PC-Duo Enterprise Diagnostics User Manual

This book explains how to use PC-Duo Enterprise Diagnostics version 2.0.

The information in this document is subject to change without notice and should not be construed as a commitment by Vector Networks Limited, Vector Networks Inc. or MetaQuest Software Inc.

Vector Networks Limited, Vector Networks Inc. and MetaQuest Software Inc. assume no responsibility for errors in this document.

PART NUMBER: DD20/00

Contents

Chapter 5

Chapter 6

Chapter 7

Chapter 8

Chapter 1: Deploying Enterprise Diagnostics

Enterprise Diagnostics Components

Enterprise Diagnostics consists of a central, administrative console, agents that run on remote computers, and a shared data folder called the Support Site.

Diagnostics Console

You use the console to profile, protect, and audit applications, and to diagnose and fix problems.

The console is a Microsoft Management Console (MMC) snap-in that you can start from the PC-Duo Enterprise Console or run as a standalone application. MMC is a feature of the Windows 2000, NT, and XP operating systems, but MMC can also run on the Windows 95, 98, and Me operating systems.

You can add the Diagnostics Console snap-in to other MMC consoles.

Diagnostics Agents

Agents are installed on each computer on the network, and are responsible for auditing and protecting the computers.

Support Site

Support Site is a shared folder that has the following functionality:

- It enables peer-to-peer communication between the consoles and agents.
- It stores the public profiles, all audit reports, and the licensing information.
- It includes the setup programs for consoles and agents. After the first console is installed and configured, all other copies of the console are installed from Support Site.

Setting Up Enterprise Diagnostics

Setting up Enterprise Diagnostics involves installing at least one copy of the Diagnostics Console, and a copy of Diagnostics Agent on each computer where you want to protect applications or collect diagnostics.

To set up Enterprise Diagnostics on your network:

1. Install a copy of Enterprise Diagnostics from the CD. In addition to installing a copy of Diagnostics Console and Diagnostics Agent, the Setup program allows you to:
   - Set up the Support Site, the shared folder used by all agents and consoles.
   - Set the event logging options.
2. Install Diagnostics Agent on all computers.
3. Install additional copies of Diagnostics Console as required.

Installing Enterprise Diagnostics

You can install a copy of Enterprise Diagnostics from the CD. After you install Enterprise Diagnostics, the Setup program allows you to set options shared by all agents and consoles (such as the Support Site location and event logging options).

By default, the Setup program installs all features in a default location. To select the features to install or to select a different location, choose the Custom setup type.

Select Features The Custom setup type allows you to select the features to install. You must install both Diagnostics Agent and Enterprise Diagnostics. If you don't want to diagnose ODBC database problems, you don't need to install Diagnostics/db.

Setting Up the Support Site The Support Site is a shared folder on a network server. All agents and consoles must be able to access the Support Site subfolder in the Offline Area.

Setting the Support Site User Account The Support Site user account is used by all agents and consoles to:

- Audit and protect computers.
- Access the Support Site shared folder.
- Run jobs.
- Run the Enterprise Diagnostics service (named MQ Message Broker).

The Support Site user account must be a domain Administrator that has local Administrative privileges on each computer.

Do not add any other shares for the Support Site folder. For example, do not create a second share so that the Support Site folder is shared both as //nanp/Support Site and //nanp/Diagnostics.

Setting the Event Logging Options By default, agents and consoles log events on the local computer. On Windows NT, 2000, and XP, events are logged to the Event Log. On Windows 95, 98, and Me, events are logged to a text file.

On Windows NT, 2000, and XP, you can log all events to the Event Log on a central server. See "Logging Events" on page 62 for more information.

Installing Diagnostics Agents

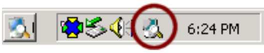
Diagnostics Agent must be installed on every computer where you want to protect or audit applications.

To install the agent manually:

1. Connect to the Support Site shared folder.
2. Run the setup program in Setup\Agent.
3. If you want to diagnose ODBC database problems, Diagnostics/db must be installed on each computer. The Setup program automatically gets the required Diagnostics/db licenses.

To configure the agent on a computer with no console, right-click the agent icon in the system tray (the area to the right of the taskbar) and click Options.

Agent icon in the system tray



Access to the agent options can be disabled. See “Preventing Users From Editing Options” on page 61.

You can also install the Diagnostics Agent across the network using LANdeploy. If you use this method, you must use the Diagnostics Agent Package Definition, and you must also specify the UNC path of the Offline Area as the location of the installable kit.

You do not need to specify the location of the SupportSite subfolder. This location is included in the Diagnostics package definition.

Installing Additional Consoles

You can install any number of additional consoles, but each copy requires a separate license.

To install additional consoles:

1. Connect to the Support Site shared folder.
2. Run the setup program in Setup\Console.
3. If you want to diagnose ODBC database problems, install the Diagnostics/db product. The Setup program automatically gets the required Diagnostics/db licenses.

SILENT AGENT INSTALLS Silent installations run with no user intervention. There are two ways to launch a silent installation of the Diagnostics Agent.

Use setup.exe to launch the silent install:

```
\\server\supportsite\setup\agent\setup.exe /s /V"/q /l*v \"c:\msi.log\""
```

/s hides all InstallShield dialogs.

/q runs the Windows Installer in silent mode.

Use the Windows installer (msiexec.exe):

```
msiexec /i "\\server\supportsite\setup\PC-Duo Diagnostics.msi" MQINSTALLOPTIONS=AGENT /l*v c:\msi.log
```

You can use MS-DOS batch files, Windows .CMD files, or the Windows Scripting Host and a Visual Basic Script (VBS) file to automate a silent installation. For example, the following .VBS file launches a silent installation using msiexec.exe:

```
Set shell = CreateObject("WScript.Shell")
Shell.Run " msiexec /i "\\server\supportsite\setup\PC-Duo Diagnostics.msi" MQINSTALLOPTIONS=AGENT /l*v
c:\msi.log "
```

Chapter 2: Getting Started

Understanding Enterprise Diagnostics

Enterprise Diagnostics allows you to protect and restore applications by taking snapshots of the applications on your networked PCs. From small utilities to business-critical applications, you can protect any number of applications across your entire network.

Enterprise Diagnostics also provides change analysis capabilities to help determine root causes. By comparing application and PC settings against a baseline or at different points in time, you can quickly identify and correct the configuration changes that cause problems.

Protecting Applications

To protect an application, you first build an application profile that describes a working configuration of the application: files, registry entries, ActiveX controls, self-registered files (DLLs), shortcuts, and environment variables.

After you have a profile, you can then protect the application on any computer in your network. When you protect an application, Enterprise Diagnostics takes a snapshot of the application configuration on the computer. The profile drives this process, because it specifies what items make up the application configuration.

The snapshot contains everything needed to restore the application to working order, including repair rules for detecting and fixing problems, and an archive of application files.

Repairing Applications

To repair a protected application, you run an audit. The audit detects potential problems, which you can then review in the console and fix with a single click.

Self-Healing Applications

Self-healing reduces support calls and increases user productivity by guaranteeing the availability of critical applications. Self-healing automatically detects and fixes common application problems, before users are even aware of the problems.

For example, if a user somehow overwrites a key application DLL with an older version (perhaps by installing a non-critical application), self-healing automatically restores the required DLL. The user never has to call the help desk.

You implement self-healing for protected applications with *repair jobs*. Repair jobs are scheduled audits that automatically fix any problems they detect.

Performing Change Analysis

Change analysis is a basic technique for troubleshooting system and application problems. It is the process of tracking down configuration changes on a computer.

With Enterprise Diagnostics, you can build profiles to collect application diagnostics and system configuration information such as services and printers. Then you can audit computers and analyze the collected diagnostic data. Enterprise Diagnostics automatically compares application or system settings against a baseline, at different points in time, or on different computers. This allows you to quickly identify and correct the changes that caused the problem.

Enterprise Diagnostics Components

Enterprise Diagnostics consists of a central, administrative console, agents that run on remote computers, and a shared data folder called the Support Site.

Diagnostics Console You use the Diagnostics Console to profile, protect, and audit applications, and to diagnose and fix problems.

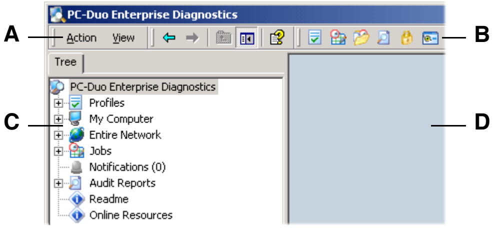
Diagnostics Agents Diagnostics Agents are installed on each computer on the network, and are responsible for auditing, protecting, and repairing the computers.

Support Site Support Site is a shared folder that stores the public profiles, all audit reports, and licensing information. Consoles and agents use the Support Site to share information and to communicate.

Working With the Diagnostics Console

The Diagnostics Console consists of a window divided into two panes. The left pane contains the console tree, which shows the items available in the console.

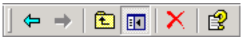
The right pane contains the Details view. The Details view shows information about the item selected in the console tree. For example, when you click a profile in the console tree, the Details view allows you to view and edit the details of the profile.



A Standard Menus The Action menu lists the available tasks, which depend on what is selected in the console tree. The View menu allows you to customize the display of the Details pane.

B Console Toolbars The console includes a standard toolbar and a diagnostics toolbar.

Standard toolbar



⇦ Jump back to the previous contents of the Details view

⇨ Jump forward in the previously viewed contents of the Details view.

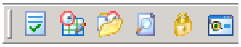
Move up one level in the console tree.

Show/hide the console tree.

✕ Delete the item selected in the Details view.

Get help for Microsoft Management Console (MMC) and for Enterprise Diagnostics.

Diagnostics toolbar



Create a profile that can be used to protect and audit applications.

Create and schedule an audit, protect, or repair job.

Open an audit report or profile and add it to the console tree.

Audit a computer.

Protect a computer.

Edit the event logging and maintenance options.

C Console tree Lists the items available in the console. This includes profiles, computers, protected applications, snapshots, job definitions and results, and audit reports.

From the console you can access the local computer, the entire network, and PC-Duo Enterprise groups.

D Details view Displays information (such as dialog boxes and HTML pages) for the item selected from the console tree. For example, in the Details view you can edit profiles, define jobs, view audit reports, and review problem diagnostics.

Action Menu

Most tasks in Diagnostics Console, such as protecting applications and running audits, can be accomplished from the Action menu.

The available commands on the Action menu depend on what type of item you select in the console tree. Right-clicking an item in the console tree opens a shortcut menu with the same commands.

Audit Collects configuration and diagnostic information from a computer. Automatically detects problems with protected applications.

Protect Takes a snapshot of an application.

Remote Control Connects to a remote computer and takes control of the display and keyboard. Uses PC-Duo Remote Control.

Agent Options Configures the agent program running on a remote computer.

SupportSite Configuration Configures the Support Site. This action is available only for the PC-Duo Enterprise Diagnostics node in the console tree.

Options Sets options that apply to all agents and consoles.

If the Action menu contains only the Help command, click in the console tree and open the Action menu again.

The Action menu uses the console tree to determine what to do. For example, if you select a computer in the console tree, then the actions apply to that computer. If the console tree does not provide enough information for the action, then the console prompts you for the missing information (by opening Select Machines and Select Application dialog boxes).

For example, you can protect an application in any of the following ways:

- Right-click a computer, click Protect, and then select an application in the Select Applications dialog box.
- Right-click a profile, click Protect, then select one or computers in the Select Machines dialog box.
- Right-click a protected application (to specify the computer and the application) and then click Protect.
- Right-click a domain, group, or network, click Protect, select one or more computers, and then select an application in the Select Applications dialog box.

Console Tree

From the console tree, you can access any computer on your network to protect applications and run audits (collect diagnostics). You can also create and edit profiles, diagnose problems, analyze configuration changes, and schedule jobs.

Profiles For application protection, a profile specifies the application items to protect. You can protect files, registry entries, ActiveX controls and self-registered files, shortcuts, and environment variables.

For change analysis, a profile specifies what configuration information to collect. In addition to files, registry entries, ActiveX controls, shortcuts, and environment variables, a profile can include lists of files to retrieve and system resource information (such as services, startup applications, and printers) to collect.

Public Public items are stored on a central server (in the SupportSite shared folder) and shared by all console users. For example, if you create a new profile you can share it with all other users by saving it in the SupportSite folder.

Private Private items are stored outside of the SupportSite folder, for example on your local hard disk.

To audit and protect computers, a profile must be public. Private profiles can be used only on My Computer.

My Computer The local computer.

Entire Network Provides access to all computers on the network.

Groups Fixed and dynamic groups of computers defined in the PC-Duo Enterprise console.

Protected Applications All audits and snapshots are stored under Protected Applications.

Audits An audit is the configuration information and diagnostic data collected from a computer. An audit report is created whenever you audit or protect an application. Audit reports are stored in the Support Site.

If Enterprise Diagnostics detects potential problems during an audit, a Problems were detected node appears under the audit report.

Snapshots A snapshot is an archive of the application files listed in the profile. A snapshot is created when you protect an application. By default, snapshots are stored on the local computer, but you can move them to the Support Site.

Requests Requests are audit and protect commands (repair jobs are listed as audit commands). Pending requests are waiting to be picked up by agents. In Progress requests are being processed by the agents.

A job request must finish before any another request is processed, while requests from the Action menu in the console are processed independently in separate threads. While a job request is In Progress, all requests from consoles are Pending.

Jobs Jobs are audit, protect, and repair commands that are scheduled to run at specific times.

Notifications Notifications are posted when a job detects problems, fixes problems, or cannot fix some problems. For example, if a self-healing repair job fixes some problems, the job posts a “Fixed problems” notification.

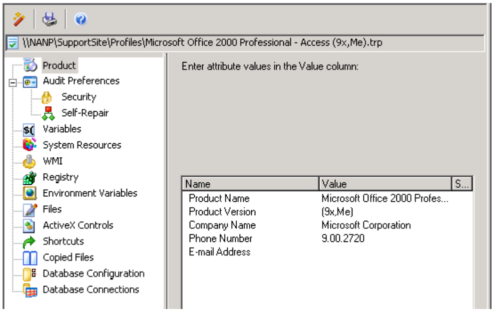
Audit Reports Stores audit reports that are not associated with a specific computer. For example, you can use Audit Reports to store audits that you want to keep around for later change analyses.

Details View

The Details view displays the details of an item selected in the console tree. For example, you can view the details of a profile, an audit report, or of the problems found during an audit.

Profile View Allows you to create and edit profiles. The left pane of the profile view is the *profile tree*, which lists the different sections of a profile.

Profile View



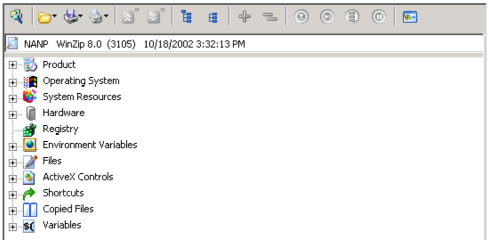
\\NANP\SupportSite\Profiles\Microsoft Office 2000 Professional - Access (9x,Me).trp

Enter attribute values in the Value column:

Name	Value	S...
Product Name	Microsoft Office 2000 Profes...	
Product Version	(9x,Me)	
Company Name	Microsoft Corporation	
Phone Number	9.00.2720	
E-mail Address		

Audit Report View Allows you to review the contents of an audit report.

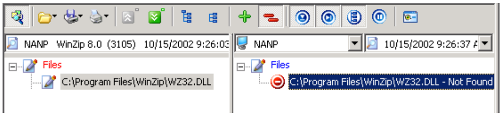
Audit Report View



NANP WinZip 8.0 (3105) 10/18/2002 3:32:13 PM

Change Analysis View Allows you to compare two audit reports. Differences between the two reports are visually highlighted, so you can quickly view problems such as missing files, wrong file versions, invalid registry entries, and invalid OS settings.

Change Analysis View



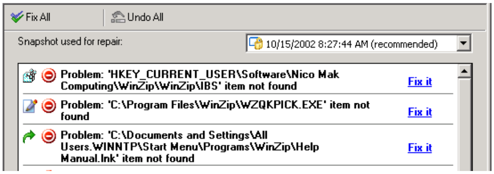
NANP WinZip 8.0 (3105) 10/15/2002 9:26:03

NANP 10/15/2002 9:26:37 A

Files
C:\Program Files\WinZip\WZ32.DLL
Files
C:\Program Files\WinZip\WZ32.DLL - Not Found

Problem Diagnosis View Allows you to review and fix the problems detected for a protected application.

Problem Diagnosis View



Snapshot used for repair: 10/15/2002 8:27:44 AM (recommended)

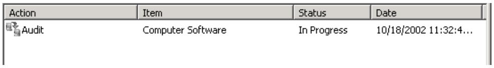
Problem: 'HKEY_CURRENT_USER\Software\Nico Mak Computing\WinZip\WinZip\IBS' item not found — Fix it

Problem: 'C:\Program Files\WinZip\WZQKPICK.EXE' item not found — Fix it

Problem: 'C:\Documents and Settings\All Users.WINNTP\Start Menu\Programs\WinZip\Help Manual.lnk' item not found — Fix it

Requests View Allows you to check the status of requests (such as audit, protect, repair, and undo), and to delete pending requests if necessary. Note that repair jobs appear as audit requests.

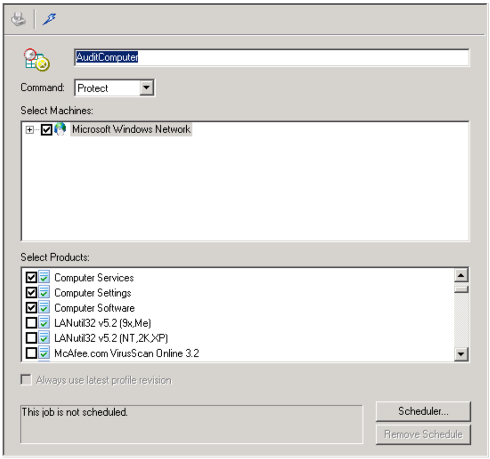
Requests View



Action	Item	Status	Date
Audit	Computer Software	In Progress	10/18/2002 11:32:4...

Job View Allows you to define and schedule audit, protect, and repair actions. You can also use jobs to batch audit, protect, or repair multiple applicationS on multiple computers.

Job View



AuditComputer

Command: Protect

Select Machines:

☑ Microsoft Windows Network

Select Products:

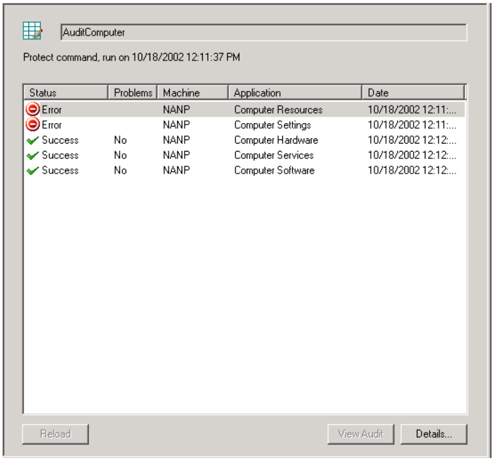
☑ Computer Services
☑ Computer Settings
☑ Computer Software
□ LANutil32 v5.2 (9x,Me)
□ LANutil32 v5.2 (NT,2K,XP)
□ McAfee.com VirusScan Online 3.2

□ Always use latest profile revision

This job is not scheduled.

Job Results View Allows you to check the results of a job.

Job Results View



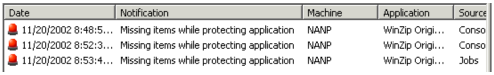
AuditComputer

Protect command, run on 10/18/2002 12:11:37 PM

Status	Problems	Machine	Application	Date
Error		NANP	Computer Resources	10/18/2002 12:11:...
Error		NANP	Computer Settings	10/18/2002 12:11:...
✓ Success	No	NANP	Computer Hardware	10/18/2002 12:12:...
✓ Success	No	NANP	Computer Services	10/18/2002 12:12:...
✓ Success	No	NANP	Computer Software	10/18/2002 12:12:...

Notifications View Allows you to review notifications for problems found by jobs while auditing, protecting applications, or self-healing. Protect jobs post notifications when they detect missing items such as files and registry keys. Audit jobs post notifications when they detect problems. Self-healing (repair jobs) post notifications when they fix problems.

Notification View



Date	Notification	Machine	Application	Source
11/20/2002 8:48:5...	Missing items while protecting application	NANP	WinZip Origi...	Conso
11/20/2002 8:52:3...	Missing items while protecting application	NANP	WinZip Origi...	Conso
11/20/2002 8:53:4...	Missing items while protecting application	NANP	WinZip Origi...	Jobs

QuickStart

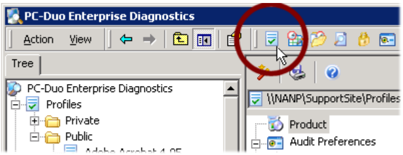
This section walks you through the processes of profiling and protecting an application, and then fixing it when something goes wrong.

Profiling

To profile an application:

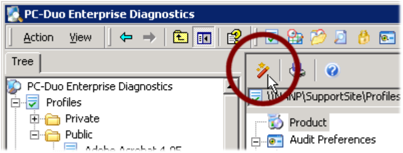
1 In the Action menu, click New and then click Profile.

You can also create a new profile by clicking New Profile ✓ in the console toolbar.



PC-Duo Enterprise Diagnostics
Action
View
Tree
PC-Duo Enterprise Diagnostics
Profiles
Private
Public
\\NANP\SupportSite\Profiles
Product
Audit Preferences

2 In the profile toolbar, click Auto Profile.



PC-Duo Enterprise Diagnostics
Action
View
Tree
PC-Duo Enterprise Diagnostics
Profiles
Private
Public
\\NANP\SupportSite\Profiles
Product
Audit Preferences

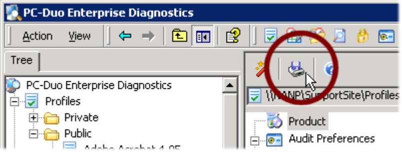
3 In the Auto Profile dialog box, click Application.

Enterprise Diagnostics displays a list of applications found on your computer.

4 In the Installed Applications dialog box, click an application and click OK.

Enterprise Diagnostics starts the application, audits your computer, and generates the profile.

5 Save the profile. In the toolbar, click Save Profile 🖫.


PC-Duo Enterprise Diagnostics
Action
View
Tree
PC-Duo Enterprise Diagnostics
Profiles
Private
Public
Adobe Acrobat 4.05
\\ANP\SupportSite\Profiles
Product
Audit Preferences

Protecting

To protect an application:

1 In the console tree, right-click My Computer and click Protect.

2 In the Select Application dialog box, double-click the application profile you just created.

After the application is protected, a snapshot and an audit are added under the computer in the console tree.

Diagnosing and Repairing

You can now diagnose and repair problems. To test this, open the application installation folder, and rename one of the files (for example, the main executable).

Diagnose the problem and repair the application:

1 In the console tree, right-click My Computer and then click Audit.

2 In the Select Application dialog box, double-click the protected application to start the audit.

3 When the audit is finished, expand the audit and click Problems were detected.

The Details View displays a list of the problems detected during the audit. Note that if you renamed an executable, the shortcuts may also be broken.

4 Click Fix All to fix the problems and restore the application to working order. Enterprise Diagnostics restores the file you renamed.

Chapter 3: Protecting and Repairing Applications

Overview

Enterprise Diagnostics allows you to automatically diagnose and repair problems with applications. For example, you can fix problems caused by missing files, wrong DLL versions, unregistered ActiveX controls, missing registry entries, and broken shortcuts.

First, profile the application. The profile specifies what items (such as files and registry entries) to protect. Enterprise Diagnostics can protect and repair files, registry keys and values, ActiveX controls, shortcuts, and environment variables.

Second, protect the application. After an application is protected, problems with that application can be fixed with Enterprise Diagnostics.

Third, audit the application. Audits allow you to detect problems, which you can then automatically fix from the console.

How often to protect and audit? It depends on the computer. Computers that have a stable system configuration and a constant set of installed applications do not need regular protects and audits. You can wait for the users of these types of computers to report problems before you run an audit.

For computers where applications are frequently installed and removed (for example, computers used by developers and QA testers) you may need to regularly update the protection. You may also want to regularly audit the computers instead of waiting for users to report problems. You can use jobs to schedule regular protects and audits on individual computers, entire domains and networks, or PC-Duo Enterprise groups.

Self-Healing Self-healing allows you to maintain applications in working order. To implement self-healing, you define and schedule repair jobs, which automatically repair any problems they find.

Profiling Applications

An application profile is used to protect an application. The profile lists the files, registry entries, ActiveX controls (.OCX), self-registered files (.OCX or .DLL), shortcuts, and environment variables that make up a working configuration of the application. Using this information, Enterprise Diagnostics can take a snapshot of the application on a specific computer, and later use this snapshot to restore the application to working order.

You can automatically generate a profile from a Windows Installer package (.MSI) file, an InstallShield or Wise Installer project, or an existing installation. You can also use Diagnostics Console to manually edit the details of a profile.

Profiling and Windows Versions

When you profile an application, it is important that you test the profile on the two main families of the Windows operating systems:

- Windows 95, 98, and Me.
- Windows NT, 2000, and XP.

Depending on the version of Windows, some setup programs install different files and create different registry entries. Therefore, you may need two profiles, one for each of the main families of Windows.

You may also need separate profiles within a family (for example, separate profiles for Windows XP and 2000).

You can use the Operating System audit preference to build profiles for specific versions of Windows. See page 65.

Building Profiles

Enterprise Diagnostics provides several methods for building profiles:

Import a Windows Installer package (*.MSI) file This is the recommended way to build a profile.

Import the project file for a install package If you use InstallShield (5.x, 6.x), InstallShield Express, or Wise Installer to develop install programs for your applications, you can import the project files. You can also import Visual Basic projects.

Generate the profile from an application installation When an application doesn't use Windows Installer and you don't have the source files for the setup, you can use an existing installation of the application.

Build the profile manually This method is ideal for collecting configuration information so you can perform system change analysis. For example, to troubleshoot problems with hardware components such as printers and video cards that have associated software.

For applications, building profiles manually requires considerable, detailed knowledge of the application.

Auto-profiling Applications

Specifying What to Include The Files, Registry Entries, Self-registered files (for example, OCXs), and Shortcuts check boxes control what items are included in the generated profile.

Filtering Out Files and Registry Keys As a general guideline, a profile should not exceed 1 megabyte in size. To control the size of a profile, use:

- File extensions to ignore to specify which files you do not want to include in the profile.
- Registry keys to ignore to specify which registry keys (for example, HKEY_CLASSES_ROOT) you do not want to include in the profile.

Filters are specified as a comma-separated list. You can include one or more spaces between commas to make the list more readable.

Copying Files When you generate a profile automatically, you can generate a list of files (ASCII or binary) to retrieve from the remote computer. For example, you can retrieve .INI and other configuration files from a user's computer.

The File extensions to process as Copy Files box is a comma-separated list of file extensions. When the profile is generated, all files with these extensions are added to the list of files to copy.

While copied files are not used to protect an application, they can be useful for performing change analysis.

If the install path is found in the registry, Auto Profile creates a variable for the application install directory.

Importing Windows Installer Packages

Microsoft Windows Installer is a component of the Windows operating system that manages the installation and removal of applications. A package (.MSI) file stores information regarding the application setup and installations and is distributed to end users.

Generating a profile from an MSI file is more reliable than reverse engineering an existing installation of the application. Whenever an application uses Windows Installer, you should use its MSI file to create its profile.

To import an MSI package:

1. In the console tree, right-click Profiles, click New, and then click Profile.

   This creates a public profile (a profile that is available to all users running a Diagnostics Console). To create a private profile, expand Profiles, right-click Private, click New, and then click Profile.

2. In the profile toolbar, click Auto Profile.
3. Click MSI. Enterprise Diagnostics displays a list of the MSI packages found on your system (in the Installer subfolder of your Windows System folder, for example, C:\WinNT\Installer).
4. If you don't see the package you want, click Browse to locate it.

MSI files typically have unfriendly names such as 4499fdf.MSI. To find the MSI file you want, point to the file until the tooltip appears, or add the Title column to the Details view of the dialog (right click a column header, click More, and select the Title check box.

5. Click a package and click OK.
6. Select the features you want to import into the profile and click OK.
7. If necessary, set the advanced MSI import options:
   - To import ActiveX controls from the MSI package, Enterprise Diagnostics needs to scan HKEY_CLASSES_ROOT.
   - To ignore files, OCXs, registry entries, and shortcuts that are listed in the MSI package but not found on the local computer, select the Import items only if found on this computer check box.
   - If necessary, type the correct installation folder or click to locate the installation folder.
   - To ignore components based on the install conditions specified in the .msi file, type the install conditions in the Install conditions to ignore box. Use a semi-colon to separate each install condition.

Avoid building large profiles, which slow down auditing, protecting, and change analysis.

Selecting features allows you to build smaller profiles. For example, the top-level features of Microsoft Office are Word, Excel, Power Point, and so on. By selecting features, you can create separate profiles for each Office program instead of one large profile for all of Microsoft Office.

For each top-level feature, you may also want to create profiles with and without optional features that some users may not install. For example, you may want a profile for an installation of Microsoft Word without the spell checker, so that all the profile items related to the spell checker won't be protected and identified as problems.

For complicated MSI packages, you may need to select shared components as well as the application. For example, to build a profile for Microsoft Outlook, you may need to select shared Office Tools components such as the Spell Checker. Otherwise you won't be able to diagnose spell checker-related problems with Outlook.

When you import an MSI file, the self-registered DLLs are not listed in the ActiveX Controls section of the profile. Instead, the Registry section includes all the registry entries required by the DLLs.

MSI Files and Self-Registered DLLs

When you import an MSI file, the self-registered DLLs are not listed in the ActiveX Controls section of the profile. Instead, the Registry section includes all the registry entries required by the DLLs.

Importing Install Packages

If you have the source for an install package, you can use it to build a profile. Enterprise Diagnostics can automatically import items from the following common install packages:

Install Package	What you can import
InstallShield 5.x, 6.x InstallShield 5.x, 6.x Log File Wise Installer	Files, Self-registered files, Registry keys, Shortcuts
InstallShield Express	Files, Self-registered files, Registry keys
Visual Basic Project (vbp)	Files, Self-registered files

To import an install package:

1 In the console tree, right-click Profiles, click New, and then click Profile.

  This creates a public profile (a profile that is available to all users running a Diagnostics Console). To create a private profile, expand Profiles, right-click Private, click New, and then click Profile.

2 In the profile toolbar, click Auto Profile .

3 Click Package.

4 In the Files of type box, select the type of install package you want to import.

5 Click an install package and click OK.

To import an InstallShield 5.x log file:

1 Load the log (ISU) file in the InstallShield 5.x log file viewer.

2 Save it as a text file. Diagnostics Console can read only the text version of the log file.

Installed Applications

Enterprise Diagnostics can generate a profile from an existing installation of an application. After you select an installed application, Enterprise Diagnostics scans your system for information about the application (such as files, registry entries, and shortcuts), starts the application to determine what ActiveX controls it uses, and then generates the profile.

To auto-profile an installed application:

1. In the console tree, right-click Profiles, click New, and then click Profile.

   This creates a public profile (a profile that is available to all users running a Diagnostics Console). To create a private profile, expand Profiles, right-click Private, click New, and then click Profile.

2. In the profile toolbar, click Auto Profile.

3. Click Application. Enterprise Diagnostics displays a list of applications found on the local computer.

   If you do not see the application you want to profile in the Installed Applications dialog, click Browse and locate the application executable on your computer.

4. Click an application and click OK.

ActiveX Controls Enterprise Diagnostics can determine only the ActiveX controls loaded at startup. ActiveX controls loaded on demand by the application are not included in the generated profile. If you are familiar with the application, you can manually add the missing ActiveX controls.

Too Many Files? If the generated list of files is too large, add some file extensions to the File extensions to ignore filter and generate a new profile.

Files with No Path If a file is listed with no path, it was probably found somewhere on your hard disk outside of the application installation directory and the standard Windows directories (for example, c:\temp). Generally, you can remove such files from the profile.

After You Auto Profile

- Because not all applications follow standard rules for installations, profiles for installed applications may not be complete. Visually inspect the profile and verify that the files, registry entries, shortcuts, and so on make sense.
- If the profile includes keys or values under HKEY_CURRENT_USER, the user must be logged on when you audit, protect, or repair the user's computer. Otherwise, if no one is logged on, the current user will be the default user and the audited values will not reflect the user's environment.
- Make sure all paths to files, ActiveX controls, and shortcuts use variables. If the path to an item does not use a variable, then the item cannot be protected.
- If the application depends on environment variables, you must add them by hand.
- Check the Product preferences. The product name is used as the profile file name, and the product name and version are used to identify the profile in the console tree.

Collecting Information for Change Analysis

If you cannot restore a protected application to working order using automated repairs, you may need to perform a change analysis. Enterprise Diagnostics can quickly identify changes in system and application configuration that may be the cause of the problem.

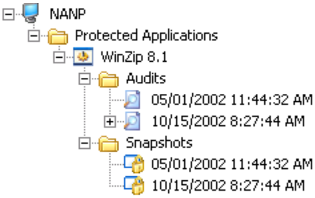
For example, you can easily collect configuration information on the operating system, system resources such as services, running applications, and memory, and hardware components. For details, see Chapter 5, “Collecting Information” on page 31.

Protecting Applications

Protecting an application on a computer creates an audit and a snapshot. The audit represents the configuration of the application on a specific computer at a specific point in time. For example, the audit specifies the location and version of each file listed in the profile, the values of the registry entries, along with information on any ActiveX controls and shortcuts.

The snapshot is an archive of the files and ActiveX controls at that point in time, and is used to restore the application to a working configuration when a problem occurs.

Audits and Snapshots



```
NANP
  Protected Applications
    WinZip 8.1
      Audits
        05/01/2002 11:44:32 AM
        10/15/2002 8:27:44 AM
      Snapshots
        05/01/2002 11:44:32 AM
        10/15/2002 8:27:44 AM
```

To protect an application on a single computer:

1. In the console tree, expand the Entire Network and locate the computer.
2. Right-click the computer and click Protect.
3. In the Select Application dialog box, double-click an application.

To protect an application on multiple computers:

1. In the console tree, right-click anything except a computer or a node under a computer, and then click Protect.
2. In the Select Machines dialog box, select one or more computers, groups, domains, or networks.
3. In the Select Application dialog box, double-click an application. (If you right-click a profile in step 1, you can skip this step.)

After the application is protected, an audit and a snapshot are added under the computer in the console tree. You can now view the audit details or the contents of the snapshot by clicking the audit or the snapshot in the console tree.

While Enterprise Diagnostics protects the computer, you can perform other tasks in the Diagnostics Console. For example, you can protect the application on other computers.

If the protect request seems to be taking a long time to finish, check the Requests. If the request is listed as pending, it means that the agent running on the target computer never picked up the request.

To batch-protect multiple applications on multiple computers:

1. On the Action menu, click New and then click Job.
2. In the box beside the unscheduled task icon , type a name for the job.
3. In the Command list, click Protect.
4. In the Select Machines box, select one or more computers, domains, groups, or networks.

5 In the Select Product box, select the check boxes for the products you want to protect.

6 In the Job view toolbar, click to save the job.

7 In the Job view toolbar, click to run the job.

For more information on jobs, see Chapter 7, “Scheduling Jobs” on page 53.

To unprotect an application:

In the console tree, right-click a protected application, then click Delete. This deletes all audit reports and snapshots.

More About Snapshots

When you protect an application on a computer, Enterprise Diagnostics creates a *snapshot*, which consists of a file archive and a copy of the profile. The snapshot profile includes computer-specific repair rules. For example, registry repair rules are based on the values found in the registry.

To turn on the repair capabilities, the preference Enable Self-Repair is set to True in the snapshot profile. The Enable Self-Repair and Target Directory repair rule attributes are also set for each protected item.

By default, the snapshot and the updated profile are stored on the local computer. For example, a snapshot for WinZip would be stored in:

```
C:\Program Files\
    PC-Duo Enterprise\Diagnostics\
        Data\Snapshots\
            WinZip
```

If snapshots are stored on the Support Site, they are stored in the Snapshots folder:

```
Support Site\Snapshots\<domain>\<app>
```

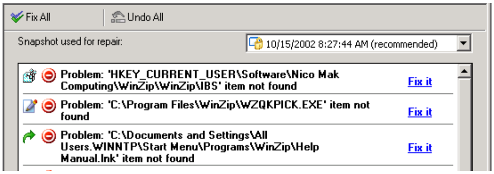
See “Storing Snapshots on the Support Site” on page 62.

When you audit the protected application, Enterprise Diagnostics uses the snapshot profile. The repair rules in the profile allow Enterprise Diagnostics to detect and repair potential problems.

Restoring Applications to Working Order

When a user reports a problem with a protected application, you can automatically diagnose the problem and fix the application. All you have to do is use the application profile to audit the user’s computer. If any problems are detected during the audit, you can fix them by clicking a button.

Problem Diagnostics for a Protected Application



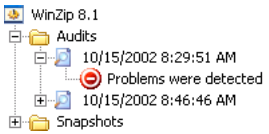
Snapshot used for repair: 10/15/2002 8:27:44 AM (recommended)

```
Problem: 'HKEY_CURRENT_USER\Software\Nico Mak Computing\WinZip\WinZip\IBS' item not found
Problem: 'C:\Program Files\WinZip\WZQKPICK.EXE' item not found
Problem: 'C:\Documents and Settings\All Users.WINNTP\Start Menu\Programs\WinZip\Help Manual.lnk' item not found
```

To diagnose and fix a problem:

1 In the console tree, right-click a protected application and then click Audit.

2 When the audit is finished, click Problems were detected.



The Details view displays a list of the problems detected during the audit.

3 In the Snapshot used for repair list, click the snapshot you want to use to repair the application. This allows you to restore the application to its configuration at a specific point in time.

4 Review the problems and fix them:

- To fix all problems, click Fix All.
- To fix a specific problem, click Fix It.
- To undo all fixes, click Undo All. You can also undo individual fixes by clicking Undo beside the fixed item.

If the audit request seems to be taking a long time to finish, check the Requests. If the request is listed as pending, it means that the agent running on the target computer never picked up the request.

By default, problems are sorted by priority, with the highest priority problems at top. You can also sort by problem type (file, registry, ActiveX, environment variable, or shortcut) or by status (Problem, Fixed, Failed to fix this item).

To sort the problem list:

Right click anywhere in the problem list and then click a sort.

Self-Healing

Self-healing maintains applications in working order. Instead of waiting for users to report problems, self-healing runs at scheduled intervals and automatically detects and fixes problems. Self-healing can also be applied on request: you can run audits that automatically fix problems instead of simply reporting them back to you.

About Self-Healing

When you use self-healing to automatically fix problems, you can easily review the problems that were fixed. Self-healing repair jobs post notifications to the console, so you can see at a glance the results of scheduled repair jobs. For more details, you can review the job results, which include a link to the audit report. This makes it easy to get to the problem diagnostics associated with the audit.

Note that unlike fixes applied interactively from the console, self-healing fixes cannot be automatically undone. So if you want to undo a fix, you must undo it manually.

You may want to use self-healing only on computers with relatively unchanging configurations, and only after you are satisfied that the same fixes work when you apply them interactively through the console.

Computers with unchanging configurations are unlikely to experience DLL versioning problems, where fixing one application breaks another. In contrast, computers where users are constantly installing new software, especially beta and test versions of operating systems or development environments, are more likely to experience DLL versioning problems. See “Handling Versioning Problems” on page 21.

When you are satisfied that you won’t have to undo fixes applied by Enterprise Diagnostics, you can move on to self-healing.

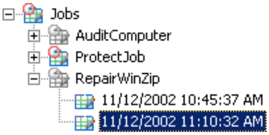
Repair Jobs

You can use *repair jobs* to automatically find and repair problems. Repair jobs run an audit and then automatically fix any problems found during the audit.

You can schedule repair jobs or run them whenever necessary. After a repair job is finished, you can review the job results and the problems that were fixed.

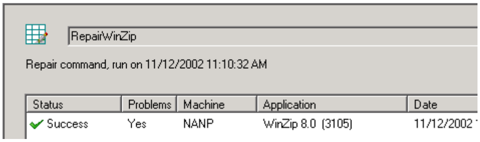
To review the results of a repair job:

1 In the console tree, expand the repair job node and click on a job.



Jobs
AuditComputer
ProtectJob
RepairWinZip
11/12/2002 10:45:37 AM
11/12/2002 11:10:32 AM

2 Review the job status displayed in the Details view.



RepairWinZip

Repair command, run on 11/12/2002 11:10:32 AM

Status	Problems	Machine	Application	Date
✓ Success	Yes	NANP	WinZip 8.0 (3105)	11/12/2002

The Problems column indicates whether the repair job found any problems when it audited the computers.

3 To view the audit and the problems, click the job status and then click View Audit (at the bottom of the page).

Audits

Repair jobs try to fix all the problems they detect. If you want to fix selected problems only, you can customize the profile so that only selected items are automatically repaired when you audit. Problems with other items must be fixed manually from the console.

To automatically fix selected items during an audit:

1 In the console tree, click a profile.

2 Find the items you want to automatically repair (for example, in the profile tree click Files and then click a file).

3 Set the Auto Execute Action attribute to True.

To edit repair rule attributes, click Self-Repair and then click Build Condition.

4 Save the profile and protect the application.

Each time you audit, the items will be automatically repaired, if necessary.

Handling Versioning Problems

Sometimes fixing a problem with one application can break another application. This usually happens because the two applications depend on incompatible versions of a common DLL (or VBX or OCX). This type of situation is commonly referred to as “DLL Hell”.

Problems Caused By Newer DLLs

Suppose App A needs a more recent version of a common DLL, but App B needs an older version because a side-effect of the newer DLL breaks App B. When a user installs App A, the install program installs the newer version of the common DLL, thereby breaking App B.

By default, Enterprise Diagnostics never overwrites DLLs (or OCXs or VBXs) with older versions. So Enterprise Diagnostics does not detect this type of problem (for App B).

However, if you fix the problem with App B, then Enterprise Diagnostics will detect a problem for App A, which requires the more recent DLL. When Enterprise Diagnostics fixes the problem with App A, App B will break.

Problems Caused By Older DLLs

Another cause of DLL Hell problems are install programs that overwrite common DLLs with older versions, thereby breaking all applications that depend on functionality found only in the newer version.

By default, Enterprise Diagnostics can detect and fix these types of problems, by upgrading the old DLLs. However, this may break applications that require the older version.

Windows File Protection

Windows 98SE, 2000, and XP implement Windows File Protection (WFP), which prevents applications and install programs from replacing Windows system files.

Enterprise Diagnostics does not try to repair system files protected by WFP.

What Can You Do?

Use change analysis to diagnose versioning problems You can build profiles to collect version information for application or system DLLs, and then compare working and non-working computers. To get a list of the loaded DLLs on a computer, select Loaded Modules in the System Resources section of the profile.

You can also collect a list of DLLs loaded by an application (see page 38). For example, you may want to compare the version of MFC42.DLL loaded by the application with the version found in the Windows system folder.

Copy files to the application installation folder
On systems without WFP, you may want to avoid overwriting system files by customizing the Target Directory repair rule attribute. If you set Target Directory to the application installation folder, Enterprise Diagnostics copies the file to the target directory instead of to the Windows system folder.

Activate DLL/COM Redirection On Windows 98SE, 2000, and XP systems, you can use DLL/COM redirection to force Windows to look first for a DLL or OCX in the folder where the application's .exe file is installed. To activate DLL/COM redirection, create a zero-byte file named <app>.exe.local in your application installation folder.

Chapter 4: Performing Change Analysis

Change analysis is a basic technique for troubleshooting system and application problems. It's the process of tracking down configuration changes on a computer.

With Enterprise Diagnostics, you can build profiles to collect application and system configuration information. Then you can audit computers and analyze the collected diagnostic data.

Enterprise Diagnostics automatically compares application or system settings against a baseline, at different points in time, or on different computers. This allows you to quickly identify and correct the changes that caused the problem.

Manually Building a Profile

To manually build a profile, you have to decide what information you want to collect. For example:

- Do you want to collect information on files? Which files? DLLs, ActiveX controls, shortcuts, or other types of files? Do you want to retrieve copies of files?
- Do you want to check the registry for specific keys and values?
- What kind of system configuration information do you want to collect? Installed applications? Running services? Loaded modules? Memory usage? Hardware components?

Adding Items

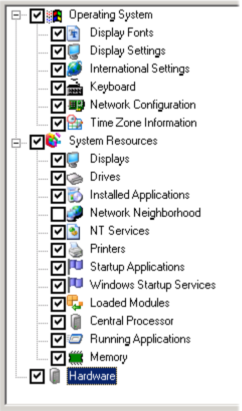
Diagnostics Console includes tools for building lists of items to audit, such as files, ActiveX controls, registry keys, registry values, shortcuts, and environment variables. To simplify the process, you can use regular expressions to select groups of files based on their names (for example, all the DLLs in a folder). You can also define variables to represent computer-specific values such as paths.

See Chapter 5, "Collecting Information" on page 31 for more information on adding items to a profile.

Collecting System Resource Information

Setting up a profile to collect system resource information is straightforward. Just check off the items you want to collect.

System Resources



- ☑ Operating System
  - ☑ Display Fonts
  - ☑ Display Settings
  - ☑ International Settings
  - ☑ Keyboard
  - ☑ Network Configuration
  - ☑ Time Zone Information
- ☑ System Resources
  - ☑ Displays
  - ☑ Drives
  - ☑ Installed Applications
  - ☐ Network Neighborhood
  - ☑ NT Services
  - ☑ Printers
  - ☑ Startup Applications
  - ☑ Windows Startup Services
  - ☑ Loaded Modules
  - ☑ Central Processor
  - ☑ Running Applications
  - ☑ Memory
- ☑ Hardware

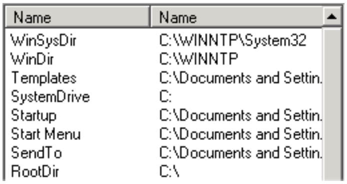
System resource information can include:

- Operating system information.
- System configuration information such as the amount of free disk space, what DLLs are loaded into memory, and what applications are running.
- Hardware component and configuration information.

Defining Variables

You use variables to represent paths that can vary from computer to computer, such as the location of the Windows system folder or the installation folder of an application.

Variable Definitions



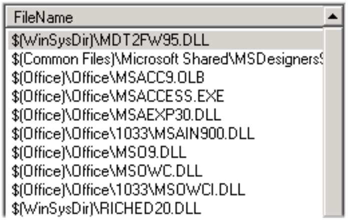
Name	Name
WinSysDir	C:\WINNTP\System32
WinDir	C:\WINNTP
Templates	C:\Documents and Settin.
SystemDrive	C:
Startup	C:\Documents and Settin.
Start Menu	C:\Documents and Settin.
SendTo	C:\Documents and Settin.
RootDir	C:\

If you want to collect information on files and shortcuts, or retrieve copies of file, you can use variables to locate the files on each computer.

For example, you can use predefined variables to represent the location of the Windows system folder, the installation folder of an application, or the location of the shortcuts on the Start menu.

For application files, you can define a variable that extracts the application install path from the registry, or use a predefined variable such as $(Common Files), which stores the location of the Program Files\Common Files folder.

Adding Files with Variables



FileName
$(WinSysDir)\MDT2FW95.DLL
$(Common Files)\Microsoft Shared\MSDesigners
$(Office)\Office\MSACC9.OLB
$(Office)\Office\MSACCESS.EXE
$(Office)\Office\MSAEXP30.DLL
$(Office)\Office\1033\MSAIN900.DLL
$(Office)\Office\MSO9.DLL
$(Office)\Office\MSOWC.DLL
$(Office)\Office\1033\MSOWCI.DLL
$(WinSysDir)\RICHED20.DLL

If you want to protect application items or build your own repair rules, you must use variables when you add files, shortcuts, and ActiveX controls

Auditing PCs

Auditing is the process of collecting diagnostic and configuration information from a computer. For basic change analysis, you can simply audit a computer to see if anything listed in the profile (such as a file) is missing.

For more detailed change analysis, you need at least one baseline audit of a working configuration on a computer. Then when a problem occurs, you can audit the non-working configuration and compare it against the baseline audit.

You can keep just a baseline audit, or you can periodically audit a computer to track configuration changes over time (for example: original configuration, configuration after a operating system upgrade, and so on).

Audits are saved on the Support Site, so after you audit you do not have to connect to the computer again to diagnose the problem. All the collected diagnostics and configuration information is available from the Support Site.

To audit a computer:

1. In the console tree, right-click a computer and then click Audit.
2. In the Select Application dialog box, double-click a profile to start the audit.

To batch audit computers:

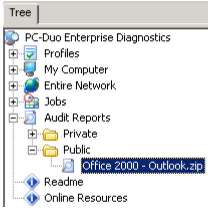
1. On the Action menu, click New and then click Job.
2. In the box beside the unscheduled task icon , type a name for the job.
3. In the Command list, click Audit.
4. In the Select Machines box, select the computers, domains, networks, or PC-Duo Enterprise groups you want to audit.
5. In the Select Products box, select the check boxes for the products you want to audit.
6. In the Job view toolbar, click to save the job.
7. In the Job view toolbar, click to run the job.

You can limit the maximum number of audit reports saved for each application. When the limit is exceeded, the oldest audit is deleted. To set the limit: on the Action menu click Options, and then click the Maintenance tab.

If the audit request seems to be taking a long time to finish, check the Requests. If the audit request is listed as pending, it means that the Diagnostics Agent running on the target computer never picked up the request.

Adding Audit Reports to Diagnostics Console

The Audit Reports node in the console tree provides a general-purpose storage area for audit reports.



Tree

PC-Duo Enterprise Diagnostics
- Profiles
- My Computer
- Entire Network
- Jobs
- Audit Reports
  - Private
  - Public
    - Office 2000 - Outlook.zip
- Readme
- Online Resources

To add an audit report to the console tree:

1. In the console tree, right click Audit Reports and click Open File. Locate the audit report (.zip or .tra) you want to open and double-click it.
2. Click Yes to add the audit report to the public audit reports, or click No to add the audit report as a private report.

Public audit reports are stored in the Support Site (in \\server\SupportSite\AuditReports) and are available to all users running a copy of Diagnostics Console.

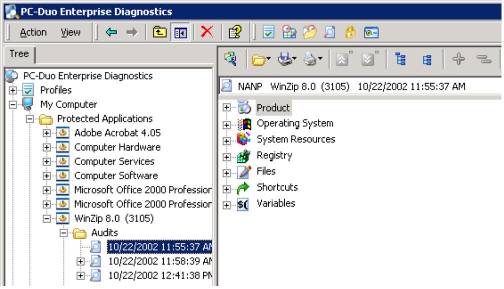
Private audit reports are stored outside of the SupportSite\AuditReports folder, for example on your local hard disk.

You can add public audit reports by copying .tra or .zip files to the SupportSite\AuditReports folder.

You may need to refresh the console tree (right-click Public and then click Refresh).

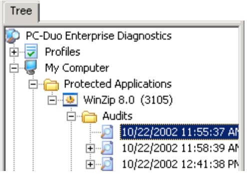
Viewing Audit Reports

Audit Report



To view an audit report:

1. In the console tree, expand a computer, then expand Protected Applications and expand an application.



2. Expand Audits and click an audit report.
3. In the Details view, expand the sections of the audit report you want to view.

If a section name is highlighted in a different color, that means an item is missing or different in the audit report (for example, a file was not found on the audited computer, or a file is in a different location).

In an audit report, the Variables section contains the values of the variables on the audited computer.

Deleting Items

You can delete individual items or entire sections (for example, the Product section) from an audit report. To delete an item or section, right-click the item or section, then click Delete.

To save your changes to the audit report, click and then click Save Reference. To discard your changes, click another node in the console tree and then click Yes.

Opening and Editing Copied Files

By default, ASCII and binary files are always attached to the audit report, and opened or edited with their associated applications. However, ASCII files can be included in the body of the audit report, and viewed directly in Diagnostics Console (if the Attach Copied Files preference is set to False). Including copied files in audit reports also allows you to compare the contents and highlight differences.

To view attached files:

1. In the Audit Report view, expand Copied Files.
2. Under Copied Files, right-click the file you want to view.
3. Click Open, Open With, or Edit.

   The command you choose depends on the type of file and what actions are associated with that file type. For example, on some systems, Open executes a javascript (.JS) file, while Edit loads the file into a text editor.

   If you are not sure, click Open With and click the program you want to use to open the file.

To view included files:

1. In the Audit Report view, expand Copied Files.
2. Under Copied Files, expand the file you want to view.
3. Expand Contents.

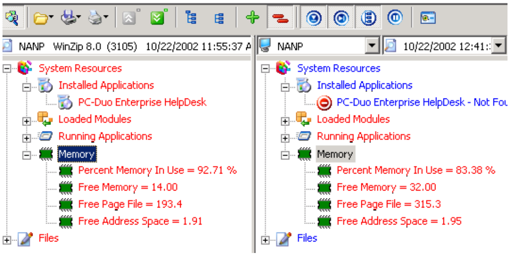
To copy content from included files:

1. Expand Contents.
2. Right-click the line you want to copy and click Properties.
3. Highlight the text you want to copy.
4. Right-click the highlighted text and click Copy.

Comparing Audit Reports

When you compare two audit reports, Enterprise Diagnostics automatically highlights any differences between the two reports. This allows you to review configuration changes and quickly spot bad or missing files, wrong file versions, missing registry entries, invalid OS settings, and more.

Changes Visually Highlighted



NANP WinZip 8.0 (3105) 10/22/2002 11:55:37 A

- System Resources
  - Installed Applications
    - PC-Duo Enterprise HelpDesk
  - Loaded Modules
  - Running Applications
  - Memory
    - Percent Memory In Use = 92.71 %
    - Free Memory = 14.00
    - Free Page File = 193.4
    - Free Address Space = 1.91
- Files

NANP | 10/22/2002 12:41:

- System Resources
  - Installed Applications
    - PC-Duo Enterprise HelpDesk - Not Fou
  - Loaded Modules
  - Running Applications
  - Memory
    - Percent Memory In Use = 83.38 %
    - Free Memory = 32.00
    - Free Page File = 315.3
    - Free Address Space = 1.95
- Files

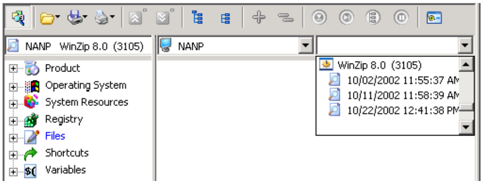
You can compare a computer's configuration:

- Against a baseline.
- At two different points in time.
- Against the configuration of another computer.

The reference report is in the left pane, and the audit report is in the right pane.

To compare audit reports:

1. In the console tree, click the audit report you want to use as a baseline for the comparison. This audit report is called the *reference report*, and it is displayed in the left hand side of the Details view.
2. In the Details view toolbar, click Compare Audit Reports .
3. In the right pane, click a computer in the list (this allows you to compare the configuration of one computer against another), then click an audit report in the list of available audits.



NANP WinZip 8.0 (3105)

- Product
- Operating System
- System Resources
- Registry
- Files
- Shortcuts
- Variables

NANP

- WinZip 8.0 (3105)
  - 10/02/2002 11:55:37 AM
  - 10/11/2002 11:58:39 AM
  - 10/22/2002 12:41:38 PM

4. Review the differences:

   - By default, the console shows only the differences between the audit report. Click ✚ to display all items. Click ⚌ to return to the differences-only view.
   - Click ⏬ to display the next difference, and ⏫ to display the previous difference.

Deleting Items

As you go through the differences between the reference and audit reports, you can delete items from the audit report as you eliminate possible causes.

To delete an item, right-click the item and then click Delete. Until you save the audit report, you are only deleting items from the display. When you are finished, you can either save or discard your changes.

To save the audit report, click and then click Save Audit. To discard your changes, click another node in the console tree and then click Yes.

Filtering Audit Reports

Filtering allows you to filter out irrelevant differences when comparing audit reports. Use filters to reduce the number of differences displayed when you view differences only.

To filter out differences:

1. In the Details view toolbar, click Options .
2. In the Filters tab, clear the check boxes for the audit items you want to filter out.
3. Select when to apply the filter:
   - When viewing differences only or all items, click Always.
   - When viewing differences only, but not when viewing all items, click When viewing “Differences Only”.

To disable filtering, click Never on the Filters tab.

Enterprise Diagnostics saves the filter settings, so each time you compare two audit reports the same items are filtered out.

Filtered items are never highlighted when they are different. For example, if you choose to always apply a filter, the filtered items are never highlighted as different, even if they are.

Filters are ignored if you load a single report.

Customizing the Difference Highlighting

To customize difference highlighting:

1. In the Details view toolbar, click Options and then click the General tab.
2. Change the colors.

To change the color of	Do this
Items that are different in each report.	In the Color of different items list, click a color.
Items missing in the audit report displayed in the left pane	In the Color of items missing in reference report list, click a color.
Items missing in the audit report displayed in the right pane	In the Color of items missing in audit report list, click a color.

Synchronizing the Comparison

By default, the display of the two audit reports is synchronized, so that both reports scroll up and down together, and expand and collapse together. This makes it easier to perform a side-by-side comparison of the reports. Turn this feature off if you want to view each report independently.

To turn off	Click
Synchronized vertical scrolling	

To turn off	Click
Synchronized horizontal scrolling	◉
Synchronized expanding and collapsing of report sections	◉

Click Synchronize Item ◉ to display the same item in both reports when display synchronization is turned off.

Hiding Files from Non-Active Operating Systems

When more than one operating system is installed on a computer, an audit report contains information for each operating system. You can filter out the non-active operating system when viewing the audit report.

To filter out files from the non-active OS:

1 In the Details view toolbar, click Options ▣ then click the General tab.

2 Click Ignore files in the non-active operating system.

Printing Audit and Diagnostic Reports

Enterprise Diagnostics can print audit reports and diagnostic reports. A diagnostic report summarizes the differences between two audit reports. You can also save diagnostic reports (in a .TRD file).

To print an audit report:

1 View an audit report.

2 In the Details toolbar, click 🖨▾ and then click Print Reference.

If you are comparing audit reports, Print Reference prints the audit in the left pane, and Print Audit prints the audit in the right pane.

To print a diagnostic report:

1 Compare two audit reports.

2 In the Details toolbar, click 🖨▾ and then click Print Diagnostic.

To save a diagnostic report:

1 Compare two audit reports.

2 In the Details toolbar, click 💾▾ and then click Save Diagnostic.

Chapter 5: Collecting Information

In addition to collecting information on files, registry entries, ActiveX controls, self-registered files, shortcuts, and environment variables, a profile can also collect:

- System, operating system, and hardware information.
- Copies of text and binary files. For example, you can get copies of text files such as .INI, .SYS, and .BAT files.
- Database configuration and connection information.
- Advanced diagnostics from Microsoft Windows systems through Windows Management Instrumentation (WMI).
- Diagnostic information about Microsoft Internet Information Server (IIS).

Defining Variables

Enterprise Diagnostics uses variables to specify the paths to files and shortcuts. A variable can represent a file path that can vary from machine to machine. For example, the location of the Windows folder can vary from machine to machine, and different users can install an application in different directories.

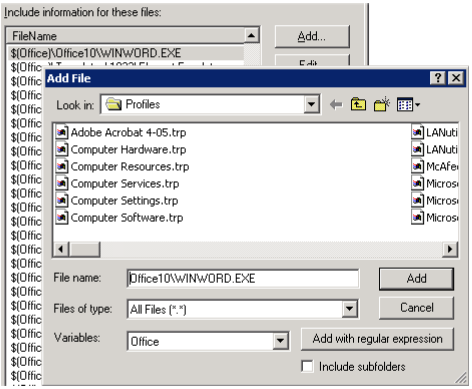
If an application stores paths in the registry, in an INI file, or relies on environment variables, Enterprise Diagnostics can use variables to look for files and shortcuts only in those locations. Otherwise, Enterprise Diagnostics searches the entire computer. Similarly, if you know that a file should be in the Windows folder, you can use a variable to search only the Windows folder.

Variables can be combined together to form a single expression. Variables can also be combined with regular expressions.

Enterprise Diagnostics provides the following variable types:

- Registry variables that are expanded based on a value stored in the registry.
- INI variables that are expanded based on a value stored in an INI file.
- Predefined variables that are automatically expanded by Enterprise Diagnostics.
- Environment variables such as Path and TEMP.
- User-defined variables, which act like constants in a profile.

Using a Variable to Specify the Location of a File



Include information for these files:

FileName

$(Office)\Office10\WINWORD.EXE

Add File

Look in: Profiles

Adobe Acrobat 4-05.trp
Computer Hardware.trp
Computer Resources.trp
Computer Services.trp
Computer Settings.trp
Computer Software.trp

File name: Office10\WINWORD.EXE

Files of type: All Files (*.*)

Variables: Office

□ Include subfolders

Using Variables

To reference a variable, you type an expression of the form $(Variable Name), where Variable Name is the name you gave to the variable when you defined it.

To reference an environment variable, enclose it in “%(“ and “)”. For example, “%(TEMP)”.

You can use variables with the following items:

- File names of files, shortcuts, ActiveX controls, and files to copy (to specify computer-specific paths).
- Definitions of variables.

  You can use INI, Registry, Pre-defined, and Environment variables in the definitions of INI and Registry variables.
- Values of the Pre-audit Application and Post-audit Application audit preferences.
- Repair rules for files, ActiveX controls, and shortcuts.
- Repair rule conditions.
- Database information such as database connection names, SQL statements, SQL server attributes, and SQL connection strings.

You must use variables if you want to protect files, shortcuts, and ActiveX controls.

Registry Variables

A registry variable represents a value stored under a registry key (either the default value or a named value).

To define a registry variable:

1. In the profile tree, click Variables.
2. Click Add.
3. Click Registry to define a registry variable.
4. In the Registry Key row, click 📝 to open the Registry dialog, and select a registry value.

   If you select a registry key, the variable is given the default value of the key (if the default value is set).
5. In the Variable Name row, click in the Value column and enter a name for the variable.

INI Variables

An INI variable represents a value stored in an INI file. For example, suppose an application stores its installation directory in an INI file as follows:

```
[Paths]
InstallPath=C:\Program Files\Company\App
```

You can define an INI variable that extracts the value of the InstallPath entry in the PATHS section of the INI file. This INI variable can then be used to specify the location of a file.

To define an INI variable:

1. In the profile tree, click Variables.
2. Click Add.
3. Click INI to define an INI variable.
4. Type the name of the INI file, the name of the INI section, and the name of INI entry.
5. In the Variable Name row, click in the Value column and enter a name for the variable.

Other Variable Attributes for INI and Registry Variables

The Variable Value attribute is set when you click OK or Apply. This value is used while building the profile (for example, to find the files you add to the profile). During an audit or protect, the variable value is determined by the settings of the user's computer.

The Default Value attribute is used when the value cannot be extracted from the user’s computer. For example, when an application is protected, the Default Value attribute is assigned the variable value. So when the application needs to be repaired, a value is available even if it cannot be extracted from the user’s computer.

The Extract As and Variable Data Type attributes are used to extract folder paths from file names. See “Extracting Folders from File Names” on page 35.

User-Defined Variables

A user-defined variable is a variable that stores a value specified in the profile. If you want to use the same value (for example, a string) in a number of places, you can define a variable to hold this value.

To define a user-defined variable:

1. In the profile tree, click Variables.
2. Click Add.
3. Click User Defined.
4. In the Variable Name row, click in the Value column and type a name for the variable.
5. In the Default Value row, click in the Value column and type a value.

Predefined Variables

Predefined variables are variables whose values are supplied by Enterprise Diagnostics when you audit or protect a computer. Most of the predefined variables provide computer-specific values, such as the location of the Windows folder and the name of the computer.

Predefined System Variables

WinDir Windows folder (for example, "c:\WinNT").

WinSysDir Windows system folder (for example, "c:\WinNT\system32").

SystemDrive Drive where the operating system is installed (for example, "c:\").

CommonFiles Windows common files folder (for example, "c:\Program Files\Common Files").

ComputerName Name of the computer (for example, "KIMA").

RootDir Boot drive (for example, "c:\").

Predefined User-profile Variables

Common Desktop Location of the shared Desktop folder. For example:

```
C:\WinNT\Profiles\All Users\Desktop
```

Common Documents Location of the shared Documents folder. For example:

```
C:\Documents and Settings\All Users\Documents
```

Common Administrative Tools Location of the shared Application Data folder. For example:

```
C:\Documents and Settings\All Users\
    Administrative Tools\
```

Common AppData Location of the shared Application Data folder. For example:

```
C:\Documents and Settings\All Users\
        Application Data\
```

Common Programs Location of the shared Programs folder. For example:

```
C:\WinNT\Profiles\All Users\Start Menu\Programs
```

Common Start Menu Location of the shared Start Menu folder. For example:

```
C:\WinNT\Profiles\All Users\Start Menu
```

Common Startup Location of the shared Startup folder. For example:

C:\WinNT\Profiles\All Users\Start Menu\Programs\Startup

Common Templates Location of the shared Templates folder. For example:

C:\Documents and Settings\All Users\Templates\

Personal Location of the current user's My Documents folder. For example:

C:\Documents and Settings\stephen\My Documents\

AppData Location of the current user's Application Data folder. For example:

C:\Documents and Settings\stblair\Application Data\

Cookies Location of the current user's Cookies folder. For example:

C:\Documents and Settings\stephen\Cookies\

Desktop Location of the current user's Desktop folder. For example:

C:\Documents and Settings\stephen\Desktop\

Favorites Location of the current user's Favorites folder. For example:

C:\Documents and Settings\kima\Favorites\

NetHood Location of the current user's NetHood folder. For example:

C:\Documents and Settings\kima\NetHood\

My Pictures Location of the current user's My Pictures folder. For example:

C:\Documents and Settings\kima\My Documents\
My Pictures\

PrintHood Location of the current user's PrintHood folder. For example:

C:\Documents and Settings\kima\PrintHood\

Recent Location of the current user's Recent folder. For example:

C:\Documents and Settings\kima\Recent\

SendTo Location of the current user's SendTo folder. For example, C:\Documents and Settings\kima\SendTo\.

Start Menu Location of the current user's Start Menu folder. For example:

C:\WinNT\Profiles\Kima\Start Menu

SendTo Location of the current user's SendTo folder. For example:

C:\Documents and Settings\kima\SendTo\

Templates Location of the current user's Templates folder. For example:

C:\Documents and Settings\kima\Templates\

Startup Location of the current user's Startup folder. For example:

C:\WinNT\Profiles\Kima\Start Menu\Programs\Startup

Local Settings Location of the current user's Local Settings folder. For example:

C:\Documents and Settings\kima\Local Settings\

Local AppData Location of the current user's local Application Data folder. For example:

C:\Documents and Settings\kima\
Local Settings\Application Data\

Cache Location of the current user’s Temporary Internet files folder.

History Location of the current user’s History folder.

Fonts Location of the system fonts folder. For example, C:\WinNT\Fonts.

Administrative Tools Location of the current user’s Application Data folder. For example:

C:\Documents and Settings\kima\
Administrative Tools\

Environment Variables

You can control where Enterprise Diagnostics locates files by prefixing a filename with an environment variable. For example, to locate a file in the TEMP directory, you can specify %(TEMP)\myfile.txt.

Typical environment variables that could be useful as variables:

- %(COMPUTERNAME) returns the name of the computer where Diagnostics Agent is running.
- %(SYSTEMDRIVE) returns the drive on which the active operating system is installed.
- %(TEMP) returns the path of the temporary folder.

Extracting Folders from File Names

Sometimes, an application does not store its installation path in the registry, but it does store the full path names of some files in its installation folder. You can define a variable that gets the file name from the registry, and then extracts only the path part.

For example, if a registry value is C:\Program Files\MyApp\myapp.exe, you can define a variable that extracts just the C:\Program Files\MyApp part.

To extract the folder from a file name:

1. Create a new registry variable.
2. Set the Extract As attribute to Folder. This specifies how to extract the variable value when replacing a variable reference in the profile.
3. Set the Variable Data Type attribute to File. Variable Data Type specifies what kind of value is stored in the registry key.

For example, if you auto profile the WinZip application, the following variable is defined:

Variable Name	WinZip
Registry Key	HKCU\software\nico mak computing\winzip\programs\zip2exe
Variable Data Type	File
Extract As	Folder

Given this variable definition, if the value stored in the registry is C:\Program Files\WinZip\WZSEPE32.EXE, then $(WinZip) evaluates to C:\Program Files\WinZip.

Using Regular Expressions

Use regular expressions to select groups of files based on their names. For example, to select all MFC DLLs in the Windows system directory, you would use the regular expression "^mfc.*\.dll".

Enterprise Diagnostics audits any file whose name contains a substring that matches the regular expression. So, for example, the regular expression "mfc" matches any file containing the string "mfc"—not just the DLLs, but also files like "mfcuix.hlp" and "MFC Tracer" (a shortcut).

Note that you cannot protect files added with regular expressions.

. The period (.) matches any character. For example, "ie." matches both "ie5" and "ie6". To match an ordinary period, you use the backslash. For example, "\.ini" matches ".ini".

***** The asterisk (*) matches zero or more occurrences of the preceding character. For example, ".*" matches any string of characters, and “.*\.dll” matches all DLLs.

^ The caret (^) matches the beginning of a string. For example, "^reg" matches any string that begins with "reg".

**$** The dollar sign ($) matches the end of a string. For example, "ini$" matches any string that ends with "ini". And while "\.ini" matches both "runlog.ini" and "foo.init", "\.ini$" matches only files with a ".ini" extension.

[ ] Matches a range of characters. For example, "[A-Za-z0-9]" matches any alphanumeric character. "[0-9]*" matches zero or more digits. If the first character is the caret (^), the expression matches any character not in the range. For example [^AB^] matches any character except A, B and the caret itself.

\ Used to escape special characters. For example, "\." matches a period (.) and "\$" matches a dollar sign ($).

Examples

To look for all DLLs in the Windows system folder:

1. In the File Name box, type the regular expression “.*\.DLL”.
2. In the Variables list, click WinSysDir.
3. Click the Include Subfolders check box.
4. Click Add with regular expression.

To look for all files in a specific folder:

1. In the File Name box, type the regular expression “.*\..*”.
2. Click Add with regular expression.

To look for all files that have a .DLL extension in the Windows system directory:

1. In the Variables list, click the WinSysDir variable.
2. In the File Name box, type the regular expression “.*\.DLL”.
3. Click Add with regular expression.

To look for all files that have a .DLL extension in the Windows system directory and its subfolders:

1. In the Variables list, click the WinSysDir variable.
2. Click the Include subfolders check box
3. In the File Name box, type the regular expression “.*\.DLL”.
4. Click Add with regular expression.

To look for all files that have a .DLL extension in a subfolder of the Windows system directory:

1. In the Variables list, click the WinSysDir variable.
2. In the File Name box, type the regular expression “aSubFolderName\.*\.DLL”.
3. Click Add with regular expression.

System Resources

Enterprise Diagnostics can collect a wide variety of information about the configuration of a computer:

- System resource information, including displays, drives, installed applications, NT services, printers, startup applications, loaded modules, central processor, running applications, memory, and RAM.
- Operating system information, such as international settings, keyboard, time zone information, and Windows system information.
- Hardware information about components such as CD-ROM drives, disks, displays, hard drive controllers, monitors, ports, and system boards.

To collect system resource information:

1 In the profile tree, click System Resources.

2 Select the check boxes for the information you want to collect. Clear the check boxes for information you don’t want to collect.

To select just one or two check boxes under Operating System or System Resources, clear the top-level check box. This clears all check boxes so you can then select the check boxes you want.

By default, the Network Neighborhood check box (under System Resources) is cleared. Do not select this check box for large networks because auditing networks can take a long time.

The system resource information collected by Enterprise Diagnostics depends on the version of Windows installed. For example, Display Fonts information is collected on Windows 95 and 98, but not on Windows NT, 2000, and XP. If Enterprise Diagnostics does not collect the system resource information you need, use Windows Management Instrumentation (WMI) to collect the required information. See “Auditing with Windows Management Instrumentation” on page 41.

Auditing Files

A profile includes a list of application files that you want to audit. To include files in a profile, you can:

- Use variables to specify the location of the files.
- Select files from the folders on your computer or on any other computer in the network neighborhood.
- Add all DLLs that one of your application DLLs depends on.

  For an EXE file, Enterprise Diagnostics automatically collects information about the DLLs that the EXE loads (so you don't have to add the DLLs yourself). But if you want to collect information for all instances of a DLL on a system, you must add the DLL to the profile.

Use variables in the file name to collect information for only one specific instance of the file. Otherwise, Enterprise Diagnostics collects information for all instances of the file found on the computer.

If you want to protect files, you must use variables to add the files.

To add files:

1 In the profile tree, click Files.

2 Click Add.

3 Locate the folder containing the files you want to add.

4 Select the files you want to audit:

To add specific files, select the files.

To add all files whose names match a regular expression, type the regular expression in the File Name box.

5 If you want to use a variable to locate the files, click a variable in the Variables list.

6 If you selected the files, click Add. If you typed a regular expression in the File Name box, click Add with regular expression.

If you use a variable or regular expressions, you do not have to locate the actual folder containing the files.

To search subfolders for the files:

Click the Include Subfolders check box.

To include files in a profile even if they do not exist on your computer:

Type the file names in the File Name box.

To search network drives and CDROMs:

By default, Enterprise Diagnostics searches for files on the local hard drives of a computer. If you want Enterprise Diagnostics to also search network or CD-ROM drives by default, set Include Network Drives and Include CDROMS to True in the Audit Preferences.

To add DLL dependencies:

1 Add a DLL to the profile, click it, and then click Properties.

2 Click the DLL Dependencies tab to browse the hierarchy of DLLs that your application DLL depends on.

3 Click Add All to add all the required DLLs to the list at the bottom of the dialog, or click Add Selected Item to add just the selected DLL.

4 Click OK to add the DLLs to the profile.

Collecting File Version Information

The File Version Information audit preference determines how much file version information is collected during an audit. Setting this attribute to Minimal or Normal reduces the amount of memory and time required to audit files. It also reduces the size of the audit reports, so they load and compare faster.

Minimal extracts FileVersionProp, FileDescriptionProp, and LegalCopyrightProp.

Normal extracts the Minimal information plus: CompanyName, InternalName, OriginalFileName, Productname, and ProductVersion.

Full extracts Normal and Minimal information plus: Comments, FileVersion (not the same as the one above), ProductVersion (not the same as the one above), TradeMarks, PrivateBuild, SpecialBuild, fileFlagsMask, FileFlags, Os, Type, SubType, Translations, and TranslationsCharset.

Auditing ActiveX Controls

A profile can include a list of ActiveX controls (.OCX) and self-registered files (.OCX or .DLL) to audit. For example, you can set up a profile to check that a DLL is registered correctly.

For each ActiveX control listed in the profile, an audit report includes the CLSID and TypeLib information found in the registry, as well as general and file version information.

To add ActiveX controls to a profile:

1 In the profile tree, click ActiveX Controls and then click Add.

2 In the Add ActiveX Controls dialog, select the files you want to add. You can also type the name of a file in the File Name box.

3 If you want to use a variable to locate the files, click a variable in the Variables list.

4 Click Add.

If you want to protect ActiveX controls, you must use variables to add the ActiveX controls.

Auditing Registry Keys and Entries

A profile can include a list of registry keys and values to collect during an audit.

Adding Keys and Values

If you add a registry key, Enterprise Diagnostics adds all values and subkeys under that key, and selects the key. If you add a registry value, Enterprise Diagnostics adds just the value and selects it.

Selecting Keys and Values

During an audit, Enterprise Diagnostics gets the selected keys and values. To select a key or value, click the check box for the key or value.

For each selected key, Enterprise Diagnostics gets all values entered in the registry for the key. If the Recursive Registry Scan audit preference is True, Enterprise Diagnostics gets all subkeys and values under that key.

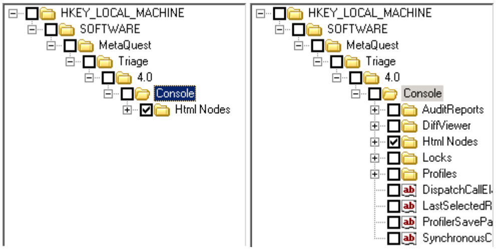
Only selected keys and values can be protected and repaired.

Synchronizing

Synchronizing allows you to add missing subkeys and values. For example, after manually adding a single key, you may decide you want to add all the keys at the same level. To do this, click the parent key and then click Synchronize.

After you synchronize, you must select the keys and values you want to audit.

Before and After Synchronizing a Key



Restricting Keys

To prevent users from selecting keys such as HKEY_LOCAL_MACHINE\Software and all their subkeys and values, you can build a list of restricted keys. Restricted keys cannot be added or selected.

The list of restricted keys is stored in the file ProfViewer.ini, which you can find in the Enterprise Diagnostics installation folder.

Auditing Shortcuts

A profile can include a list of shortcuts (.LNK files) to check. For example, you can set up a profile to check that a shortcut exists and that it points to the correct target.

For each shortcut listed in the profile, an audit report includes shortcut properties such as the shortcut's target, arguments, and working directory.

To add shortcuts to a profile:

1 In the profile tree, click Shortcuts and then click Add.

2 In the Add Shortcuts dialog, select the shortcut files you want to add and click Add.

You can use variables such as Common Start Menu to represent the location of the shortcut. In the Variables list, click a variable. Click Add to add the shortcut files.

If you want to protect shortcuts, you must use variables to add the shortcuts.

Copying Files

A profile can include a list of files to retrieve during an audit. These files can be text files or binary files.

Unless you use a variable to specify the exact location of the file to copy, Enterprise Diagnostics copies all occurrences of the file it finds on the computer. Therefore, it is strongly recommended to use variables when specifying files to copy.

Attaching Copied Files

Binary files are always attached to audit reports. And by default, ASCII files are also attached to audit reports (so the audit report contains only a reference to the copied files, which are stored externally in the file system).

Attaching the copied files reduces the size of the audit report and reduces the amount of time required to load the report into Diagnostics Console. It also allows you to use the application associated with the file type to open or edit the file.

You can include copied ASCII files in the audit report file by setting the Attach Copied Files attribute to False. Including copied files in an audit allows you to automatically compare them when you compare audit reports.

However, including copied files increases the size of the audit report and the time required to load the report into Diagnostics Console. It also means you cannot open the file in another application (such as Notepad).

Do not copy files that have extremely long path names. Enterprise Diagnostics recreates the entire folder structure of the copied file under the Support Site. For example, if you copy the file c\Program Files\App\file.ext, then Enterprise Diagnostics creates this folder structure:

```
C:\Program Files\PC-Duo Enterprise\
    Diagnostics\SupportSite\
        c\Program Files\App\file.ext
```

If you copy a file with a path name of over 200 characters, Enterprise Diagnostics cannot create the folder because the path is too long. In Windows, the length of a path name cannot exceed 260 characters.

Possible workarounds: 1) include the file in the audit report instead of attaching it; 2) make the audit report a private audit report and save the file in the root folder of your drive (for example, C:\). This reduces the path name by over 55 characters.

Auditing with Windows Management Instrumentation

Windows Management Instrumentation (WMI) is the Microsoft implementation of Web-Based Enterprise Management (WBEM), which is an industry initiative to develop a standard technology for accessing management information. Such management information includes information on the state of system memory, networks, devices, and other information on client status. WMI offers a powerful set of base services that include query-based information retrieval and event notification.

WMI is supported on Windows 2000, XP, and Me, and available as an optional install for Windows 95 OSR 2, 98, and NT4 SP5.

WMI Components

An application profile can specify a list of WMI components and their properties to audit. To customize the WMI information audited, you can:

- View the properties and change their values.
- Reload the factory default settings for a category or an object.

To customize the WMI Components list, you can:

- Remove a component or a category from the list.
- Add additional WMI Components for selection.

Editing WMI Category Properties

Display name Caption of the WMI category (referred to as a namespace).

Namespace Specifies the server path of the namespace.

Editing WMI Component Properties

Display name Caption of the WMI component.

Query Associators If True, Enterprise Diagnostics audits all associated WMI objects.

WMI SQL SQL statement that specifies what information to retrieve. You can change the name and the value of the WMI SQL property. You can also add new SQL statements for the same object.

For example, to query the NT event log for errors only and separate the result of each query under three different categories: Application Errors, Security Errors and System Errors:

1. Rename the default WMI SQL to "Application Errors" and modify the SQL statement to:

```
SELECT * FROM Win32_NTLogEvent
    WHERE LogFile = "Application" AND Type = "Error"
```

2. Add a WMI SQL property and rename it to "Security Errors". Set the WMI SQL statement to:

```
SELECT * FROM Win32_NTLogEvent
    WHERE LogFile = "Security" AND Type = "Error"
```

3. Add a WMI SQL property and rename it to "System Errors". Set the WMI SQL statement to:

```
SELECT * FROM Win32_NTLogEvent
    WHERE LogFile = "System" AND Type = "Error"
```

For Enterprise Diagnostics to audit a WMI Component and return information about the component, you must provide at least one WMI SQL property for the component.

Customizing the WMI Components List

To audit a WMI object not listed in the factory default list, you use the Customize feature to first add it to the list.

To add a new component to the list:

1. Click Customize.
2. In the Customize dialog, click the check box for component you want to add.
3. Click Add.

You can change the display name of the object to a more user-friendly name by entering the new name in the Display Name column. (Objects prefixed with a '', are objects containing a modified Display Name.)*

To add several objects at once, hold down the CTRL key and then click each object you want to select. Hold down the SHIFT key to select a range of files. Click Add to add the selected objects.

To add a new category you must edit the UserWMI.INI file and add it under the [Namespaces] section.

To remove a component or category from the list:

Click a WMI component or category and then click Remove. You cannot remove any of the factory default WMI Objects from the list.

WMI INI File Format

The list of WMI categories and components displayed in Enterprise Diagnostics is defined by the MqWMI.INI and UserWMI.INI files.

- MqWMI.INI provides the list of default WMI categories and their components. Settings in the MqWMI.INI are referred to as factory settings and cannot be removed using Enterprise Diagnostics.
- UserWMI.INI contains the categories and components added using Enterprise Diagnostics.

If you edit the INI files manually, you must follow to the file format described below so that Enterprise Diagnostics can load these files. Categories (namespaces) must be added manually to the UserWMI.INI file following the format outlined below. To add a category, you must add an entry under the [Namespaces] section:

Category (Namespace) entry:

```
[Namespaces]namespace=type:
display name:namespace server path
```

where type can have two possible values:

- 0 (Default)
- 1 (Custom)

For example:

```
[Namespaces]
CIMV2=0:Win32 Environment:\\.\root\cimv2
```

To add a category's component list, you must add object (class) entries under its corresponding namespace section:

Component (Class) entry:

```
[namespace]
class name=type:displayname:SQLstatement
```

For example:

```
[CIMV2]
Win32_DMAChannel=0:DMA Channel:SELECT * FROM
Win32_DMAChannelWin32_IRQResource=0:IRQ

Resources:SELECT * FROM
Win32_IRQResourceStoppedManualServices=1:Stop
ped Manual

Services:SELECT * FROM Win32_Service WHERE
StartMode = "Manual" AND State = "Stopped"
```

StoppedManualServices is an example of a custom class that you can add that adheres to the format guidelines.

Auditing Database Information

Diagnostics/db extends the auditing capabilities of Enterprise Diagnostics to include database configuration information and database content. Diagnostics/db can collect information for any ODBC-compliant database such as Oracle, Microsoft SQL Server, and Microsoft Access.

Due to the nature of how ODBC is implemented, (multiple layers of programs and drivers communicating with each other), troubleshooting can be a challenge.

With Diagnostics/db, when an ODBC call fails, you no longer need to spend hours trying to determine whether it is a problem with client libraries, or a net protocol mismatch, or even a database engine not running, Diagnostics/db can collect all the information required to perform a proper diagnosis in minutes.

ODBC Database Configuration

Enterprise Diagnostics steps you through the process of specifying what to collect about a user's ODBC installation. The ODBC configuration information is grouped into categories:

System DSNs Data Source Name, registry security, description, system database, ODBC driver, User, DSN configuration settings, and more.

User DSNs Data Source Name, registry security, description, system database, ODBC driver, User, DSN configuration settings, and more.

File DSNs Data Source Name, and file information (location, size, attributes).

ODBC Drivers File version information (file name, location, file version, attributes, and more), API level, ODBC driver version, SQL level, and more.

Database Connection Information

Enterprise Diagnostics/db can retrieve data from any database table a user has access to read. The Database Connection Editor provides three ways to retrieve data from a database:

By selecting tables Enterprise Diagnostics returns the content of the selected tables.

By selecting stored procedures Enterprise Diagnostics returns the result of running the stored procedure.

By specifying an SQL statement Enterprise Diagnostics returns the result of running the SQL statement.

With Database Connection Information, you can add new connections and edit or remove existing connections.

To add a database connection:

1. In the Database Connections dialog, click Add.

   The Database Connection Editor opens to allow you to create a new Database Connection.

2. In the Type list, click the type of connection.
3. For an ODBC connection, click Browse and then click the type of DSN.

User DSN Click a user DSN and click OK.

System DSN Click a system DSN (if any) and click OK.

File DSN In the Look in Drive list click a drive, then click a file DSN and click OK.

SQL Server Enter the names of the SQL server and the database, a SQL Server login name (ID) and password, and then click OK. You can use variables in any of the fields.

No DSN Enter a connection string that will open the database. For example:

```
DRIVER=SQL Server;SERVER=YourServer;
UID=YourLogonName;PWD=YourPassword;
APP=Microsoft®Access;WSID=YOURMACHINE;DATA
BASE=YOURDATABASE)
```

You can use variables in the connection string.

Selecting Data to Collect

You can select the data to be collected from the connection as Tables, Procedures and SQL Statements.

To select tables:

- To select all the tables in the DSN, click the check box beside ODBC Tables in the list of tables.
- To select only certain tables in the DSN, click the check boxes beside the tables you want to include.

To select procedures:

- To select all the procedures in the DSN, click the check box beside ODBC Procedures in the list of procedures.
- To select only certain procedures in the DSN, click the check boxes beside the procedures you want to include.

To enter SQL statements:

1. Under SQL Statements, click Add to add a query to your connection.
2. Under Edit SQL Statement, type a name and SQL statement (for example: Select * from tblAttachments).

You can use variables in the SQL statement.

3. Click Test to view the results of your query in your default Web browser.
4. When you are satisfied with the query, click Apply.

You can add more SQL Statements to your connection, and edit or remove existing ones.

Collecting Diagnostics for IIS

You can collect information about the Web sites, virtual directories, FTP sites, and SMTP servers on an IIS Web server.

To collect IIS diagnostics:

1 In the profile tree (Details view), click Audit Preferences.

2 In the Value list of the Internet Information Server attribute, click True.

Collecting Security Information

You can collect security information (permissions) for files, shares, and registry entries.

To collect security information:

1 In the profile tree (Details view), under Audit Preferences, click Security.

2 Set the Include File Security, Include Registry Security, or Include Share Security attribute to True.

Enterprise Diagnostics collects security information for the registry entries listed in the profile.

Chapter 6: Customizing Application Protection

Overview

When you protect an application, Enterprise Diagnostics generates repair rules that specify how to detect and fix problems. For example, the repair rule for a file looks like this:

```
If (Audit Status = Found AND File Version >= 4.1.0.0)
    Do Nothing
Else
    Fix it
```

So if an audit does not find the file or the file version does not match the version found when it was protected, a problem is detected.

Repair rules are saved in a copy of the profile. This copy is created when you protect the application, and is stored with the snapshot. In addition to generating If .. Else ... statements in the snapshot profile, Enterprise Diagnostics also sets the Enable Self-Repair and Target Directory repair rule attributes and the global Enable Self-Repair audit preference.

What Can You Customize?

By editing the profile before you protect an application, you can:

- Assign priorities to problems, so that the highest priority problems appear at the top of the list.
- Change the descriptive text displayed in the console for problems.
- Create self-repairing items that automatically repair themselves when problems are found during an audit.
- Replace the generated If .. Else ... statements with your own custom rules for detecting problems.

Note that while the generated rules are computer-specific, custom rules are generic. A generated rule is based on the state of the protected computer. For example, different computers may have different versions of a file, or files may be installed in different locations. A custom repair rule is the same for all computers.

How to Customize

To customize the repair rule for an item:

1. In the console, edit the repair rules for one or more items.
2. Save the profile.
3. Protect the application.

Protecting the application again propagates the changes you made to the profile to the protected computers (each protected computer has its own copy of the profile).

Assigning Problem Priorities

The Problem Diagnostics view sorts problems by priority, with the highest priority problems appearing at the top of the list. By default, all problems are sorted in this order:

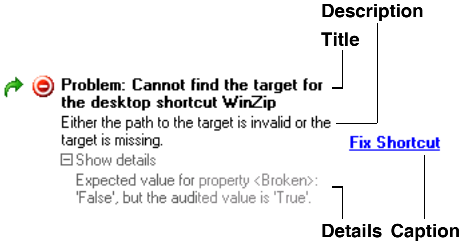
- Files
- ActiveX controls
- Registry keys and values
- Environment variables
- Shortcuts

To move a problem to the top of this list, set its Problem Priority attribute to a lower value. Lower values indicate higher priority.

Customizing Problem Descriptions

The Title and Description attributes specify the main descriptive text shown in the console.

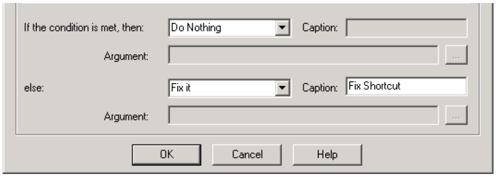
Descriptive text for a problem



Problem: Cannot find the target for the desktop shortcut WinZip
Either the path to the target is invalid or the target is missing.
⊟ Show details
Expected value for property <Broken>: 'False', but the audited value is 'True'.

You can hide the details by setting Diagnosis - Show Details to False (in the Self-Repair audit preferences). The detail text is automatically generated and cannot be customized.

To change the default caption text, type a new caption in the Caption box beside the Fix it action.



If the condition is met, then: Do Nothing Caption:
Argument:
else: Fix it Caption: Fix Shortcut
Argument:

The width of the column for the caption is controlled by the Action column width preference.

Creating Self-Healing Items

The Auto Execute Action attribute controls whether Enterprise Diagnostics automatically executes the Fix It action when it detects a problem during an audit.

The problem will be listed in the console as Fixed, and you won't be able to undo the fix.

Customizing Repair Rules

When you protect an application, Enterprise Diagnostics generates default repair rules. You can replace the default repair rules with customized repair rules.

When you customize the conditions or actions of a repair rule, you must set the Locked attribute to True. Otherwise the customized rule is overwritten by a generated rule when you protect the application.

About Repair Rules

The general form of a repair rule looks like this:

```
if ( condition )
    action1
else
    action2
```

condition is a logical expression that tests the values in an audit report.

actions are predefined actions such as Fix it, Display Message, and Do Nothing. Fix it depends on the type of object.

Generating Repair Rules

You can generate repair rules for files, ActiveX controls, shortcuts, environment variables, registry keys, and registry values.

To generate repair rules for specific items:

1. In the profile tree, click Files, Registry, ActiveX Controls, Environment Variables, or Shortcuts.
2. Select one or more items.

   Use the Shift and Ctrl keys to select multiple objects, or drag the pointer over the objects you want to select. To select by dragging, point to a blank area (for example, the whitespace after an item name) and then drag the bounding outline.
3. Click Self Repair and then click Auto Build.

   Diagnostics Console generates default repair rules for the selected items.

Editing Repair Rules

To edit a repair rule:

1. In the profile tree, click Files, Registry, ActiveX Controls, Environment Variables, or Shortcuts.
2. Click an item (a file, ActiveX control, shortcut, environment variable, or registry entry).
3. Click Self Repair and click Build Condition.

Locking Customized Repair Rules

If you customize any repair rule conditions, you must lock the repair rules so the conditions are not replaced with generated rules when you protect the application. You don't have to lock a rule when you set rule attributes.

When you lock a rule, you must set Enable Self Repair and Target Directory attributes yourself.

Defining Conditions

A condition is one or more expressions joined by And or Or. Each expression tests the value of an object property. For example:

```
Audit Status = Found AND
Size (bytes) = 987,136
```

To define a condition:

1. Click Add.
2. Click in the Property box and select a property. The Property box lists the properties that can be used to build a condition.

   Use the Audit Status property to test whether an item was found during the audit.
3. Click in the Test box and select a logical test.
4. Click in the Value box.

The value you enter here is compared against the value in an audit report.

Click ◉ in the Get column to get the current value of a property.

To test environment variables like PATH Use the Contains test operator instead of the = operator. When Enterprise Diagnostics gets the current value of the PATH environment variable, it gets the value for the current process (Diagnostics Console). So the path to the Enterprise Diagnostics installation directory is added to the start of the PATH variable.

Fixing Problems

Fix it for Files Extracts the file from the snapshot and puts it in the required location.

Fix it for ActiveX Controls and Self-Registered Files If the file is not registered, is the wrong version, or is missing, Enterprise Diagnostics gets the file from the snapshot and registers it. If the file is already present on the computer but is just not registered, Enterprise Diagnostics registers it.

Fix it for Shortcuts If a shortcut is broken, Enterprise Diagnostics tries to fix it based on the path specified in the condition. But if the path does not point to an existing file, Enterprise Diagnostics scans the system for the first occurrence of a file with the same name and fixes the shortcut to point to that file.

Fix it for Registry values If a registry value does not meet the specified condition, Enterprise Diagnostics updates the registry entry according to the criteria specified in the condition. Enterprise Diagnostics can repair individual registry values only, not complete hierarchies.

Fix it for Environment Variables Fix it updates the value of the environment variables to match the value found when the application was protected.

Deleting Items

Delete it for Registry Keys Enterprise Diagnostics can delete a registry key and all of its descendants.

You do not need to add any condition to operate on keys. If the key exists, Enterprise Diagnostics considers that the condition is met. If the key does not exist, the condition is not met.

Delete it for Registry Values If you want to delete the registry value regardless of its current value, do not specify any condition. If the value exists, Enterprise Diagnostics will delete it.

Displaying Messages

The Display Message action displays the message specified by the Argument field.

```
if ( condition )
    Display Message
    Argument = "Condition met!"
else
    Display Message
    Argument = "Condition failed!"
```

In the Problem Diagnosis view, the Fix All button does not execute DIsplay Message actions. Only the Fix it button for a specific problem executes a DIsplay Message action.

Jumping to a URL

The Go to URL action starts the default browser and loads the URL specified in the Argument field.

In the Problem Diagnosis view, the Fix All button does not execute Go to URL actions. Only the Fix it button for a specific problem executes the Go to URL action.

Renaming Files

The Rename it action renames a file.

Unregistering ActiveX Controls

The Unregister it action unregisters an ActiveX control.

Setting Attribute Values

To edit the attributes of a repair rule:

1. In the profile tree, click Files, Registry, ActiveX Controls, Environment Variables, or Shortcuts.
2. Click an item (a file, ActiveX control, shortcut, environment variable, or registry entry).
3. Click Self Repair and click Build Condition.
4. In the Attributes list, click in the Value field to edit the attribute value.

Auto Execute Action If True, Enterprise Diagnostics automatically executes the specified repair action.

Description Text displayed between the problem title and the details section in the Problem Diagnosis view.

Enable Self-Repair If True, Enterprise Diagnostics applies the repair rule. If False, the rule is disabled. When you protect an application, this attribute is set to True in the snapshot copy of the profile.

Locked If True, the conditions are not updated when you protect the application. By default, all repair rule conditions are regenerated when you protect the application.

If you lock a repair rule that has no conditions, the file is not put in the snapshot.

Problem Priority By default, Enterprise Diagnostics sorts problems by priority, with the highest priority problems appearing at the top of the list. Lower numbers indicate higher priority.

Self-Repair Package Specifies the zip file that contains the files used to repair the problem.

You could use this attribute to keep a single copy of a file in a central location. Setting this attribute forces Enterprise Diagnostics to use the specified file archive instead of the snapshot.

Repair Scope Specifies whether to repair just the current registry key or to also repair the keys and values under the current registry key.

Setting Repair Scope to All Descendants reduces the size of the profile, because Enterprise Diagnostics doesn’t have to create and save rules for all the keys and values. It can use the default rules, which for keys are:

```
Audit Status = Found
```

and for values are:

```
Audit Status = Found
Value = <value>
Type = <type>
```

Immediate descendants are the direct children of the current key.

Descendants can still have their own priorities, titles, and descriptions.

Target Directory Specifies where to put a file on the user's machine when the problem is fixed. This attribute is automatically set when you protect an application, or when you auto-build a rule.

Target Directory is the value of a variable such as $(WinDir) or $(AppInstallDir).

Title Text displayed after the Problem: label for a problem. To type or edit a multi-line title, click 📝.

Chapter 7: Scheduling Jobs

Jobs allow you to schedule application protection, audits, and repairs at the most convenient times for you (or for your users). Jobs also allow you to batch protect, audit, and repair applications. For example, you can use a job to protect multiple applications on all computers in a domain.

Enterprise Diagnostics uses the Windows Task Scheduler to schedule jobs. Task Scheduler starts each time you start Windows, and runs in the background. Task Scheduler is part of Windows 98, Me, 2000, and XP. On Windows 95 and NT 4.0 SP3+, Task Scheduler is an Internet Explorer component that you can install by using the Add/Remove Programs tool in Control Panel.

Jobs run as the Support Site user.

Defining Jobs

You can define jobs to protect, audit, and repair applications on any computer with a licensed version of Diagnostics Agent. Jobs can run on one or more computers, all the computers in a domain or in a PC-Duo Enterprise group, or all computers in the network. For example, you can use a job to protect an application on every agent-licensed computer.

To define a job:

1. On the Action menu, click New and then click Jobs.
2. In the box beside the task icon , type a name for the job.
3. In the Command list, click Protect, Audit, or Repair.
4. In the Select Machines box, select the check boxes for the computers you want to protect.

   To protect all computers on all domains of the network, select the Microsoft Windows Network check box.

   To protect all computers on a given domain, select the domain check box.

   To protect all computers in a PC-Duo Enterprise group, select the group check box.
5. In the Select Products box, select the check boxes for the products you want to protect.
6. In the Job view toolbar, click to save the job.

After you save the job, you can either run it immediately or schedule it:

- To run the job, click in the Job view toolbar.
- To schedule the job, click Scheduler (see “Scheduling Jobs” on page 55).

The Select Machines box lists only the computers with an agent license. Because agent licenses can be revoked and assigned to different computers, a job may not run on all the computers you select when you define the job. Before the job runs, it checks for agent licenses, and skips computers that no longer have an agent license.

If you select all computers in a domain or group, then the job dynamically finds all computers in the domain or group with an agent license.

Running Jobs

You can run jobs manually without scheduling them. This is handy for doing batch protects of applications on many machines when you don't want to repeat the protection at regular intervals. Scheduled tasks can be run manually as well.

To run a job:

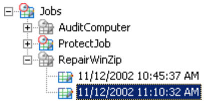
- In the Job view toolbar, click .

Checking the Status of Jobs

To check the status of a job:

1. In the console tree, expand Jobs and then expand the job definition. The starting date and time of each job is listed under the job definition.

Job Results in the Console Tree



Jobs
AuditComputer
ProtectJob
RepairWinZip
11/12/2002 10:45:37 AM
11/12/2002 11:10:32 AM

2. Click a job to display the Job Status view.

   The Job Status view displays the status of the commands executed on each machine.

To see more details for a specific command:

For example, you may want to know why a Protect command failed on a certain computer.

Click the command and then click Details.

To refresh the job status display:

Click Reload.

To see the audit report for a job:

1. In the console tree, click a job result.
2. In the Job Status view, click View Audit.

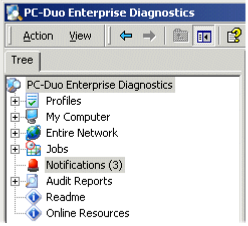
Checking for Notifications

Jobs post notifications to the console when they finish.

- Repair jobs post notifications if they fix (or fail to) fix problems.
- Protect jobs post notifications if they detect missing items (such as files, shortcuts and ActiveX controls).
- Audit jobs post notifications if they detect missing items (such as files, shortcuts and ActiveX controls) or if they detect other problems (for example, different file versions).

Notifications let you see at a glance whether your jobs found or fixed any problems. To check for notification messages, click Notifications in the console tree.

Notifications in the console tree



PC-Duo Enterprise Diagnostics
Profiles
My Computer
Entire Network
Jobs
Notifications (3)
Audit Reports
Readme
Online Resources

Clicking Notifications forces the console to check for new notifications. Otherwise, the console checks for new notifications once every minute.

To get more information on the problems found by the job, you can check the job results and then click View Audit to jump to the audit report.

After you review the notifications, you can delete them from the Notifications view.

To delete a notification:

Click the notification and then click ✕ in the console toolbar.

Scheduling Jobs

You can schedule a job to run daily, weekly, or monthly, and change the schedule for a task.

To schedule a job:

1 If the job you want to schedule is not already open, expand Jobs in the console tree and click the job you want to schedule.

2 In the Job view, click Scheduler.

To remove the schedule for a job:

1 If the job you want to schedule is not already open, expand Jobs in the console tree and click the job you want to schedule.

2 In the Job view, click Remove Schedule.

Unscheduled jobs are represented by 📅, and scheduled jobs by 📅.

A protected computer has its own copy of the profile, which is stored with the snapshot. If the console version of the profile is more recent, then Always use latest profile revision determines which profile an Audit command uses.

To	Do this
Use the most recent version of the profile	Select the Always use latest profile revision check box.
Use the version of the profile stored with the snapshot	Click to clear the Always use latest profile revision check box.

Chapter 8: Requests

Working with Requests

Requests are audit and protect commands sent by a console to an agent. When an agent finishes a request, the agent sends back a response (such as Done Audit or Done Protect).

Repair jobs send an audit command.

The Request view displays the requests and responses for a computer:

- Pending requests are waiting to be picked up by the agent. You can delete pending requests.
- In Progress requests are being processed by the agent. You cannot delete in-progress requests.
- Pending responses are waiting to be processed by the console.

Requests can be sent interactively by a console user or automatically by a scheduled job. Because interactive requests are processed independently in separate threads, they never appear as In Progress. A job request, however, must finish before any other requests (or responses) are processed and is listed as In Progress until it finishes. While a job request is In Progress, all other requests and responses are Pending.

For example, when a console receives a Done Audit response, it adds the audit report to the console tree and asks if the user wants to view the audit details. However, if a job request is In Progress, the Done Audit response is marked Pending and is not processed until the job request finishes.

To see the results of a pending response, you can manually refresh the console display by clicking Refresh on the Action menu (or by pressing F5).

For example, refreshing the console displays audit reports associated with pending Done Audit responses.

To view the list of requests and responses for a computer:

1. In the console tree, expand the Entire Network and locate the computer.
2. Expand the computer and click Requests.

To delete a pending request:

Click the request and then click ✕ in the console toolbar.

Troubleshooting Pending Requests

When there are no In Progress requests and one or more requests are pending, there are a number of things you can check before you delete the pending requests:

- Is the target computer on and connected to the network?
- Is the agent running on the target computer? Does the target computer have an agent license or was it revoked?
- Has the server run out of licenses? Try disconnecting all other users from the Support Site share and try again.

- Is the MQ Message Broker service running? Is it running with the correct credentials?
- Is TriMon.exe running with the correct credentials? (Use the dcomcnfg.exe utility to check the Distributed COM Configuration Properties.)
- Is the Support Site still available over the network? Does the Support Site User have enough privileges to access the Support Site?

Chapter 9: Configuring Enterprise Diagnostics

Configuring the Support Site

Editing the Support Site

The Support Site configuration consists of a UNC path and a domain user account. The path is the location of the Support Site, which is a shared folder on the network.

The user account is used by Enterprise Diagnostics agents and consoles to perform operations (such as application protection and repair) on remote computers.

The Support Site is initially configured during installation, but you can edit the configuration later. For example, you may want to move the Support Site, or use a different Support Site.

When you edit the Support Site configuration, the changes apply to all agents and consoles. Agents are sent a notification message of the changes, and consoles pick up the changes the next time they start up.

If for some reason an agent or console does not pick up the changes, the changes can be manually applied.

To edit the Support Site configuration in a console:

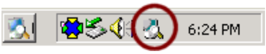
1 In the console tree, click PC-Duo Enterprise Diagnostics.

2 On the Action menu, click SupportSite Configuration.

To edit the Support Site configuration on a remote computer:

In the system tray of the Windows task bar, right-click the agent icon and click SupportSite Configuration.

Agent icon in the system tray



Moving the Support Site

When you change the location of the Support Site, all agents and consoles are automatically notified. If the notifications fail and the consoles cannot automatically update their Support Site settings, they can do it manually through the Options dialog box.

You can also move the data in your Support Site to another Support Site.

To move Support Site data to another Support Site:

1 In the console tree, click PC-Duo Enterprise Diagnostics.

2 On the Action menu, click SupportSIte Configuration.

3 In the Support Site Path box, enter the UNC path of the other Support Site.

4 In the dialog box that appears, click the Move all data from your current Support Site to the new location check box.

5. If you want consoles installed from the current Support Site to switch to the other Support Site, click the Notify all clients of the change in Support Site location check box.

To switch to a different Support Site:

1. In the Support Site Path box, enter the path to the other Support Site.
2. In the dialog that appears, click the Notify all clients of the change in Support Site location check box.

When you don't select the Move all data from your current Support Site to the new location check box, you switch to using the other Support Site and its data.

Do not add any other shares for the Support Site folder. For example, do not create a second share so that the Support Site folder is shared both as //nanp/Support Site and //nanp/Diagnostics.

The Support Site User Account

The Support Site user account is used to:

- Audit, protect, and repair computers.
- Access the Support Site shared folder.
- Run jobs.
- Run the MQ Message Broker service.

On each local computer, the Support Site user account must have the permissions required to perform tasks such as auditing and protecting the computer. The Support Site user should be a domain Administrator that has local Administrator rights on each computer. If the Support Site user is not a member of the local Administrators group, the Diagnostics Agent may not be able to audit, protect, or repair certain items such as files and registry entries.

To verify that the Support Site user has access to the SupportSite from a computer, log on to Windows with that user account and try to copy a file to and from the Support Site shared folder.

Support Site User with No Password

If you want to use an account with no password as your Support Site user, you may have to change your security settings.

On Windows XP:

In the Security Settings, go to Local Policies\Security Options and disable the policy Accounts: Limit local account use of blank passwords to console logon only.

On Windows 2000:

In the Security Settings, go to Account Policies\Password Policy and set the minimum password length to 0.

On Windows 95, 98, Me, and NT:

In the Users Manager, set the minimum password length to 0.

Setting Options

Enterprise Diagnostics provides options for logging events and maintaining archives of audits and snapshots. The option settings are shared by all consoles, although individual agents and consoles can override the default settings.

From the console, you can:

- Set the defaults for new agents and consoles.
- Change the settings used by existing agents and consoles.
- Change the agent options for specific computers, domains, or groups of computers.

Users can also change the settings for the agents running on their computers. If a user changes the event logging or maintenance options, these changes cannot be overwritten by the console.

Setting the Defaults

All new installations of agents and consoles use the same default settings for event logging and the maintenance of audits and snapshots.

To edit the default settings:

1. On the Action menu, click Options, or click ▣ on the console toolbar.
2. Edit the event logging or maintenance options and click OK.

Updating All Clients

The Event Logging and Maintenance tabs each have an Apply new settings to all Clients check box. By selecting the check box on a tab, you can apply the changes (on that tab) to existing agents and consoles.

Agents receive a notification message of the changes. Consoles pick up the changes at their next startup.

Updating Selected Clients

From the console, you can set event logging and maintenance options on an computer-by-computer, domain-by-domain, or group-by-group basis. This allows you override the default settings for specific computers.

To update selected clients:

1. In the console tree, right-click a computer and then click Agent Options.
2. For domains and groups, select one or more (or all) computers.
3. Set the event logging and maintenance options and click OK.

Preventing Users From Editing Options

By default, users can edit the event logging and maintenance options by double-clicking the agent icon in the system tray. You can prevent users from editing just the event logging options, just the maintenance options, or both sets of options.

To prevent users from editing the agent options:

1. In the Event Logging or Maintenance tab, clear the Agent can edit Event Logging options check box.
2. To apply this change to existing agents, click the Apply new settings to all Clients check box. This overrides any local settings.
3. Click OK.

Logging Events

By default, agents and consoles log events on the local computer. On Windows NT, 2000, and XP, events are logged to the Event Log. On Windows 95, 98, and Me, events are logged to a text file.

On Windows NT, 2000, and XP, you can log all events to the Event Log on a central server.

To log all events to the Event Log on a central server:

1 On the Action menu, click Options, or click on the console toolbar.

2 On the Event Logging tab, click the Log events to a central server check box.

3 Type the computer name of the central server.

By default, settings changes are applied only to new installations of agents and consoles.

Maintaining Audits and Snapshots

Limiting Audits and Snapshots

By default, Enterprise Diagnostics saves an unlimited number of audits and snapshots for each application. To conserve disk space, or to prevent clutter, you can limit the number of audits and snapshots. Enterprise Diagnostics will automatically delete the oldest audits and snapshots when necessary.

For example, the snapshot for an application such as Microsoft Outlook is around 35MB. You probably don't want to keep an unlimited number of such snapshots, particularly if you use jobs to take snapshots at regular intervals.

While audits are much smaller than snapshots, you still may want to limit the number of audit reports saved in the Support Site.

However, if you want to keep a baseline audit of a system to use for change analysis, don't set a limit on the number of audits. If you set a limit, your baseline audit will be deleted once the limit is reached (to make room for the new audit).

To limit the number of audits and snapshots:

1 On the Action menu, click Options, or click on the console toolbar.

2 Click the Maintenance tab.

3 To limit the number of snapshots, click the Limit number of snapshots to check box and type a number in the box.

4 To limit the number of audits, click the Limit number of audits to check box and type a number in the box.

Storing Snapshots on the Support Site

By default, snapshots are stored on the local computer (the computer where the agent is running). Each agent can change this so that snapshots are stored in the Support Site instead.

The Store snapshots in the Support Site option moves existing snapshots from the local computer to the Support Site. On the Support Site, snapshots are stored in a Snapshots folder:

```
Support Site\Snapshots\<domain>\<app>
```

By default, audits are stored in the Support Site, and snapshots are stored on the local computer (the computer where the agent is running).

Snapshots are stored in the Data\Snapshots subfolder of the Enterprise Diagnostics installation folder. For example:

```
C:\Program Files\
    PC-Duo Enterprise\Diagnostics\
        Data\Snapshots\
            <protected-app1>
```

Revoking Licenses

If someone is on an extended vacation or leave of absence, you can revoke the license so someone else can use Enterprise Diagnostics. Typically you revoke licenses for Enterprise Diagnostics (the console) or for Enterprise Diagnostics / db. Revoking an agent license would leave the computer unprotected.

To revoke a license for a product:

1. On the Action menu, click Options, or click ▣ on the console toolbar.
2. Click the License Usage tab.
3. Expand the product and click the user's computer.
4. Click Revoke.

After you revoke a license, the agent or console will automatically acquire a license the next time it starts.

Uninstalling an agent or console automatically revokes the license.

Customizing Remote Control

The Remote Control command in the Action menu launches PC-Duo Remote Control with the command-line arguments /VS /E.

The default arguments when launching PC-Duo Remote Control are /VS /E, which opens the connection in Share mode and closes the connection when the window is closed.

You can customize the command line from the by adding string values under the key:

```
HKLM\Software\MetaQuest\Triage\4.0
```

RemoteControlPath specifies the path to the remote control executable.

RemoteControlArgs specifies the command-line arguments.

Configuring Notifications

By default, only jobs post notifications. You can configure when notifications are posted by editing a section in the SupportSite\TriSite.ini file.

```
[Notifications]

LogMissingItems=<value>

LogRepairFailed=<value>

LogRepairSuccess=<value>

LogProblemsFound=<value>
```

To disable a notification, set the value to 0.

Value	Description
0	Do not log
1	Log notifications for jobs

Value	Description
2	Log notifications for console commands
3	Log notifications for jobs and console commands

Console commands include Audit, Protect, and fixes applied from the Problem Diagnostics view.