Microsoft: Windows XP Reliability Study

Test report prepared under contract from Microsoft Corporation

Executive summary

Microsoft Corporation commissioned eTesting Labs to measure the reliability of Windows XP Professional, Windows 2000 Professional Gold, and Windows 98 Second Edition Gold. We measured the reliability of these three operating systems by running application user scripts on them continuously over seven days to simulate a month of typical home PC use. We counted the number of application and operating systems failures and found that Windows XP Professional ran over 30 times as long without encountering problems as those running Windows 98 SE.

We built a test bed on a private network consisting of twelve client systems and one primary domain controller server. On four of the client systems we installed Windows 98 Second Edition Gold, on four other client systems we installed Windows 2000 Professional Gold, and on the remaining four client systems we installed Windows XP Professional, using the latest available updates. We installed Microsoft Office 2000 on all twelve client systems and installed a user script to automate the applications that we installed on the client systems. We configured the clients and server in the test bed to execute the user scripts, which they did for seven consecutive days. For systems that had application or operating system failures, we attempted to fix them using whatever means possible. Only as a last resort did we fix the failure by restarting the client systems. We took notes that contained the specifics on how systems failed and what we did to get them executing the test again.

Our results showed Windows XP Professional to be significantly more reliable than Windows 98 Second Edition Gold. Although testing with different applications might show different results, our testing proves that Windows XP Professional is significantly more reliable than Windows 98 SE. Windows XP Professional performed without a single application or operating system failure during the entire test period whereas we had to perform several system restarts on the Windows 98 SE systems.

After running the user scripts continuously over 7 days to simulate 31 days of typical home PC use, we found the mean time to failure for Windows 98 Second Edition to be less than 4% of that of either Windows 2000

Key findings

- Although testing with different applications might show different results, in our testing systems running Windows XP Professional ran over 30 times as long without encountering problems as those running Windows 98 SE.
- None of the Windows XP Professional systems had a single application or operating system failure during the test period.
- None of the Windows 2000 Professional Gold systems had a single application or operating system failure during the test period.
Professional Gold or Windows XP Professional. We found the average of the maximum runtime to failure for Windows 98 Second Edition Gold to be 15.7 equivalent user days, or roughly half that of the other two operating systems. (Note that, due to system failures, Windows 98 Second Edition Gold systems may have completed as few as 27 equivalent days of testing.)

Test results

Microsoft Corporation commissioned eTesting Labs to measure the reliability of Windows XP Professional, Windows 2000 Professional Gold, and Windows 98 Second Edition Gold. We measured the reliability of these three operating systems by running application user scripts on them continuously over seven days to simulate a month of typical home PC use, and counting the number of times we had to reset the scripts manually or had to restart the systems.

We created a test network containing twelve client systems and one server as described in the test methodology section of this report. On four of the client systems we installed Windows 98 Second Edition Gold, on four other client systems we installed Windows 2000 Professional Gold, and on the remaining four client systems we installed Windows XP Professional, using the latest available updates. We installed Microsoft Office 2000 on all twelve client systems and installed a user script to automate the applications that we installed on the client systems. We configured the clients and server in the test bed to execute the user scripts, which they did for seven consecutive days. For systems that had application or operating system failures, we attempted to fix them using whatever means possible. Only as a last resort did we fix the failure by restarting the client systems. We took notes that contained the specifics on how systems failed and what we did to get them executing the test again.

After evaluating the user scripts, we determined that they generated 2,073 operations per iteration. See Appendix C for the complete list of the 2,073 operations that the user scripts performed. Each user script iteration took roughly one hour, regardless of the specific system performance. We kept detailed records on the status of the test clients and summed the total number of operations that each client executed before experiencing an application or operating system failure.

As described in the test methodology section, we ran the user scripts continuously over seven days to simulate a month of typical home PC use. We used a value of 4.9 hours to represent a typical user day for home PC usage, based on an internal study that Microsoft conducted. Using this equivalent user day, we were able to simulate 31 equivalent user days of home PC usage in 7 days of testing on the Windows XP Professional and the Windows 2000 Professional Gold systems. The Windows 98 Second Edition Gold logged fewer iterations of the user scripts due to system failures, but all of them were able to simulate at least 27 equivalent user days of home PC usage in the 7-day test.

We monitored the status of the test systems at least twice a day during the week, typically once in the morning and once in the evening, and once during the day on weekends. We did not provide 24-hour surveillance on the test systems, so we did not see the failures as they occurred. Some failures may have corrected themselves without detection and some failures may have worsened over time. Even though all of the systems had similar start and end dates, system downtime due to failure prevented many of the systems from executing comparable numbers of operations.

As shown in Figure 1, we were able to perform all 315,343 operations on all four of the Windows XP Professional systems and on all four of the Windows 2000 Professional Gold systems.

As described above, a system that performed 315,343 operations performed 31.04 equivalent user days of work. We calculated this as follows:

\[
\frac{315,343 \text{ operations}}{2073 \text{ operations per iteration}} \times \frac{1 \text{ iteration per hour}}{4.9 \text{ hours per equivalent user day}} = 31.04 \text{ equivalent user days}
\]
All of these systems experienced no failures caused by either an application fault or operating system fault during the entire test run. Each of the four Windows 98 Second Edition Gold systems experienced at least two application failures and at least one operating system failure.

<table>
<thead>
<tr>
<th>Test client</th>
<th>Total Operations</th>
<th>User Days</th>
<th>Failures caused by App</th>
<th>Failures caused by OS</th>
<th>Longest runtime to App failure</th>
<th>Longest runtime to OS failure</th>
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</table>

Figure 1: Test system failure statistics (Units are equivalent user days)

As shown in Figure 2, we found that the mean time to failure (MTTF) for Windows 98 Second Edition to be significantly less than either Windows 2000 Professional Gold or Windows XP Professional.

![Mean Time to Failure Graph](image)

Figure 2: Mean time to failure across the three operating systems. Higher numbers reflect better performance.
In Figure 2, we calculated the MTTF to be the sum of the total number of operations performed by each group of four identically configured systems.

\[
\sum \text{total number of equivalent user days performed by each group of four identically configured systems} / (1 + \sum \text{total failures}).
\]

For example, we calculated the Windows 98 Second Edition Gold MTTF due to operating system failures to be:

\[
(28.95 + 28.37 + 31.41 + 27.16) / (1 + 8 \text{ operating system failures}) = 12.9 \text{ equivalent user days}
\]

Since we found no failures on Windows XP systems, we calculated the Windows XP Professional MTTF to be the sum of the four Windows XP total user days, or 124.2 equivalent user days.

We found the MTTF due to an application failure for Windows 98 Second Edition to be less than 5% of that of either Windows 2000 Professional Gold or Windows XP Professional. We found the MTTF due to an operating system failure for Windows 98 Second Edition to be less than 12% of that of either Windows 2000 Professional Gold or Windows XP Professional. We found the overall MTTF for Windows 98 Second Edition to be less than 4% of that of either Windows 2000 Professional Gold or Windows XP Professional. Although testing with different applications might show different results, in our testing systems running Windows XP Professional ran over 30 times as long without encountering problems as those running Windows 98 SE.

We calculated the maximum runtime equivalent user days that each system executed without failure. As shown in Figure 3, because Windows XP Professional and Windows 2000 Professional Gold had no application or operating system failures, we found these systems to have an average runtime of 31.04 equivalent user days. For Windows 98 Second Edition Gold, we found the average of the maximum runtime to failure values to be 15.7 equivalent user days, or roughly half that of the other two operating systems.

![Average of Maximum Runtime to Failure](chart.png)

Figure 3: Average of Maximum Runtime Failure. Higher numbers reflect better performance.

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eTesting Labs: Microsoft Windows XP Reliability Study 4
Testing methodology

We built a test bed on a private network consisting of twelve client systems connected to one server configured as primary domain controller (PDC). We put all of the client systems and the server on uninterruptible power supplies to prevent power faults from interrupting the progress of the test. See Appendix D for complete client and server system disclosure information.

On four of the client systems we performed clean installations of Windows 98 Second Edition Gold, on four other client systems we installed Windows 2000 Professional Gold, and on the remaining four client systems we installed Windows XP Professional, using the latest available updates available on the Microsoft Web site as of 5:00 PM EDT 10/12/2001. We then installed Microsoft Office 2000 on all twelve client systems. See Appendix A for details on how we configured each of the client systems.

We installed Windows 2000 Server SP2 on the PDC. We installed and configured Windows Exchange Server 5.5 SP3 and Internet Information Server on the PDC. We also configured the PDC to be a DHCP server. See Appendix B for details on how we configured the PDC.

On each of the test clients, we installed the Multiple Application Responsiveness Scenario v3.0 (MARS) benchmark application. MARS is a Microsoft-internal benchmark that runs a scenario to simulate a typical corporate workload and measures the responsiveness of the system. It runs on Windows 98, Windows 2000, and Windows XP.

The MARS scenario performed different operations with each application and measured the operations that affected the response of the system. This scenario ran with multiple applications open, and used an Exchange server to read and send emails through Outlook. It used IIS to browse Web pages through Internet Explorer.

MARS automated the following applications:

- Microsoft Access 2000
- Microsoft Excel 2000
- Microsoft Internet Explorer
- Microsoft Media Player
- Microsoft Outlook 2000
- Microsoft PowerPoint 2000
- Microsoft Word 2000

Although MARS was designed to measure the performance of application tasks on a system under test, we used MARS specifically to exercise the applications above similar to the way a real-world user would use his or her desktop system. The test script operates the system under test at user speed. So, regardless of the system's overall performance, each iteration through the user script takes approximately one hour to complete. While MARS performed its application operations, it wrote information regarding the specific tasks it was performing, as well as associated performance information, to a log file. See Appendix C for an example of the log file output. This appendix contains the exact set of tasks that all twelve client systems performed during the test.

To ensure that MARS was executing user commands properly, Microsoft provided us with the source code to MARS. We reviewed the MARS source code to ensure that it was performing the actual user script operations. We also recompiled the MARS source code to ensure that we were using the correct MARS executable files.

When we completed installing all the Office 2000 applications and finished configuring them and the MARS benchmark, we defragmented the boot drives on each of the test systems and restarted the system. After the
systems restarted, we initiated a 9999-iteration run of MARS. We chose a large number to ensure that MARS would continue to run for the entire test period.

During the test period, we monitored the status of the test systems at least twice a day during the week, typically once in the morning and once in the evening, and once during the day on weekends. We checked each client system monitor to look for problems, such as application crashes, operating system crashes, or visual inaccuracies within the test applications. Using an additional system on the private network, we also monitored the log files that MARS created on each client system. We checked these log files to make sure that MARS was completing all its operations successfully.

We used an Excel spreadsheet to keep records of our findings. In this spreadsheet, we recorded the name of the person who checked the systems, the date and time of the check, and the status of each system. If a problem was found on a given system, we determined whether it was a MARS harness failure, an application failure, an operating system failure, or some combination of these failures. We tried to resolve all problems that we encountered without restarting the client system. In some situations, we were unable to resolve the problem and restart MARS without restarting the client system. For those situations, we restarted the client system and restarted MARS. We recorded these restarts in the spreadsheet. At the end of the test period, we summed all of the MARS harness failures, application failures, operating system failures, and system restarts, and used this information to calculate the reliability of the systems.

For this test, we defined the types of failures as follows:

1. **MARS harness failure** – We considered this type of failure to be caused by the MARS application getting out of synchronization with the client system. A typical symptom of this type of failure was when the MARS error log file reported that MARS was waiting on a window to gain focus and would time out until the next MARS iteration. Since this type of error was not related to real user reliability, we did not use this information to calculate the system reliability.

2. **Application failure** – We considered this type of failure to be caused by an application crash. A typical symptom of this type of failure was a Dr. Watson dialog. When we got application failures, we pressed the close button on the dialog box at opportune times, so as to not cause MARS to lose focus.

3. **Operating system failure** – We considered this type of failure to be caused by the operating system crashing. A typical symptom of this type of failure was when the operating system caused the Windows user interface to be visually inaccurate or completely inoperable. In these situations, we restarted the system before resuming MARS.
Appendix

A. Test Client Configuration

Word
- Launch Word from the “Start\Program Files” Menu.
- Click the “Tools\Language” Menu. It should display the Thesaurus option.
- If thesaurus is not installed, then it must be installed manually.
- If Word is Maximized, then restore to the Normal Window.
- Close the Word Application.

Excel
- Launch Excel from the “Start\Program Files” Menu.
- Maximize the Worksheet “Book1” so that the Caption is: "Microsoft Excel - Book1".
- If Excel Application is Maximized, then Restore to its Normal Window.

Security
- Click the “Tools\Macro\Security” Menu. Set the Security Level to Low.

- Click the “View\Toolbars” Menu and disable the Clipboard Menu item. The Clipboard dialog must not be displayed in the Excel sheet.
- Close the Excel Application.
Internet Explorer

- Launch Internet Explorer from “Start\Program Files” Menu.

**Internet Connection Wizard**

- Select the option to Install the Internet Explorer for the Corporate LAN.

- Click the Next button.
Setting up your Internet Connection

- Select the Option to setup Internet Explorer to connect through a local area network (LAN).

- Click the Next button.

If you have an Internet service provider account, you can use your phone line and a modem to connect to it. If your computer is connected to a local area network (LAN), you can gain access to the Internet over the LAN.

How do you connect to the Internet?

- I connect through a phone line and a modem
- I connect through a local area network (LAN)

- Click the Next button.
Local area network Internet configuration

- Select the Option of Automatic discovery of proxy server.

- Uncheck the option of Manual Proxy Server.

- Click the Next button.
Set Up Your Internet Main Account

- Select No to open an Internet account.

![Internet Connection Wizard](image)

An Internet mail program is installed on your computer. Internet mail allows you to receive and send e-mail messages.

To successfully set up your Internet mail account, you must have already signed up for an e-mail account with an Internet service provider and obtained important connection information. If you are missing any information the wizard asks you to provide, contact your Internet service provider.

Do you want to set up an Internet mail account now?

- Yes
- No

- Click the Next button.
Completing the Internet Connection Wizard

- Click on Finish to configure Internet Explorer for LAN.

![Internet Connection Wizard]

Completing the Internet Connection Wizard

You have successfully completed the Internet Connection wizard. Your computer is now configured to connect to your Internet account.

After you close this wizard, you can connect to the Internet at any time by double-clicking the Internet Explorer icon on your desktop.

To connect to the Internet immediately, select this box and then click Finish.

To close the wizard, click Finish.
**Internet Options**

- When the Internet Explorer window is displayed, Click the “Tools\Internet Options” Menu and Set the Home Page to: about:blank.

![Internet Options](image)

- Close the Internet Explorer Application and Launch it again. You should see the "about:blank" page.
- If Internet Application is Maximized, then Restore to the Normal Window.
Outlook

- Launch the Outlook from the “Start\Program Files” Menu.
- Delete any Mails in the inbox.

AutoArchive

- Click “Tools\Options” Menu. The "Options dialog box" is displayed.
- Select “Other” Tab and click the AutoArchive Button. Disable the AutoArchive feature.
Add Service to Profile

- Click "Tools\Services" Menu. The "Services" dialog box is displayed.
- Click the "Add..." Button and "Personal Folders" from the Available Information Services.

- The "Create/Open Personal Folders File" dialog box is displayed to specify a .pst file.
- Select the file Mail.pst from the MARS\scenario directory.
Services

- Click the “Delivery” tab and set the deliver new mail to the Personal Folders.

![Services window]

- Close the Outlook Application.
- Open the Outlook Application again. A message box will be displayed that will prompt to create shortcuts to the contents of the old Outlook folder. Click the “No” button.
- Close the Outlook Application.
PowerPoint

- Launch the PowerPoint Application from the “Start\Program Files” Menu.

PowerPoint dialog box

- The "PowerPoint" dialog box is displayed.
- Click the checkbox saying: "Don’t show this dialog box again".
Next Slide dialog box

- Next, the "New Slide" dialog box is displayed.
- Click the checkbox saying: "Don’t show this dialog box again".

- If PowerPoint is Maximized, then Restore to its Normal Window.
- Close the PowerPoint Application.
Office Assistant

- Right Click on the Office Assistant and select “Options” Menu item. The Office Assistant dialog box is displayed.

- Click on the checkbox saying: “Use the Office Assistant” to Disable the Office Assistant.
**Media Player**

Copy any mp3 file that can be included in the Scenario in the Scenario subdirectory of MARS and Rename it as Mp3.mp3 file. MARS checks for this filename to load the file in the Media Player.

**My Documents**

- Right Click on My Documents icon on the desktop and select the “Properties” Menu item. The My Document Properties dialog is displayed.
• In the Target textbox, type in the path of the MARS\Scenario directory.
• Click Apply and OK button.

**Screen Resolution**

• It is recommended that the screen resolution be set to 1024x768 pixels and the color bits to 16bits.
• Right click on the desktop and select the “Properties” Menu item. The Display Properties dialog box is displayed.
• Select the “Settings” tab.
• Set the Screen Area to 1024 by 768 pixels.
• Click the Advance button and select the Monitor tab.
• Set the Refresh Frequency to 70 Hertz.

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**Printers**

• To install a printer, launch the Printers Folder from the “Start\Settings\Printers” menu.
Local or Network Printer

- Click the "Add Printer" icon. The "Add Printer Wizard" is displayed.

![Add Printer Wizard](image)

Select the Printer Port

- Click on the Local printer. Uncheck the checkbox saying: "Automatically detect and install my Plug and Play printer".
- Click the "Next" button.

Select the Printer Port

- Click the Option "Create a new port".
- Select the "Local Port" option.
• Click on the "Next" button.

**Port Name**

• Specify a New Port. Type "NUL" and click "OK".
- A list of Printers is displayed.
- Select HP as the Manufacturer and "HP LaserJet 5P" as the printer.

```plaintext
Name Your Printer
```

- Click the "Next" button.
• It will display the printer name.

• Click the "Next" Button.
**Printer Sharing**

- Click the option saying: "Do not share this printer".

- Click the "Next" Button.
Print Test Page

- It will ask you if you want to print a test page. Click the "No" Option.

- Click the "Next" button and then "Finish" button.

- Now the Printer is installed on the NUL port.
Folder Options

- Launch the Windows Explorer and Click the “Tools\Folder Options” Menu.
- Click the “View” tab.

- Click the Option Button saying: “Show hidden files and folders”.
- Uncheck the checkbox saying: "Hide file extensions for known file types".
AutoLogon

- Run the Autolog.exe from the MARS directory.

The following window will be displayed:

![Windows NT Auto Logon Setter](image)

- Specify the Password that will be used during the Windows login. The system will automatically login whenever the system boots.

MARS.ini

If MARS will be running in Server mode then change the value of 'sServerName' to point to the server that will be used as the IIS/Exchange server. If MARS will be running in the local mode then change the value of ‘sServerName’ equal to “local”.
E.g.: sServerName = “MARS-server2000” in Server mode and sServerName = “local” in local mode.

Defrag

It is recommended that after installing and configuring Office2000, that the hard disk be defragmented. A fragmented hard disk can significantly affect the performance of the system.
B. Test Server Configuration

Setting **Windows 2000** Server to Static IP Configuration

- Right Click on “My Network Places” and select the “Properties” Menu item.
- Double click on the “Local Area Connection”.

**Local Area Connection**

- The Local Area Connection Properties dialog box will be displayed.

![Local Area Connection Properties](image)

- Select the TCP/IP component and click on the Properties button.
**Internet Protocol (TCP/IP) Properties**

- The “Internet Protocol (TCP/IP) Properties” dialog box will be displayed.

![Internet Protocol (TCP/IP) Properties dialog box]

- Type an IP address and the Subnet mask.
- Click the Advance button.
Advanced TCP/IP Settings - DNS

- The “Advanced TCP/IP Properties” dialog box will be displayed.
- Click on the “DNS” tab.

- Type in a DNS name. Eg. PERF.
**Advanced TCP/IP Settings - WINS**

- Click on the "WINS" tab.

- Click the "Add" button to add the static IP address of the Server.
- Click the "OK" button.
- The computer will now restart.
Promoting the **Windows 2000** Server

- The server will now be promoted to a Domain Controller.
- Type in “dcpromo” in the Run dialog box.

![Active Directory Installation Wizard](image)

**Domain Controller Type**

Specify the role you want this server to have.

- **Domain controller for a new domain**
  - Select this option to create a new child domain, new domain tree, or new forest.
  - This server will become the first domain controller in the new domain.

- **Additional domain controller for an existing domain**
  - Proceeding with this option will delete all local accounts on this server.
  - All cryptographic keys will be deleted and should be exported before continuing.
  - All encrypted data, such as EFS-encrypted files or e-mail, should be decrypted before continuing or it will be permanently inaccessible.

- Select the option saying: “Domain controller for a new domain”.
- Click the Next button.

---

Create Tree or Child Domain
• The “Create Tree or Child Domain” dialog box will be displayed.

![Active Directory Installation Wizard](image)

Do you want to create a new domain tree or a new child domain in an existing domain tree?

- **Create a new domain tree**
  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.
  You can then choose to place the new domain tree in an existing forest, or create a new forest.

- **Create a new 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.

• Select the option saying: “Create a new domain tree”.

• Click the Next button.

---

**Create or Join Forest**

• The “Create or Join Forest” dialog box will be displayed.
Select the option saying: “Create a new forest of domain tree”.

Click the Next button.

New Domain Name

The “New Domain Name” dialog box will be displayed.
• Type in the DNS name (PERF) that was selected in the “Advanced TCP/IP Settings” dialog box.

• Click the Next button.

**NetBIOS Domain Name**

• The “NetBIOS Domain Name” dialog box is displayed.
Type in the selected DNS name.

Click the Next button.

Database and Log Locations

The “Database and Log Locations” dialog will be displayed.
Click the Next button.

**Shared System Volume**

- The “Shared System Volume” dialog box will be displayed.
• Click the Next button.

**Configure DNS**

• The “Configure DNS” dialog box will be displayed.
• Select Yes and click the Next button.

Permissions
• The “Permissions” dialog box will be displayed.
Select the option saying: “Permission compatible with pre-Windows 2000 servers”.

Click the Next button.

**Directory Services Restore Mode Administrator Password**

- The “Directory Services Restore Mode Administrator Password” dialog box will be displayed.
- It is recommended that the Password is left blank.
- Click the Next button.

**Summary**

- The “Summary” dialog box will be displayed.
Click the Next button.

In order to verify the selected DNS name, the Server must be on the network or on the Empty hub.

Once the DNS installation is complete, Restart the computer.

**The Windows 2000 Server has now been Promoted to a Domain Controller.**

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**Setting DHCP on the Server**

Click “Start\Program Files\Administrative Tools\DHCP” Menu. The DHCP window will be displayed.
• Right click on the servername and select “Authorize” menu item.
• Click on the “New Scope” menu. The “New Scope Wizards” dialog box will be displayed.

**Scope Name**

• Type a Scope Name.
• Click the Next button.

**IP Address Range**

• The “IP Address Range” dialog box will be displayed.
Type in the Starting IP address and the End IP address.

Click the Next button.

Add Exclusions

The “Add Exclusions” dialog box will be displayed.
Click the Next button.

**Lease Duration**

- The “Lease Duration” dialog box will be displayed.
Configure DHCP Options

- The “Configure DHCP Options” will be displayed.
Select the "Yes" option.

Click the Next button.

**Router (Default Gateway)**

The "Router (Default Gateway)" dialog box will be displayed.
• Click the Next button.

Domain Name and DNS Servers

• The “Domain Name and DNS Servers” dialog box will be displayed.
• Type in the Parent domain name (eg. PERF.COM).
• Type the Server name (eg. MARS-server2000).
• Type in the IP address of the server and click the Add button.

• Click the Next button.

**WINS Servers**

• The “WINS Servers” dialog box will be displayed.
• Type in the servername (eg. MARS-server2000).
• Type in the IP address.
• Click the Next button.

Activate Scope

• The “Activate Scope” dialog box will be displayed.
Select the Yes option.

Click the Next button.

**Updated DHCP Window**

Click the Finish button. The “DHCP” window will have the following contents.
• The Scope Options are now configured for the Windows 2000 Server.

The DHCP is now configured on the Windows 2000 Server.

Installing Exchange Server

• Run setup.exe file for the exchange server. The following Setup window will be displayed.
• Click on the button for the Custom setup.

**Complete/Custom**

• The “Complete/Custom” dialog box will be displayed.
• Uncheck the option saying: “Outlook Web Access”.

• Click the Continue button.

**Organization and site**

• The “Organization and site” dialog box will be displayed.


- Type the Organization name.
- Type the Site name.
- Click the OK button.

**Site Services Account**

- The “Site Services Account” dialog box will be displayed.
• Type in the Account Password. A Blank password can also be specified.

• Click the OK button.

• Run the file Update.exe from the SP3 directory for the Exchange Server.

Exchange server is now configured on the Windows 2000 Server.

Adding Microsoft Exchange Server Clients

• Click the “Start\Program Files\Microsoft Exchange\Microsoft Exchange Administrator” Menu item.

The following window will be displayed.
• Click on the “Recipients” node.
• Click on the “New Mailbox” button from the command bar.

Properties

• The “Properties” dialog box will be displayed.
Fill in the data as required.

Click the OK button.

**Primary Windows NT Account**

The “Primary Windows NT Account” dialog box will be displayed.
• Click on the option saying: “Create a new Windows NT account”.
• Click the OK button.

• The “Create Windows NT Account” will be displayed.

• Similarly, more client accounts can be created.

Active Directory Setup

• Click “Start\Program Files\Administrative tools\Active Directory Users and Computers” Menu item.
Click on the “Users” node.

Click the “New Users” button from the command bar.

**New Object – User**

The “New Object – User” dialog box will be displayed.
• Specify the First name, Last name, Full name and the Logon name.

• Click the Next button.

**User Password**

• The following dialog box will be displayed.
• Type in the Password.

• Click the Next button.

• The following window will be displayed.
Click the Finish button.

Adding Group

- From the “Active Directory Users and Computers” window, Right click on the “Perf” or the domain that was selected. Select the “Add members to a group…” Menu item.
Type in “Domain Admin” in the Name text box.
Click OK.

The Active Directory is now configured for the Windows 2000 Server.

Web Pages

Copy the subdirectories included in WWWRoot directory from the CD to Inetpub\wwwroot directory on the Windows 2000 server.
### C. Test Output

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271: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; CHART WIZARD - STEP 1 OF 4 - CHART TYPE; CLOSE; NO; B1
272: ; EXCEL; MAPSTATS.XLS; END; INSERT; CHART; EUROPE POP1; INSERT; NO; B1
273: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11; START
274: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; NO; B11
275: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
276: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
277: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11
278: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B11
279: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
280: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
281: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11
282: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B11
283: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
284: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
285: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11
286: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B11
287: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
288: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
289: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11
290: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B11
291: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
292: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
293: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
294: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
295: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11
296: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B11
297: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
298: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
299: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B11
300: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B11
301: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
302: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B11
303: ; EXCEL; MAPSTATS.XLS; BEGIN; INSERT; CHART; MEXICAN POPULATION; INSERT; NO; B11
304: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 1 OF 4 - CHART TYPE; OPEN; NO; B11
305: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; CHART WIZARD - STEP 1 OF 4 - CHART TYPE; OPEN; YES; B11
306: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; OPEN; NO; B11
307: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; OPEN; YES; B11
308: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; CLOSE; NO; B11
309: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; CLOSE; NO; B11
310: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; OPEN; NO; B11
311: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; OPEN; NO; B11
312: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; CLOSE; NO; B11
313: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; CLOSE; NO; B11
314: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; OPEN; NO; B11
315: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; OPEN; NO; B11
382:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;CHART TYPE;VISIBLE;YES;B4
383:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;CHART TYPE;CLOSE;NO;B4
384:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;CHART TYPE;CLOSE;NO;B4
385:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;ADD TRENDLINE;OPEN;NO;B4
386:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;ADD TRENDLINE;OPEN;YES;B4
387:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;ADD TRENDLINE;CLOSE;NO;B4
388:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;ADD TRENDLINE;CLOSE;NO;B4
389:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;CHART TYPE;VISIBLE;NO;B4
390:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;CHART TYPE;VISIBLE;YES;B4
391:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;CHART TYPE;CLOSE;NO;B4
392:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;CHART TYPE;CLOSE;NO;B4
393:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;ADD TRENDLINE;OPEN;NO;B4
394:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;ADD TRENDLINE;OPEN;YES;B4
395:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;ADD TRENDLINE;CLOSE;NO;B4
396:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;ADD TRENDLINE;CLOSE;NO;B4
397:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;CHART TYPE;VISIBLE;NO;B4
398:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;CHART TYPE;VISIBLE;YES;B4
399:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;CHART TYPE;CLOSE;NO;B4
400:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;CHART TYPE;CLOSE;NO;B4
401:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;ADD TRENDLINE;OPEN;NO;B4
402:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;ADD TRENDLINE;OPEN;YES;B4
403:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;ADD TRENDLINE;CLOSE;NO;B4
404:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;ADD TRENDLINE;CLOSE;NO;B4
405:;WORD;CHART.DOC;BEGIN;LAUNCH;APP;CHART.DOC - MICROSOFT WORD;FOREGROUND;NO;B4
406:;WORD;CHART.DOC;END;LAUNCH;APP;CHART.DOC - MICROSOFT WORD;FOREGROUND;SIG;B4
407:;WORD;CHART.DOC;BEGIN;PASTE;EXCEL CHART;17;PASTE;NO;B4
408:;WORD;CHART.DOC;END;PASTE;EXCEL CHART;17;PASTE;SIG;B4
409:;WORD;CHART.DOC;BEGIN;CUT;EXCEL CHART;18;CUT;NO;B4
410:;WORD;CHART.DOC;END;CUT;EXCEL CHART;18;CUT;SIG;B4
411:;WORD;CHART.DOC;BEGIN;OPEN;DIALOG;SAVE AS;OPEN;NO;B4
412:;WORD;CHART.DOC;END;OPEN;DIALOG;SAVE AS;OPEN;NO;B4
413:;WORD;CHART.DOC;BEGIN;CLOSE;DIALOG;SAVE AS;CLOSE;NO;B4
414:;WORD;CHART.DOC;END;CLOSE;DIALOG;SAVE AS;CLOSE;NO;B4
415:;WORD;CHART.DOC;BEGIN;SAVE;FILE;TEMP3.DOC;SAVE;NO;B4
416:;WORD;CHART.DOC;END;SAVE;FILE;TEMP3.DOC;SAVE;NO;B4
417:;WORD;TEMP3.DOC;BEGIN;EXIT;APP;TEMP3.DOC - MICROSOFT WORD;EXIT;NO;B4
418:;WORD;TEMP3.DOC;END;EXIT;APP;TEMP3.DOC - MICROSOFT WORD;EXIT;YES;B4
419:;EXCEL;STARTCLUST.XLS;BEGIN;ACTIVATE;APP;MICROSOFT EXCEL - STARTCLUST.XLS;FOREGROUND;NO;B4
420:;EXCEL;STARTCLUST.XLS;END;ACTIVATE;APP;MICROSOFT EXCEL - STARTCLUST.XLS;FOREGROUND;YES;B4
421:;EXCEL;STARTCLUST.XLS;BEGIN;TYPE;WINDOW;19;TYPE;NO;B5 START
422:;EXCEL;STARTCLUST.XLS;END;TYPE;WINDOW;19;TYPE;NO;B5
423:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;GO TO;OPEN;NO;B5
424:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;GO TO;OPEN;NO;B5
425:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
426:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
427:;EXCEL;STARTCLUST.XLS;BEGIN;TYPE;WINDOW;20;TYPE;NO;B5
428:;EXCEL;STARTCLUST.XLS;END;TYPE;WINDOW;20;TYPE;NO;B5
429:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;GO TO;OPEN;NO;B5
430:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;GO TO;OPEN;NO;B5
431:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
432:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
433:;EXCEL;STARTCLUST.XLS;BEGIN;TYPE;WINDOW;21;TYPE;NO;B5
434:;EXCEL;STARTCLUST.XLS;END;TYPE;WINDOW;21;TYPE;NO;B5
435:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;GO TO;OPEN;NO;B5
436:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;GO TO;OPEN;YES;B5
437:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
438:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
439:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;SORT;OPEN;NO;B5
440:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;SORT;OPEN;NO;B5
441:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;SORT;CLOSE;NO;B5
442:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;SORT;CLOSE;NO;B5
443:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;GO TO;OPEN;NO;B5
444:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;GO TO;OPEN;YES;B5
445:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
446:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;GO TO;CLOSE;NO;B5
447:;EXCEL;STARTCLUST.XLS;BEGIN;OPEN;DIALOG;SORT;OPEN;NO;B5
448:;EXCEL;STARTCLUST.XLS;END;OPEN;DIALOG;SORT;OPEN;NO;B5
449:;EXCEL;STARTCLUST.XLS;BEGIN;CLOSE;DIALOG;SORT;CLOSE;NO;B5
450:;EXCEL;STARTCLUST.XLS;END;CLOSE;DIALOG;SORT;CLOSE;NO;B5
904: ; ACCESS; NWIND.MDB; END; SAVE; FILE; NWIND; SAVE; NO;
905: ; ACCESS; NWIND.MDB; BEGIN; EXIT; APP; MICROSOFT ACCESS; EXIT; NO;
906: ; ACCESS; NWIND.MDB; END; EXIT; APP; MICROSOFT ACCESS; EXIT; SIG;
907: ; POWERPOINT; TYPICAL.PPT; BEGIN; ACTIVATE; APP; MICROSOFT POWERPOINT - [TYPICAL.PPT]; FOREGROUND; NO;
908: ; POWERPOINT; TYPICAL.PPT; END; ACTIVATE; APP; MICROSOFT POWERPOINT - [TYPICAL.PPT]; FOREGROUND; YES;
909: ; POWERPOINT; TYPICAL.PPT; BEGIN; SAVE; FILE; TYPICAL.PPT; SAVE; NO;
910: ; POWERPOINT; TYPICAL.PPT; END; SAVE; FILE; TYPICAL.PPT; SAVE; NO;
911: ; POWERPOINT; TYPICAL.PPT; BEGIN; EXIT; APP; MICROSOFT ACCESS; EXIT; NO;
912: ; POWERPOINT; TYPICAL.PPT; END; EXIT; APP; MICROSOFT ACCESS; EXIT; SIG;
913: ; POWERPOINT; TYPICAL.PPT; BEGIN; ACTIVATE; APP; MICROSOFT POWERPOINT - TYPICAL.PPT; FOREGROUND; NO;
914: ; POWERPOINT; TYPICAL.PPT; END; ACTIVATE; APP; MICROSOFT POWERPOINT - TYPICAL.PPT; FOREGROUND; YES;
915: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14 START
916: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
917: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
918: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
919: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
920: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; SIG; B14
921: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
922: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
923: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
924: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
925: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
926: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
927: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
928: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
929: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
930: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
931: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
932: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
933: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
934: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
935: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
936: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
937: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
938: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
939: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
940: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
941: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
942: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
943: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
944: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
945: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
946: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
947: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
948: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
949: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
950: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
951: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
952: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
953: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
954: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
955: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
956: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
957: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
958: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
959: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
960: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
961: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
962: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
963: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
964: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
965: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
966: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
967: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B14
968: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B14
969: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
970: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B14
971: ; EXCEL; TYPICAL.XLS; BEGIN; close; DIALOG; GO TO; close; NO; B15
972: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
973: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B15
974: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B15
975: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
976: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
977: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B15
978: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B15
979: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
980: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
981: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B15
982: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B15
983: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
984: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
985: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B15
986: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B15
987: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
988: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
989: ; EXCEL; TYPICAL.XLS; BEGIN; TYPE; WINDOW; 48; TYPE; NO; B15
990: ; EXCEL; TYPICAL.XLS; END; TYPE; WINDOW; 48; TYPE; NO; B15
991: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B15
992: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B15
993: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
994: ; EXCEL; TYPICAL.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
995: ; EXCEL; TYPICAL.XLS; BEGIN; TYPE; WINDOW; 48; TYPE; NO; B15
996: ; EXCEL; TYPICAL.XLS; END; TYPE; WINDOW; 48; TYPE; NO; B15
997: ; EXCEL; TYPICAL.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B15
998: ; EXCEL; TYPICAL.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B15
999: ; EXCEL; TYPICAL.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B15
1000: ; EXCEL; TYPICAL.XLS; END; CLOSE; APP; MICROSOFT EXCEL - TYPICAL.XLS; CLOSE; NO;
1001: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; OPEN; OPEN; NO;
1002: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; OPEN; OPEN; YES;
1003: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; OPEN; CLOSE; NO;
1004: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; OPEN; CLOSE; YES;
1005: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; FILE; MAPSTATS.XLS; FOREGROUND; NO;
1006: ; EXCEL; MAPSTATS.XLS; END; OPEN; FILE; MAPSTATS.XLS; FOREGROUND; YES;
1007: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B10 START
1008: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B10
1009: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B10
1010: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B10
1011: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; GO TO; OPEN; NO; B10
1012: ; EXCEL; MAPSTATS.XLS; END; OPEN; DIALOG; GO TO; OPEN; YES; B10
1013: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; GO TO; CLOSE; NO; B10
1014: ; EXCEL; MAPSTATS.XLS; END; CLOSE; DIALOG; GO TO; CLOSE; NO; B10
1015: ; EXCEL; MAPSTATS.XLS; BEGIN; INSERT; CHART; WORLD POP; INSERT; NO; B10
1016: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 1 OF 4 - CHART TYPE; OPEN; NO; B10
1017: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART OPTIONS; OPEN; NO; B10
1018: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 3 OF 4 - CHART LOCATION; OPEN; NO; B10
1019: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 4 OF 4 - CHART SOURCE DATA; OPEN; NO; B10
1020: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 4 OF 4 - CHART SOURCE DATA; OPEN; YES; B10
1021: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 3 OF 4 - CHART OPTIONS; OPEN; NO; B10
1022: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 3 OF 4 - CHART OPTIONS; OPEN; NO; B10
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1024: ; EXCEL; MAPSTATS.XLS; BEGIN; OPEN; DIALOG; CHART WIZARD - STEP 3 OF 4 - CHART LOCATION; OPEN; NO; B10
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1033: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; CHART WIZARD - STEP 2 OF 4 - CHART SOURCE DATA; CLOSE; NO; B10
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1035: ; EXCEL; MAPSTATS.XLS; BEGIN; CLOSE; DIALOG; CHART WIZARD - STEP 1 OF 4 - CHART TYPE; CLOSE; NO; B10
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eTesting Labs: Microsoft Windows XP Reliability Study 88
1303: ; ACCESS; NWIND.MDB; BEGIN; CREATE; NEW TABLE; TABLE4; CREATE; NO; B15
1304: ; ACCESS; NWIND.MDB; BEGIN; OPEN; DIALOG; TABLE4; TABLE; OPEN; NO; B15
1305: ; ACCESS; NWIND.MDB; END; OPEN; DIALOG; TABLE4; TABLE; OPEN; YES; B15
1306: ; ACCESS; NWIND.MDB; BEGIN; OPEN; DIALOG; SAVE AS; OPEN; NO; B15
1307: ; ACCESS; NWIND.MDB; END; CLOSE; DIALOG; SAVE AS; CLOSE; NO; B15
1308: ; ACCESS; NWIND.MDB; BEGIN; CLOSE; DIALOG; SAVE AS; CLOSE; NO; B15
1309: ; ACCESS; NWIND.MDB; END; CREATE; NEW TABLE; TABLE4; CREATE; NO; B15
1310: ; ACCESS; NWIND.MDB; BEGIN; POPUP; DIALOG; MICROSOFT ACCESS(SAVE TABLE); POPUP; NO; B15
1311: ; ACCESS; NWIND.MDB; END; POPUP; DIALOG; MICROSOFT ACCESS(SAVE TABLE); POPUP; NO; B15
1312: ; ACCESS; NWIND.MDB; BEGIN; CLOSE; DIALOG; MICROSOFT ACCESS(SAVE TABLE); CLOSE; NO; B15
1313: ; ACCESS; NWIND.MDB; END; CLOSE; DIALOG; MICROSOFT ACCESS(SAVE TABLE); CLOSE; NO; B15
1314: ; ACCESS; NWIND.MDB; END; CREATE; NEW TABLE; TABLE4; CREATE; NO; B15
1315: ; ACCESS; NWIND.MDB; BEGIN; CLOSE; DIALOG; TABLE4; TABLE; CLOSE; NO; B15
1316: ; ACCESS; NWIND.MDB; END; CLOSE; DIALOG; TABLE4; TABLE; CLOSE; NO; B15
1317: ; ACCESS; NWIND.MDB; BEGIN; WAIT; WINDOW; DATABASE; VISIBLE; NO; B15
1318: ; ACCESS; NWIND.MDB; END; WAIT; WINDOW; DATABASE; VISIBLE; NO; B15
1319: ; ACCESS; NWIND.MDB; BEGIN; CLOSE; DIALOG; TABLE4; TABLE; CLOSE; NO; B15
1320: ; ACCESS; NWIND.MDB; END; CREATE; NEW TABLE; TABLE4; CREATE; NO; B15
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1322: ; ACCESS; NWIND.MDB; END; POPUP; DIALOG; MICROSOFT ACCESS(DELETE ROW); POPUP; NO; B15
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1369: ; ACCESS; NWIND.MDB; BEGIN; ACTIVATE; APP; MICROSOFT OUTLOOK; FOREGROUND; NO;
1370: ; OUTLOOK; MAIL.PST; END; ACTIVATE; APP; MICROSOFT OUTLOOK; FOREGROUND; YES;
1371: ; OUTLOOK; MAIL.PST; BEGIN; ACTIVATE; APP; INBOX - MICROSOFT OUTLOOK; FOREGROUND; YES;
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<td>Integrated</td>
</tr>
<tr>
<td>Video Resolution Assigned</td>
<td>1024 x 768</td>
</tr>
<tr>
<td>Color Depth Assigned</td>
<td>16 bbp</td>
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<tr>
<td>Refresh Rate</td>
<td>70 Hz</td>
</tr>
<tr>
<td>Sound Board</td>
<td>SoundMAX Integrated Digital Audio</td>
</tr>
<tr>
<td>NIC (Driver)</td>
<td>3Com 3C920 Integrated Fast Ethernet Adapter</td>
</tr>
<tr>
<td>IP Address</td>
<td>DHCP</td>
</tr>
<tr>
<td>CD-ROM Drive Manufacturer</td>
<td>Samsung CD-ROM SN-124</td>
</tr>
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