodeling Company” as the organization and enter other related information
8. Enter the product key from the CD cover.
9. Select Per Server Licensing (see the Licensing section below for more information)
10. Specify the computer name, Server1, and the administrative password.
11. Skip modem installation
12. Set the date and time and time zone settings
13. Select typical network settings
14. Indicate domain networking as the networking method
15. After another reboot, Windows Server 2003 will start. Press Ctrl+Alt+Delete and enter the administrative password to login.

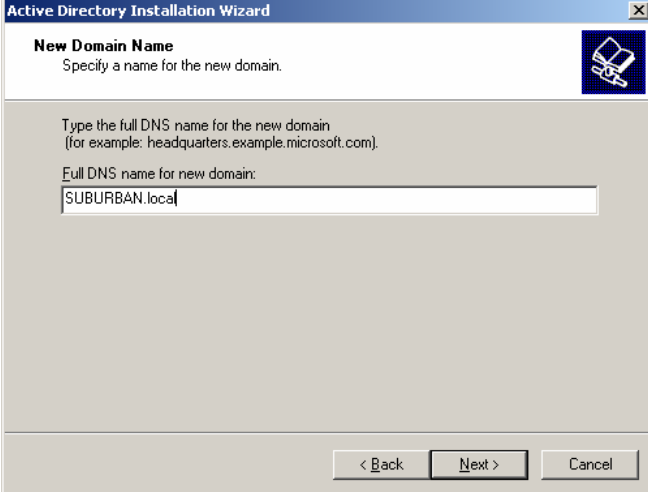
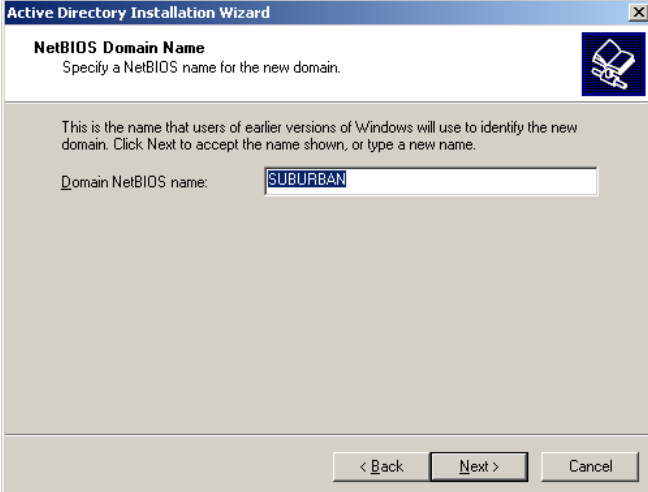
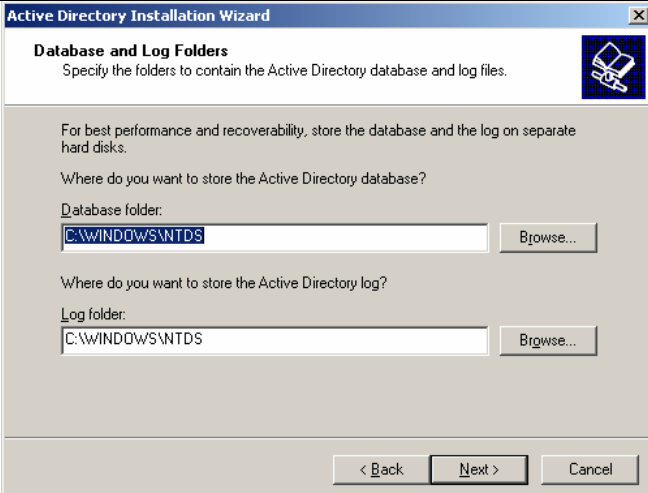
Post-installation

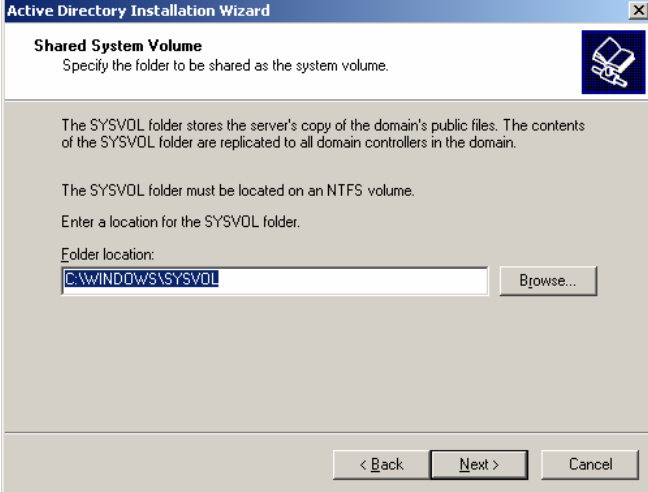
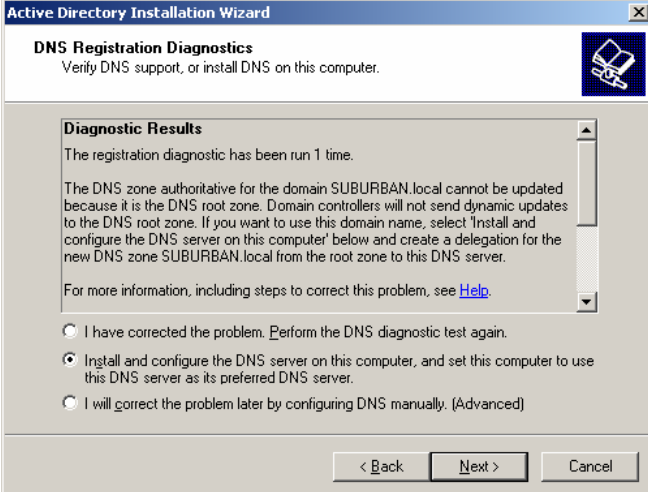
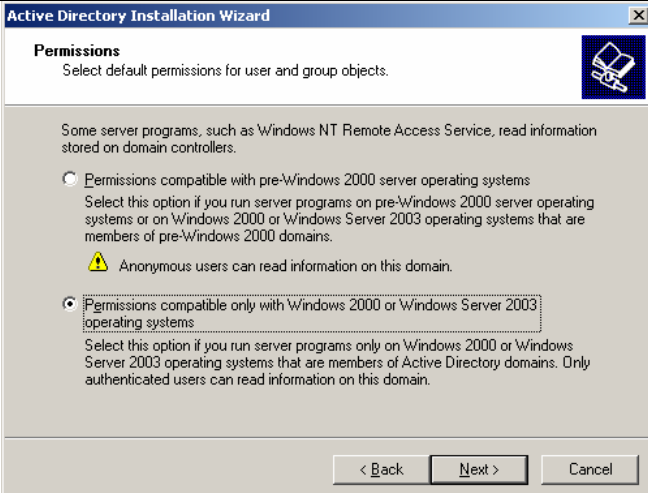
Domain Controller Setup

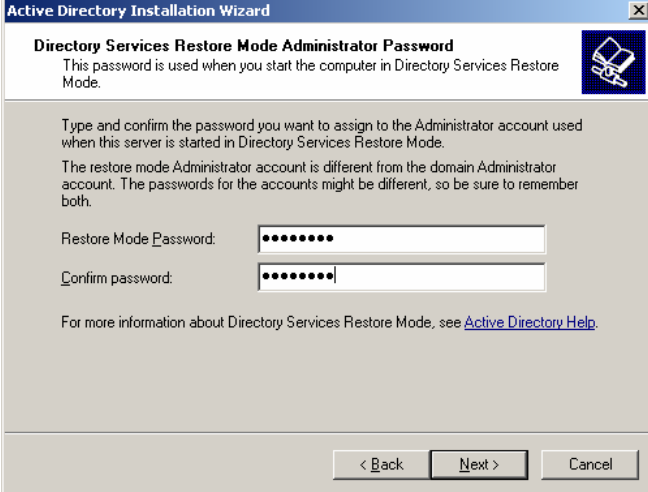
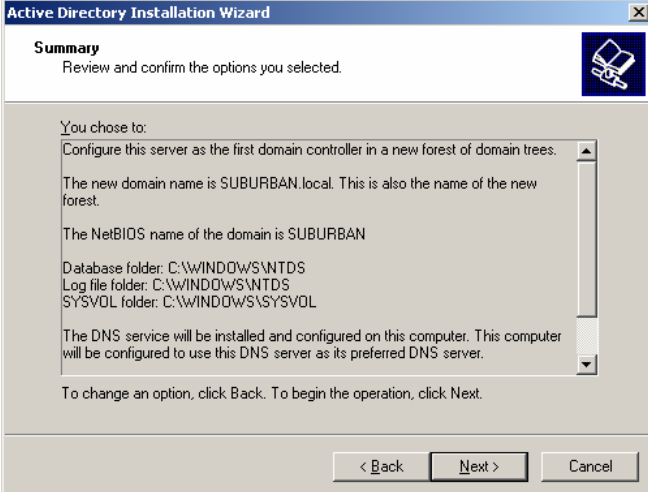
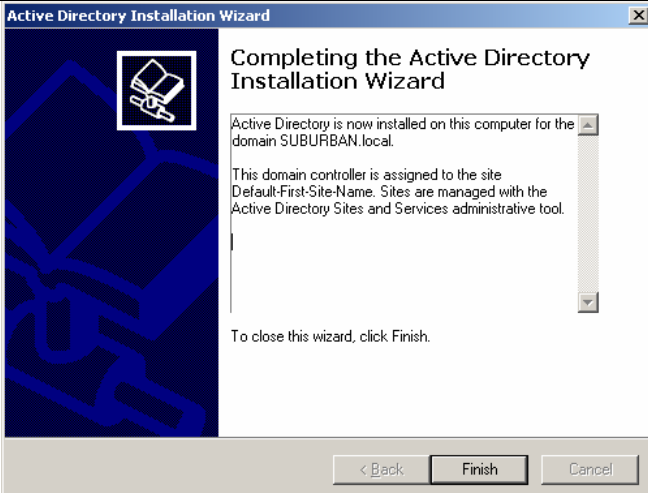
Configuration of the server as the domain controller is shown in Table 1. For more information about domain controller setup, see Donald (2003) pages 29-31.

	Select • Start → Run
	• Type dcpromo • Select OK
	Select Next

 Active Directory Installation Wizard Operating System Compatibility Improved security settings in Windows Server 2003 affect older versions of Windows. Domain controllers running Windows Server 2003 implement security settings that require clients and other servers to communicate with those domain controllers in a more secure way. The following older versions of Windows cannot meet the new requirements: • Windows 95 • Windows NT 4.0 SP3 or earlier By default, computers running those versions of Windows will not be able to log on with a domain controller running Windows Server 2003 or access domain resources. For more information, see Compatibility Help. < Back Next > Cancel	Select Next
 Active Directory Installation Wizard Configure TCP/IP You must configure the TCP/IP networking protocol. The wizard has detected that there are no valid IP addresses assigned to any of the network adapters for this computer. Please verify that the network cable is connected, and that a DHCP server is available or the computer is configured to use a static IP address, then click Next. View help for configuring TCP/IP < Back Next > Cancel	Select Next
 Active Directory Installation Wizard Create New Domain Select which type of domain to create. Create a new: ☒ Domain in a new forest Select this option if this is the first domain in your organization or if you want the new domain to be completely independent of your current forest. ☐ Child domain in an existing domain tree If you want the new domain to be a child of an existing domain, select this option. For example, you could create a new domain named headquarters.example.microsoft.com as a child domain of the domain example.microsoft.com. ☐ Domain tree in an existing forest If you don't want the new domain to be a child of an existing domain, select this option. This will create a new domain tree that is separate from any existing trees. < Back Next > Cancel	• Select Domain in new forest • Select Next

 Active Directory Installation Wizard New Domain Name Specify a name for the new domain. Type the full DNS name for the new domain (for example: headquarters.example.microsoft.com). Full DNS name for new domain: SUBURBAN.local < Back Next > Cancel	• Type SUBURBAN.local for the full DNS name for the new domain • Select Next
 Active Directory Installation Wizard NetBIOS Domain Name Specify a NetBIOS name for the new domain. This is the name that users of earlier versions of Windows will use to identify the new domain. Click Next to accept the name shown, or type a new name. Domain NetBIOS name: SUBURBAN < Back Next > Cancel	• Type SUBURBAN for the Domain NetBIOS name • Select Next
 Active Directory Installation Wizard Database and Log Folders Specify the folders to contain the Active Directory database and log files. For best performance and recoverability, store the database and the log on separate hard disks. Where do you want to store the Active Directory database? Database folder: C:\WINDOWS\NTDS Browse... Where do you want to store the Active Directory log? Log folder: C:\WINDOWS\NTDS Browse... < Back Next > Cancel	• Accept the defaults • Select Next

 Shared System Volume Specify the folder to be shared as the system volume. The SYSVOL folder stores the server's copy of the domain's public files. The contents of the SYSVOL folder are replicated to all domain controllers in the domain. The SYSVOL folder must be located on an NTFS volume. Enter a location for the SYSVOL folder. Folder location: C:\WINDOWS\SYSVOL Browse... Back Next > Cancel	• Accept the default folder location • Select Next
 DNS Registration Diagnostics Verify DNS support, or install DNS on this computer. Diagnostic Results The registration diagnostic has been run 1 time. The DNS zone authoritative for the domain SUBURBAN.local cannot be updated because it is the DNS root zone. Domain controllers will not send dynamic updates to the DNS root zone. If you want to use this domain name, select 'Install and configure the DNS server on this computer' below and create a delegation for the new DNS zone SUBURBAN.local from the root zone to this DNS server. For more information, including steps to correct this problem, see Help. ☐ I have corrected the problem. Perform the DNS diagnostic test again. ☒ Install and configure the DNS server on this computer, and set this computer to use this DNS server as its preferred DNS server. ☐ I will correct the problem later by configuring DNS manually. (Advanced) Back Next > Cancel	• Select “Install and configure the DNS server” • Select Next
 Permissions Select default permissions for user and group objects. Some server programs, such as Windows NT Remote Access Service, read information stored on domain controllers. ☐ Permissions compatible with pre-Windows 2000 server operating systems Select this option if you run server programs on pre-Windows 2000 server operating systems or on Windows 2000 or Windows Server 2003 operating systems that are members of pre-Windows 2000 domains. ⚠ Anonymous users can read information on this domain. ☒ Permissions compatible only with Windows 2000 or Windows Server 2003 operating systems Select this option if you run server programs only on Windows 2000 or Windows Server 2003 operating systems that are members of Active Directory domains. Only authenticated users can read information on this domain. Back Next > Cancel	• Select “Permissions compatible only with Windows 2000” • Select Next

 Active Directory Installation Wizard Directory Services Restore Mode Administrator Password This password is used when you start the computer in Directory Services Restore Mode. Type and confirm the password you want to assign to the Administrator account used when this server is started in Directory Services Restore Mode. The restore mode Administrator account is different from the domain Administrator account. The passwords for the accounts might be different, so be sure to remember both. Restore Mode Password: Confirm password: For more information about Directory Services Restore Mode, see Active Directory Help. < Back Next > Cancel	• Type in the administrative password • Select Next
 Active Directory Installation Wizard Summary Review and confirm the options you selected. You chose to: Configure this server as the first domain controller in a new forest of domain trees. The new domain name is SUBURBAN.local. This is also the name of the new forest. The NetBIOS name of the domain is SUBURBAN Database folder: C:\WINDOWS\NTDS Log file folder: C:\WINDOWS\NTDS SYSVOL folder: C:\WINDOWS\SYSVOL The DNS service will be installed and configured on this computer. This computer will be configured to use this DNS server as its preferred DNS server. To change an option, click Back. To begin the operation, click Next. < Back Next > Cancel	Select Next
 Active Directory Installation Wizard Completing the Active Directory Installation Wizard Active Directory is now installed on this computer for the domain SUBURBAN.local. This domain controller is assigned to the site Default-First-Site-Name. Sites are managed with the Active Directory Sites and Services administrative tool. To close this wizard, click Finish. < Back Finish Cancel	Select Finish

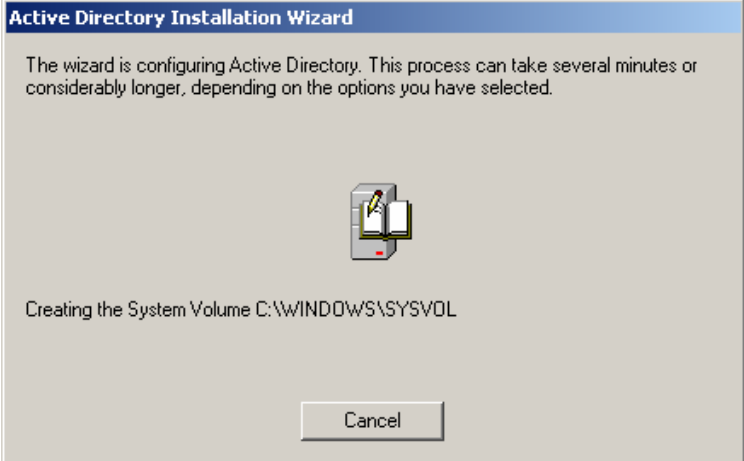
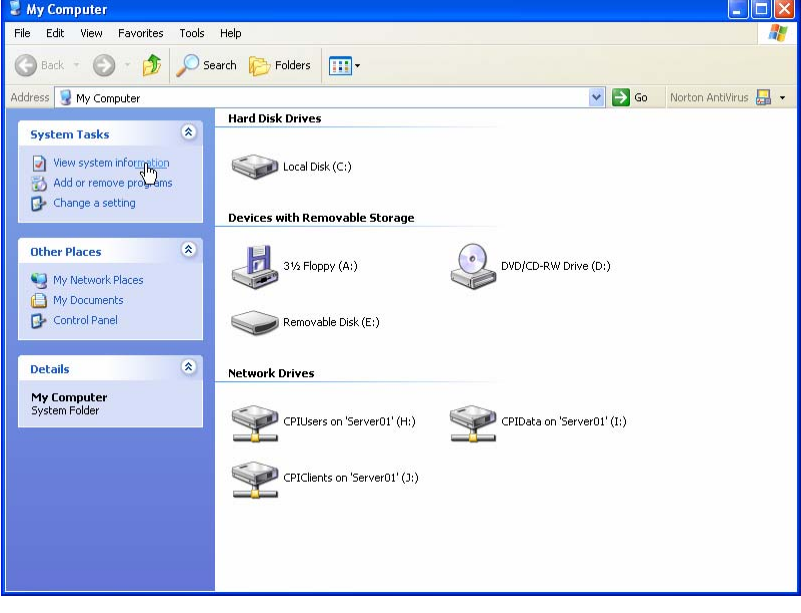
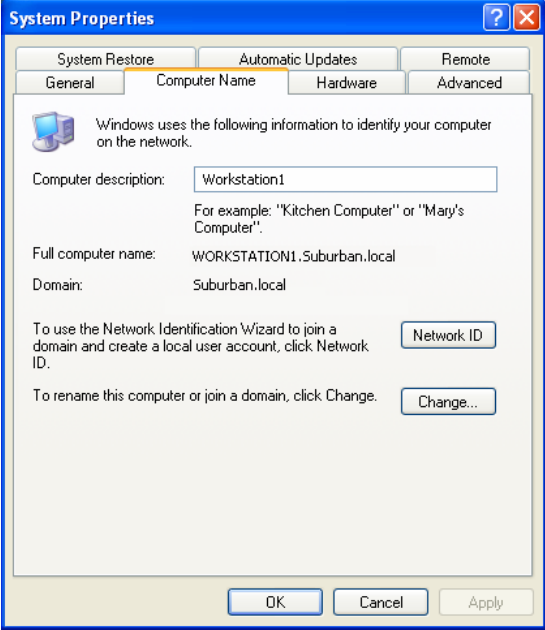
 The wizard is configuring Active Directory. This process can take several minutes or considerably longer, depending on the options you have selected. Creating the System Volume C:\WINDOWS\SYSVOL Cancel	The Configuration will complete
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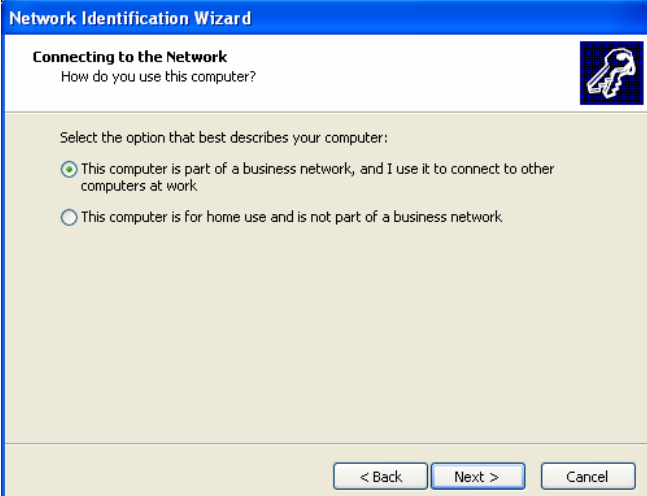
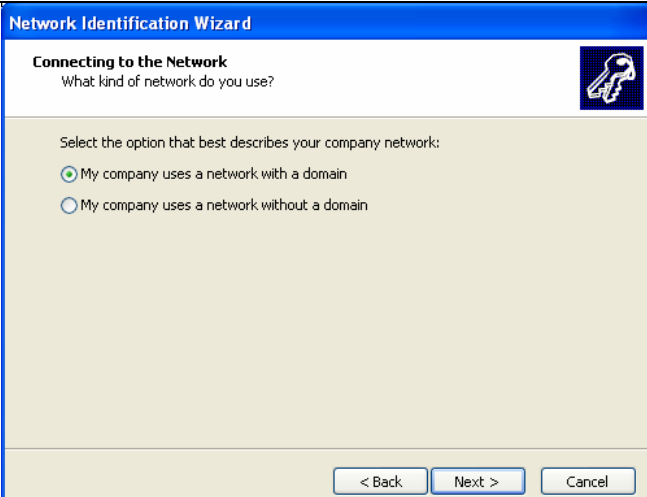
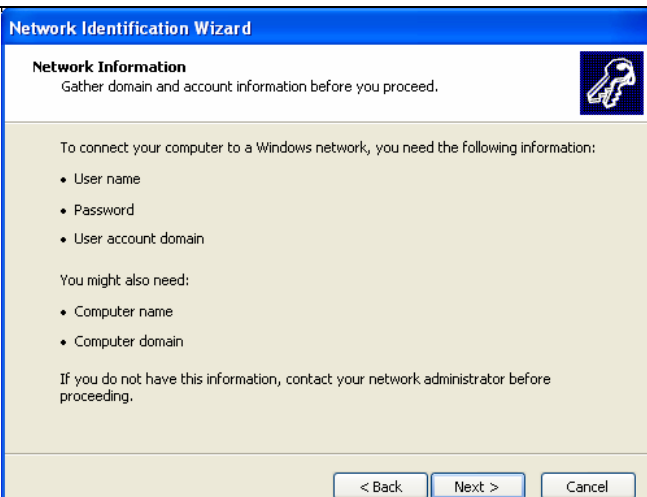
Table 1. Domain Controller Setup

Client Setup Within the Domain

Installing user XP machines within the domain is demonstrated below in Table 2. For more information on installing XP clients in the domain, see Donald (2003) pages 34-35.

	Select • Start → My Computer
 My Computer window showing System Tasks, Other Places, and Details. The 'View system information' link is highlighted in the System Tasks section.	Select View system information

	Select Network ID
	Select Next

 Network Identification Wizard Connecting to the Network How do you use this computer? Select the option that best describes your computer: ☒ This computer is part of a business network, and I use it to connect to other computers at work ☐ This computer is for home use and is not part of a business network < Back Next > Cancel	• Select “This computer is part of a business network” • Select Next
 Network Identification Wizard Connecting to the Network What kind of network do you use? Select the option that best describes your company network: ☒ My company uses a network with a domain ☐ My company uses a network without a domain < Back Next > Cancel	• Select “My company uses a network with a domain” • Select Next
 Network Identification Wizard Network Information Gather domain and account information before you proceed. To connect your computer to a Windows network, you need the following information: • User name • Password • User account domain You might also need: • Computer name • Computer domain If you do not have this information, contact your network administrator before proceeding. < Back Next > Cancel	Select Next

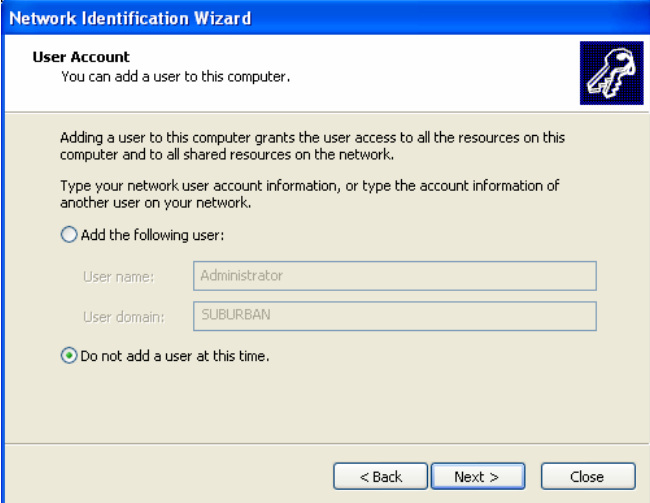
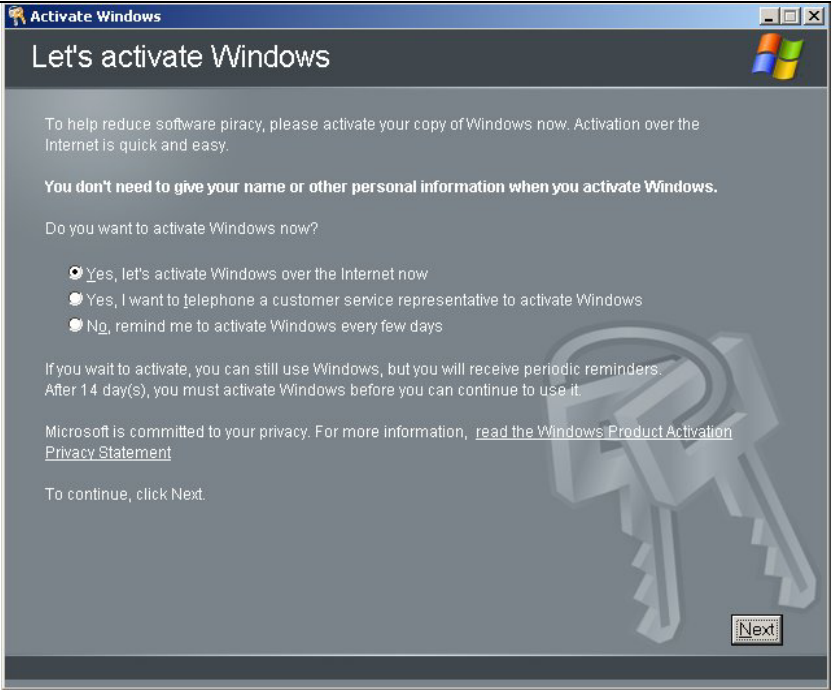
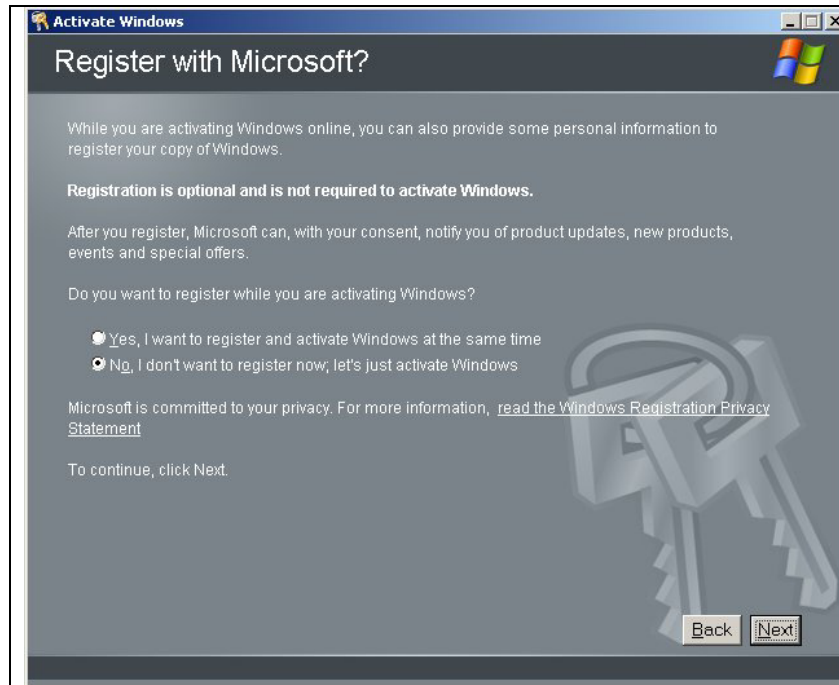
	• Enter the Username Administrator and the password • Enter the domain name SUBURBAN • Select Next
	• Select “Do not add a user at this time” • Select Next
	Select Finish

Table 2. Adding XP Clients to the Domain

Activate Windows Server 2003

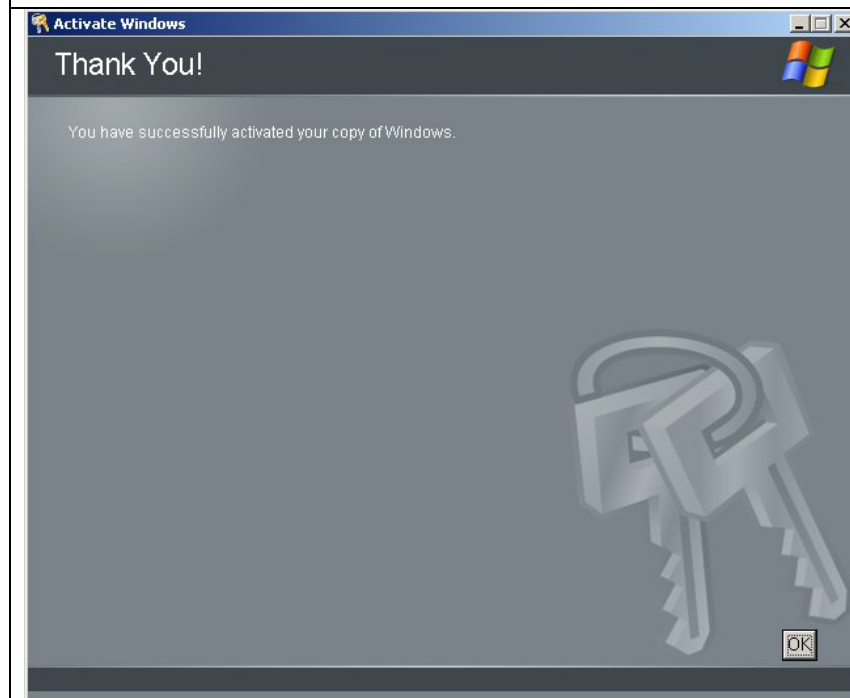
The table below, Table 3, demonstrates the process to activate Windows Server 2003. Windows Server 2003 should be activated within 14 days of installation. For more information see pages 35-38 of Donald.

	Select • Start → All Programs → Activate Windows
	Select • “Yes, let’s activate Windows over the internet now.” • Next Note: Internet connectivity must be configured for this option. See the section DSL Configuration below for information on configuring the DSL router for internet connectivity.



Select

- “No” to just activate Windows. Alternately, Windows may be registered at the same time as activation.
- Next



Activation is complete.

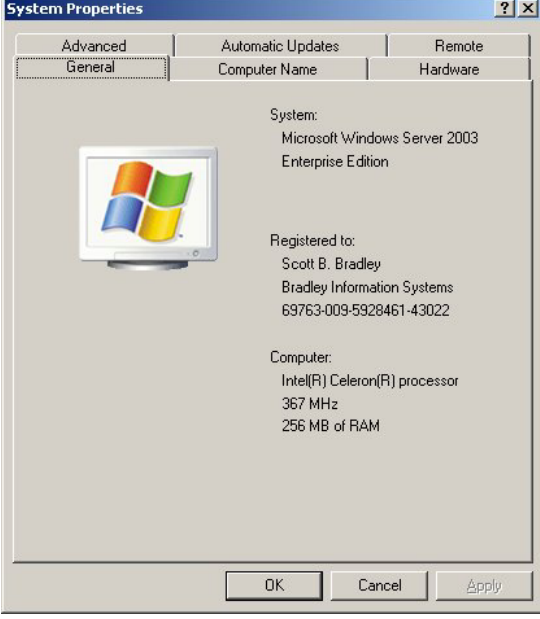
	After activation, the product ID is available in the System Properties. Make a note of the product ID here. The Suburban Siding Company Product ID for Server1 is:
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Table 3. Windows Server Activation

Licensing

The procedures to consider for licensing are:

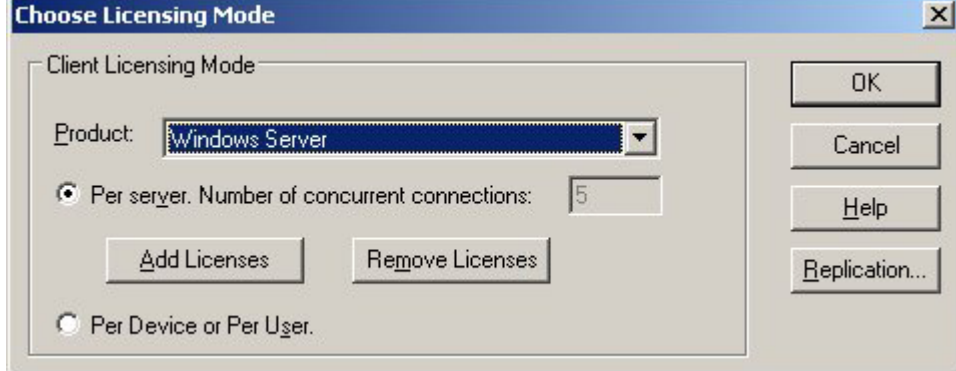
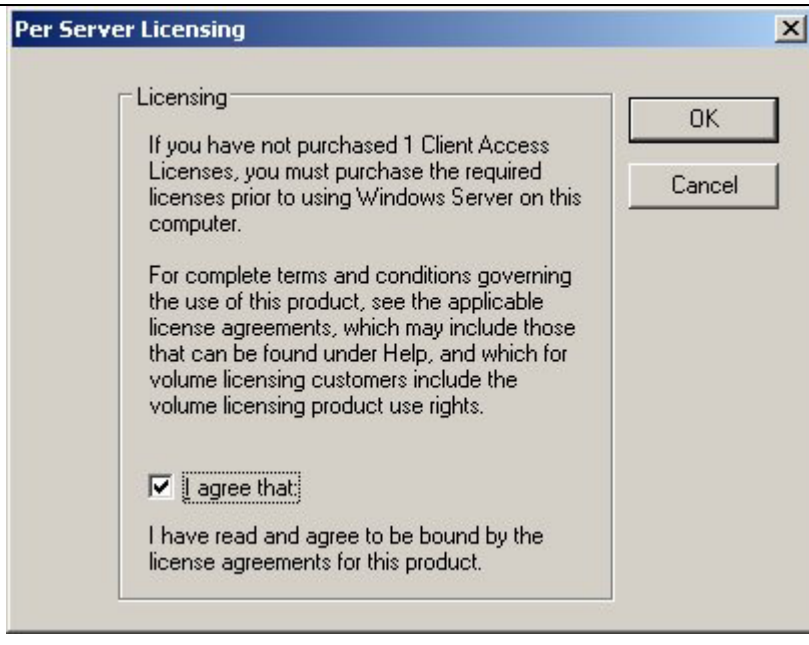
- Configure licensing
- Setup license logging

Suburban Remodeling will use per server licensing for a single server with multiple clients configuration. For more information about Windows Server 2003 licensing, see Donald (2003), pages 39-50.

Configure Per-Server Licensing

The procedure for per-server licensing configuration is illustrated below in Table 4.

	Select • Start → Control Panel → Licensing
---	---

	For the product Windows Server Select • Per Server • OK
	For the product Windows Server indicate: • Quantity: 1 • OK
	• Agree to the licensing • Select OK

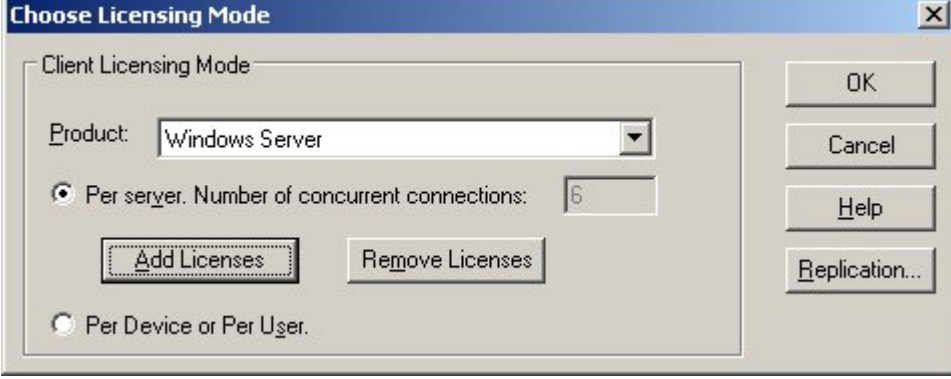
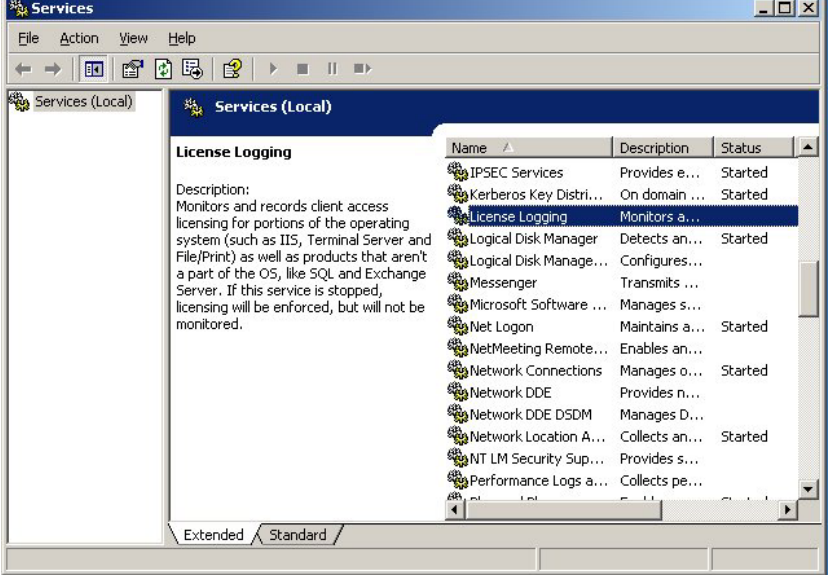
	For the product Windows Server Select • Per server • OK
--	---

Table 4. Licensing Configuration

Setup License Logging

The procedure for configuring license logging is illustrated below in Table 5.

	Select • Start → Administrative Tools → Services
	Double Click License Logging.

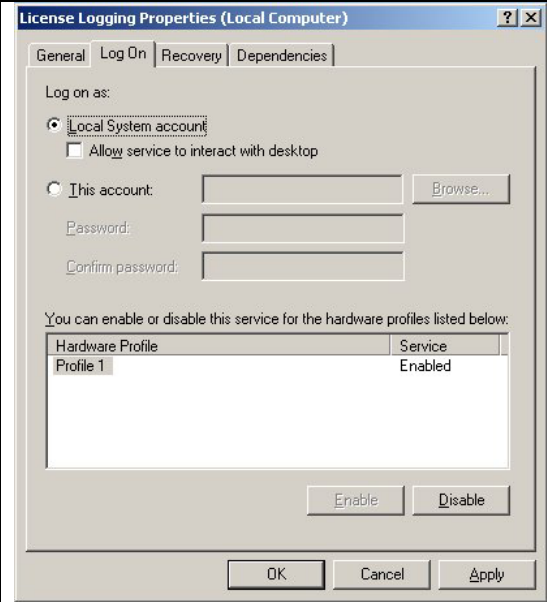
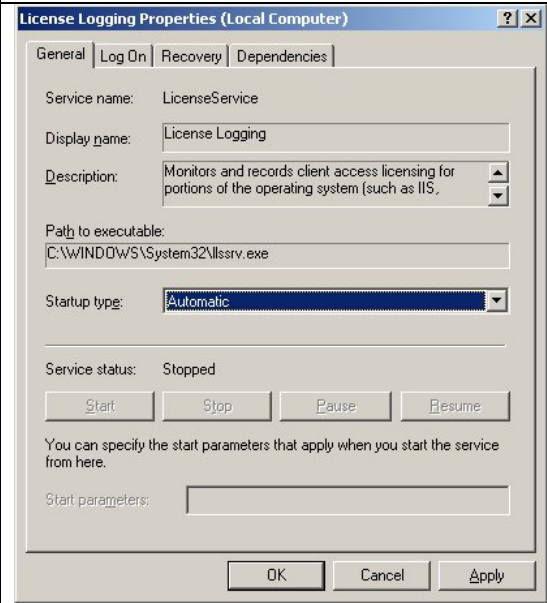
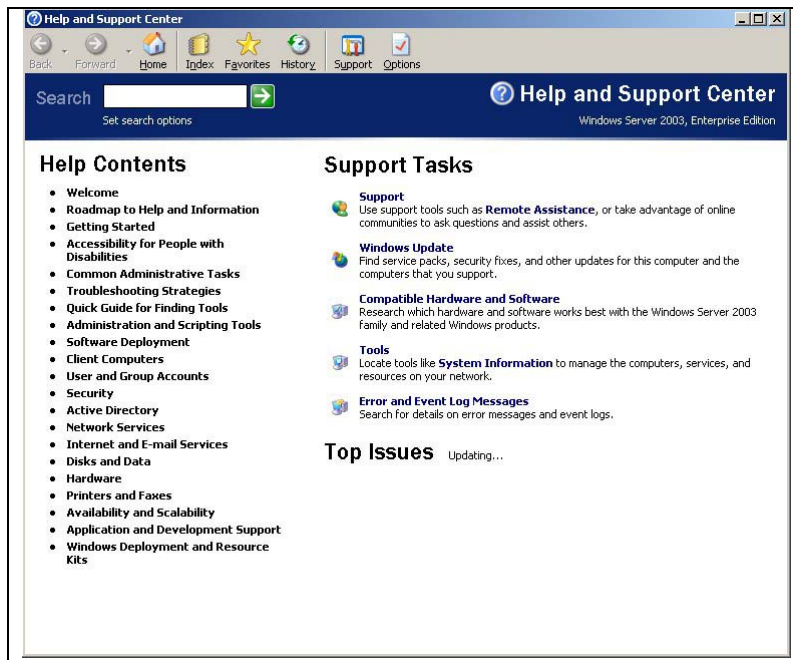
	On the Log On tab • Select Local System Account
	On the General tab • Select Startup type: Automatic • Select OK

Table 5. License Logging Configuration

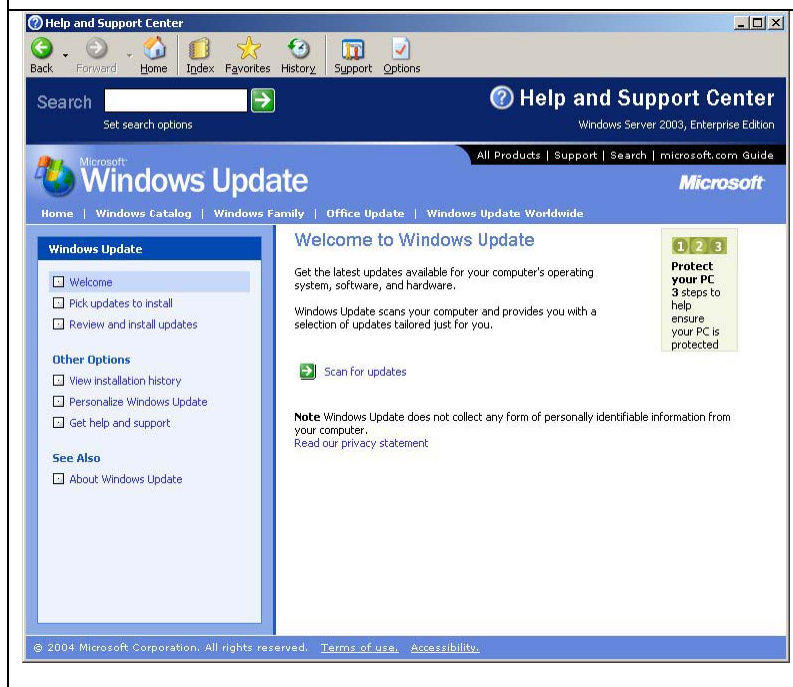
Run Windows Update

The procedure for a manual Windows update is illustrated below in Table 6. Later, automatic update configuration will be covered. For more information about Windows update, see Donald (2003) pages 51-55.

	Select • Start → Help and Support
---	---



Select Windows Update



Select Scan for updates.

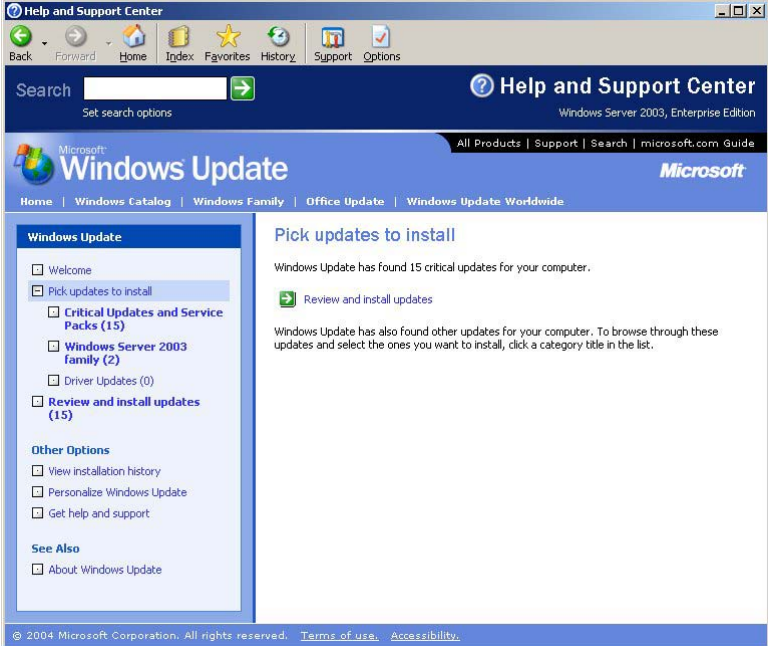
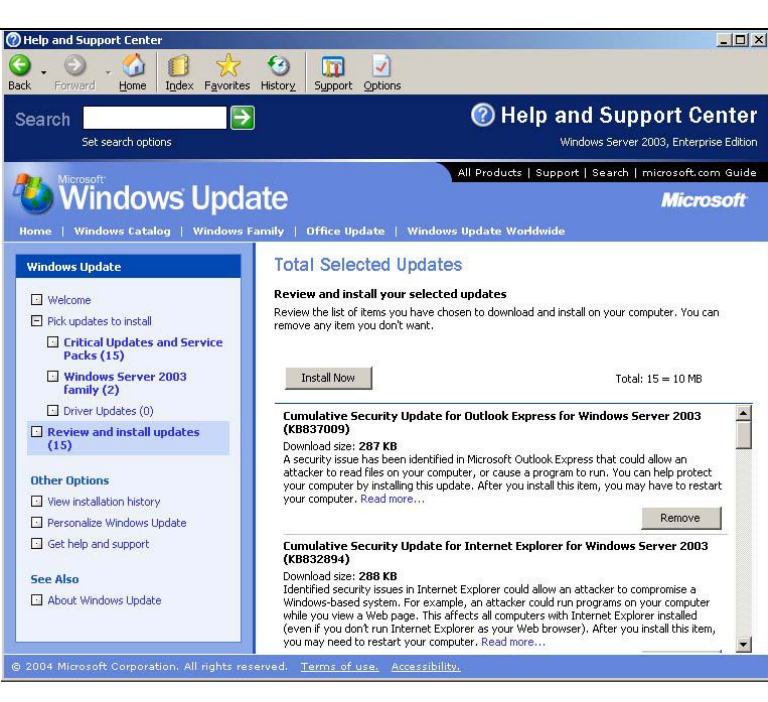
	Select Review and install updates.
	Select Install Now

Table 6. Windows Update

Configure Automatic Update

It is advised that automatic updates be completed routinely during a business downtime, and to schedule each machines update consecutively rather than simultaneously. This is important given the sporadic performance of the current DSL service (provided by SBC) and should be considered in any event when simultaneous updates might tax the bandwidth of the system. Since the office of Suburban Remodeling generally requires no after-business-hours

serviceability, daily updates can reasonably be performed. The proposed update schedule follows:

Node	Frequency	Time
Server	Daily	Midnight
XP Client 1	Daily	1:00 a.m.
XP Client 2	Daily	2:00 a.m.
XP Client 3	Daily	3:00 a.m.

Table 7. Automatic Updates Schedule

The automatic update configuration procedure is illustrated below in Table 8:

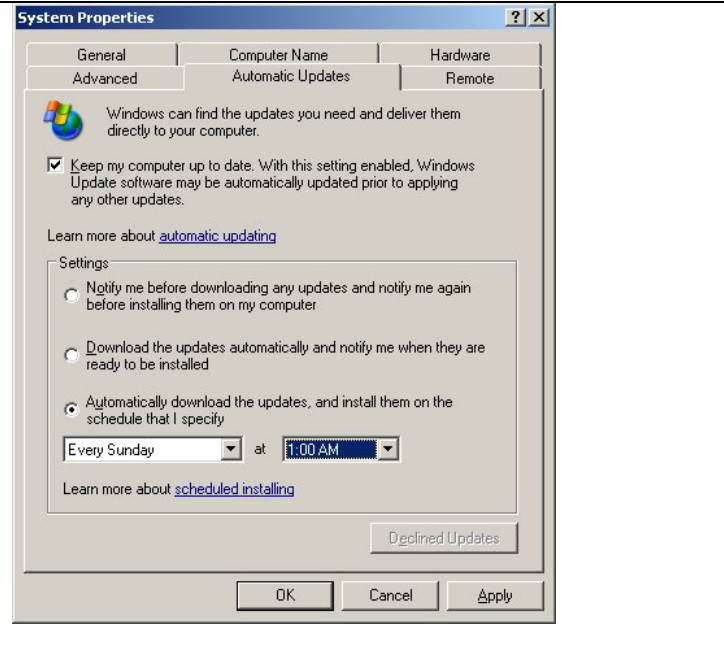
	Select • Start → Control Panel → System
	• Select “Automatically download the updates” • Set the download schedule (see Table 7above) • Select OK

Table 8. Automatic Update Configuration

About SUS

Since the primary advantages of SUS are for larger corporate environments, and because the introduction of SUS creates additional administrative overhead, and a dedicated SUS server would be required - this service will not be used. See Donald (2003) pp. 55-69 for more information.

Install MBSA

Download and install the MBSA from www.microsoft.com/mbsa. If IE security warns that this site is not a trusted site click add and add it to the list of trusted sites. This will then require re-select the link for download. This approach is preferred to lowering the security level on the server which will not be used for routine web browsing.

Run MBSA and address any outstanding security issues that are reported.

The procedure for installing MBSA is illustrated below in Table 9.

	• Start the MBSA download. • Select Next
	Accept the license agreement and select Next.

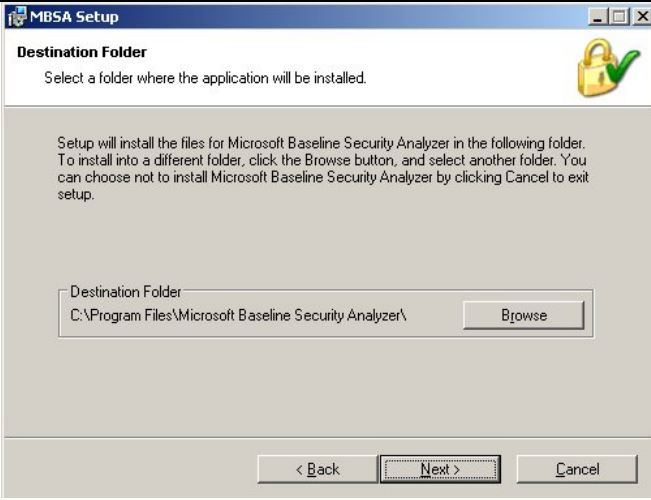
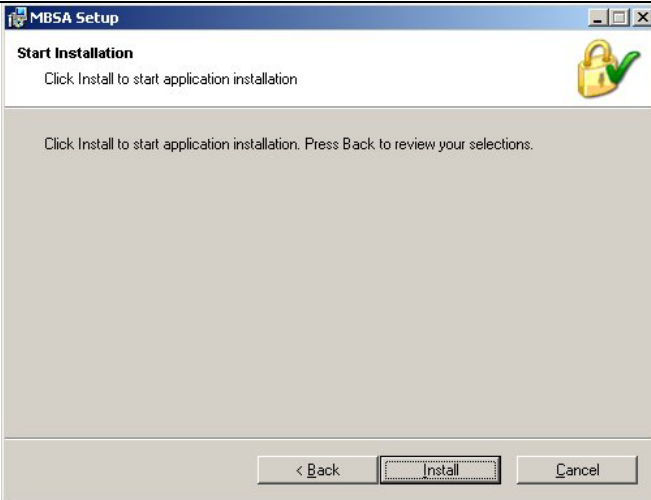
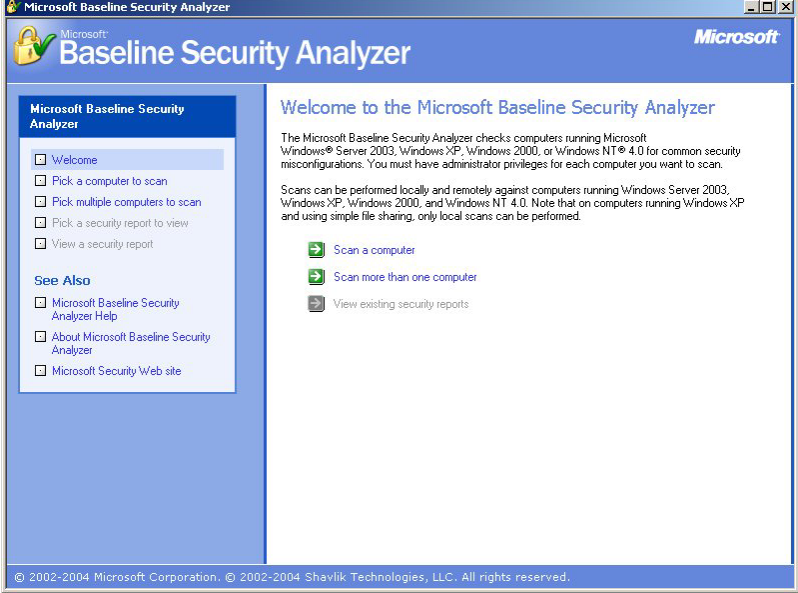
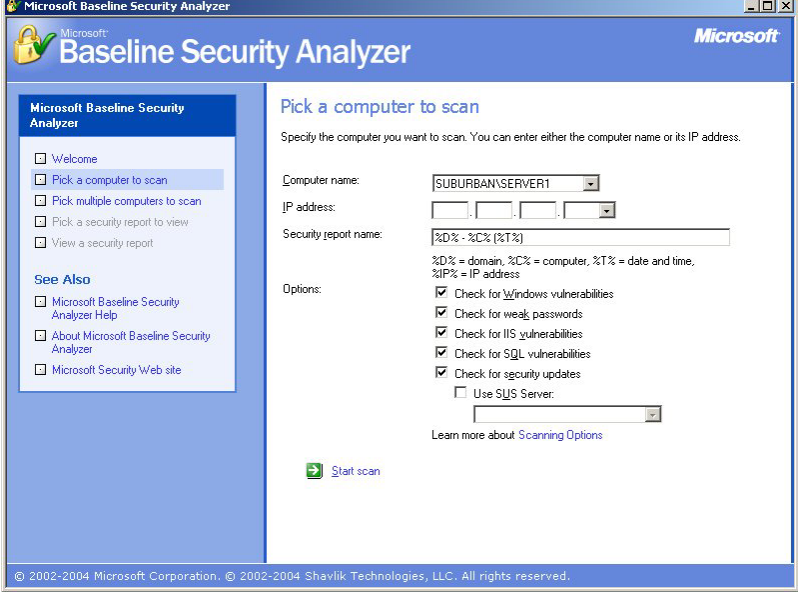
	Accept the default path and select Next.
	Select Install
	MBSA setup is complete.

Table 9. MBSA Installation

Using MBSA (move this)

(Donald, 2003, pp. 70-73) Start scan: after downloading security update information from Microsoft, MBSA will return a report. A sample is shown. Alternatively, can run from the command line (Donald, 2003, p. 72) options, pp. 72-73.

Using MBSA is illustrated below in Table 10. Table 11, the MBSA key, describes the flags that might be found in a security report from MBSA.

	Select Start → All Programs → Microsoft Baseline Security Analyzer
	Select Scan a computer
	- Select Server1 - Select Start Scan

Desktop Application Scan Results

Vulnerabilities

Score	Issue	Result
	IE Zones	Internet Explorer zones do not have secure settings for some users. What was scanned Result details How to correct this
	IE Enhanced Security Configuration for Administrators	The use of Internet Explorer is restricted for administrators on this server. What was scanned
	IE Enhanced Security Configuration for Non-Administrators	The use of Internet Explorer is restricted for non-administrators on this server. What was scanned
	Macro Security	No Microsoft Office products are installed

A portion of a sample security report is shown here.

Table 10. Running MBSA

	Security updates that cannot be confirmed as installed.
	Security check passed. No known outstanding security issues.
	Greater file version than expected.
	Informational
	Security updates confirmed as missing.

Table 11. MBSA Report Key. Source: Microsoft (2004)

Network and Hardware installation

DSL Configuration (according to ISP specifications)

The following router configuration information is taken from the SBC web site.

How to set the administrative login for Cayman Classic router

In order to protect yourself from potential security issues, it is important for you to set Admin and User passwords on your Cayman router.

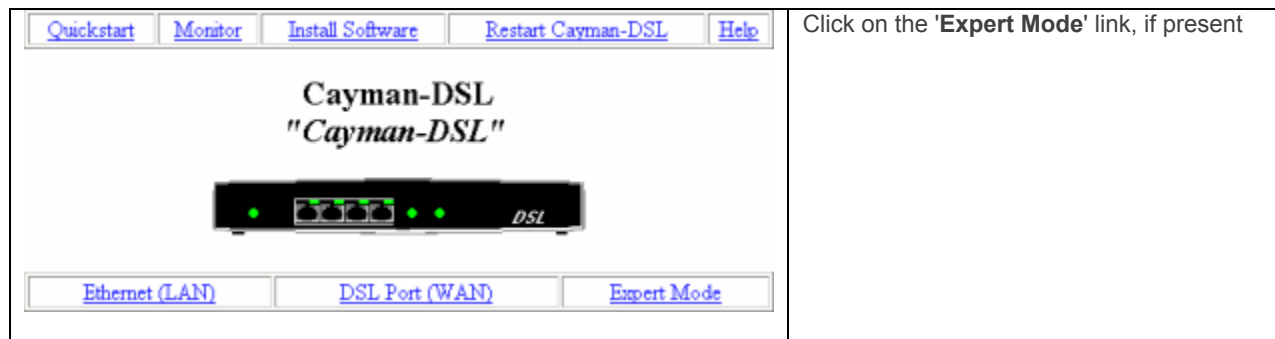
Access router interface

First, access your Cayman router's interface at <http://192.168.1.254> (this should open a new browser window). This is the default address that was set by Cayman. Once the router interface appears, go to Setting admin password instructions below. If this does not bring up a dialogue box or a router interface, your router may have another IP address; please refer to Determining the Gateway IP address.

If a dialogue box appears asking for a User Name and Password, leave the spaces blank and click OK. If your router's passwords have not been set, the router interface should appear in your browser and you can proceed with the Setting admin password instructions below.

If after clicking OK, the router interface does not appear, your passwords have already been set. Repeat the steps to access your router interface, but this time when the User Name and Password fields appear, enter "Admin" for User name and leave password blank. Press enter or OK to continue and proceed with the Setting admin password instructions below.

If you do not remember setting your passwords, please follow the instructions for Resolving incorrect Cayman router password errors. (SBC, 2004).



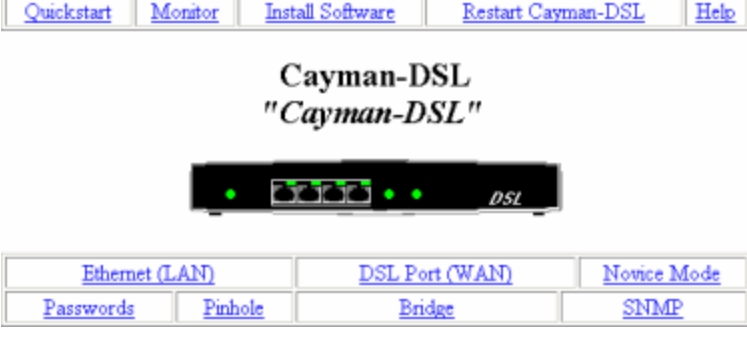
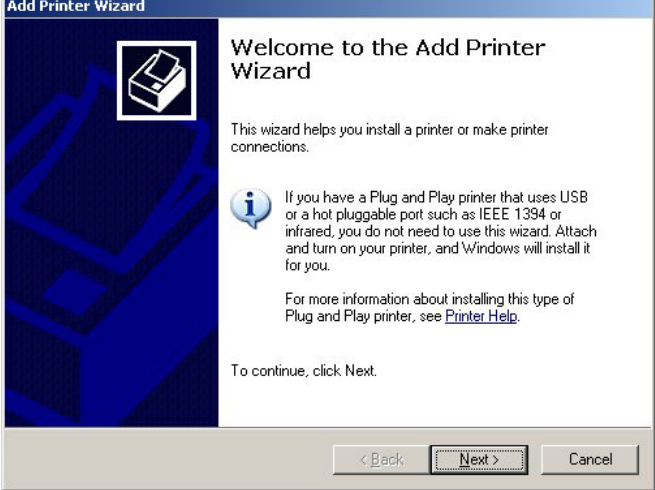
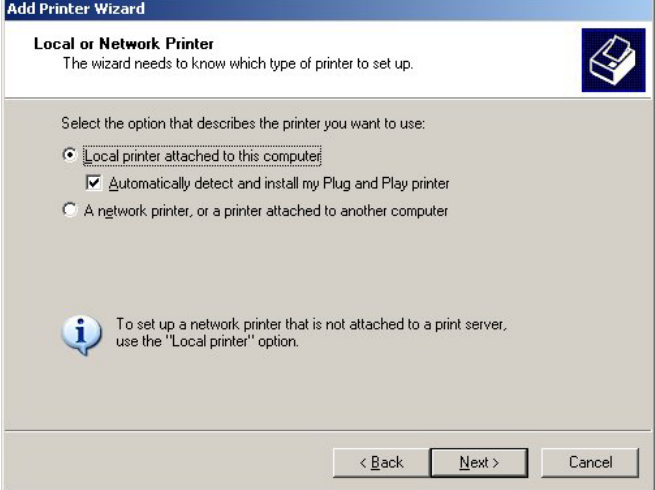
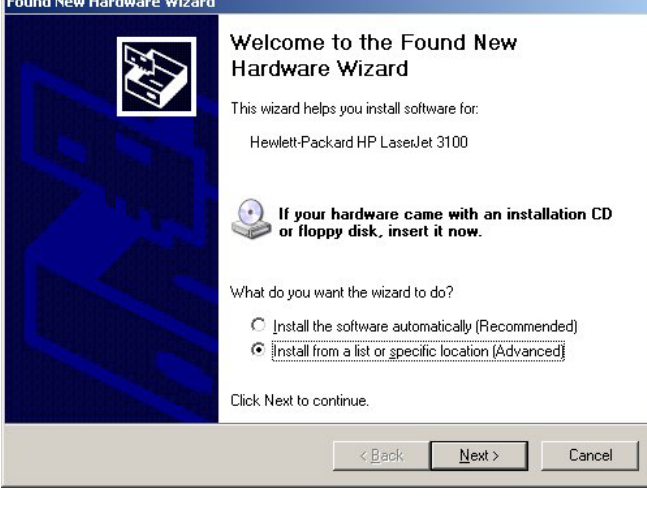
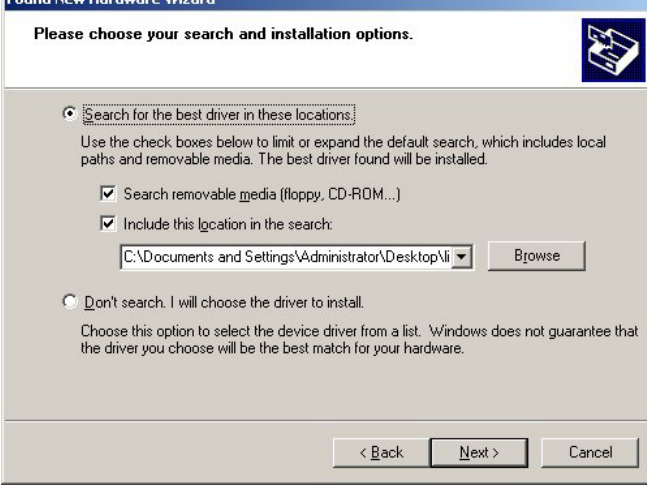
	Click on ' Passwords '
Passwords Password levels control which features the User is allowed to configure. Admin level: Full access to configure any parameter User level: Not allowed to change any parameters Password Level: Admin Old Password: (Leave blank if there is no old password) New Password: Repeat Password: Caution: Setting passwords using the web interface is a potential security risk, since the password values are sent as clear text. To avoid this risk, passwords should be set using the command-line interface via the serial maintenance port. Save Home	• Under the entry 'Password Level' select 'Admin' Enter a new password in the "New Password" field. • Enter the exact same password again in the "Repeat Password" field. • Click on 'Save' • When a new dialogue box appears, enter "Admin" for the User Name and enter your newly selected Admin password. • Click OK • Click on the Passwords link • Under the entry 'Password Level' select 'User' • Enter a new password in the "New Password" field. • Enter the exact same password again in the "Repeat Password" field. • Click on 'Save'
	Click on Restart Cayman-DSL link to restart router for changes to take effect. (Or you can unplug your router's power cord and reconnect it to restart the router.)

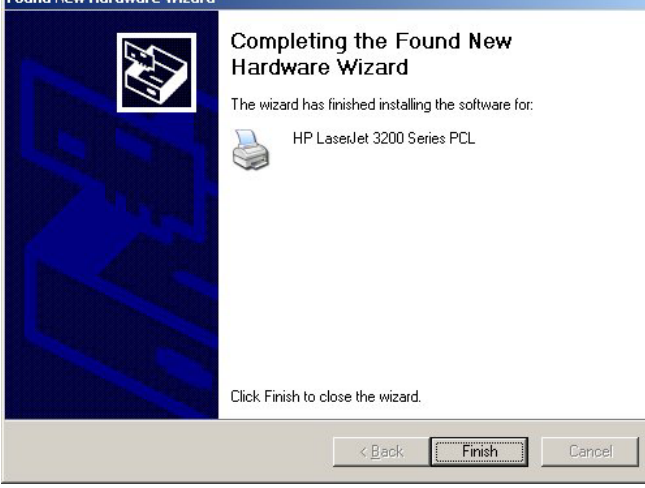
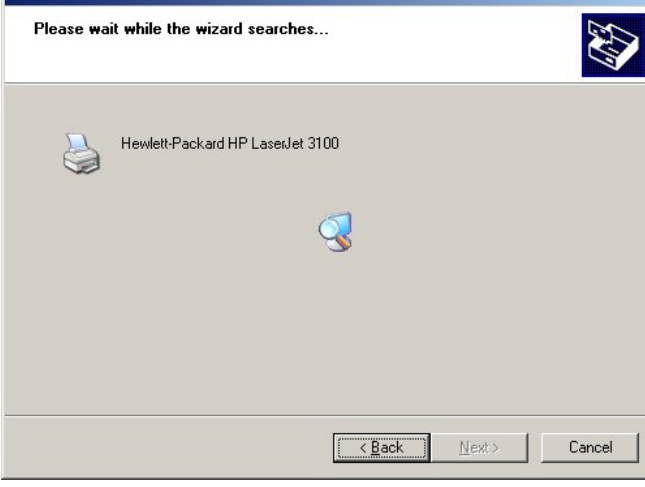
Table 12. Setting the Admin Password on the DSL Router.
(Source: SBC Global, 2004)

Printer

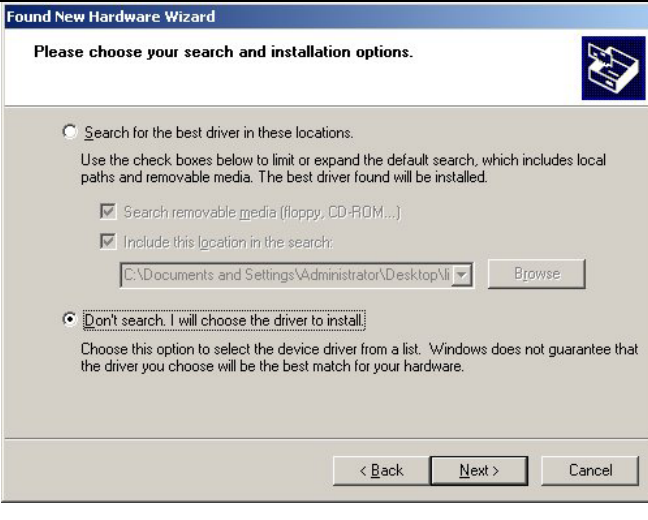
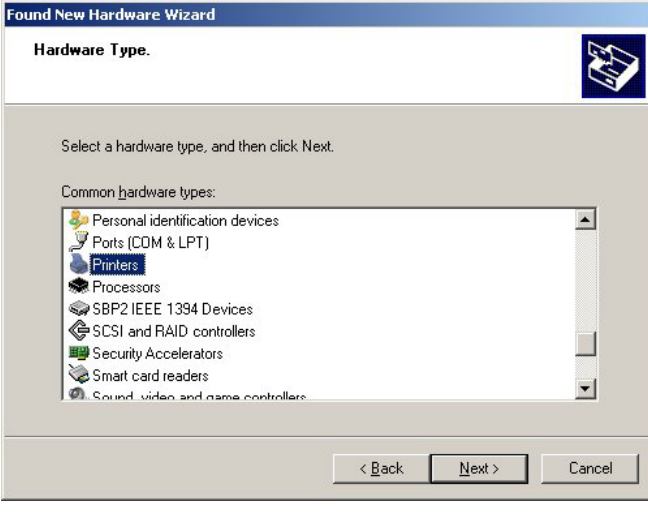
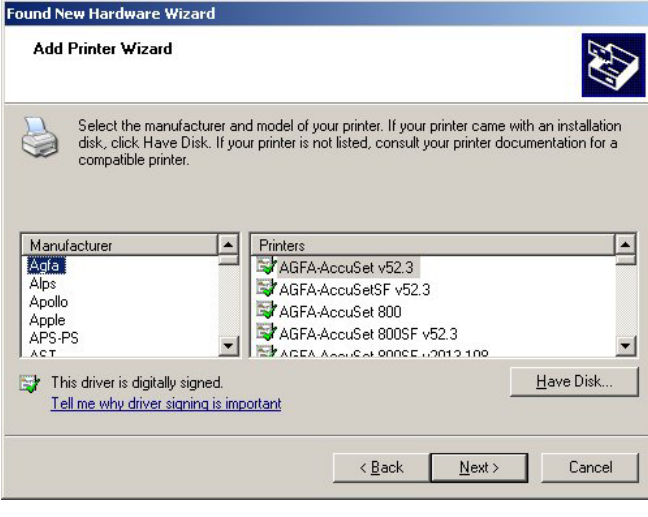
The procedure for printer configuration is illustrated below in Table 13.

	Select • Start → Printers and Faxes → Add Printer
	Select Next
	• Select Local printer attached to this computer. • Select Next Note: when installing on the client workstations, network printing should be selected.

 Add Printer Wizard New Printer Detection This wizard automatically detects and installs new Plug and Play printers. Windows is searching for new Plug and Play printers to install. Searching... < Back Next > Cancel	The system will detect the printer
 Found New Hardware Wizard Welcome to the Found New Hardware Wizard This wizard helps you install software for: Hewlett-Packard HP LaserJet 3100  If your hardware came with an installation CD or floppy disk, insert it now. What do you want the wizard to do? ☐ Install the software automatically (Recommended) ☒ Install from a list or specific location (Advanced) Click Next to continue. < Back Next > Cancel	• Choose Install from a list • Select Next
 Found New Hardware Wizard Please choose your search and installation options. ☒ Search for the best driver in these locations: Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed. ☒ Search removable media (floppy, CD-ROM...) ☒ Include this location in the search: C:\Documents and Settings\Administrator\Desktop\li Browse ☐ Don't search. I will choose the driver to install. Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware. < Back Next > Cancel	• Specify the location of the printer driver • Select Next

 The wizard has finished installing the software for: HP LaserJet 3200 Series PCL Click Finish to close the wizard. < Back Finish Cancel	Select Finish
 Please wait while the wizard searches... Hewlett-Packard HP LaserJet 3100 < Back Next > Cancel	The wizard will search for the printer

	Select the folder that contains the printer driver
	• Select Install from a list • Select Next

 Found New Hardware Wizard Please choose your search and installation options. ☐ Search for the best driver in these locations. Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed. ☒ Search removable media (floppy, CD-ROM...) ☒ Include this location in the search: C:\Documents and Settings\Administrator\Desktop\... Browse ☐ Don't search. I will choose the driver to install. Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware. < Back Next > Cancel	• Select “Don’t search” • Select Next
 Found New Hardware Wizard Hardware Type. Select a hardware type, and then click Next. Common hardware types: - Personal identification devices - Ports (COM & LPT) Printers - Processors - SBP2 IEEE 1394 Devices - SCSI and RAID controllers - Security Accelerators - Smart card readers - Sound, video, and game controllers < Back Next > Cancel	• Select hardware type: Printers • Select Next
 Found New Hardware Wizard Add Printer Wizard Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer. Manufacturer: Agfa, Alps, Apollo, Apple, APS-PS, AST Printers: AGFA-AccuSet v52.3, AGFA-AccuSetSF v52.3, AGFA-AccuSet 800, AGFA-AccuSet 800SF v52.3, AGFA-AccuSet 800SF v2012.100 ☒ This driver is digitally signed. Tell me why driver signing is important Have Disk... < Back Next > Cancel	• Select the correct Manufacturer and model • Select Next

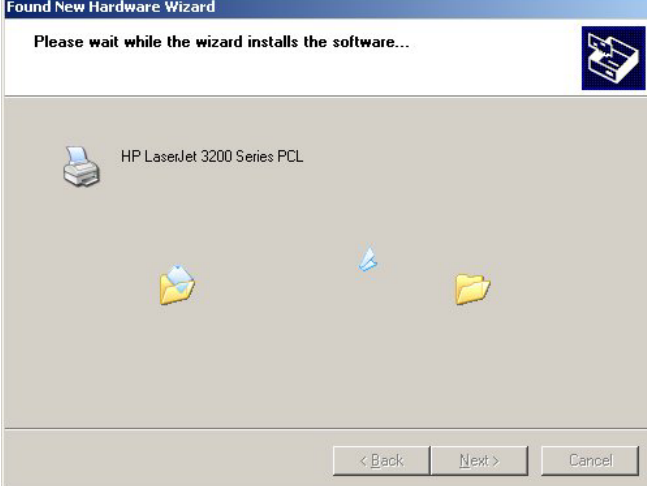
	The driver will install
---	-------------------------

Table 13. Printer Installation

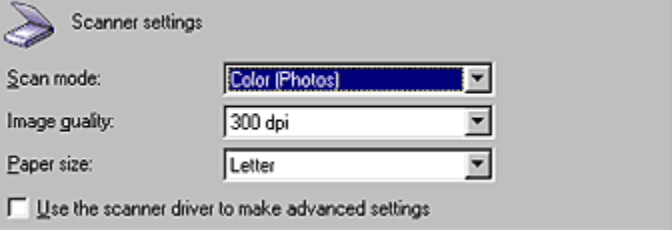
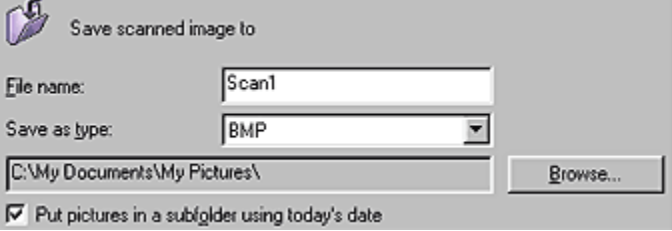
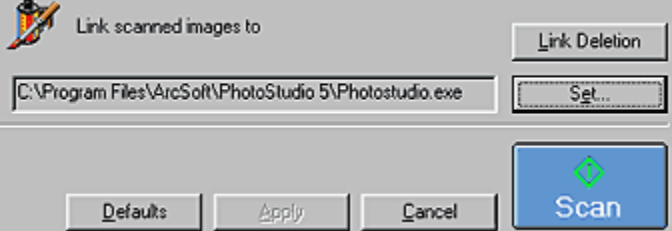
Scanner Installation and Configuration

Peripheral installation is generally manufacturer and model specific. The following procedures have been outlined for the use of the scanner currently owned by Suburban Remodeling, the Canon Lide 30. It is recommended that the scanner not be installed on the server, but on a primary workstation where it will be most accessible and will not detract from the servers' primary functions. The scanned files, however, may easily be stored on a shared drive on the server in order to make them accessible to all.

The following procedures for installing the Canon Lide 30 scanner have been gathered from the Canon web site.

IMPORTANT: With Windows XP/2000, you should log on with an administrator user name when you install or uninstall software programs.

1. Do not connect the scanner until instructed to do so.
2. With the computer on, place the CanoScan Setup Utility CD-ROM in the drive. The CanoScan Setup Utility main menu will display.
3. Click [Install the Software]. Read the SOFTWARE USER LICENSE AGREEMENT and then click [Yes] if you accept the terms. The [Install] window will display.
4. Click [Start Installation]. You will install six software programs and the Scanning Guide (HTML format manual).
5. The installation procedure will start. Follow the on-screen message prompts and click [Yes] or [Next] to continue the installation.
6. When the installation is complete, click [Yes]. The computer will restart.
7. After Windows restarts, remove the CD-ROM from the drive and store it in a safe place.
8. Be sure the scanner is unlocked and then connect the USB cable to the scanner and computer. (Canon, 2004)

	• Select Start. → Programs → Canon → CanoScan Toolbox 4.0 → CanoScan Toolbox 4.0. • Select the Scan button you wish to set. If the scanner begins to scan, click the Cancel button.
 Scanner settings Scan mode: Color (Photos) Image quality: 300 dpi Paper size: Letter ☐ Use the scanner driver to make advanced settings	Choose the desired <i>Scanner settings</i> .
 Save scanned image to File name: Scan1 Save as type: BMP C:\My Documents\My Pictures\ Browse... ☒ Put pictures in a subfolder using today's date	In the <i>Save scanned image</i> to section you can set the file name, file type, and location for scanned files to be saved.
 Link scanned images to Link Deletion C:\Program Files\ArcSoft\PhotoStudio 5\Photostudio.exe Set... Defaults Apply Cancel Scan	To remove the application link, click the Link Deletion button (see graphic below). Confirm deletion of link, if prompted. Note: By default, Scan-1 will be set to ArcSoft PhotoBase and Scan-2 will be set to ArcSoft PhotoStudio. To set the Scan button to open a different application, click the Set... button. A <i>Select Application</i> dialog box will appear.

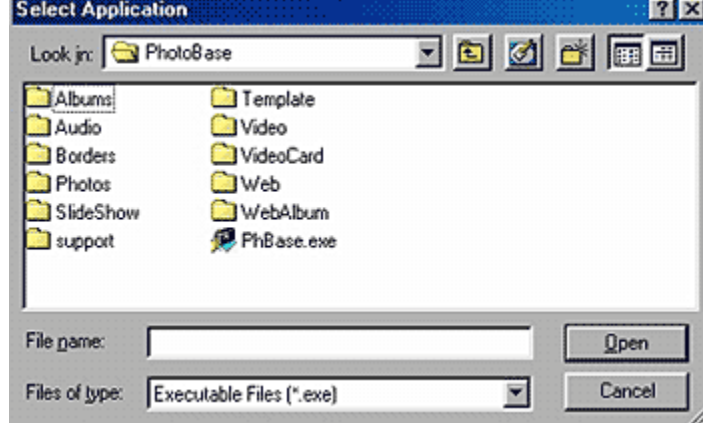
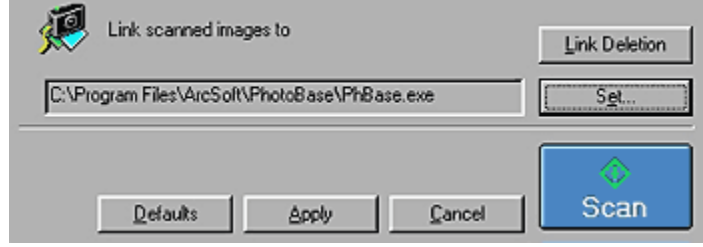
	Browse to the desired program folder and select the executable file for that application. Once you have selected the executable file, click Open.
	Be sure the path for your application appears. Click the Apply button and then Cancel to close the window.

Table 14. Configuration of the Canon Lide 30 Buttons

For further help, technical support is available directly from Canon. Support contact information is listed in Appendix A.

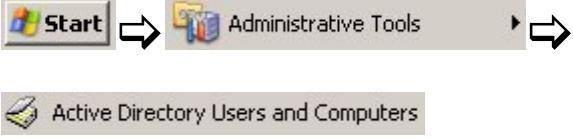
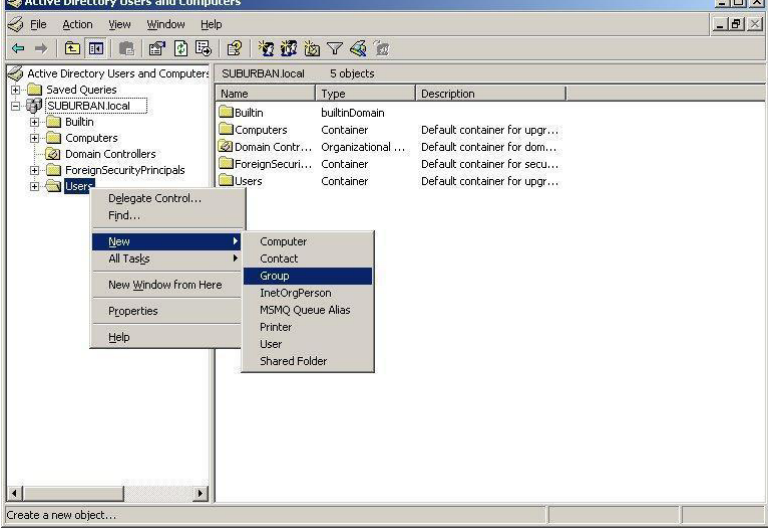
Users and Groups

Creating Groups

The procedure for creating new user groups is shown below in Table 15. The following groups should be created:

- Office
- FieldService
- Sales
- Administrators

For more information about creating security groups, see Donald (2003), pages 173-176.

	Select • Start → Administrative Tools → Active Directory Users and Computers
	• Right-click users • Select → New → Group

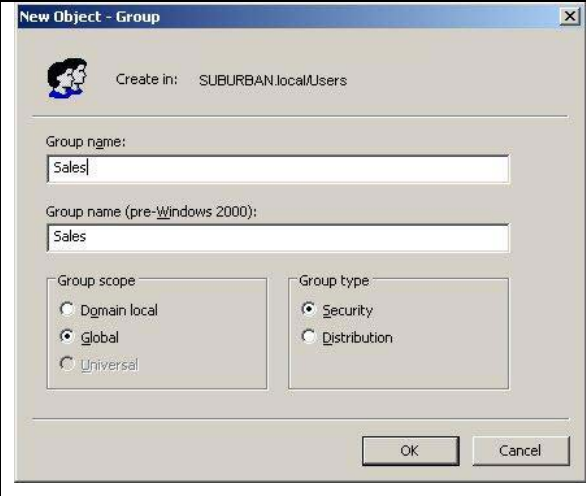
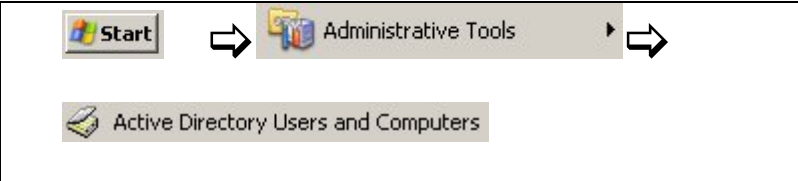
	• Enter the Group name • Select Global scop • Select Group type: Security
---	---

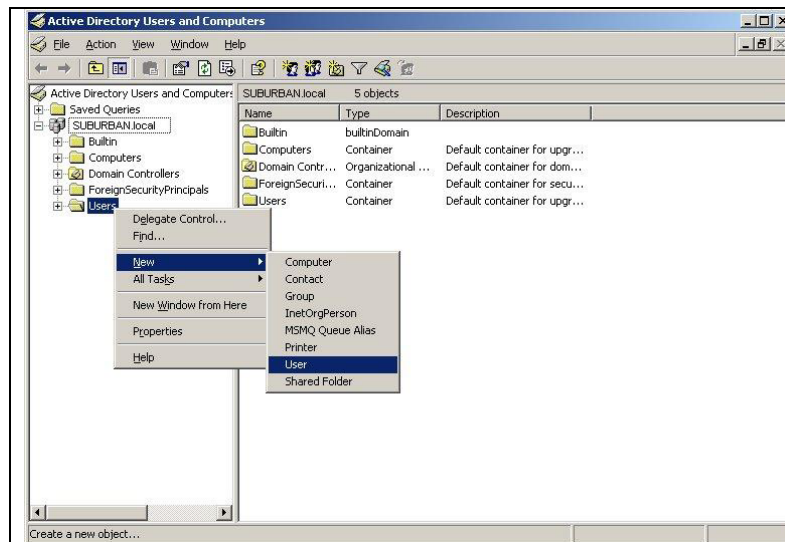
Table 15. Creating New User Groups

Adding Users

create users (p. 146)

The procedure for adding new users is illustrated below in Table 16.

	Select • Start → Administrative Tools → Active Directory Users and Computers
---	---



- Right-click users
- Select
 - New
 - User

The 'New Object - User' dialog box is shown at Step 1. The 'Create in' field is set to 'SUBURBAN.local/Users'. The fields are filled with the following information:

- First name: Adam
- Last name: Smith
- Full name: Adam Smith
- User logon name: asmith (with a dropdown menu showing '@SUBURBAN.local')
- User logon name (pre-Windows 2000): SUBURBAN\ asmith

Buttons at the bottom: < Back, Next >, Cancel.

- Enter the user's information:
 - First Name
 - Last name
 - Full name
 - Logon
- Select next

The 'New Object - User' dialog box is shown at Step 2. The 'Create in' field is set to 'SUBURBAN.local/Users'. The fields are filled with the following information:

- Password: [masked with dots]
- Confirm password: [masked with dots]
- ☒ User must change password at next logon
- ☐ User cannot change password
- ☐ Password never expires
- ☐ Account is disabled

Buttons at the bottom: < Back, Next >, Cancel.

- Enter a account startup password
- Select "User must change password at next logon"
- Select Next

	Select Finish
---	---------------

Table 16. Adding New Users

RAS Setup

Configure VPN on the Server

The following procedure is taken from the Microsoft web page, “Virtual Private Networking with Windows Server 2003: Deploying Remote Access VPNs.” The server must be configured for remote access Virtual Private Networking to allow for remote user access from remote workstations and laptops.

Deploying VPN Servers

Deploying the VPN servers for remote access VPN connections consists of the following:

- Configure the VPN server's connection to the intranet.
- Run the Routing and Remote Access Server Setup Wizard.

Windows Server 2003 includes enhanced support for the clustering of L2TP/IPSec VPN servers. For more information, see the topic titled "Checklist: Enabling and configuring Network Load Balancing" in Windows Server 2003 Help and Support.

Configuring the VPN Server's Connection to the Intranet

For each VPN server, configure the connection connected to the intranet with a manual TCP/IP configuration consisting of IP address, subnet mask, intranet DNS servers, and intranet WINS servers. Note that you must not configure the default gateway on the intranet connection to prevent default route conflicts with the default route pointing to the Internet.

Running the Routing and Remote Access Server Setup Wizard

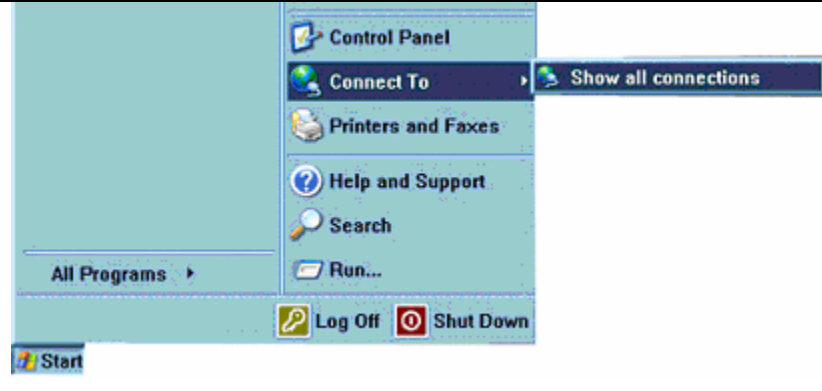
Run the Routing and Remote Access Server Setup Wizard to configure each Windows Server 2003 VPN server using the following steps:

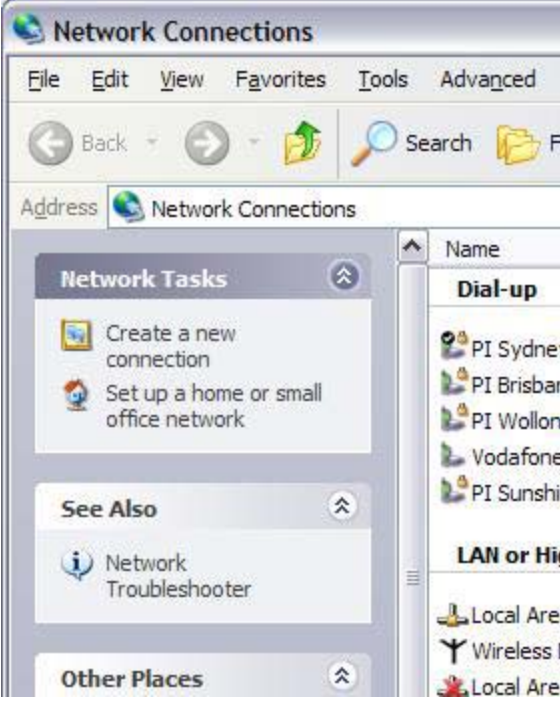
1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Routing and Remote Access**.
2. Right-click your server name, and then click **Configure and Enable Routing and Remote Access**. Click **Next**.
3. In **Configuration**, click **Remote access (dial-up or VPN)** and then click **Next**. If you want to use the VPN server computer as a network address translator (NAT), Web server, or other function, see Appendix B.
4. In **Remote Access**, select **VPN**. If you also want the VPN server to support dial-up remote access connections, click **Dial-up**. Click **Next**.
5. In **VPN Connection**, click the connection that corresponds to the interface connected to the Internet or your perimeter network, and then click **Next**.
6. In **IP Address Assignment**, click **Automatically** if the VPN server should use DHCP to obtain IP addresses for remote access VPN clients. Or, click **From a specified range of addresses** to use one or more static ranges of addresses. If any of the static address ranges is an off-subnet address range, routes must be added to the routing infrastructure in order for the VPN clients to be reachable. When IP address assignment is complete, click **Next**.
7. In **Managing Multiple Remote Access Servers**, if you are using RADIUS for authentication and authorization, click **Yes, set up this server to work with a RADIUS server**, and then click **Next**.
 - In **RADIUS Server Selection**, configure the primary (mandatory) and alternate (optional) RADIUS servers and the shared secret, and then click **Next**.
8. Click **Finish**.
9. If prompted, start the Routing and Remote Access service.

Source: Microsoft (2004). Virtual Private Networking with Windows Server 2003: Deploying Remote Access VPNs

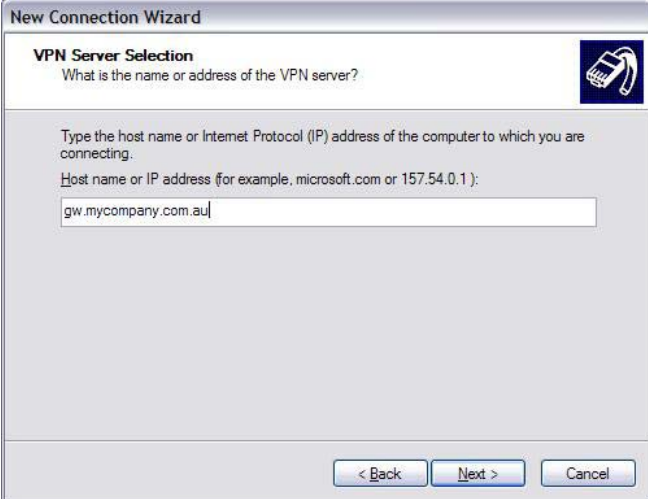
Configure Remote Clients

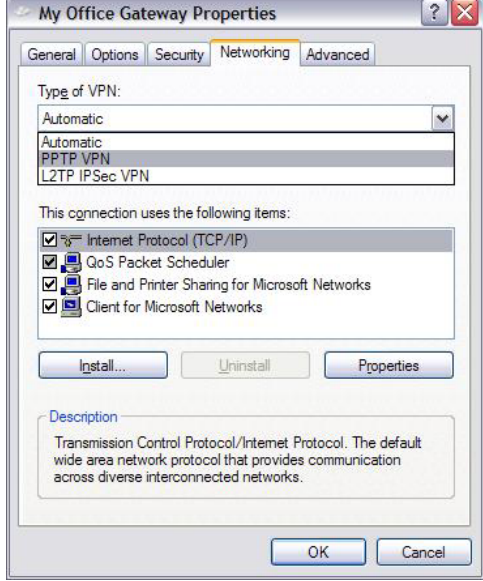
Configuration for remote XP clients to access the server can be done through the remote is demonstrated in . For more information on RAS configuration, see Donald (2003) pages 545-557. The following remote client connection procedure, shown in Table 17, is taken from the Bulletproof Networks web page, "Configuring Windows XP VPN Connection."

	Select • Start → Connect To → Show all connections. (Note: If your Start menu settings are set to Classic View, then proceed via Start, Settings, Network Connections.)
---	---

	Select Create a New Connection
	Select Next

 New Connection Wizard Network Connection Type What do you want to do? ☐ Connect to the Internet Connect to the Internet so you can browse the Web and read email. ☒ Connect to the network at my workplace Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location. ☐ Set up a home or small office network Connect to an existing home or small office network or set up a new one. ☐ Set up an advanced connection Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it. < Back Next > Cancel	• Select “Connect to the network at my workplace.” • Select Next.
 New Connection Wizard Network Connection How do you want to connect to the network at your workplace? Create the following connection: ☐ Dial-up connection Connect using a modem and a regular phone line or an Integrated Services Digital Network (ISDN) phone line. ☒ Virtual Private Network connection Connect to the network using a virtual private network (VPN) connection over the Internet. < Back Next > Cancel	• Select “Virtual Private Network connection.” • Select Next.
 New Connection Wizard Connection Name Specify a name for this connection to your workplace. Type a name for this connection in the following box. Company Name My Office Gateway For example, you could type the name of your workplace or the name of a server you will connect to. < Back Next > Cancel	• Name the connection “Suburban Remodeling” • Select Next.

 The screenshot shows the 'New Connection Wizard' window with the 'Public Network' tab selected. The text indicates that Windows can make sure the public network is connected first. It offers two options: 'Do not dial the initial connection' (selected) and 'Automatically dial this initial connection:'. The 'Next >' button is highlighted.	• Select “Do not dial the initial connection” • Select Next.
 The screenshot shows the 'New Connection Wizard' window with the 'VPN Server Selection' tab selected. It asks for the name or address of the VPN server. The text instructs to type the host name or Internet Protocol (IP) address. An example text box shows 'gw.mycompany.com.au' entered. The 'Next >' button is highlighted.	• Enter the IP address of Server1 • Select Next
 The screenshot shows the 'New Connection Wizard' window with the 'Completing the New Connection Wizard' screen. It states that the user has successfully completed the steps needed to create the connection. The connection is named 'My Office Gateway' and is set to 'Share with all users of this computer'. It mentions that the connection will be saved in the Network Connections folder. There is a checkbox for 'Add a shortcut to this connection to my desktop' which is currently unchecked. The 'Finish' button is highlighted.	• Select My Use Only • Select Next. • Select Finish

 The 'Connect My Office Gateway' dialog box features a header with a question mark and a close button. Below the header is a graphic of two laptops with a globe between them. The main area contains fields for 'User name:' and 'Password:', followed by a checkbox 'Save this user name and password for the following users:' with two radio button options: 'Me only' (selected) and 'Anyone who uses this computer'. At the bottom are buttons for 'Connect', 'Cancel', 'Properties', and 'Help'.	Select Properties
 The 'My Office Gateway Properties' dialog box has tabs for 'General', 'Options', 'Security', 'Networking', and 'Advanced'. The 'Networking' tab is active, showing a 'Type of VPN:' dropdown menu with 'Automatic' selected. Below this, a list of items to use for the connection is shown with checkboxes: 'Internet Protocol (TCP/IP)', 'QoS Packet Scheduler', 'File and Printer Sharing for Microsoft Networks', and 'Client for Microsoft Networks'. At the bottom are buttons for 'Install...', 'Uninstall', 'Properties', 'OK', and 'Cancel'. A 'Description' box at the bottom explains the Transmission Control Protocol/Internet Protocol.	• Select the Networking tab, • Select PPTP VPN • Highlight Internet Protocol (TCP/IP) • Select Properties → Advanced

 Advanced TCP/IP Settings General DNS WINS This checkbox only applies when you are connected to a local network and a dial-up network simultaneously. When checked, data that cannot be sent on the local network is forwarded to the dial-up network. ☐ Use default gateway on remote network OK Cancel	• Ensure the Use default gateway on remote network is NOT selected • Select OK, OK, OK, to get back to the Connect VPN to Office window
 Connect My Office Gateway User name: yourusername Password: ☐ Save this user name and password for the following users: ☒ Me only ☐ Anyone who uses this computer Connect Cancel Properties Help	• Type in user Login name and password • Select Connect

Table 17. Configuring the VPN clients.

Set permissions

Set disk quotas

Conclusion

The current growth of business at Suburban Remodeling Company demands a much needed system upgrade. Technical issues regarding the current information system include:

- Inconsistent operating platforms
- Lack of security and security policies
- Lack of remote connectivity provisions.
- Out-dated platforms and software.
- Lack of network documentation.

This upgrade plan addresses these issues by proposing a Windows Server 2003 based networked system which would provide:

- Consistency of operating systems (Server 2003 server and XP clients)
- Enhanced security through enforced security policies
- Remote connectivity provided through VPN capabilities of Server 2003 RAS
- Up-to-date operating systems, with automated updating procedures for the latest fixes and enhancements
- This document which outlines the procedures for installing and configuring the system

Windows Server 2003 is an enterprise capable system, with capabilities well beyond those outlined in this document. The proposed system will serve the needs of Suburban Remodeling Company both currently and through the anticipated future growth.

Appendix A - Resources

Canon Technical Support

Email support address: carecenter@cits.canon.com

Telephone Support:

FREE live technical support for 1 year from date of purchase:
Call 1-800-828-4040, Monday - Friday 8:00 a.m. - 12:00 midnight ET, Saturday 12:00 noon - 8:00 p.m. (excluding holidays)

Technical support for products no longer under warranty:
Call 1-757-413-2848 (\$9.99 per call), Monday - Friday 8:00 a.m. - 12:00 midnight ET, Saturday 12:00 noon - 8:00 p.m. (excluding holidays)

Toll-free TDD Support Line for the Hearing Impaired

1-866-251-3752, available Monday - Friday, 8:00 a.m. - 12:00 midnight ET, Saturday 12:00 noon - 8:00 p.m. (excluding holidays)

(Source: Canon, U.S.A.)

SBC Technical Support

SBC Yahoo! DSL accounts: 1-877-SBC-DSL-5 (1-877-722-3755)

Get technical help for connectivity, billing, email, etc.

SBC Yahoo! Dial accounts: 1-866-SBC-DIAL (1-866-722-3425)

Get technical help for the backup dial account that comes with your DSL service.

Email support: <http://help.sbcglobal.net/emailus.php>

Chat support: <https://www.sbcchat.com/callformsbc.asp>

(Source: SBC Global)

Microsoft Technical Support

Microsoft Windows Server 2003 Support Center:
<http://support.microsoft.com/default.aspx?scid=fh;EN-US;winsvr2003>

(Source Microsoft)

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