

Pervasive.SQL 2000i

Getting Started with Pervasive.SQL 2000i

Server Edition

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Getting Started with Pervasive.SQL 2000i

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Contents

About This Manual	xvii
Who Should Read This Manual	xviii
Manual Organization	xix
Getting Ready to Install	xix
Windows NT and 2000	xix
NetWare	xx
Linux and Solaris	xx
Client Requesters	xx
After Installation	xxi
Conventions	xxii

Getting Ready to Install

1 Welcome to Pervasive.SQL 2000i	1-1
<i>A Basic Introduction to Pervasive.SQL 2000i</i>	
About Pervasive.SQL 2000i	1-2
Competitive Advantages	1-2
Relational or Transactional Access	1-3
About the Server Engine	1-4
Purpose	1-4
Where to Install	1-4
Additional User Licenses	1-4
Features	1-4
2 Preparing to Install Pervasive.SQL 2000i.	2-1
<i>Preparation Needed for Pervasive.SQL 2000i Server Installation</i>	
Installation Overview	2-2
Major Components of Pervasive.SQL 2000i	2-2
Installation Options	2-4
Installation Checklist	2-6
Quick Checklist	2-6
Check the Hardware Requirements	2-6
UNIX System Requirements	2-8
Check the Software Requirements	2-9
Ensure Adequate Permissions	2-10
Verify Compatibility of Vendor Applications	2-10
Schedule the Upgrade and Perform with Care	2-11
Read the README file	2-11

3 Pervasive.SQL 2000i and Terminal Server Products 3-1

How to Use Pervasive.SQL with Terminal Servers

Supported Terminal Server Products.	3-2
Supported Database Engines	3-2
Installation Notes	3-3
Permissions	3-3
Installing on Microsoft Terminal Server	3-3
Workstation and Workgroup Engines.	3-3
Licensing Notes.	3-4
Configuration and Runtime Notes	3-5
Remote Configuration with PCC	3-5
Multiple Engines	3-5
Microsoft Terminal Server as Network Server	3-5

Installing and Configuring Server Engine on Windows 2000 or Windows NT

4 Installing Pervasive.SQL 2000i with No Previous Installation . . . 4-1

Instructions for First-time Windows Server Installation

Before You Begin.	4-2
Platform Notes for Windows.	4-2
Installing Over Existing Pervasive Products.	4-3
Installing the Pervasive.SQL 2000i Server Components	4-5
Notes About Typical Setup	4-7
Notes About Custom Setup	4-7
What to do Next.	4-16
Custom Installation Path	4-17
Common Questions After Installing Pervasive.SQL 2000i	4-23
Where To Go From Here.	4-24

5	Upgrading Your Pervasive.SQL Installation	5-1
	<i>Instructions for Upgrading an Existing Pervasive.SQL Installation</i>	
	Before You Begin	5-2
	Considerations	5-2
	Platform Notes for Windows	5-3
	Installing Over Existing Pervasive Products	5-4
	Accessing README file information.	5-5
	Patching an Existing Pervasive.SQL 2000 Installation	5-6
	Situation Where Install Runs in Patch Mode	5-6
	How Patch Mode Differs from Regular Installation.	5-6
	Patching Procedure	5-7
	How to Run Standard Installation Instead of Patching	5-12
	Upgrading to Pervasive.SQL 2000i Server from Pervasive.SQL 7 or Btrieve 6	5-13
	Notes About Typical Setup	5-15
	Notes About Custom Setup	5-15
	What to do Next	5-25
	Custom Installation Path.	5-26
	Common Questions After Installing Pervasive.SQL 2000i.	5-32
	Where To Go From Here	5-34
6	Network Settings for Server Engine on Windows	6-1
	<i>How to Configure Network Settings for a Windows-based Pervasive.SQL Server</i>	
	Determining What Kind of Network You Have	6-2
	Server Engine on Windows	6-2
	Server Engine on NetWare	6-2
	Server Engine on Linux or Solaris	6-2
	Default Engine Settings.	6-3
	Setting Up TCP/IP Support	6-5
	Setting Up SPX Support	6-7
	Avoiding Unavailable Protocols	6-9
7	Application Configuration Scenarios	7-1
	<i>Common Scenarios for Setting up Your Server</i>	
	Multiple Client Applications.	7-2
	Settings Affected by Multiple Applications.	7-2
	Concurrent Local and Remote Applications	7-5

Installing and Configuring Server Engine on NetWare

8	Installing Pervasive.SQL 2000i on NetWare	8-1
	<i>Instructions for NetWare Server Installation or Patching</i>	
	Before You Begin.	8-2
	Platform Notes for NetWare	8-2
	Installing Over Existing Pervasive Products.	8-4
	NetWare Security and Configuration Issues	8-5
	Patching an Existing Pervasive.SQL 2000 Installation.	8-8
	Situation Where Install Runs in Patch Mode	8-8
	How Patch Mode Differs from Regular Installation	8-8
	Patching Procedure	8-9
	How to Run Standard Installation Instead of Patching	8-13
	Installing the Pervasive.SQL 2000i Server Components	8-15
	Common Questions After Installing Pervasive.SQL 2000i	8-24
9	Network Settings for Server Engine on NetWare	9-1
	<i>How to Configure Network Settings for a NetWare-based Pervasive.SQL Server</i>	
	Determining What Kind of Network You Have	9-2
	Server Engine on NetWare	9-2
	Mixed NetWare and Microsoft Network	9-2
	Default Settings.	9-3
	Setting Up TCP/IP Support	9-5
	Setting Up SPX Support	9-7
	Disabling Certain Protocols	9-9
10	Application Configuration on NetWare	10-1
	<i>Issues for Configuring Applications on the NetWare Platform</i>	
	Local Applications on NetWare Servers	10-2
	NSS Volume Support	10-3

Installing and Configuring Server Engine on Linux or Solaris

11 First-time Installation on Linux or Solaris 11-1

Instructions for First-time Linux or Solaris Server Installation

Before You Begin	11-2
Samba Package Installation	11-2
Platform Notes for UNIX	11-2
Installing the Pervasive.SQL 2000i Server Components	11-3
Solaris Install Procedure	11-3
Linux Install Procedure	11-4
Installation Information	11-4
User Count License	11-5
Accessing README file information	11-5
Configuring Pervasive.SQL 2000i for UNIX	11-6
Common Questions After Installing Pervasive.SQL 2000i.	11-7

12 Upgrade Installation Procedure for Linux or Solaris 12-1

How to Upgrade an Existing Installation of Pervasive.SQL 2000i on UNIX platforms

Before You Begin	12-2
Samba Package Installation	12-2
Platform Notes for UNIX	12-2
Upgrading the Pervasive.SQL 2000i Server Components	12-3
Solaris Upgrade Procedure	12-3
Linux Upgrade Procedure	12-4
Installation Information	12-4
User Count License	12-5
Accessing README file information	12-5
Configuring Pervasive.SQL 2000i for UNIX	12-6
Common Questions After Upgrading Pervasive.SQL 2000i.	12-7

13 Network Settings for Linux and Solaris. 13-1

How to Configure the Network Settings for your Pervasive.SQL Server on Linux and Solaris

Default Settings	13-2
Configuring the Solaris and Linux Servers	13-4
Security Configuration.	13-4

14 Application Configuration on Linux and Solaris. 14-1

Issues for Configuring the Linux and Solaris Platforms after Installation

Local Btrieve Applications on UNIX Servers.	14-2
Local Access Security	14-3
Using Perl and ODBC with Pervasive.SQL 2000i for Linux	14-4
Code Snippet for Perl and DBI.	14-4
Pervasive.SQL Account Management on UNIX.	14-5
After Installation Behavior	14-5
Configuring the User Environment	14-5
Using Utilities from Accounts Other than PSQL	14-5

Installing and Configuring Pervasive.SQL Client Software

15 Installing Pervasive.SQL Requesters. 15-1

How to Install Pervasive.SQL Client Requester Software for Connecting to Servers

Before You Begin.	15-2
Requester Notes	15-2
Patching an Existing Pervasive.SQL 2000 Client Installation.	15-3
Situation Where Install Runs in Patch Mode	15-3
How Patch Mode Differs from Regular Installation	15-3
Patching Procedure	15-4
How to Run Standard Installation Instead of Patching	15-7
Installing the Pervasive.SQL 2000i Client Components.	15-9
Custom Installation Path	15-16
Where To Go From Here	15-20

16 Distributing the Pervasive Client 16-1

How to Install Clients for your Pervasive.SQL Server

Introduction to Client Distribution	16-2
Minimal Clients: Using the Pervasive.SQL Server for Requester Operations	16-3
.	16-3
Installing Clients Using Networked Client Support	16-3
Installing Clients Using a Systems Management Server.	16-7
Installing DOS Requesters.	16-8
Overview	16-8
Where To Go From Here	16-10

17 Client Network Configuration 17-1

How to Configure your Pervasive.SQL Clients

Default Settings	17-2
How to Configure the Pervasive Clients	17-4
Configuring the Win32 Requester	17-4
Configuring the Win16 Requester	17-4
Network Path Formats Supported by Pervasive Requesters	17-6
Universal Naming Convention (UNC) Path Formats.	17-6
Drive-based Formats.	17-7
NetWare Specific Formats.	17-7
UNIX Path Formats	17-12
Using TCP/IP to Connect to a NetWare Server	17-13
Using SPX to Connect to a NetWare Server	17-14
Using TCP/IP to Connect to a Windows NT/2000 Server.	17-17
Tasks	17-17
Using SPX to Connect to a Windows NT/2000 Server.	17-20
Name Resolution.	17-20
Tasks	17-20
NetBIOS and the Pervasive.SQL Server Engine.	17-23
Using TCP/IP to Connect to a Linux or Solaris Server.	17-24
Tasks	17-24
Using the DOS Requesters	17-26
Overview	17-26
Requesters Available	17-26
Supported Configurations.	17-27
Win16 and DOS Workstations	17-27
Running DOS applications on Windows NT/2000	17-28
Running DOS applications on Windows 95/98	17-31
Verifying the DOS Configuration.	17-38
DOS TCP/IP Technical Information	17-38
Configuring the Pervasive.SQL 2000i DOS Requester	17-43

After Installation

18 Working With User Counts 18-1

Understanding and Upgrading User Counts for Pervasive.SQL 2000i Server

Understanding Pervasive.SQL 2000i User Counts.	18-2
What counts as a single user count?	18-2
Where do I obtain a user count license?	18-2
How long does the upgrade take?	18-2
Applying Additional User Count Licenses	18-4
Using the User Count Administrator.	18-5
Updating Your User Count and Licenses in Windows	18-7
Updating Your User Count Using Command Line Utilities	18-8
Updating Your User Count From a Windows NT Command Line.	18-9
Updating Your User Count From a NetWare Server Console.	18-9
Updating Your User Count From a UNIX Command Line	18-10

19 Connecting Clients to a Pervasive.SQL Database 19-1

How to Connect Clients to the Sample Database on a Pervasive.SQL Server Machine

Basics About Pervasive.SQL Servers and Clients	19-2
Servers	19-2
Clients	19-2
Connect a Client to a Pervasive.SQL Server	19-3
Use the Client to Obtain Data from the Server	19-5
Become an Expert User	19-9
Users's Guide	19-9
Advanced Operations Guide	19-9

20 Taking Full Advantage of Upgrade 20-1

Rebuilding MicroKernel Data Files to the Latest Version Gains Functionality

Issues After Upgrading.	20-2
Converting MicroKernel Data Files.	20-3
Running the GUI Rebuild Utility	20-5
Getting Help	20-5
Converting a Data File	20-5
Command-Line Rebuild Utility.	20-10
Running the Rebuild Utility on NetWare	20-10
Changing Configuration Options	20-10
Viewing the Rebuild Log File.	20-12
Deleting Temporary Files	20-13

21 Troubleshooting After Installation 21-1

How to Proceed When You Encounter Errors During Installation

Troubleshooting Tools	21-2
Troubleshooting Strategies.	21-3
Checklist for Problems.	21-3
Troubleshoot the Problem	21-3
Diagnosing Problems with Pervasive System Analyzer (PSA).	21-4
How to Start PSA.	21-4
SmartScout Replaced by PSA	21-4
Checking Network Connectivity Using PSA	21-5
Verifying Database Engine is Running	21-8
Windows NT and 2000	21-8
Linux or Solaris.	21-10
NetWare	21-10
Checking Client Functionality	21-11
Obtaining File, Client, and Engine Version Number.	21-14
Determining Client and Engine Version	21-14
Determining a File Version	21-15
How to Get Additional Help	21-19
Thirty-Day Free Technical Support.	21-19

22 Pervasive.SQL Resources and Contacts 22-1

A Guide to Pervasive.SQL Customer Information Resources

Printed Documentation	22-2
Developer Center	22-3
Pervasive.SQL Knowledge Base	22-4
FTP Site	22-5
Online Documentation.	22-6
DevWire	22-7
DevTalk	22-8
Newsgroup	22-9
E-Mail	22-10
Technical Support.	22-11

Figures

4-1	Pervasive.SQL 2000i Setup Reboot Required	4-3
4-2	Pervasive.SQL Setup Welcome Dialog Box	4-5
4-3	Pervasive Software's Software License Agreement	4-6
4-4	Setup Type Dialog Box	4-6
4-5	Select your Installation Directory	4-8
4-6	Pervasive System Analyzer Welcome Screen	4-9
4-7	System Analysis Using PSA	4-9
4-8	Pervasive System Analyzer Results	4-10
4-9	Your Selected Installation Settings	4-10
4-10	Setup Begins Copying Files	4-11
4-11	Applying the User Count License	4-11
4-12	Transactional Engine Test	4-12
4-13	Transactional Engine Test Results from PSA	4-13
4-14	Relational Engine Test	4-14
4-15	Relational Engine Test Results from PSA	4-15
4-16	Installation Complete Dialog Box	4-16
4-17	Choosing Installation Directory of Pervasive.SQL	4-17
4-18	Choose Components To Install	4-18
4-19	Pervasive System Analyzer Welcome Screen	4-19
4-20	System Analysis using PSA	4-19
4-21	Choose your Program Folder.	4-21
4-22	Choose your Service Start-up Mode	4-21
4-23	Your Custom Installation Selections.	4-22
4-24	Setup Begins Copying Files	4-22
5-1	Pervasive.SQL 2000i Setup Reboot Required	5-5
5-2	Pervasive.SQL Setup Welcome Dialog Box	5-8
5-3	Pervasive Software's Software License Agreement	5-8
5-4	Pervasive System Analyzer Preparing your System for Patching	5-9
5-5	Your Selected Patch Installation Settings	5-9
5-6	Setup Begins Copying Files	5-9
5-7	Pervasive System Analyzer Tests Your New Engines	5-10
5-8	Option to view the Readme file.	5-10
5-9	Installation Complete Dialog Box	5-11
5-10	Pervasive.SQL Setup Welcome Dialog Box	5-13
5-11	Pervasive Software's Software License Agreement	5-14
5-12	Setup Type Dialog Box	5-14
5-13	Select Your Installation Directory	5-16
5-14	Pervasive System Analyzer Welcome Screen	5-17
5-15	System Analysis Using PSA	5-17

5-16	Pervasive System Analyzer Results	5-18
5-17	Select to Archive All Files	5-19
5-18	Your Selected Installation Settings	5-19
5-19	Setup Begins Copying Files	5-20
5-20	Applying the User Count License.	5-20
5-21	Transactional Engine Test.	5-21
5-22	Transactional Engine Test Results from PSA	5-22
5-23	Relational Engine Test	5-23
5-24	Relational Engine Test Results from PSA	5-24
5-25	Installation Complete Dialog Box	5-25
5-26	Choosing Installation Directory of Pervasive.SQL	5-26
5-27	Choose Components To Install.	5-27
5-28	Pervasive System Analyzer Welcome Screen.	5-28
5-29	System Analysis using PSA	5-28
5-30	Choose your Program Folder	5-30
5-31	Choose your Service Start-up Mode	5-30
5-32	Your Custom Installation Selections	5-31
5-33	Setup Begins Copying Files	5-31
8-1	Pervasive.SQL 2000i Setup Reboot Required	8-4
8-2	Pervasive.SQL 2000 Setup Welcome Dialog Box	8-9
8-3	Pervasive Software's Software License Agreement.	8-10
8-4	Pervasive System Analyzer Preparing your System for Patching	8-10
8-5	Your Selected Patch Installation Settings.	8-11
8-6	Setup Begins Copying Files	8-11
8-7	Option to view the Readme file..	8-12
8-8	Installation Complete Dialog Box	8-12
8-9	Mapping a Drive	8-15
8-10	Pervasive.SQL 2000i Installation Welcome	8-16
8-11	Accepting the License Agreement.	8-16
8-12	Setup Type	8-17
8-13	Select System File Installation Directory Dialog Box	8-18
8-14	Select Installation Directory Dialog Box	8-19
8-15	Pervasive System Analyzer Welcome Screen.	8-19
8-16	System Analysis Using PSA	8-20
8-17	Pervasive System Analyzer Results	8-21
8-18	Setup Begins Copying Files	8-21
8-19	Setup User Count License Dialog Box	8-22
8-20	Installation Complete Dialog Box	8-23
15-1	Pervasive.SQL Setup Welcome Dialog Box	15-4
15-2	Pervasive System Analyzer Preparing your System for Patching	15-5
15-3	Your Selected Patch Installation Settings.	15-5
15-4	Setup Begins Copying Files	15-5
15-5	Option to view the Readme file..	15-6

15-6	Installation Complete Dialog Box	15-7
15-7	Pervasive.SQL Welcome Dialog Box.	15-10
15-8	Setup Type Dialog Box – CD-ROM installation	15-10
15-9	Setup Type Dialog Box – Network Installation	15-11
15-10	Selecting Installation Directory Dialog Box.	15-12
15-11	Pervasive System Analyzer Welcome Screen	15-13
15-12	System Analysis Using PSA	15-13
15-13	Pervasive System Analyzer Results.	15-14
15-14	Your Selected Installation Settings.	15-14
15-15	Setup Begins Copying Files.	15-15
15-16	Installation Complete Dialog Box	15-15
15-17	Choosing the Client Installation Directory of Pervasive.SQL	15-16
15-18	Choose Components To Install	15-17
15-19	Choosing your Start Menu Folder	15-18
15-20	Your Custom Installation Selections.	15-18
16-1	Mapping a Drive.	16-4
16-2	Pervasive.SQL Setup Welcome Dialog Box	16-5
16-3	Setup Type Dialog Box – Network Installation	16-5
18-1	User Count Administrator Dialog Box	18-5
19-1	Registering a New Engine.	19-3
19-2	Choosing a Computer Name.	19-4
19-3	Choosing a Computer Name.	19-4
19-4	Expanding the Databases List for a Machine	19-5
19-5	Selecting the DEPARTMENT Table in DEMODATA	19-6
19-6	Displaying the DEPARTMENT Table in DEMODATA	19-7
19-7	Refining Your Query - DEPARTMENT Table in DEMODATA	19-8
20-1	Rebuild Utility Main Window	20-5
20-2	Select Files Dialog Box	20-6
20-3	Settings Dialog Box	20-6
20-4	Start Rebuild Dialog Box	20-8
20-5	Start Rebuild Dialog Box	20-9
21-1	Select Network Test	21-5
21-2	Select Network Path.	21-6
21-3	Network Test In Progress.	21-7
21-4	Choosing to Display the Log File.	21-7
21-5	Displaying the Services Status	21-9
21-6	Starting a Service	21-9
21-7	Select Transactional and Relational Engine Tests.	21-11
21-8	Transactional Test Setup Dialog	21-12
21-9	Transactional Test Results Dialog	21-13

21-10 Relational Test Set Up Dialog 21-13

21-11 Selecting the Btrieve Version button 21-14

21-12 Btrieve Version Info Display 21-15

21-13 Obtaining a File Version with the Pervasive Control Center 21-16

21-14 Table Properties Page 21-17

Tables

1-1	Comparison of Server, Workgroup, Workstation Features	1-5
4-1	How to Proceed After Installing Server and Client Software	4-23
5-1	How to Proceed After Installing Server and Client Software	5-32
17-1	Supported UNC and Drive Path Formats	17-6
17-2	File name and Path formats for Novell Clients for NetWare	17-9
17-3	File name and Path formats for Microsoft Clients for NetWare.	17-10
17-4	Supported DOS Requester Configurations	17-27
18-1	Elements in the User Count Administrator Dialog Box	18-6
18-2	User Count Maintenance Utility Command Line Options	18-8
20-1	Rebuild Utility Conversions	20-3
20-2	Controls in the Settings Dialog Box	20-7
21-1	Pervasive Tools that Assist in Installation and Problem Determination	21-2

About This Manual

This manual contains information about installing the Pervasive.SQL 2000i database system. Pervasive.SQL 2000i is a complete database management system, providing the best of both worlds. It combines a transactional interface designed for high-performance data handling and improved programming productivity with an embeddable and scalable relational interface.

This manual also contains information about common installation issues, general network protocol information, and Pervasive.SQL 2000i components.

For information about configuring the Pervasive.SQL 2000i engine, see the *Pervasive.SQL User's Guide*.

Who Should Read This Manual

This manual provides information for users who install and run Pervasive.SQL 2000i. This manual is also useful for system administrators who are responsible for maintaining databases on a network and for those who are using Pervasive.SQL to develop server applications.

Pervasive Software would appreciate your comments and suggestions about this manual. As a user of our documentation, you are in a unique position to provide ideas that can have a direct impact on future releases of this and other manuals. If you have comments or suggestions for the product documentation, post your request at <http://www.pervasive.com/devtalk> or send e-mail to docs@pervasive.com.

Manual Organization

This manual is arranged in the order of the main installation sequence. You complete the installation by following the chapters in order (skipping the chapters that do not apply to your server platform). *Getting Started with Pervasive.SQL 2000i* is divided into the following sections:

Getting Ready to Install

- Chapter 1—“Welcome to Pervasive.SQL 2000i”
This chapter provides a basic introduction to Pervasive.SQL 2000i.
- Chapter 2—“Preparing to Install Pervasive.SQL 2000i”
This chapter discusses important preparations that you should undertake before attempting to install Pervasive.SQL 2000i.
- Chapter 3—“Pervasive.SQL 2000i and Terminal Server Products”
This chapter describes how to use Pervasive.SQL with Terminal Server Products.

Windows NT and 2000

- Chapter 4—“Installing Pervasive.SQL 2000i with No Previous Installation”
This chapter describes how to install Pervasive.SQL for the first time on Windows NT or Windows 2000.
- Chapter 5—“Upgrading Your Pervasive.SQL Installation”
This chapter describes how to upgrade a previous version of Pervasive.SQL on Windows NT or Windows 2000.
- Chapter 6—“Network Settings for Server Engine on Windows”
This chapter describes how to configure your network for use with the Server engine on Windows NT or Windows 2000.
- Chapter 7—“Application Configuration Scenarios”
This chapter describes different application configurations for special scenarios.

NetWare

- Chapter 8—“Installing Pervasive.SQL 2000i on NetWare”
This chapter describes how to install the Pervasive.SQL server on NetWare.
- Chapter 9—“Network Settings for Server Engine on NetWare”
This chapter describes how to configure your network for use with the Server engine on NetWare.
- Chapter 10—“Application Configuration on NetWare”
This chapter describes different application configurations for special scenarios.

Linux and Solaris

- Chapter 11—“First-time Installation on Linux or Solaris”
This chapter describes how to install the Pervasive.SQL server on UNIX.
- Chapter 12—“Upgrade Installation Procedure for Linux or Solaris”
This chapter describes how to upgrade a previous version of Pervasive.SQL on Linux or Solaris.
- Chapter 13—“Network Settings for Linux and Solaris”
This chapter describes how to configure your network for use with the Server engine on Linux or Solaris.
- Chapter 14—“Application Configuration on Linux and Solaris”
This chapter describes different application configurations for special scenarios.

Client Requesters

- Chapter 15—“Installing Pervasive.SQL Requesters”
This chapter explains how to install the requesters to the workstations. It also describes the parameters you can set for each requester and offers implementation notes for specific operating systems.
- Chapter 16—“Distributing the Pervasive Client”
This chapter discusses ways of distributing the installation of the Pervasive.SQL client software across your network.

After Installation

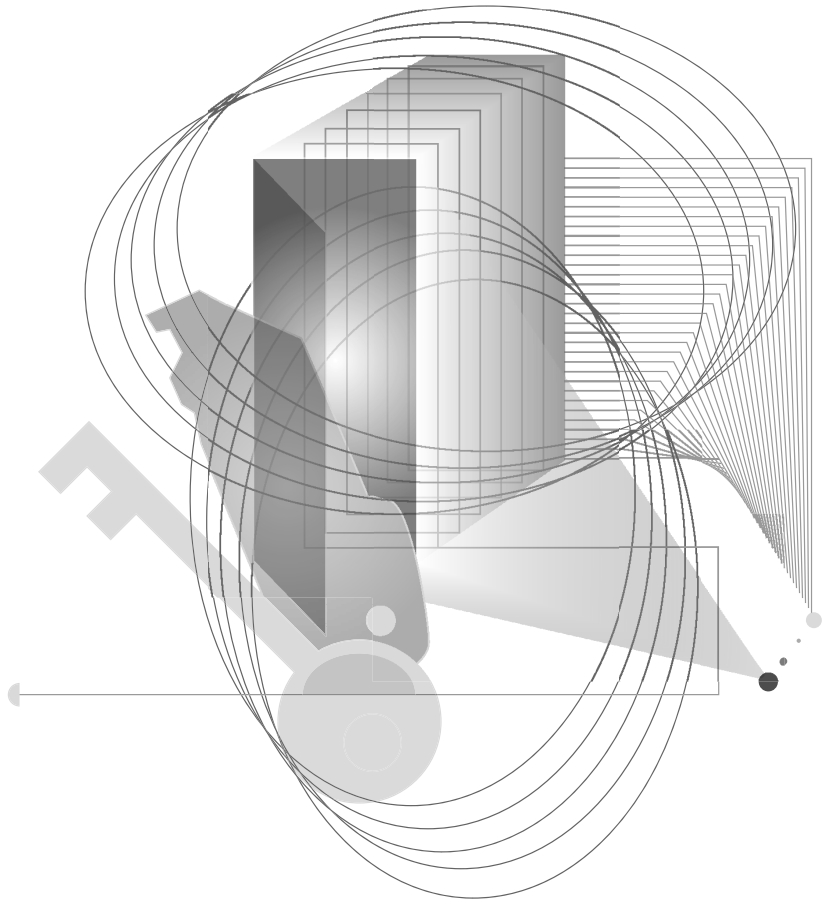
- Chapter 17—“Client Network Configuration”
This chapter describes how to configure your clients network settings for use with Server engines.
- Chapter 18—“Working With User Counts”
This chapter describes how to manage your Pervasive.SQL licenses.
- Chapter 19—“Connecting Clients to a Pervasive.SQL Database”
This chapter describes how to connect to a server and display data from a table in the sample database.
- Chapter 20—“Taking Full Advantage of Upgrade”
This chapter describes how users upgrading from previous Pervasive products can utilize the Rebuild utility to take advantage of the latest MicroKernel features.
- Chapter 21—“Troubleshooting After Installation”
This chapter provides information on Pervasive.SQL tools that aid in diagnosing problems.
- Chapter 22 —“Pervasive.SQL Resources and Contacts”
Should you not find the answer to your problem, this chapter gives contact information for Pervasive.SQL support.

This manual also contains an index.

Conventions

Unless otherwise noted, command syntax, code, and examples use the following conventions:

CASE	Commands and reserved words typically appear in uppercase letters. Unless the manual states otherwise, you can enter these items using uppercase, lowercase, or both. For example, you can type MYPROG, myprog, or MYprog.
Bold	Words appearing in bold include the following: menu names, dialog box names, commands, options, buttons, statements, etc.
Monospaced font	Monospaced font is reserved for words you enter, such as command syntax.
[]	Square brackets enclose optional information, as in [<i>log_name</i>]. If information is not enclosed in square brackets, it is required.
	A vertical bar indicates a choice of information to enter, as in [<i>file name</i> @ <i>file name</i>].
< >	Angle brackets enclose multiple choices for a required item, as in /D=<5 6 7>.
<i>variable</i>	Words appearing in italics are variables that you must replace with appropriate values, as in <i>file name</i> .
...	An ellipsis following information indicates you can repeat the information more than one time, as in [<i>parameter</i> ...].
::=	The symbol ::= means one item is defined in terms of another. For example, a::=b means the item <i>a</i> is defined in terms of <i>b</i> .



GETTING READY TO INSTALL

Welcome to Pervasive.SQL 2000i

A Basic Introduction to Pervasive.SQL 2000i

Thank you for purchasing Pervasive.SQL 2000i. We are confident that you will find Pervasive.SQL 2000i to be the very best high performance, low maintenance database engine on the market.

This chapter contains the following topics:

- “About Pervasive.SQL 2000i” on page 1-2
- “About the Server Engine” on page 1-4

About Pervasive.SQL 2000i

Pervasive.SQL 2000i is a reliable, low-maintenance, high-performance database management system (DBMS). Thousands of companies around the world license Pervasive.SQL and distribute it as the underlying data storage program for their data-intensive software products. These companies see no reason to build their own DBMS or license from a competitor once they experience the ease-of-use, reliability, and value offered by Pervasive.SQL.

No matter whether you received Pervasive.SQL with another product or purchased it yourself, this section explains a little about the product and why it is right for you.

If you would like to read a detailed discussion of Pervasive.SQL architecture and interfaces, please refer to *Pervasive Products and Services*.

Competitive Advantages

Pervasive.SQL provides a number of advantages over other products available on the market. Here are just a few:

- *Lowest total cost of ownership.* An independent study conducted by Aberdeen Group concluded that no major database product can match Pervasive.SQL's low total cost of ownership. How do we do it? See the next bullet.
- *No Database Administrator (DBA) required.* You can look in the newspaper any day of the week and see classified ads for Oracle, Sybase, or SQL Server database administrators, with sky-high salaries. Pervasive.SQL offers the unique Zero Database Administrator, or Z-DBA™, architecture. Its easy-to-use tools, bulletproof installation, and set-it-and-forget-it simplicity make it the perfect workhorse for desktop, workgroup, and departmental applications.
- *Scalable from the desktop to the Web.* Pervasive.SQL is available in three editions: the Ultra-light™ Workstation database engine supports applications running locally on the same computer as the engine; the Workgroup engine comes with a three-user license and scales up to about ten users; and the Server engine comes with a 10-user license and scales to hundreds of

concurrent users, including intranet and extranet applications. Upgrading to another configuration requires no changes to the supported application, just plug-and-play with the new database engine.

- *Cross-platform support.* Unlike some competitors, Pervasive.SQL does not confine you to a single platform. Pervasive.SQL databases are binary-compatible and supported across Microsoft Windows, Novell NetWare, Sun Solaris, and several Linux distributions. No matter what operating system you are currently use or change to, Pervasive.SQL is there for you.
- *Big database features at a small price.* Pervasive.SQL offers full security, encryption, management and monitoring tools, and a host of other features you would expect to see in more expensive DBMS products.
- *Legendary stability and reliability.* There's no doubt why 70% of the Windows desktop accounting market uses Pervasive.SQL as the underlying database of choice. When you manage important data, go for the database engine that won't let you down.

Relational or Transactional Access

Pervasive.SQL offers an architecture that is totally unique in the database management market. Our product allows you to access the exact same data through ODBC and OLE-DB, supporting applications like Microsoft ASP, Excel, and Access, or through the lightning-fast transactional interface called Btrieve. ODBC allows you to do complex reporting and data mining, while Btrieve provides massive throughput when you need the ability to view, update, or create millions of records a day.

Each application vendor chooses which interfaces are used. If you want to know which access methods are used in your application, contact your application vendor.

About the Server Engine

This section provides some basic information about the Pervasive.SQL Server engine. For a detailed discussion of Pervasive.SQL architecture, please refer to *Pervasive Products and Services*.

If you would like more information about what comes in your product and what gets installed, please see Chapter 2, “Preparing to Install Pervasive.SQL 2000i.”

Purpose

You have purchased the Pervasive.SQL Server engine. This database engine is designed to support up to many hundreds of concurrent network users when installed on the appropriate hardware. It is capable of supporting web, corporate, departmental, and other client/server or web-based applications where reliability and performance are critical.

Where to Install

The Server engine must be installed on the same computer where the database files are located. The client portion of the software must be installed on every computer that is expected to access the database. In the case of web applications, the client must be installed on the same computer as the web server. Multiple web server platforms require a client on each platform.

Additional User Licenses

If you receive Status Code 7063 or other status codes indicating you have exceeded your licensed user count, you may wish to buy additional user licenses. You can purchase additional licenses in blocks of 10, 20, 50, 100, or unlimited. You may purchase user count upgrades from your application reseller or directly from Pervasive.

Features

All Pervasive database engines offer the same powerful feature set and full-functioned support for programming interfaces. All engine editions are plug n' play compatible, requiring no application changes to switch from one engine to another. Data files are binary-compatible across all supported platforms.

The chart below shows the major differences between the three different editions of the product.

Table 1-1 Comparison of Server, Workgroup, Workstation Features

Feature	Server	Workgroup	Workstation
Supports Btrieve, ODBC, OLE-DB, and ActiveX interfaces	✓	✓	✓
Full-featured relational support (online backup, security, referential integrity, management tools, and so on)	✓	✓	✓
Binary compatible data files across all platforms and engine editions	✓	✓	✓
Easy plug n' play upgrading, no application changes required	✓	✓	✓
Includes complete online documentation	✓	✓	✓
Can access data on a file server where no database engine is installed		✓	✓
Supports remote ODBC client connections	✓		
Requires a Workgroup engine on all computers expected to access remote data	N/A	✓	N/A
Engine runs on Windows	✓	✓	✓
Engine runs on NetWare	✓		
Engine runs on Linux	✓		
Engine runs on Solaris	✓		
Multi-user for small groups	✓	✓	
Scales to hundreds of users	✓		
Extranet license available	✓		

Preparing to Install Pervasive.SQL 2000i

Preparation Needed for Pervasive.SQL 2000i Server Installation

Thank you for purchasing Pervasive.SQL 2000i. We hope that you enjoy using this fast and reliable database product.

This chapter contains the following topics:

- “Installation Overview” on page 2-2
- “Installation Checklist” on page 2-6

Installation Overview

This section provides an overview to the components that make up Pervasive.SQL 2000i. Also included in this section is information on the files included in the different types of installation.

Major Components of Pervasive.SQL 2000i

Pervasive.SQL 2000i consists of the following components:

Pervasive.SQL 2000i Database Engine

Pervasive.SQL 2000i consists of two database sub-engines:

- MicroKernel Database Engine (MKDE), which provides Btrieve/MicroKernel API support for Pervasive.SQL applications
- SQL Relational Database Engine (SRDE), which provides ODBC/SQL API support for Pervasive.SQL applications

Client

Requesters that allow you to access the server-based MicroKernel from a DOS or Windows 3.x/9X/NT/2000 client.

- The 16-bit requesters used in DOS and Windows 3.x clients are Btrieve requesters only and will have no relational access.

Pervasive.SQL 2000i Utilities

Pervasive.SQL 2000i includes a suite of useful utilities for every phase of database management from engine installation and configuration to data maintenance. They include the following:

- Pervasive System Analyzer (PSA)
- Pervasive Control Center (PCC)
- Configuration
- Monitor
- Function Executor
- Maintenance
- SQL Data Manager
- Table Designer
- Rebuild
- User Count Administrator

- ODBC Administrator
- Gateway Locator

Wizards

As part of the tools available in PCC, a suite of wizards provide an interactive way to assist you in database development, maintenance, and manipulation. Wizards available in Pervasive.SQL 2000i include the following:

- Create Database
- Drop Database
- Check Database
- Import Data
- Export Data
- Null Conversion
- Create Table
- Drop Table

Online Documentation

In addition to context-sensitive help for the utilities, you can install the complete Pervasive.SQL 2000i documentation set in either HTML or HLP formats, depending on your operating system and your available browser. Your product package contains a printed copy of *Getting Started with Pervasive.SQL 2000i (Server Edition)* and the *Status Codes and Messages Quick Reference* card. You can order a complete hardcopy set of the manuals through the Pervasive Software Sales Team.

- *Getting Started with Pervasive.SQL 2000i (Server Edition)* - helps you to get Pervasive.SQL 2000i Server engine running with installation, setup, and basic configuration information based on your operating environment.
- *Getting Started with Pervasive.SQL 2000i (Workstation/Workgroup Edition)* - helps you to get Pervasive.SQL 2000i Workstation or Workgroup engine running with installation, setup, and basic configuration information based on your operating environment.

- *Pervasive Products and Services* - provides an overview of Pervasive Software products and services, including support options and information regarding licensing and registration. This manual also describes the database and product architectures.
- *Pervasive.SQL User's Guide* - gives basic information on the utilities provided with the Pervasive Control Center, including several interactive wizards designed to help you accomplish basic database tasks. This manual also contains information on the UNIX version and the utilities available for that particular platform.
- *SQL Engine Reference* - provides database programmers a complete reference guide to the SQL relational database language supported in Pervasive.SQL 2000i.
- *Advanced Operations Guide* - details tasks typically performed by Network or System Administrators, using various tools such as the Rebuild, Maintenance, Monitor, and Function Executor utilities.
- *Status Codes and Messages* - lists the error and informational codes and messages that can be received when using Pervasive software.

Installation Options

Pervasive.SQL 2000i offers Typical and Custom installation options. You can accept default installation parameters by selecting the Typical install, or you can specify certain installation parameters by selecting the Custom install option. The following sections outline the major differences in these two installation options.

Typical Setup Installation

The typical installation, which is recommended for most first time users, takes default actions for most operations performed during the installation.

The typical setup installs the following components:

- Pervasive.SQL 2000i Engine (including ODBC interface)
- All possible requesters (MS-DOS, Win16 and Win32 requesters)
- Utilities
- Transactional and Relational interfaces
- Client installation copies

- Online documentation

Custom Setup Installation

Selecting Custom setup type allows you to specify the program folder name, select the components to install, and set the Pervasive.SQL 2000i engine service start mode.

During a Custom server installation, the following components are optional:

- Online documentation
- Network client support
- Client installation programs for DOS and Windows.

The default installation location for Pervasive.SQL 2000i is C:\PVS\W, assuming the Windows system drive is C.

Installation Checklist

This section provides you with a checklist to prepare you for installation. Please use this checklist as a guide for a successful installation.

Quick Checklist Each of the following bullet points is described in more detail in the sections that follow.

- ☐ Your system hardware meets the minimum requirements (listed later in this chapter) to install Pervasive.SQL 2000i Server.
- ☐ Your operating system is supported by Pervasive.SQL 2000i.
- ☐ You are a system administrator or have administrative rights on the system where you plan to install the product.
- ☐ Your application vendor supports the Pervasive.SQL 2000i engine.
- ☐ Schedule the upgrade appropriately and perform the installation with care.
- ☐ Licenses for older versions of the product cannot be migrated up.
- ☐ Read the README file for important, late-breaking warnings and information.

Check the Hardware Requirements

You must have the following to install Pervasive.SQL 2000i:

Server - Windows

- ☐ At least Windows NT (Server or Workstation) v4 SP 3 (SP5 or later recommended), or Windows 2000.
- ☐ At least 32 MB of free memory (64 MB is recommended).
- ☐ Up to 8 MB of free space for system components.

- ☐ Up to 96 MB of free space in the installation location, depending upon the installation options selected.
 - Installations for each of the Pervasive.SQL clients. See Chapter 16, “Installing Pervasive.SQL Requesters” for more information on client installations.
 - Online documentation.

Server - NetWare

- ☐ NetWare 3.2 or later, NetWare 4.11 or later, or NetWare 5.0 or later
- ☐ At least 32 MB of free memory (64 MB is recommended).
- ☐ At least 13 MB of free disk space for the server components. For the client installation, you need up to an additional 89 MB for the following components:
 - Installations for the client set up. See Chapter 16, “Installing Pervasive.SQL Requesters” for more information on client installations.
 - Online documentation

Server - UNIX

- ☐ Solaris v2.6 or 7
RedHat Linux 5.2/6.0/6.1/6.2
S.u.S.E. Linux 6.1/6.2
or Caldera OpenLinux 2.2/2.3



Note Due to recent trends in the rapid development of the UNIX/Linux operating environment, please refer to the Pervasive Software web site for the latest information concerning the list of supported platforms.

- ☐ At least 32 MB of free memory (64 MB is recommended).
- ☐ Up to 20 MB of free space in the installation location for system components.

Client - Windows

- ☐ Windows 95/98 (including Win95B/FAT32), Windows 3.1 / Windows for Workgroups 3.11, or Windows NT v4 SP 3 (SP5 or better recommended).
- ☐ At least 16 MB of free memory (32 MB is recommended).
- ☐ Up to 9 MB of free space for system components.
- ☐ Up to 33 MB of free space in the installation location, depending upon the installation options selected.
- ☐ DOS 5.x, 6.x

Network - NT

- ☐ You must have a properly functioning network consisting of one or more servers connected to one or more clients using network cabling and hubs.

Network - NetWare

- ☐ You must have a properly functioning network to install Pervasive.SQL 2000i. You need one or more servers and at least one Windows client machine to install Pervasive.SQL 2000i remotely. NetWare can only be installed from a client machine.

UNIX System Requirements

You must have the following to install Pervasive.SQL:

Client - UNIX

- ☐ Windows 9X (including Win95B/FAT32), Windows NT v4 SP 3 (SP5 or better recommended), or Windows 2000. While only Win32 clients are supported, MS-DOS and Win16 requesters have been included with this release.
- ☐ At least 16 MB of free memory (32 MB is recommended).
- ☐ Up to 9 MB of free space for system components.

- ❑ Up to 33 MB of free space in the installation location, depending upon the installation options selected.

Network - UNIX

- ❑ You must have a functioning network consisting of one or more servers connected to one or more clients using network cabling and hubs.
- ❑ TCP/IP protocol must be used and configured properly, because other protocols (such as IPX/SPX) are not supported with UNIX.

OS Patches - UNIX - Sun Solaris

We recommend that you install the latest recommended patch cluster from Sun; however, the following is an absolute requirement for Pervasive.SQL to function correctly for Solaris 7 and 2.6, respectively:

- 106327-05 SunOS 5.7: Shared library patch for C++
- 105591-06 SunOS 5.6: Shared library patch for C++

These patches and installation instructions are available from <http://access1.sun.com>.

Check the Software Requirements

Your operating system must be supported by Pervasive.SQL 2000i. The Pervasive.SQL 2000i products are supported on the following operating systems:

Server Engines:

- Windows 2000
- Windows NT v4 SP 3 (SP5 or better recommended).
- NetWare 3.2, 4.11, 4.2, and 5.0
- Solaris 2.6, 7
- Red Hat Linux 5.2, 6.0 or higher
- Caldera Open Linux 2.2 or higher
- SuSE Linux 6.0 or higher

Client Environments:

- Windows 3.11
- Windows 95/98
- Windows 2000 Terminal Services - Client only
- Windows ME
- Citrix Metaframe - Client only

Workstation/Workgroup Engines:

- Windows 95/98/2000
- Windows NT v4 SP 3 (SP5 or better recommended)
- Windows ME

Support for Previously Released Pervasive Server Engines

Pervasive.SQL 2000i client components support the following previously released Pervasive server engines:

- Btrieve Server v6.15 (NetWare, Windows NT)
- Pervasive.SQL v7.0 (NetWare, Windows NT)
- Pervasive.SQL 2000 v7.5 (NetWare, Windows NT)

See the *Application Migration Guide*, available with the Pervasive.SQL 2000i SDK, for more information.

Ensure Adequate Permissions

To install Pervasive.SQL 2000i on Windows NT or Windows 2000, you must be a system administrator or have administrative rights on your system. For information on granting administrative rights, please refer to *Pervasive.SQL User's Guide*.

Verify Compatibility of Vendor Applications

Contact your application vendor or review the documentation provided by your vendor to ensure that they support the Pervasive.SQL 2000i engine version and mode that you want to install.

Schedule the Upgrade and Perform with Care

If installing the Pervasive.SQL 2000i Server edition, the installation and upgrade should be performed during a period of low use.

As with any significant software installation, be sure to back up any important files on the target hard drive, including data files, before you begin the installation.

Pervasive's upgrade and support policy dictates that you should always use requesters that are the same version as or newer than your Server engine. Based on this policy, Pervasive tests newer requesters against older server engines for full compatibility, however, it does not test old requesters against newer engines. Thus, Pervasive does not support running old requesters against a newer version of the server engine.

Whether you install the server or the requester(s) first depends on the mechanics of your site. If, during your system down time, you can install the requesters to all the machines that need them, then you should install the server first and immediately upgrade all the client machines. If you need to upgrade the clients at a different time than the server, and your users need access to the system between these times, you should use a different approach.

One method you can use is to install the Pervasive.SQL server on a test machine. Then, when you install the new requesters, you can give the Pervasive System Analyzer (PSA) the location of the test server to verify the successful client installation. Once the client installation is complete, your applications will use the new requesters against your production server until it is time to upgrade the production server engine.

Read the README file

Pervasive Software strongly recommends that you read the information contained in the README file. This file contains important product news that could not be included in the product documentation but is essential to your installation and use of the product release.

Pervasive.SQL 2000i and Terminal Server Products

How to Use Pervasive.SQL with Terminal Servers

This product is supported for use with Microsoft Terminal Server and Citrix MetaFrame. This chapter explains how to use Pervasive.SQL with either product, and the limitations of doing so. In general terms, you can use Pervasive.SQL on a terminal server in almost the same way as on a normal computer.

This chapter contains the following sections:

- “Supported Terminal Server Products” on page 3-2
- “Installation Notes” on page 3-3
- “Licensing Notes” on page 3-4
- “Configuration and Runtime Notes” on page 3-5

Supported Terminal Server Products

You may install Pervasive.SQL database engine and/or client in any of the following terminal server environments:

- Windows NT 4 Terminal Server SP6
- Windows 2000 Terminal Server SP1
- Windows NT 4 Terminal Server SP6 with Citrix MetaFrame 1.8
- Windows 2000 Terminal Server SP1 with Citrix MetaFrame 1.8

Supported Database Engines

Pervasive.SQL Server, Workgroup, and Workstation engines are supported on the platforms listed above.

Only one instance of the database engine may run on any terminal server platform. You cannot run separate copies of the database engine within two or more terminal sessions.

Installation Notes

Pervasive.SQL has in the past supported installation of only the client software on systems running a terminal server. The server engine components had to be installed on a separate system. With Pervasive.SQL 2000i, access from terminal sessions to server engine components located on the same system is supported.

The following environments are supported:

- Windows NT 4.0 Terminal Server Edition (Service Pack 6)
- Windows 2000 (Service Pack 1)
- Citrix MetaFrame 1.8

Permissions

To install Pervasive.SQL on a terminal server, you must be logged into the terminal server as a user with system administrator rights.

Installing on Microsoft Terminal Server

Prior to installation on a computer with Microsoft Terminal Server installed, you must switch the terminal server to install mode using the `change user /install` command. This ensures that the software is available to all users after installation. When the installation is complete, you should set the terminal server back to runtime mode using the command `change user /execute`.

For more information about this command, see the Microsoft Knowledge Base article (especially the “Additional Notes” at the bottom of the article):

<http://support.microsoft.com/support/kb/articles/Q186/5/04.asp>

Workstation and Workgroup Engines

After installing the Workstation or Workgroup engine, you must remove it from the **Programs | Startup** folder for all terminal server users. Terminal server users cannot run their own copy of the Pervasive database engine.

The engine must be started at the server console by a user with administrative rights.

Licensing Notes

You must purchase sufficient user count licenses to cover the number of users accessing each database engine. For example, if you have a 10-user server engine installed, you may not have more than 10 users accessing the database at once, regardless of whether they are connected through terminal sessions or remote database connections.

You may not use a terminal server as a method of bypassing the user count mechanism of the database engine.

Configuration and Runtime Notes

This section provides information about several configuration and runtime issues.

Remote Configuration with PCC

You cannot use PCC through a terminal session to configure a remote database engine. You must use PCC at the terminal server console or through a standard remote ODBC connection to configure the database engine on the terminal server machine.

Multiple Engines

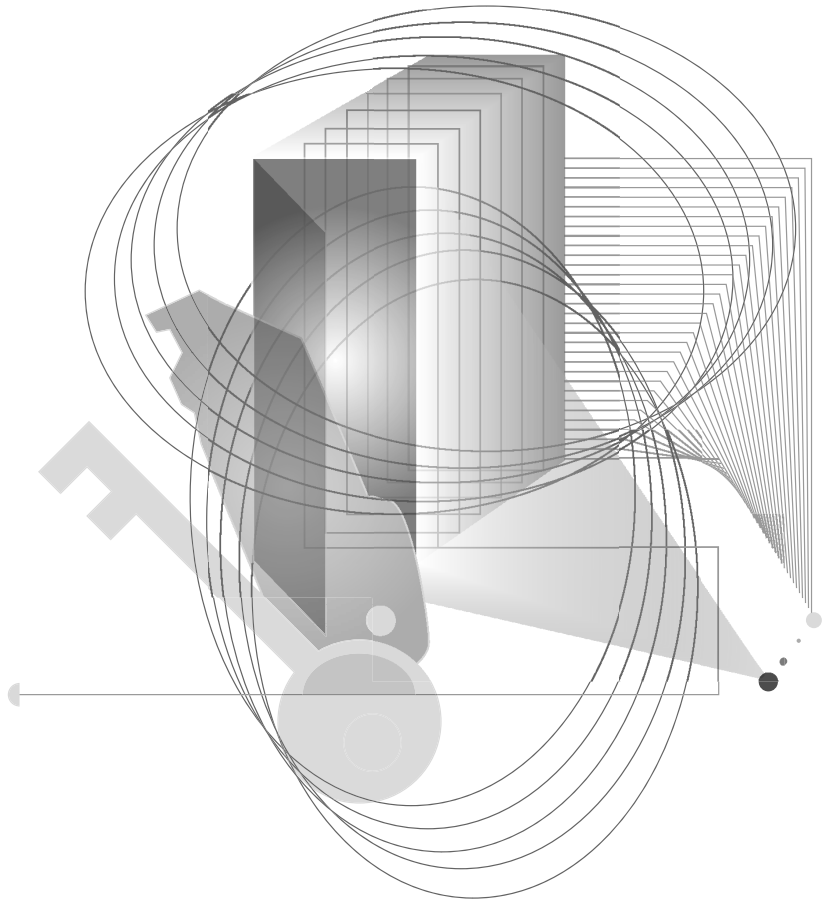
Only one copy of any database engine may run at one time on the terminal server.

Microsoft Terminal Server as Network Server

There are no particular problems with using your terminal server as your main network server and database server, however, if you have high usage of the server as a file server and also many terminal sessions running at once, you may find the performance less than satisfactory.

Another concern is having all of your mission critical services on the same machine. If it goes down, all your services go down at once.

For these reasons, you may wish to consider distributing your mission critical services on two or more computers.



INSTALLING AND CONFIGURING SERVER ENGINE ON WINDOWS 2000 OR WINDOWS NT

Installing Pervasive.SQL 2000i with No Previous Installation

Instructions for First-time Windows Server Installation

This chapter contains procedures for installing and running Pervasive.SQL 2000i. The chapter contains the following sections:

- “Before You Begin” on page 4-2
- “Installing the Pervasive.SQL 2000i Server Components” on page 4-5
- “Custom Installation Path” on page 4-17
- “Common Questions After Installing Pervasive.SQL 2000i” on page 4-23

Before You Begin

This section contains information with which you need to be familiar to successfully install Pervasive.SQL 2000i.

Before installing Pervasive.SQL 2000i, begin by reviewing the following documents for important information:

- *Chapter 2, “Preparing to Install Pervasive.SQL 2000i”* - This chapter provides important information including system requirements and platform specific notes that are relevant to your operation.
- *“What’s New in Pervasive.SQL 2000i”* - This document is included in your product package and contains information regarding the latest features and improvements in this release.
- *README file* - This file is located on the distribution media and contains late-breaking product news that could not be included in the product documentation. The file is available in text and HTML formats.

Platform Notes for Windows

This section contains installation information specific to the Windows platform.

- To install Pervasive.SQL for Windows, you must be a system administrator or have administrative rights on your system. You need administrative rights to make the client installation directories available to your workstations.
- If you want your individual client machines to install the requester portion of the installation from the server, you must give the clients permission to access the client installation folders, which are part of the Pervasive server install. The default location for these install programs is C:\PVSW\CLIENTS.
- If you run with Advanced Power Management, disable it while upgrading to Pervasive.SQL 2000i. The power management can cause a Pervasive.SQL installation to fail if the server is suspended during the install. In Windows, you control the Advanced Power Management via the **Power** icon on the Control Panel. In Windows 2000, you will find this Control Panel option under the **Power Options** icon, under the APM tab.

Installing Over Existing Pervasive Products



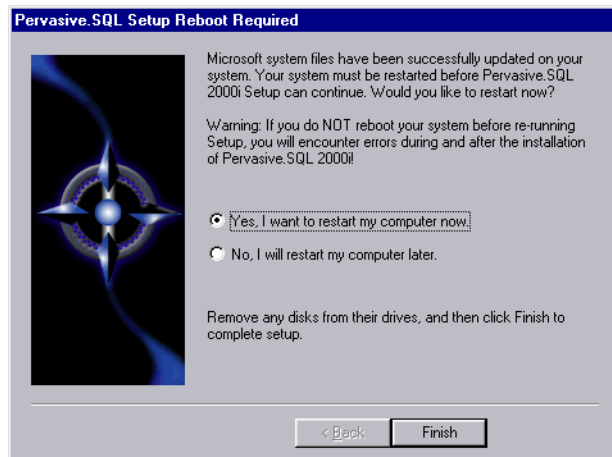
Note If you are upgrading from Btrieve 6.15 or 6.30 and wish to make use of all the new version features, you must rebuild your data files so they use the v7 file format. See the *Pervasive.SQL User's Guide* section for detailed information on how to use the Rebuild Utilities to convert your data files.

If you install Pervasive.SQL 2000i over an existing Btrieve 6.15 or 6.30 installation, there will be no component conflicts because of the Smart Components system. Your Btrieve 6.x and Scalable SQL 4.x licenses, however, will not be migrated to Pervasive.SQL.

Installation Tips

- When installing Pervasive.SQL 2000i for the first time on a system, Setup will check if all of the needed system files meet the minimum requirements. In some cases, these files are locked by the operating system and a reboot is required before Setup can continue. The following dialog box is displayed if this is the case.

Figure 4-1 Pervasive.SQL 2000i Setup Reboot Required



Click Yes to reboot the system. Setup is then automatically be restarted.



Note It is strongly recommended that you reboot your system if you encounter this message. If you do not reboot your system, Setup will encounter failures during engine and utilities configuration.

If you have any trouble with the following installation, see Chapter 21, “Troubleshooting After Installation.”

Installing the Pervasive.SQL 2000i Server Components

You must install the Pervasive.SQL Server for Windows at the server itself; you cannot install it remotely from a client machine.

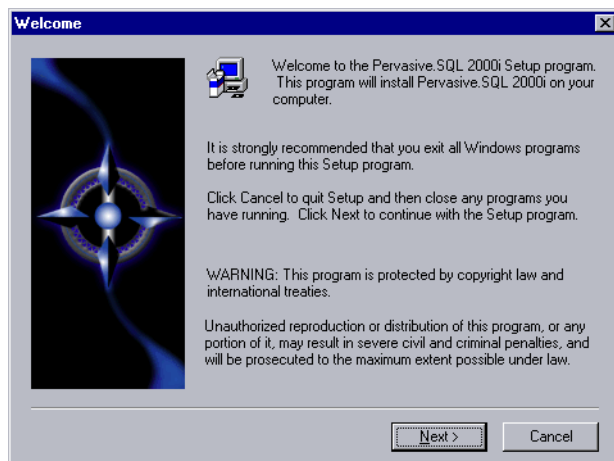
➤ **To install Pervasive.SQL 2000i (Server Edition) on a Windows machine:**

- 1 Launch the installation program from your Windows machine.
 - a. Insert the Pervasive.SQL Server for Windows CD in the CD-ROM drive of your Windows server.
 - b. If the installation does not start automatically, click **Start**, select **Run**, and type `drive:setup` where *drive* is the drive letter of your CD-ROM device.



Note Please see “Installation Tips” on page 4-3 regarding the Pervasive.SQL 2000i Setup Reboot Required dialog box.

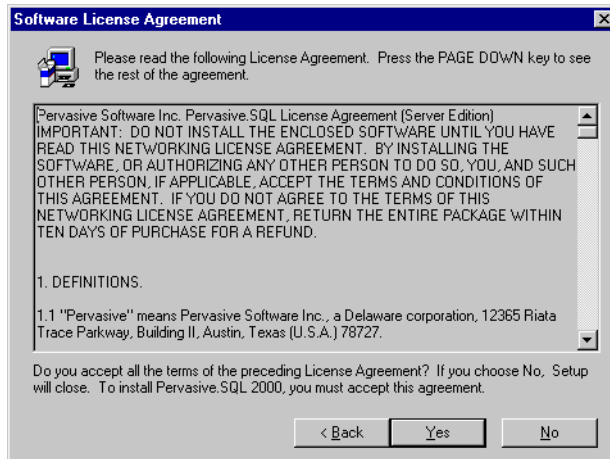
Figure 4-2 Pervasive.SQL Setup Welcome Dialog Box



Click **Next** to proceed with the installation.

2 Read and accept the Software License Agreement

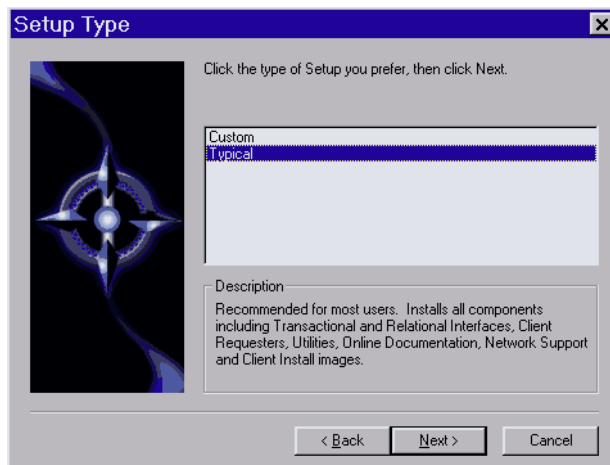
Figure 4-3 Pervasive Software's Software License Agreement



Read the Pervasive Software License Agreement. Click **Yes** to accept the terms of the agreement and continue installation.

3 Select the Setup Type - Typical or Custom

Figure 4-4 Setup Type Dialog Box



Select the **Typical** setup option and click **Next** to continue with installation.

Notes About Typical Setup

The Typical installation, which is recommended for most first time users, takes default actions for most operations performed during the installation.

The Typical server installation installs the following components:

- Pervasive.SQL 2000i Engine (including ODBC interface)
- All possible Requesters (MS-DOS, Win16 and Win32 Requesters)
- Utilities
- Transactional and Relational interfaces
- Client Installation Copies
- Online Documentation

Notes About Custom Setup

The Custom installation is typically for advanced users since it lets you choose the components you want to install and specify the program folder name.

Selecting Custom setup type allows you to name the program folder, select the components to install, and set the Pervasive.SQL 2000i engine service start mode.

During a Custom server installation, the following components are optional:

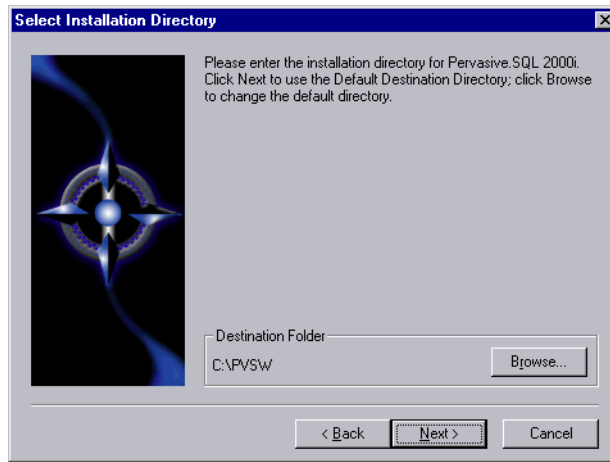
- Online documentation
- Network client support
- Client installation programs for DOS and Windows.

If you choose a custom install, skip now to “Custom Installation Path” on page 4-17. At the end of that section you will return to this section to continue the installation.

4 Select the server installation directory.

The default installation location for Pervasive.SQL 2000i is C:\PVS\, assuming the Windows system drive is C:\.

Figure 4-5 Select your Installation Directory



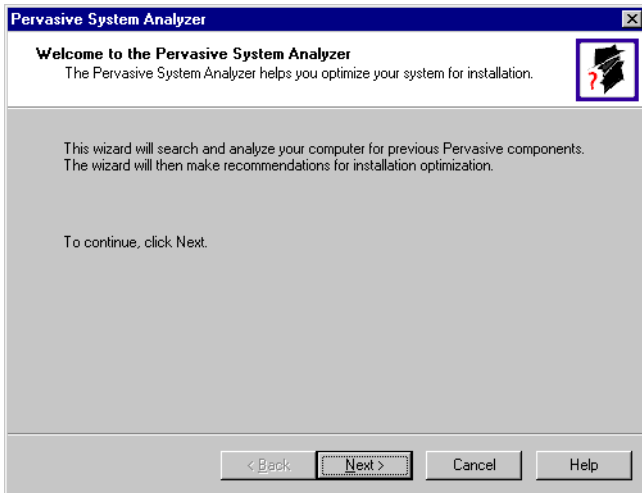
Click **Next** to accept the default installation directory and proceed with the installation.



Note To select a different directory, click **Browse** and select or enter the new installation directory. If the folder you have chosen doesn't exist, you'll need to answer **Yes** to have setup create the folder for you.

Next the Pervasive System Analyzer (PSA) launches. PSA scans your system for previous versions of Pervasive Software products.

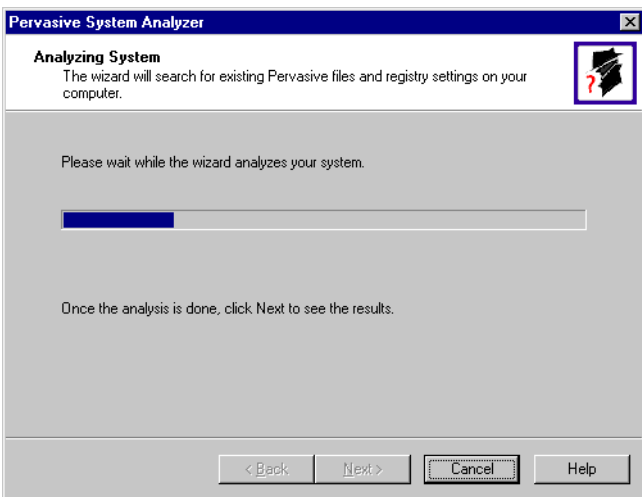
Figure 4-6 Pervasive System Analyzer Welcome Screen



5 Analyze your system.

Click **Next** to continue with the installation and begin system analysis. As PSA analyzes your system the following dialog box displays.

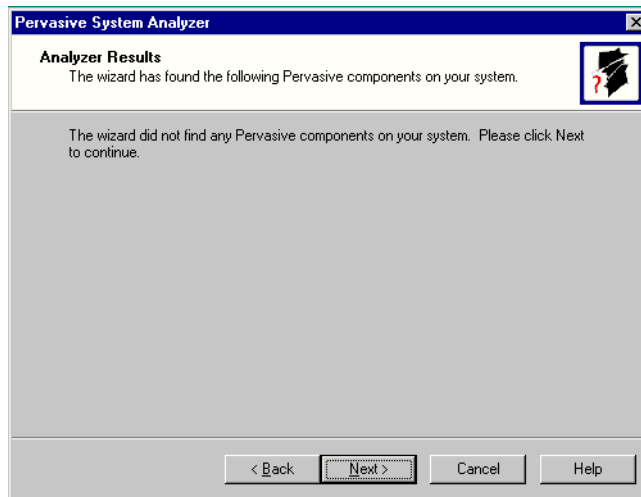
Figure 4-7 System Analysis Using PSA



The progress bar completes as PSA analyzes your system. When PSA has completed the initial system analysis, click the **Next** button to continue and see the results.

If you do not have any previous versions of Pervasive Software products, the following dialog box displays.

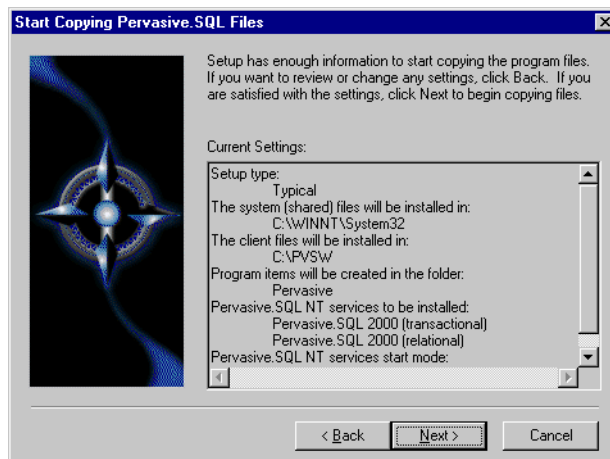
Figure 4-8 Pervasive System Analyzer Results



Click Next to display your current installation settings.

6 Verify your installation settings.

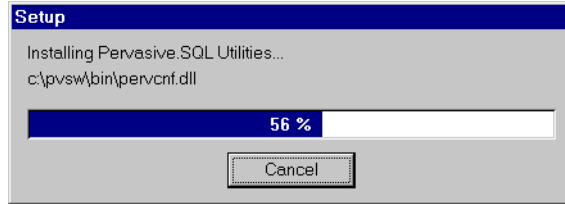
Figure 4-9 Your Selected Installation Settings



If the displayed selections are correct, click Next to continue.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

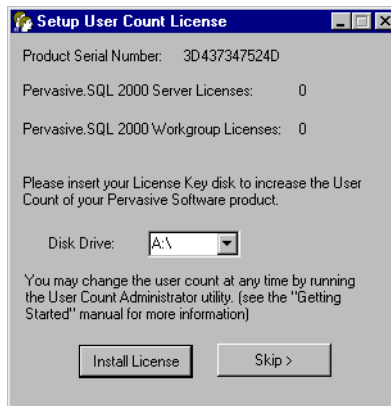
Figure 4-10 Setup Begins Copying Files



Note Only click **Cancel** if you want to stop installation and exit the Setup process.

7 Apply your user count license key

Figure 4-11 Applying the User Count License



Your Pervasive.SQL 2000i server is set to the number of users specified in the license key. When the update is complete, a dialog box informs you that you have increased your user count license to support that number of simultaneous users. At this point, your Pervasive.SQL 2000i transactional and relational services will be started.

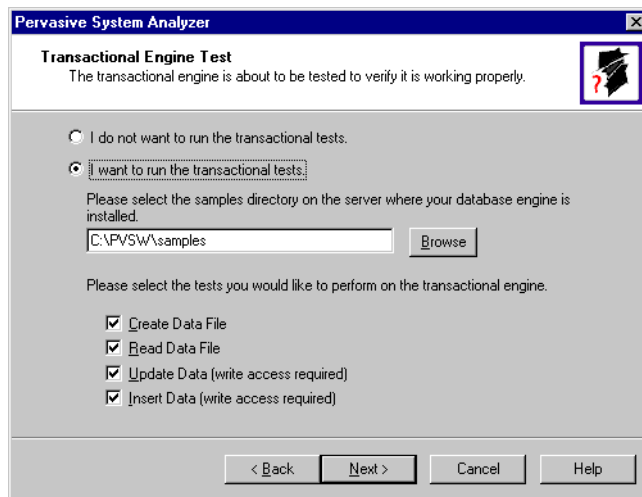


Note If you do not yet have a license key or it is not with you at the moment, you can still continue with the installation. Click **Skip** at the **Setup User Count License** dialog box and run the User Count Administrator utility at a later time to install a user count license key. Please wait until the installation is complete.

8 Test the Transactional Engine

PSA now performs a series of tasks to ensure that the transactional engine is working properly.

Figure 4-12 Transactional Engine Test



Select the samples subdirectory of the server installation location. Then once you have selected to run the transactional tests and selected the tasks associated with that test, click **Next** to run the tests and see the results.

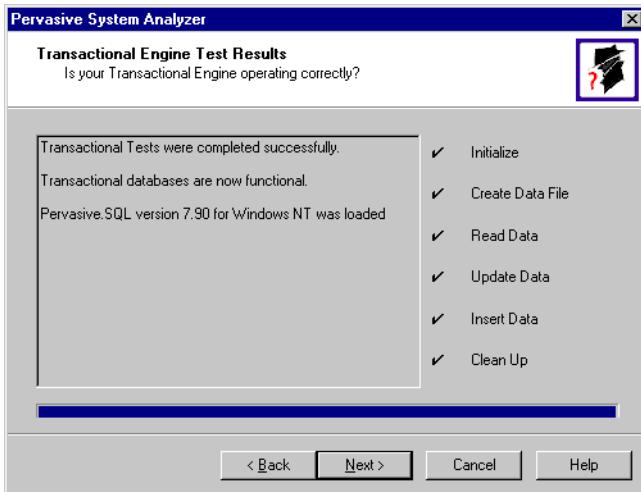


Note It is recommended that you perform this test to ensure that the transactional engine is communicating properly and the transactional databases are now functional.

9 Run the Transactional Test

PSA displays a check mark for each test that passes and an X for each task that fails during the transaction engine test. A summary report is also provided in the information window, as shown in the following figure.

Figure 4-13 Transactional Engine Test Results from PSA

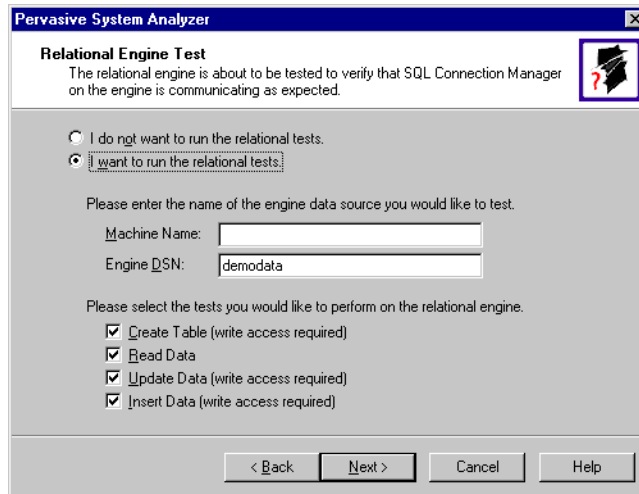


Once your transactional engine tests are complete, click **Next** to continue with installation and test the relational engine.

10 Test the Relational Engine.

PSA now performs a series of tasks to ensure that the relational engine is working properly.

Figure 4-14 Relational Engine Test



Enter the Server Name and Server DSN for the engine data you want to test. Then once you have selected to run the relational tests and selected the tasks associated with that test, click **Next** to run the tests and see the results.

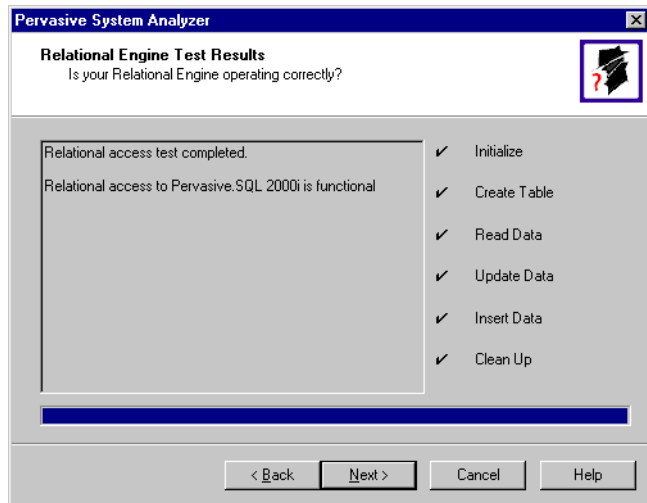


Note It is recommended that you perform this test to ensure that the relational engine is communicating properly and the relational databases are now functional.

11 Run the Relational Test

PSA displays a check mark for each test that passes and an X for each task that fails during the relational engine test. A summary report is also provided in the information window, as shown in the following figure.

Figure 4-15 Relational Engine Test Results from PSA



Once your relational engine tests are complete, click **Next** to finish the installation.

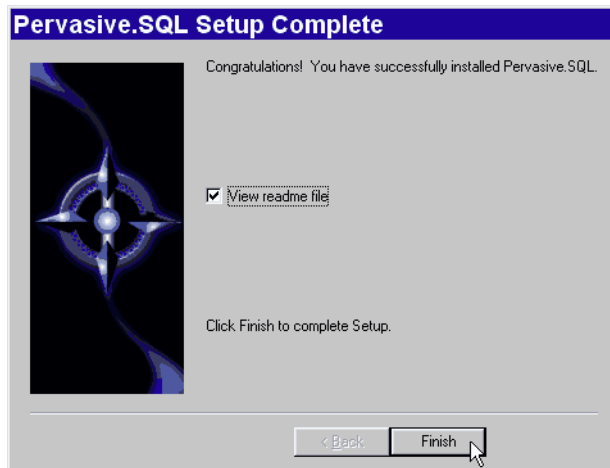
12 Read the README file.

If you did not read the README file prior to installation as described in "Before You Begin" on page 4-2, please do so now.

13 Your Pervasive.SQL 2000i server installation is complete.

A dialog box will appear asking if you want to read the README file. It is highly recommended that you leave the **View readme file** check box selected and click **OK**. The following dialog box informs you that the installation is complete.

Figure 4-16 Installation Complete Dialog Box



Click Finish.



Note If you have any trouble with the installation, see Chapter 21, “Troubleshooting After Installation.”

If installed files could not be copied because they were locked in memory, a reboot may be necessary at this point. Setup only prompts for a reboot if a locked file or some other event was detected that requires a reboot. Please reboot your system if prompted to do so in order to ensure proper operation of your Pervasive.SQL 2000i product.

The installation program modifies the PATH, and CLASSPATH environment variables at the end of the installation process, if needed. These settings control how your Windows operating system finds Pervasive components. In Windows, these environment variables are stored in the Control Panel under the Environment tab on the System icon. In Windows 2000, these environment variables are stored in the Control Panel under the Advanced tab on the System icon.

What to do Next Skip over the next section for custom installations and see “Common Questions After Installing Pervasive.SQL 2000i” on page 4-23.

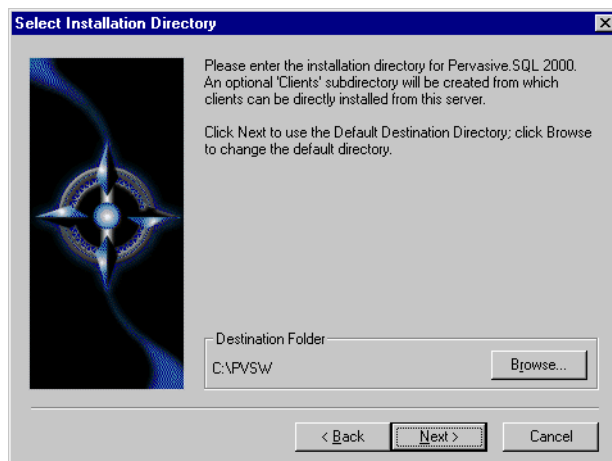
Custom Installation Path

This section describes how to customize your installation of Pervasive.SQL 2000i.

1 Choose the installation directory.

The default installation location for Pervasive.SQL is C:\PVSW, assuming the Windows system drive is C. You can specify a different location for the installation as shown in the following dialog box:

Figure 4-17 Choosing Installation Directory of Pervasive.SQL



If you wish to change the default directory, click **Browse** and select the desired directory.

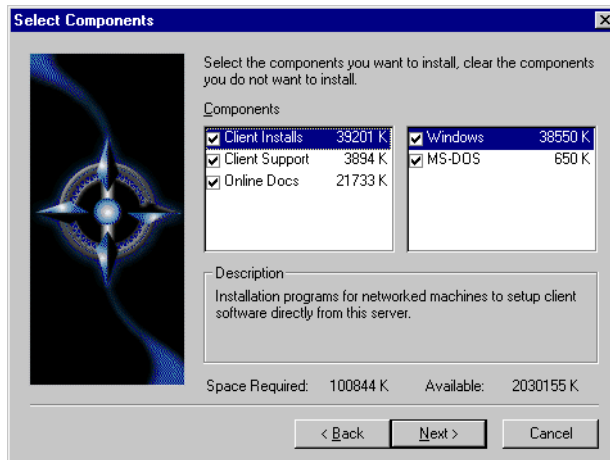
Click **Next** to proceed with the installation.

2 Select components to install.

Pervasive.SQL 2000i Server edition currently contains the following optional components:

- Client Installs
- Client Support
- Online Documentation

Figure 4-18 Choose Components To Install



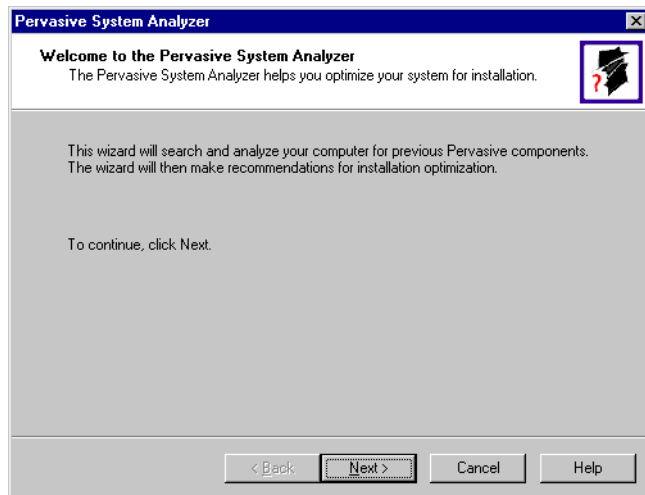
The columns on the left list the major categories: client installation programs, networked client support, and online documentation. When you select one of these categories, the column on the right shows any sub-items available under that category.

Select those items you wish to install. When you are finished, click **Next**.

3 Optimize your system with the Pervasive System Analyzer.

Next the Pervasive System Analyzer (PSA) launches. PSA scans your system for previous versions of Pervasive Software products.

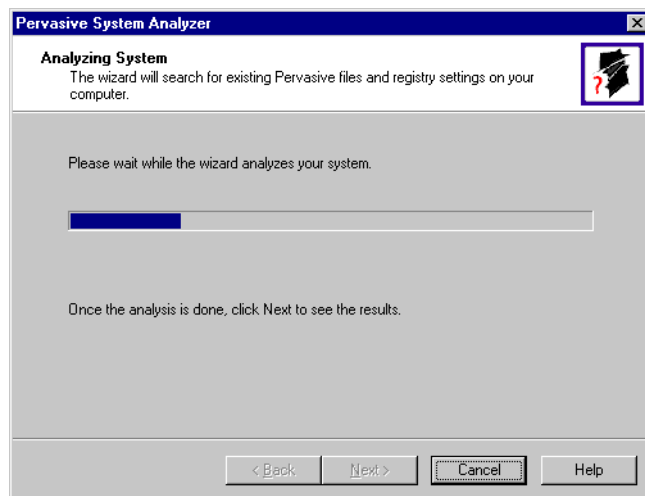
Figure 4-19 Pervasive System Analyzer Welcome Screen



4 Analyze your system.

Click **Next** to continue with the installation and begin system analysis. As PSA analyzes your system the following dialog box displays.

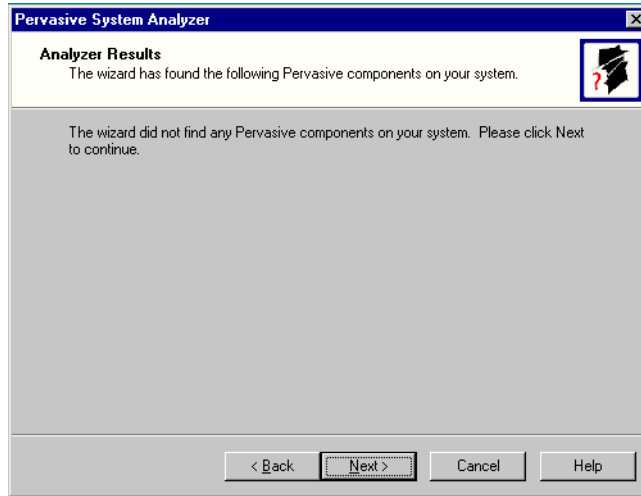
Figure 4-20 System Analysis using PSA



If you have previous versions of Pervasive Software products, PSA displays those products by the software version.

The progress bar completes as PSA analyzes your system. When PSA has completed the initial system analysis, click the **Next** button to continue and see the results.

If you do not have any previous versions of Pervasive Software products, the following dialog box displays.



5 Choose the Program folder for menu items.

Specify the folder in which the Start Menu items will be placed. Pervasive installation suggests a name for the folder, which you can accept by clicking **Next**.

If you have previously done an install on this machine, Install recommends that you do not use the same folder name so that your ability to cleanly uninstall the software in the future is preserved.

Figure 4-21 Choose your Program Folder

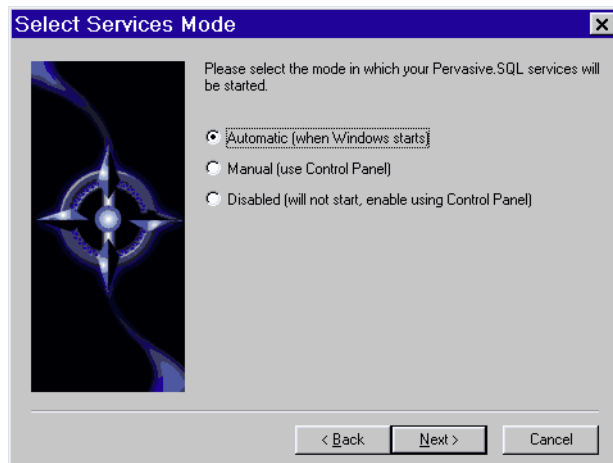


Click **Next** to accept the Program Folder name and display your current installation settings.

6 Choose your service start-up mode.

The Pervasive.SQL 2000i engines run as services on Windows NT/2000. This dialog box allows you to specify the behavior of the services when your Windows NT/2000 machine is started.

Figure 4-22 Choose your Service Start-up Mode

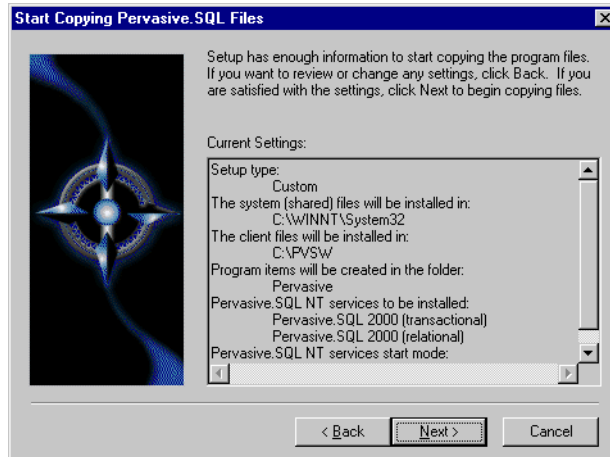


7 Verify your installation settings.

Install now has enough information to start the installation process. A dialog box displays the list of options you have selected. If you want to change any of these selections, click **Back**.

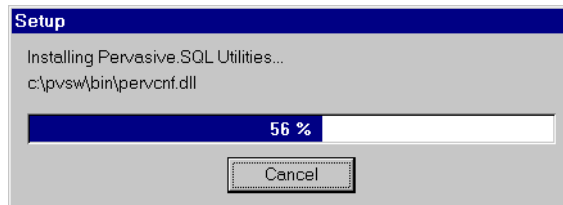
If the displayed selections are correct, click **Next** to continue.

Figure 4-23 Your Custom Installation Selections



Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

Figure 4-24 Setup Begins Copying Files



Note Only click **Cancel** if you want to stop installation and exit the Setup process.

The custom path rejoins the Typical installation path. See the step “Apply your user count license key” on page 4-11.

Common Questions After Installing Pervasive.SQL 2000i

This section contains information that you should read after running the installation program. If you are having problems with your installation, go to Chapter 21, “Troubleshooting After Installation,” or get help online from our Knowledge Base website at <http://support.pervasive.com/kb>.

How to Handle Data Source Names (DSNs)

After you have successfully installed the product, including the client software, you have several choices depending on your situation, as shown in the table below.

Table 4-1 How to Proceed After Installing Server and Client Software

If your situation is like this....	... then you should do this next:
You have existing Pervasive.SQL 7 DSNs already defined.	You must delete and re-create all existing Pervasive.SQL 7 DSNs before you can access existing databases. Follow the instructions provided in <i>Pervasive.SQL User's Guide</i> Chapter 2, sections “Deleting DSNs” and “Setting Up Database Access on a Windows Server or Workgroup/Workstation.”
You have existing Pervasive.SQL 2000 DSNs already defined.	You should be able to access your databases by connecting to the existing DSNs. Follow the instructions provided in <i>Pervasive.SQL User's Guide</i> , Chapter 2, section “Accessing Data via ODBC From Other Applications.”
You do not have any Pervasive.SQL DSNs defined	You should be able to connect to the sample DEMODATA database now. Refer to <i>Pervasive.SQL User's Guide</i> for general information on working with Pervasive.SQL. Refer to <i>Advanced Operations Guide</i> for detailed information on working with databases and database engines.

How Do I Convert My Files From Previous Pervasive Products?

Users of previous Btrieve versions: Use the Rebuild utility to convert your existing pre-6.0 or 6.x files to 6.x or 7.x format. For more information, refer to the *Advanced Operations Guide*.

How Do I Read the Online Documentation?

Pervasive.SQL 2000i documentation for Win32 platforms is in either Microsoft HTML Help or Microsoft Windows Help, depending on the version of Internet Explorer on your system (the Pervasive.SQL 2000i install program determines this for you and installs the correct set for your system). To read the documentation, select **Start | Programs | Pervasive | Pervasive.SQL 2000i | Documentation | Pervasive.SQL 2000i Documentation** from the Windows **Start** menu.

Documentation for Win16 platforms is in the form of Adobe Acrobat (PDF) files. Shortcuts to these files are found in the **Pervasive.SQL** documentation file group. The installation program for an Acrobat reader is available on the Pervasive.SQL 2000i (Server Edition) CD-ROM.

There is also a README file on the distribution media that has the latest changes and additions to Pervasive.SQL 2000i.

What Files Were Installed as Part of Pervasive.SQL 2000i?

Once installed, Pervasive.SQL files reside in the following directory structure.

WINNT\SYSTEM32	Microsoft system files.
IPVSW	
\BIN	Pervasive.SQL engines, requesters and utilities.
\CLIENTS	Pervasive.SQL client installation programs. (server only)
\WIN	Pervasive.SQL Windows client installation program. Valid for Windows versions.
\DOS	DOS Pervasive.SQL Requester files. These files must be manually copied to a DOS client.
\DEMODATA	Contains sample database. (server only)
\DOC	Online documentation.
\SAMPLES	Contains the sample database SAMPLE.BTR and UPPER.ALT, a sample Alternate Collating Sequence. (server only)

Where To Go From Here

Continue with your Pervasive.SQL installation by installing and configuring the client requesters for the machines that will connect

to this server. This is documented in Chapter 16, “Distributing the Pervasive Client.”

Upgrading Your Pervasive.SQL Installation

Instructions for Upgrading an Existing Pervasive.SQL Installation

This chapter contains information specific for upgrading your current Pervasive product installation to Pervasive.SQL 2000i. The number of required steps in the upgrade process is small, but depending on your environment, it can be a time-consuming process.

This chapter contains the following sections:

- “Before You Begin” on page 5-2
- “Patching an Existing Pervasive.SQL 2000 Installation” on page 5-6
- “Upgrading to Pervasive.SQL 2000i Server from Pervasive.SQL 7 or Btrieve 6” on page 5-13
- “Custom Installation Path,” on page 5-26
- “Common Questions After Installing Pervasive.SQL 2000i” on page 5-32

Throughout this document, when an explicit version number is not specified (for example: Pervasive.SQL 7, Pervasive.SQL 2000, or Pervasive.SQL 2000i), all versions are included.

Before You Begin

Before upgrading to Pervasive.SQL 2000i, begin by reviewing the following documents for important information:

- ❑ *Chapter 2, “Preparing to Install Pervasive.SQL 2000i”* - This chapter provides important information including system requirements and platform specific notes that are relevant to your operation.
- ❑ *“What’s New in Pervasive.SQL 2000i”* - This document is included in your product package and contains information regarding the latest features and improvements in this release.
- ❑ *README file* - This file is located on the distribution media and contains late-breaking product news that could not be included in the product documentation.

Considerations Once you have reviewed the latest product information, review this list of considerations to complete your upgrade installation preparation.

- ❑ *Pervasive.SQL Applications* - Be aware of what applications you have currently using previous versions of Btrieve or Pervasive.SQL in your environment. Don’t forget to include both client and server-based applications, such as ArcServe.
- ❑ *Vendor-Specific Information* - Be sure and check with your application vendors for any specific information regarding their product with Pervasive.SQL.
- ❑ *TCP/IP Protocol* - DOS applications require different requesters, preferably BTRBOX95, BTRDRV, or BREQTCP.
- ❑ *Requesters or Server First?* - Pervasive's upgrade and support policy dictates that you should always use requesters that are the same version as or newer than your Server engine. Based on this policy, Pervasive tests newer requesters against older server

engines for full compatibility, however, it does not test old requesters against newer engines. Thus, Pervasive does not support running old requesters against a newer version of the server engine.

Whether you install the server or the requester(s) first depends on the mechanics of your site. If, during your system down time, you can install the requesters to all the machines that need them, then you should install the server first and immediately upgrade all the client machines. If you need to upgrade the clients at a different time than the server, and your users need access to the system between these times, you should use a different approach.

One method you can use is to install the Pervasive.SQL server on a test machine. Then, when you install the new requesters, you can give the Pervasive System Analyzer (PSA) the location of the test server to verify the successful client installation. Once the client installation is complete, your applications will use the new requesters against your production server until it is time to upgrade the production server engine.

- ❑ *New Features and File Rebuilding* - In order to make use of all the new version features, such as larger file sizes or system key generation, you must rebuild your data files so that they use the newest version file format. This chapter includes a section that details using the Rebuild Utility to rebuild your data files, if you would like to take advantage of newer features.
- ❑ *Back Up Data Files* - Make sure you have a current backup of all your data files prior to beginning upgrade installation.

Platform Notes for Windows

This section contains installation information specific to the Windows platform.

- If you run with Advanced Power Management, disable it while installing Pervasive.SQL. The power management can cause a Pervasive.SQL installation to fail if the server is suspended during the install. In Windows, you control the advanced power management via the **Power** icon on the Control Panel. If you are using Windows 2000, this setting is located in the Control Panel, under the **Power Options** icon, under the APM tab.

- To install Pervasive.SQL for Windows, you must be a system administrator or have administrative rights on your system. You need administrative rights to make the client installation directories available to your workstations.
- If you want your individual client machines to install the requester portion of the installation from the server, you must give the clients permission to access the client installation folders, which are part of the Pervasive server install. The default location for these install programs is C:\PVSU\CLIENTS.

Installing Over Existing Pervasive Products

If you install Pervasive.SQL 2000i over an existing Btrieve 6.15 or 6.30 installation, there will be no component conflicts because of the Smart Components system. Your Btrieve 6.x and Scalable SQL 4.x licenses, however, will not be migrated to Pervasive.SQL.

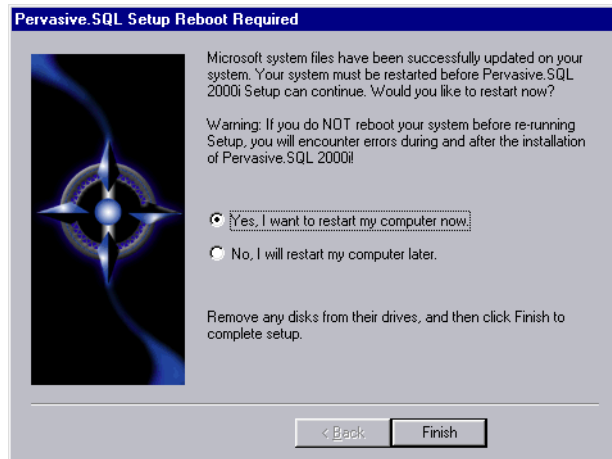


Note If you are upgrading from Btrieve 6.15 or 6.30 and wish to make use of all the new version features, you must rebuild your data files so they use the version 7 file format.

Installation Tips

- When installing Pervasive.SQL 2000i for the first time on a system, Setup will check if all of the needed system files meet the minimum requirements. In some cases, these files are locked by the operating system and a reboot is required before Setup can continue. The following dialog box is displayed if this is the case.

Figure 5-1 Pervasive.SQL 2000i Setup Reboot Required



Click **Yes** to reboot the system. Setup is then automatically be restarted.



Note It is strongly recommended that you reboot your system if you encounter this message. If you do not reboot your system, Setup will encounter failures during engine and utilities configuration.

- If you have any trouble with the following installation, see Chapter 21, “Troubleshooting After Installation.”

Accessing README file information

It is highly recommended that you go through the README file to find out the latest changes and additions to Pervasive.SQL 2000i.

Patching an Existing Pervasive.SQL 2000 Installation

If you have an existing Pervasive.SQL 2000 installation on your machine, the installation program for Pervasive.SQL 2000i behaves differently than on a machine with no Pervasive.SQL 2000 components.

This section details the differences you will see with the patch installation.

- “Situation Where Install Runs in Patch Mode”
- “How Patch Mode Differs from Regular Installation”
- “Patching Procedure” on page 5-7
- “How to Run Standard Installation Instead of Patching” on page 5-12

Situation Where Install Runs in Patch Mode

The Pervasive.SQL 2000i installation enters patch mode if both of the following are true:

- You have existing Pervasive.SQL 2000 components on the installation machine.
- You did not run the uninstall program for your previous Pervasive.SQL 2000 installation.



Note Install can only patch Pervasive.SQL 2000 versions prior to Pervasive.SQL 2000i (SP3). If you need to rerun install at a later date, uninstall Pervasive.SQL 2000i before reinstalling. Install does not support patching a machine that is already running Pervasive.SQL 2000i.

How Patch Mode Differs from Regular Installation

The patch installation differs from a regular installation in these ways:

No Prompting

- The patch install does not prompt you for installation choices such as installation directory, program folders, user count licenses, or component choices.
- Pervasive System Analyzer runs in a silent mode. It automatically archives all your existing components before installing the new Pervasive.SQL 2000i components.

Existing Files and Licenses Updated

After installation:

- Your existing Pervasive.SQL directory contains the updated files.
- Your Windows start menu contains updated links.
- Your existing user licenses are migrated to Pervasive.SQL 2000i.

Older Scalable SQL Components Preserved During Patch

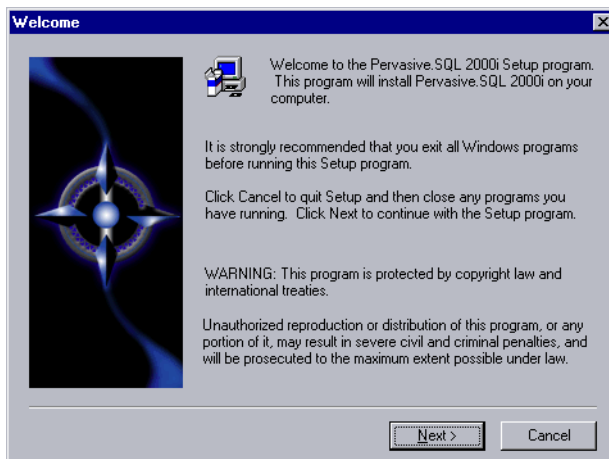
If you have a version of Scalable SQL installed on the same machine as your previous version of Pervasive.SQL 2000, they are not affected by the patch install. The patch installation only replaces and upgrades Pervasive.SQL 2000 components. In this situation, the install behaves as documented in the section “Upgrading to Pervasive.SQL 2000i Server from Pervasive.SQL 7 or Btrieve 6” on page 5-13.

Patching Procedure

Follow these steps to patch your Pervasive.SQL 2000 installation to Pervasive.SQL 2000i:

- 1** Launch the installation program from your Windows machine.
 - a. Insert the Pervasive.SQL Server for Windows CD in the CD-ROM drive of your Windows server.
 - b. If the installation does not start automatically, click **Start**, select **Run**, and type `drive:setup` where *drive* is the drive letter of your CD-ROM device.

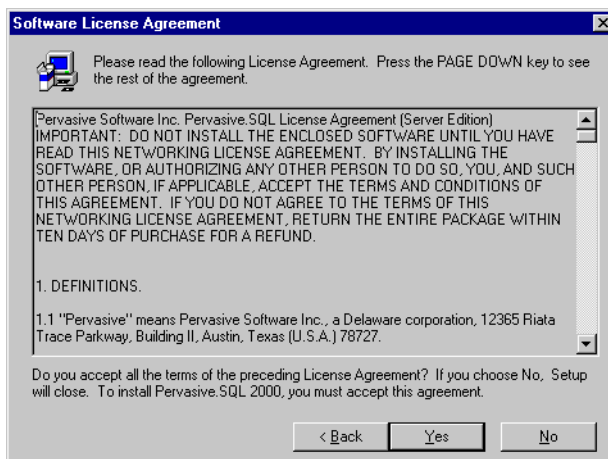
Figure 5-2 Pervasive.SQL Setup Welcome Dialog Box



Click Next to proceed with the installation.

2 Read and accept the Software License Agreement

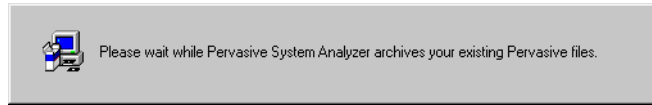
Figure 5-3 Pervasive Software's Software License Agreement



Read the Pervasive Software License Agreement. Click Yes to accept the terms of the agreement and continue the patch installation.

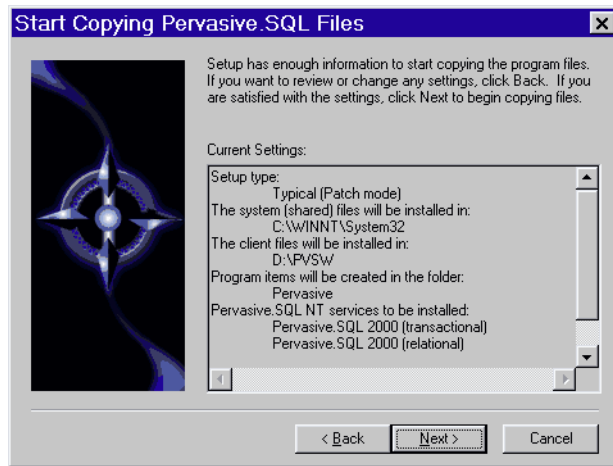
3 Pervasive System Analyzer will now archive previous Pervasive.SQL 2000 components. If need be, you can restore these components later using PSA.

Figure 5-4 Pervasive System Analyzer Preparing your System for Patching



4 Verify your installation settings.

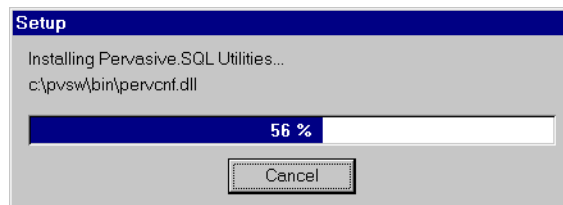
Figure 5-5 Your Selected Patch Installation Settings



If the displayed selections are correct, click **Next** to continue.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

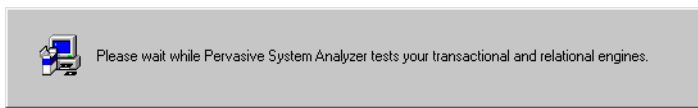
Figure 5-6 Setup Begins Copying Files



Note Only click **Cancel** if you want to stop installation and exit the Setup process.

- 5 After the files are copied, Install automatically performs the following functions:
 - Sets up and starts your new database engines as Windows services.
 - Migrates your existing user count
 - Configures your client interfaces
 - Configures program icons and start menu
 - Ensures environment variables are set correctly
- 6 Pervasive System Analyzer checks the functionality of the new components. The following dialog is displayed during the test. Please look in the installation log file (install.log) and the PSA log file (PSAlog.txt) for information regarding the results of these tests.

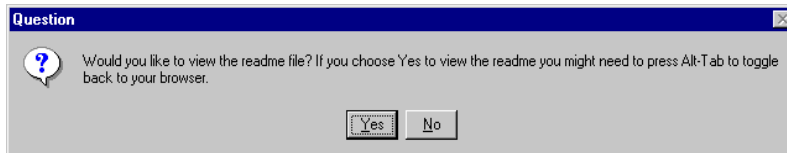
Figure 5-7 Pervasive System Analyzer Tests Your New Engines



- 7 Read the README file.

If you did not read the README file prior to installation as described in “Before You Begin” on page 5-2, please do so now.

Figure 5-8 Option to view the Readme file.



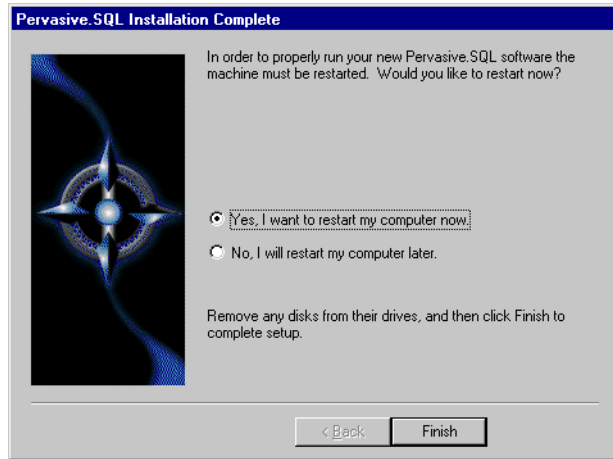
It is highly recommended that you click Yes and view the Readme file, if you have not yet done so.

Once you have selected to view the readme file, it is automatically displayed using your current browser or text editor application.

8 Your Pervasive.SQL 2000i server patch is complete.

The following dialog box informs you that the installation is complete.

Figure 5-9 Installation Complete Dialog Box



You should always leave the **Yes, I want to restart my computer now** check box selected.

Click **Finish**.



Note If you have any trouble with the installation, see Chapter 21, "Troubleshooting After Installation."

If installed files could not be copied because they were locked in memory, a reboot may be necessary at this point.

The installation program modifies the PATH, and CLASSPATH environment variables at the end of the installation process. These settings control how your Windows operating system finds Pervasive components. These environment variables are stored in the Control Panel under the Environment tab on the System icon. In Windows 2000, this option is under the Advanced tab of the System icon in the Control Panel.

How to Run Standard Installation Instead of Patching

You may want to perform a regular upgrade installation, as opposed to the patch installation, if any of the following are true:

- You already installed Pervasive.SQL 2000i but wish to reinstall it.
- You want to specify a different installation directory than the one used by your current Pervasive.SQL components.
- You want to be aware of which Pervasive.SQL 2000 components Pervasive System Analyzer is archiving, or you want to archive other versions of Pervasive software during the installation process.
- Your existing Pervasive.SQL 2000 installation did not contain features that you now need, such as Networked client support.

If any of these items apply to you, follow this uninstall procedure for your existing Pervasive.SQL 2000 components before proceeding with the Pervasive.SQL 2000i installation:

► To uninstall existing Pervasive.SQL 2000 components:

- 1** Stop your existing Pervasive.SQL 2000 engines if they are running.
- 2** Click **Start | Settings | Control Panel**
- 3** Click **Add/Remove Programs**
- 4** Find the entry for your Pervasive.SQL 2000 product (one of the following)
 - Pervasive.SQL 2000 NT Server
 - Pervasive.SQL 2000 Workgroup
 - Pervasive.SQL 2000 Workstation
- 5** Click **Add/Remove** to remove the installation. You may be prompted to restart your system if any files were in use.
- 6** You can now install following the procedure in “Upgrading to Pervasive.SQL 2000i Server from Pervasive.SQL 7 or Btrieve 6” on page 5-13.

Upgrading to Pervasive.SQL 2000i Server from Pervasive.SQL 7 or Btrieve 6

You must install the Pervasive.SQL Server upgrade for Windows at the server itself; you cannot install it remotely from a client machine.

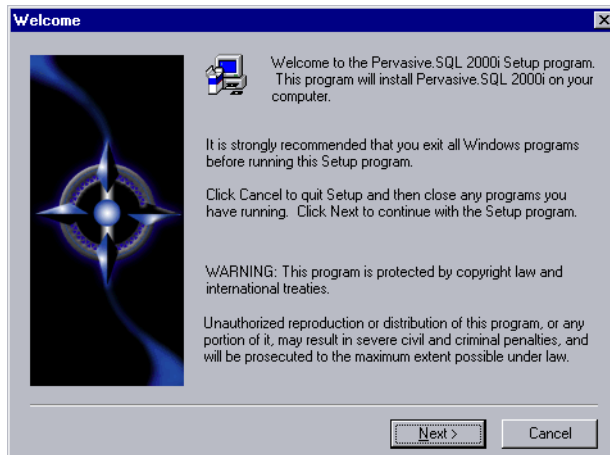
► **To install Pervasive.SQL 2000i (Server Edition) on a Windows machine:**

- 1 Launch the installation program from your Windows machine.
 - a. Insert the Pervasive.SQL Server for Windows CD in the CD-ROM drive of your Windows server.
 - b. If the installation does not start automatically, click **Start**, select **Run**, and type `drive:setup` where *drive* is the drive letter of your CD-ROM device.



Note Please see “Installation Tips” on page 5-4 regarding the Pervasive.SQL 2000i Setup Reboot Required dialog box.

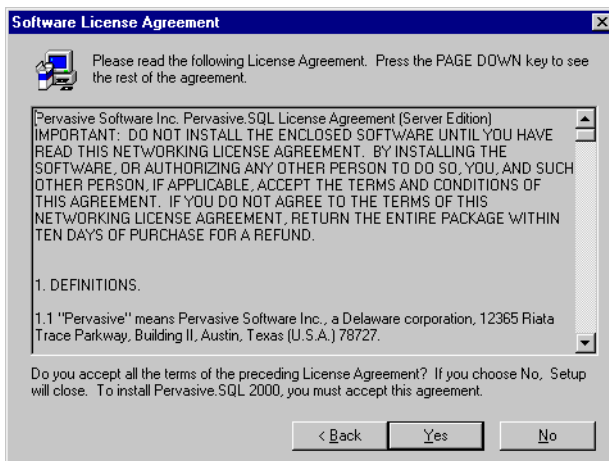
Figure 5-10 Pervasive.SQL Setup Welcome Dialog Box



Click **Next** to proceed with the installation.

2 Read and accept the Software License Agreement

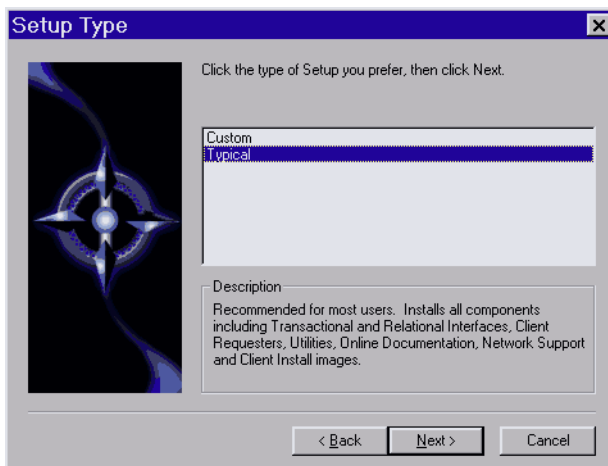
Figure 5-11 Pervasive Software's Software License Agreement



Read the Pervasive Software License Agreement. Click **Yes** to accept the terms of the agreement and continue installation.

3 Select the Typical setup type.

Figure 5-12 Setup Type Dialog Box



Select the **Typical** setup option and click **Next** to continue with installation.

Notes About Typical Setup

The Typical installation, which is recommended for most first time users, takes default actions for most operations performed during the installation.

The Typical server installation installs the following components:

- Pervasive.SQL 2000i Engine (including ODBC interface)
- All possible Requesters (MS-DOS, Win16 and Win32 Requesters)
- Utilities
- Transactional and Relational interfaces
- Client Installation Copies
- Online Documentation

Notes About Custom Setup

The Custom installation is typically for advanced users since it lets you choose the components you want to install and specify the program folder name.

Selecting Custom setup type allows you to specify the program folder, select the components to install, and set the Pervasive.SQL 2000i engine service start mode.

During a Custom server installation, the following components are optional:

- Online documentation
- Network client support
- Client installation programs for DOS and Windows.

If you choose a custom install, skip now to “Custom Installation Path” on page 5-26. At the end of that section you will return to this section to continue the installation.

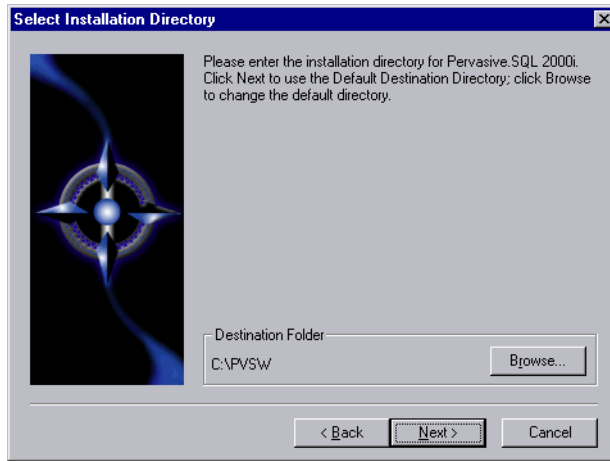
4 Select the server installation directory.

The default installation location for Pervasive.SQL 2000i is C:\PVSW, assuming the Windows system drive is C:\.



Tip If you are upgrading from a previous version of Pervasive.SQL, you may want to select a different installation location. Using a different installation location reduces any potential conflicts that may occur as a result of using the same installation directory.

Figure 5-13 Select Your Installation Directory



Click **Next** to accept the default installation directory and proceed with the installation.

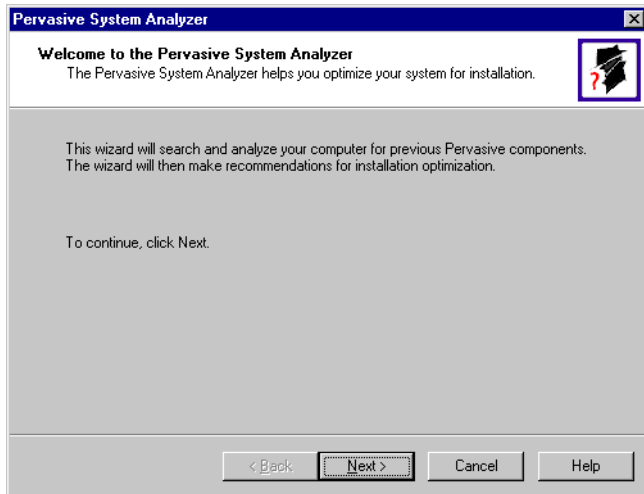


Note To select a different directory, click **Browse** and select or enter the new installation directory. If the folder you have chosen doesn't exist, you'll need to answer **Yes** to have setup create the folder for you.

5 Optimize your system with the Pervasive System Analyzer.

Next the Pervasive System Analyzer (PSA) launches. PSA scans your system for previous versions of Pervasive Software products.

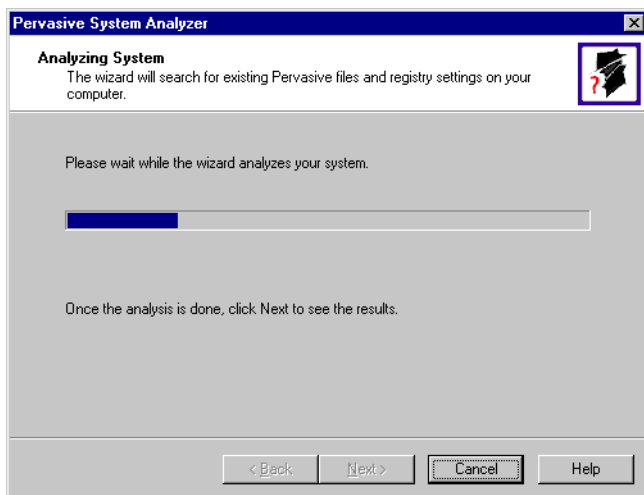
Figure 5-14 Pervasive System Analyzer Welcome Screen



6 Analyze your system.

Click **Next** to continue with the installation and begin system analysis. As PSA analyzes your system the following dialog box displays.

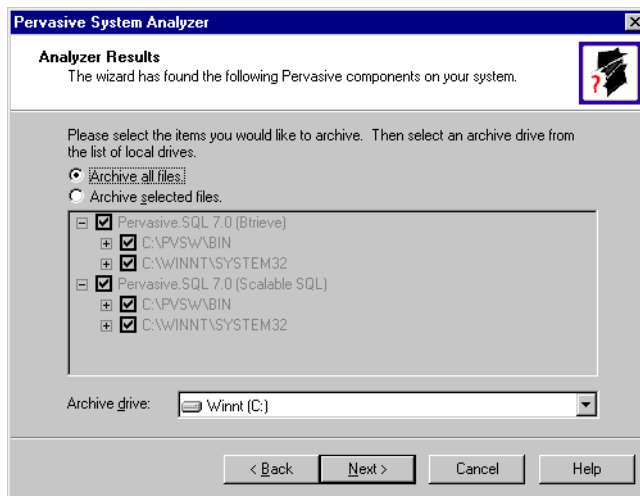
Figure 5-15 System Analysis Using PSA



The progress bar completes as PSA analyzes your system. When PSA has completed the initial system analysis, click the **Next** button to continue and see the results.

If you have previous versions of Pervasive Software products, PSA displays those products by the software version. The next screen illustrates a system containing a previous installation of Pervasive.SQL.

Figure 5-16 Pervasive System Analyzer Results



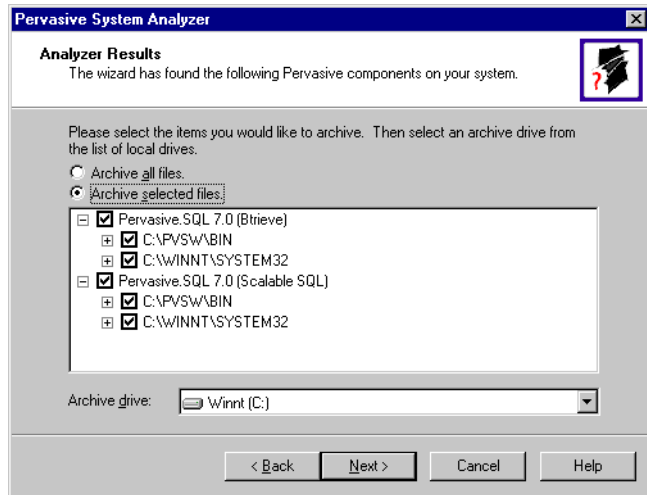
7 Select the Pervasive files to archive.

Click **Next** to accept the default selection and archive all of your Pervasive components.



Note You can choose to archive only selected components, but Pervasive Software recommends that you archive all previous Pervasive components to reduce the possibility of product conflict and to ensure that your application will run properly.

Figure 5-17 Select to Archive All Files

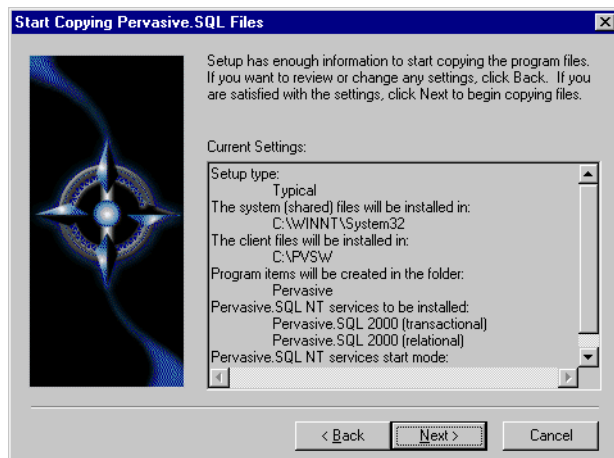


Click **Next** to accept the default selection and archive all of your Pervasive components. Otherwise, select **Archive Selected Files** and deselect items that you do not wish to archive.

For example, if you wanted to keep the Scalable SQL interface for your legacy applications, deselect the item 'Pervasive.SQL 7.0 (Scalable SQL)' as shown in the preceding dialog.

8 Verify your installation settings.

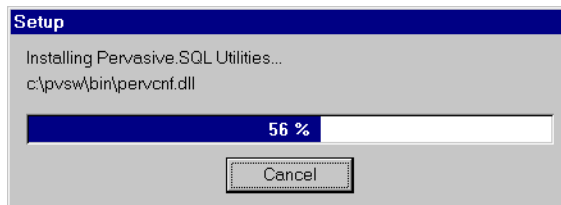
Figure 5-18 Your Selected Installation Settings



If the displayed selections are correct, click **Next** to continue.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

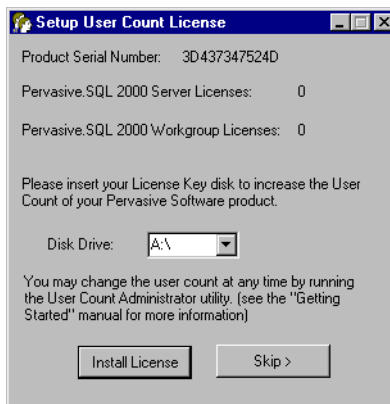
Figure 5-19 Setup Begins Copying Files



Note Only click **Cancel** if you want to stop installation and exit the Setup process.

9 Apply your user count license key

Figure 5-20 Applying the User Count License



Your Pervasive.SQL 2000i server is set to the number of users specified in the license key. When the update is complete, a dialog box informs you that you have increased your user count license to support that number of simultaneous users. At this point, your Pervasive.SQL 2000i transactional and relational services will be started.

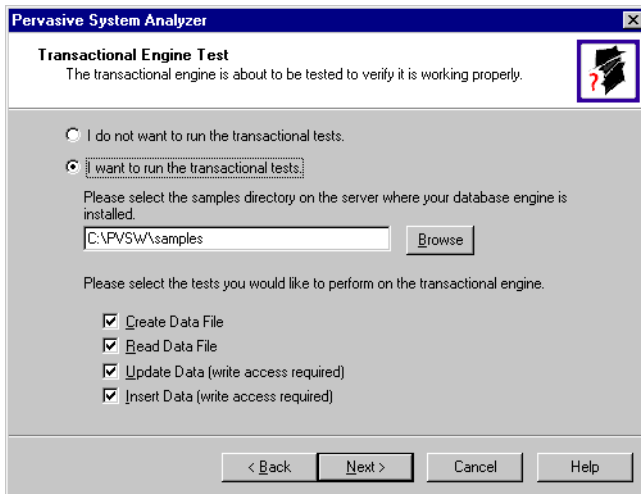


Note If you do not yet have a license key or it is not with you at the moment, you can still continue with the installation. Click **Skip** at the **Setup User Count License** dialog box and run the User Count Administrator utility at a later time to install a user count license key. Please wait until the installation is complete.

10 Test the Transactional Engine

PSA now performs a series of tasks to ensure that the transactional engine is working properly.

Figure 5-21 Transactional Engine Test



Select the samples subdirectory of the server installation location. Then once you have selected to run the transactional tests and selected the tasks associated with that test, click **Next** to run the tests and see the results.

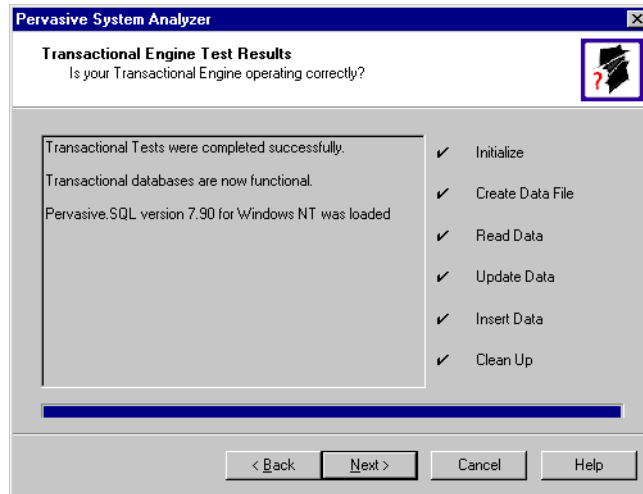


Note It is recommended that you perform this test to ensure that the transactional engine is communicating properly and the transactional databases are now functional.

11 Run the Transactional Test.

PSA displays a checkmark for each test that passes and an X for each task that fails during the transaction engine test. A summary report is also provided in the information window, as shown in the following figure.

Figure 5-22 Transactional Engine Test Results from PSA

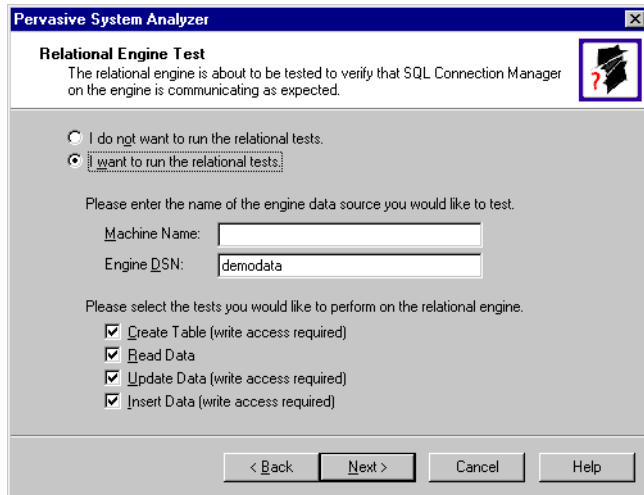


Once your transactional engine tests are complete, click **Next** to continue with installation and test the relational engine.

12 Test the Relational Engine

PSA now performs a series of tasks to ensure that the relational engine is working properly.

Figure 5-23 Relational Engine Test



The screenshot shows a dialog box titled "Pervasive System Analyzer" with a sub-header "Relational Engine Test". Below the sub-header is a message: "The relational engine is about to be tested to verify that SQL Connection Manager on the engine is communicating as expected." There is a question mark icon in a box to the right of the message. Below this, there are two radio buttons: "I do not want to run the relational tests." (unselected) and "I want to run the relational tests." (selected). Below the radio buttons is a text prompt: "Please enter the name of the engine data source you would like to test." There are two text input fields: "Machine Name:" (empty) and "Engine DSN:" (containing "demodata"). Below the input fields is another text prompt: "Please select the tests you would like to perform on the relational engine." There are four checked checkboxes: "Create Table (write access required)", "Read Data", "Update Data (write access required)", and "Insert Data (write access required)". At the bottom of the dialog box are four buttons: "< Back", "Next >", "Cancel", and "Help".

Enter the Server Name and Server DSN for the engine data you want to test. Then once you have selected to run the relational tests and selected the tasks associated with that test, click **Next** to run the tests and see the results.

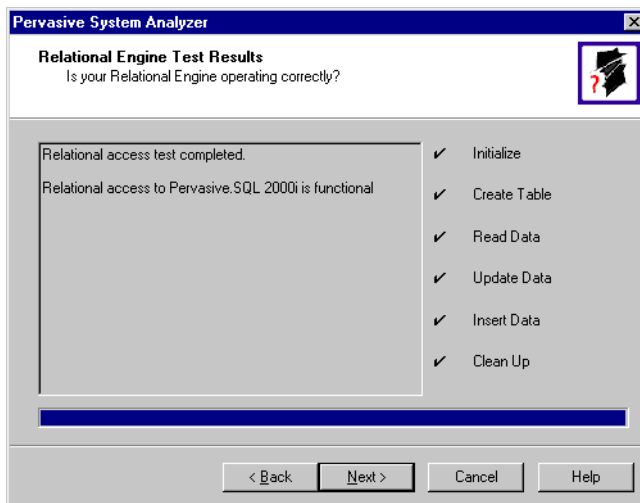


Note It is recommended that you perform this test to ensure that the relational engine is communicating properly and the relational databases are now functional.

13 Run the Relational Test.

PSA displays a checkmark for each test that passes and an X for each task that fails during the relational engine test. A summary report is also provided in the information window, as shown in the following figure.

Figure 5-24 Relational Engine Test Results from PSA



Once your relational engine tests are complete, click **Next** to finish the installation.

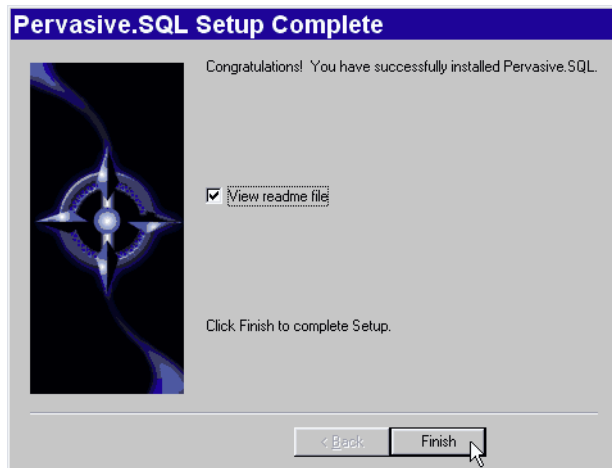
14 Read the README file.

If you did not read the README file prior to installation as described in “Before You Begin” on page 5-2, please do so now.

15 Your Pervasive.SQL 2000i server installation is complete.

A dialog box will appear asking if you want to read the README file. It is highly recommended that you leave the **View readme file** check box selected and click **OK**. The following dialog box informs you that the installation is complete.

Figure 5-25 Installation Complete Dialog Box



Click **Finish**.



Note If you have any trouble with the installation, see Chapter 21, “Troubleshooting After Installation.”

If installed files could not be copied because they were locked in memory, a reboot may be necessary at this point. Setup only prompts for a reboot if a locked file or some other event was detected that requires a reboot. Please reboot your system if prompted to do so in order to ensure proper operation of your Pervasive.SQL 2000i product.

The installation program modifies the PATH, and CLASSPATH environment variables at the end of the installation process, if needed. These settings control how your Windows operating system finds Pervasive components. In Windows, these environment variables are stored in the Control Panel under the Environment tab on the System icon. In Windows 2000, these environment variables are stored in the Control Panel under the Advanced tab on the System icon.

What to do Next Skip over the next section for custom installations and see “Common Questions After Installing Pervasive.SQL 2000i” on page 5-32.

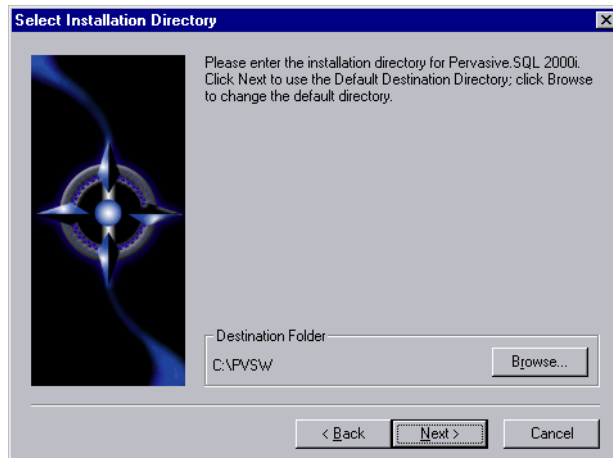
Custom Installation Path

This section describes how to customize your installation of Pervasive.SQL 2000i.

1 Choose the installation directory.

The default installation location for Pervasive.SQL is C:\PVSW, assuming the Windows system drive is C:\. You can specify a different location for the installation as shown in the following dialog box.

Figure 5-26 Choosing Installation Directory of Pervasive.SQL



If you wish to change the default directory, click **Browse** and select the desired directory.

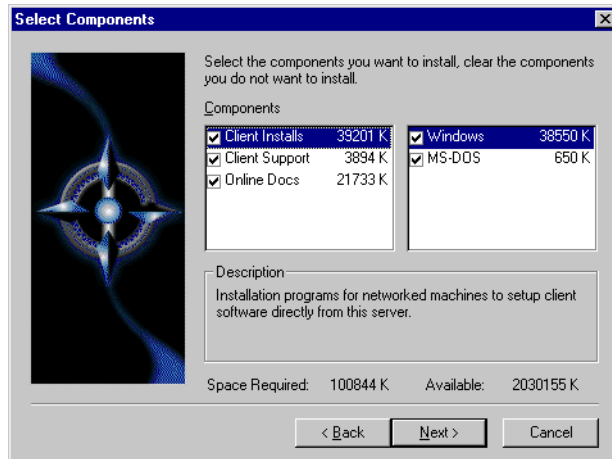
Click **Next** to proceed with the installation.

2 Select components to install.

Pervasive.SQL 2000i Server edition currently contains the following optional components:

- Client Installs
- Client Support
- Online Documentation

Figure 5-27 Choose Components To Install



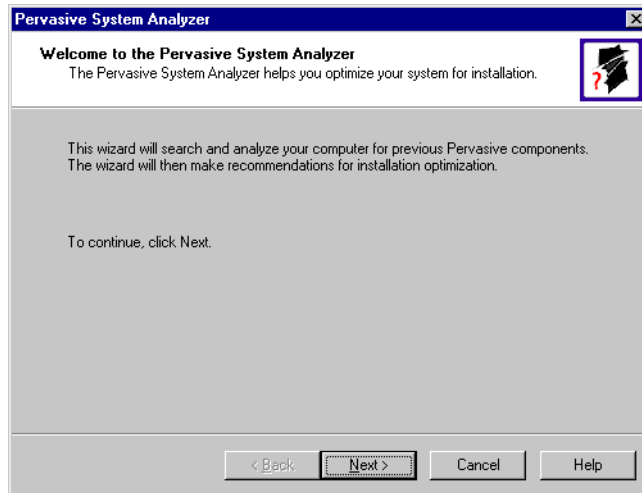
The columns on the left list the major categories: client installation programs, networked client support, and online documentation. When you select one of these categories, the column on the right shows any sub-items available under that category.

Select those items you wish to install. When you are finished, click **Next**.

3 Optimize your system with the Pervasive System Analyzer.

Next the Pervasive System Analyzer (PSA) launches. PSA scans your system for previous versions of Pervasive Software products.

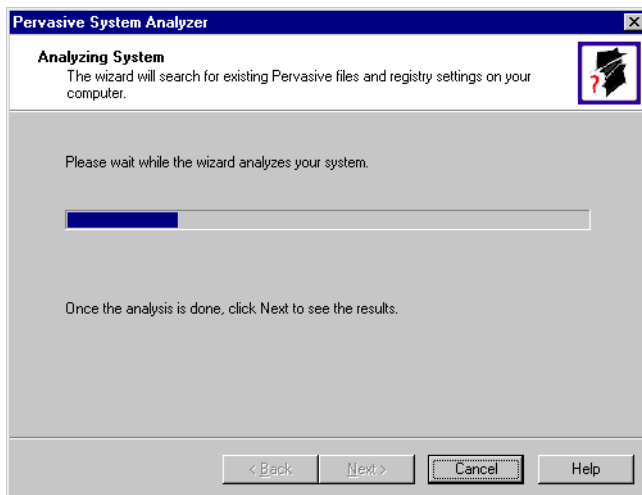
Figure 5-28 Pervasive System Analyzer Welcome Screen



4 Analyze your system.

Click **Next** to continue with the installation and begin system analysis. As PSA analyzes your system the following dialog box displays.

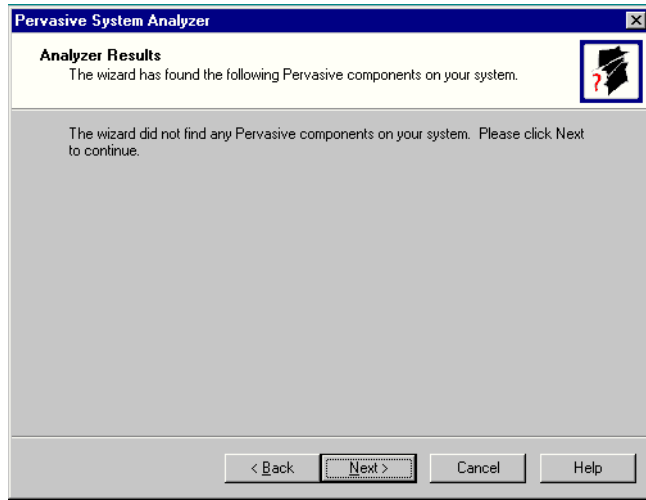
Figure 5-29 System Analysis using PSA



If you have previous versions of Pervasive Software products, PSA displays those products by the software version.

The progress bar completes as PSA analyzes your system. When PSA has completed the initial system analysis, click the **Next** button to continue and see the results.

If you do not have any previous versions of Pervasive Software products, the following dialog box displays.

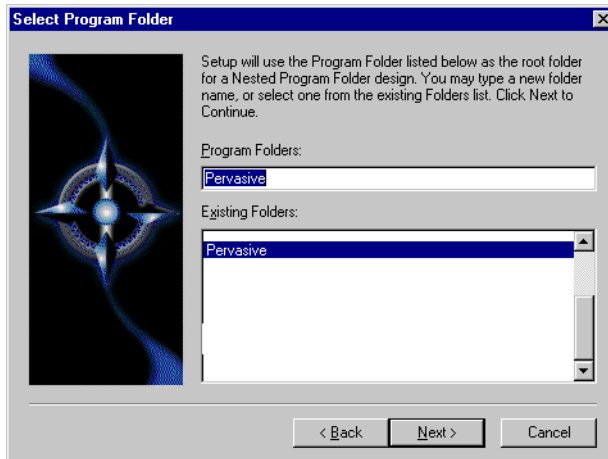


5 Choose the Program folder for menu items.

Specify the folder in which the Start Menu items will be placed. Pervasive installation suggests a name for the folder, which you can accept by clicking **Next**.

If you have previously done an install on this machine, Install recommends that you do not use the same folder name so that your ability to cleanly uninstall the software in the future is preserved.

Figure 5-30 Choose your Program Folder

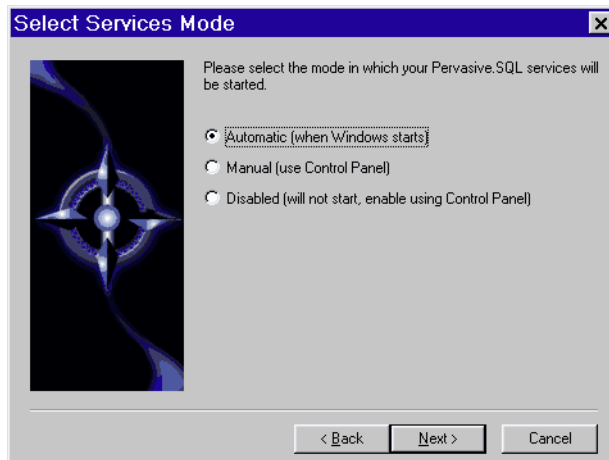


Click **Next** to accept the Program Folder name and display your current installation settings.

6 Choose your service start-up mode.

The Pervasive.SQL 2000i engines run as services on Windows NT/2000. This dialog box allows you to specify the behavior of the services when your Windows NT/2000 machine is started.

Figure 5-31 Choose your Service Start-up Mode

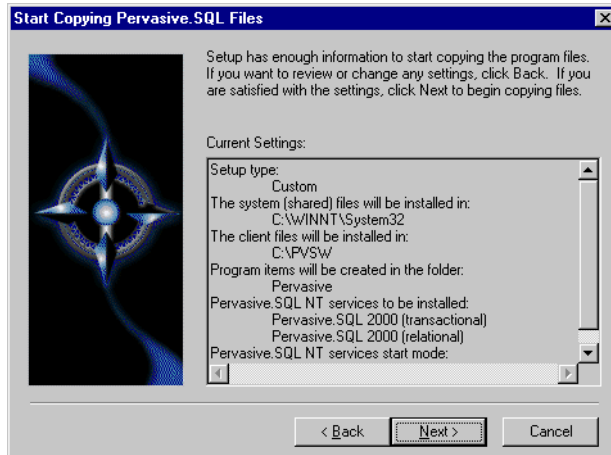


7 Verify your installation settings.

Install now has enough information to start the installation process. A dialog box displays the list of options you have selected. If you want to change any of these selections, click **Back**.

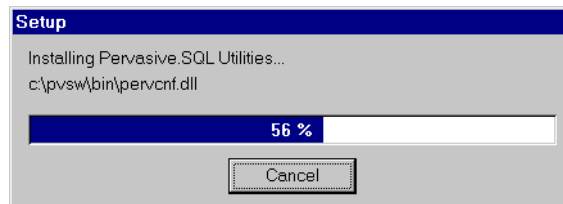
If the displayed selections are correct, click **Next** to continue.

Figure 5-32 Your Custom Installation Selections



Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

Figure 5-33 Setup Begins Copying Files



Note Only click **Cancel** if you want to stop installation and exit the Setup process.

The custom path rejoins the Typical installation path. See the step "Apply your user count license key" on page 5-20.

Common Questions After Installing Pervasive.SQL 2000i

This section contains information that you should read after running the installation program. If you are having problems with your installation, go to Chapter 21, “Troubleshooting After Installation,” or get help online from our Knowledge Base website at <http://support.pervasive.com/kb>.

How to Handle Data Source Names (DSNs)

After you have successfully installed the product, including the client software, you have several choices depending on your situation, as shown in the table below.

Table 5-1 How to Proceed After Installing Server and Client Software

If your situation is like this....	... then you should do this next:
You have existing Pervasive.SQL 7 DSNs already defined.	You must delete and re-create all existing Pervasive.SQL 7 DSNs before you can access existing databases. Follow the instructions provided in <i>Pervasive.SQL User's Guide</i> Chapter 2, sections “Deleting DSNs” and “Setting Up Database Access on a Windows Server or Workgroup/Workstation.”
You have existing Pervasive.SQL 2000 DSNs already defined.	You should be able to access your databases by connecting to the existing DSNs. Follow the instructions provided in <i>Pervasive.SQL User's Guide</i> , Chapter 2, section “Accessing Data via ODBC From Other Applications.”
You do not have any Pervasive.SQL DSNs defined	You should be able to connect to the sample DEMODATA database now. Refer to <i>Pervasive.SQL User's Guide</i> for general information on working with Pervasive.SQL. Refer to <i>Advanced Operations Guide</i> for detailed information on working with databases and database engines.

How Do I Convert My Files From Previous Pervasive Products?

Users of previous Btrieve versions: Use the Rebuild utility to convert your existing pre-6.0 or 6.x files to 6.x or 7.x format. For more information, refer to the *Advanced Operations Guide*.

How Do I Read the Online Documentation?

Pervasive.SQL 2000i documentation for Win32 platforms is in either Microsoft HTML Help or Microsoft Windows Help, depending on the version of Internet Explorer on your system (the Pervasive.SQL 2000i install program determines this for you and installs the correct set for your system). To read the documentation, select **Start | Programs | Pervasive | Pervasive.SQL 2000i | Documentation | Pervasive.SQL 2000i Documentation** from the Windows **Start** menu.

Documentation for Win16 platforms is in the form of Acrobat files. Shortcuts to these files are found in the **Pervasive.SQL** documentation file group. The installation program for an Acrobat reader is available on the Pervasive.SQL 2000i (Server Edition) CD-ROM.

There is also a README file on the distribution media that has the latest changes and additions to Pervasive.SQL 2000i.

What Files Were Installed as Part of Pervasive.SQL 2000i?

Once installed, Pervasive.SQL files reside in the following directory structure.

\WINNT\SYSTEM32	Microsoft system files.
\PVSF	
\BIN	Pervasive.SQL engines, requesters and utilities.
\CLIENTS	Pervasive.SQL client installation programs. (server only)
\WIN	Pervasive.SQL Windows client installation program. Valid for Windows versions.
\DOS	DOS Pervasive.SQL Requester files. These files must be manually copied to a DOS client.
\DEMODATA	Contains sample database. (server only)
\DOC	Online documentation.
\SAMPLES	Contains the sample database SAMPLE.BTR and UPPER.ALT, a sample Alternate Collating Sequence. (server only)

***Where To Go
From Here***

Continue with your Pervasive.SQL installation by installing and configuring the client requesters for the machines that will connect to this server. This is documented in Chapter 16, “Distributing the Pervasive Client.”

Network Settings for Server Engine on Windows

How to Configure Network Settings for a Windows-based Pervasive.SQL Server

This chapter explains the default network settings for your database server engine and how to customize them if your network requires different settings.

- “Determining What Kind of Network You Have” on page 6-2
- “Default Engine Settings” on page 6-3
- “Setting Up TCP/IP Support” on page 6-5
- “Setting Up SPX Support” on page 6-7
- “Avoiding Unavailable Protocols” on page 6-9

Determining What Kind of Network You Have

This section explains how to determine the network protocol that you should use with the database engine. If you already know what protocol or protocols are supported on your network, you can skip this section.

Server Engine on Windows

If your network is 100% Microsoft, and you have a Server engine, then your network probably uses TCP/IP. The Server engine does not support NetBIOS.

It is possible to run Btrieve applications over SPX on Microsoft networks, but ODBC applications over SPX require a NetWare server for name resolution. If you do not have a NetWare server on your network, you may not use SPX for ODBC applications.

Server Engine on NetWare

If you have a NetWare network, you must determine whether it is running SPX, TCP/IP, or both. You can find out whether TCP/IP is supported by checking to see if TCPIP.NLM is loaded on the server.

Server Engine on Linux or Solaris

Linux and Solaris engines support only TCP/IP.

Default Engine Settings

This section explains what server Configuration settings are related to networking support, and what the default values mean.

You can change these settings within PCC by double-clicking **Configuration** for the given database engine, then double-clicking **Server**, then **Communication Protocols**.

AutoReconnect Timeout

Default: 180 seconds

If Pervasive AutoReconnect is enabled, this setting specifies how long the engine and client attempt to contact each other after a network interruption has occurred. By default, the client and server attempt to connect for three minutes before giving up. If the value of **Enable AutoReconnect** is **Off**, then the **AutoReconnect Timeout** value is ignored.

Enable AutoReconnect

Default: Off

This setting determines whether the client and server attempt to reconnect to each other in the event of a network outage. If set to **On**, it allows the database connections to recover from intermittent or temporary network interruptions. If this value of this setting is **Off**, then the client returns a status code to the application immediately upon any failure to connect to the server, and the connection context is not preserved.

If you have this setting turned **On**, you can specify how long the client and database engine should attempt to reconnect by using the setting **AutoReconnect Timeout**.

Listen IP Address

Default: 0.0.0.0

This setting specifies the IP address of the network interface card that the MicroKernel should listen on when the server computer has two network cards installed. This value is ignored if the server computer has only one network card, or if the value of **TCP/IP Multihomed** is **On**. This value is also ignored if TCP/IP is not in use by the database engine.

NetBIOS Port

Default: 66

This value specifies the port number the Workgroup engine listens on when using NetBIOS communications. The Server engine does not support NetBIOS, so this setting is ignored by the Server engine.



Note This port setting must be the same for all Workgroup engines on the network. Workgroup engines that have different port settings cannot communicate with one another.

Supported Protocols

Default: SPX, TCP/IP, NetBIOS

This setting specifies the vendor protocols that the database engine should attempt to use. When more than one protocol is specified, upon start up, the engine attempts to connect on all specified protocols. The protocol that connects first is then used for the remainder of the session.

You can often improve initial connection performance by removing the protocols that are not used on your network. For example, if you have a Server engine on an all-TCP/IP network, removing NetBIOS and SPX support may reduce the wait time during initial connections to the engine.



Note The Server engine does not support the NetBIOS protocol.

TCP/IP Multihomed

Default: Off (Server); On (Workgroup)

If your server computer has two network interface cards installed, you can use this setting to specify whether the server engine should listen on both network connections. If your computer has two network cards and this setting is turned off, you must use the setting **Listen IP Address** to specify which network card the server engine should use.

Setting Up TCP/IP Support

By default, TCP/IP is supported between Pervasive.SQL clients and remote engines. If you have modified the default settings or need to verify that TCP/IP support is available, refer to this section.



Note In order to perform any of the tasks in this section, you must have administrative rights on the Windows server, or be a member of the Pervasive_Admin group defined on the server.

► Enabling TCP/IP Support

Follow this procedure to ensure that the database engine can communicate with clients over TCP/IP networks.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target engine. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication Protocols**. In the window to the right, double-click on **Supported Protocols**.
- 4 A smaller dialog box appears, showing a list of **Available** protocols and a list of **Selected** protocols. If the list of Selected protocols includes the value **Microsoft TCP/IP**, then TCP/IP is already supported.

If the list of Selected protocols does not include **Microsoft TCP/IP**, then you should click on this value in the left-hand window, and then click the > button to move it into the list of Selected protocols. Once the value appears in the right-hand window, click **OK**.

- 5 Click  to apply the changes. You must restart the server engine for the changes to take effect.

- 6 Remember that you also need to confirm that your client computers are configured to use TCP/IP, as well. Please refer to Chapter 17, “Client Network Configuration.”

► Enabling Multihomed TCP/IP Support

Follow this procedure when your Windows server computer has two network cards installed. By default, Pervasive.SQL assumes that you only have one network card installed.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target engine. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication Protocols**. In the window to the right, double-click on **TCP/IP Multihomed**.
- 4 If you want the server engine to listen for client connections on both network cards, change the value to **On**. If you want the server engine to listen on only one card, change the value to **Off**. Click **OK**. If you only have one network card, this setting is ignored.
- 5 If your server computer has two network cards, and you set the value of **TCP/IP Multihomed** to **Off**, you must double-click the setting **Listen IP Address** and specify the TCP/IP address of the card you want the server engine to listen to. If you do not specify an IP address, the server engine will not receive communications from either network card.
- 6 Click  to apply the changes. You must restart the server engine for the changes to take effect. You do not need to make any changes to client settings.

Setting Up SPX Support

By default, SPX is supported between Pervasive.SQL clients and servers. If you have modified the default settings or need to verify that SPX support is available, refer to this section.

Your network's SPX Frame Type setting does not have any effect on Pervasive.SQL.



Note In order to perform any of the tasks in this section, you must have administrative rights on the NetWare server, or be a member of the Pervasive_Admin group defined on the server.

► Enabling SPX Support

Follow this procedure to ensure that the server engine can communicate with clients over SPX networks.



Note In an all-Microsoft environment, SPX can only be used with pure Btrieve applications. With ODBC applications, a NetWare server must be present to provide name resolution for SPX. Pure Btrieve applications do not require name resolution with SPX.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the server engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target server. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication Protocols**. In the window to the right, double-click on **Supported Protocols**.
- 4 A smaller dialog box appears, showing a list of **Available** protocols and a list of **Selected** protocols. If the list of Selected protocols includes the value **Microsoft SPX II** or **Novell SPX II**, then SPX is already supported.

If the list of Selected protocols does not include one of the above values, then you should click on this value in the left-hand window, and then click the > button to move it into the list of Selected protocols. Once the value appears in the right-hand window, click **OK**.

- 5 Click  to apply the changes. You must restart the server engine for the changes to take effect.
- 6 Remember that you also need to confirm that your client computers are configured to use SPX, as well. Please refer to Chapter 17, “Client Network Configuration.”

Avoiding Unavailable Protocols

It may be possible to improve performance on the initial connection to the database by disabling database communications support for any protocols that are not available on your network or that you do not wish to use.



Note In order to perform any of the tasks in this section, you must have administrative rights on the computer where the database engine is installed, or be a member of the Pervasive_Admin group defined on that computer.

► To Remove Support for a Specific Network Protocol



Note This procedure does not affect your operating system configuration in any way. This procedure only prevents the database communications system from attempting communications on unavailable or undesired protocols.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the server engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target server. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication protocols**. In the window to the right, double-click on **Supported protocols**.
- 4 A dialog box appears, showing a list of **Available** protocols and a list of **Selected** protocols. If the list of **Selected** protocols includes a value that is not supported on your network or that you do not wish to use, click on the value and then click the < button to move it into the list of **Available** protocols. Repeat for any other protocols you do not wish to use. You must leave at least one protocol in the **Selected** protocols list.

Once the given value(s) appear in the left-hand list, click **OK**.

- 5** Click  to apply the changes. You must restart the server engine for the changes to take effect.
- 6** Remember that you also need to confirm that your client computers are configured to use the protocol remaining in the **Selected protocols** list. Please refer to Chapter 17, “Client Network Configuration.”

Application Configuration Scenarios

Common Scenarios for Setting up Your Server

This chapter explains how to configure your server for several common application scenarios.

- “Multiple Client Applications” on page 7-2
- “Concurrent Local and Remote Applications” on page 7-5

Multiple Client Applications

Sometimes, two or more client/server applications may use the same database server. You will need to configure the server differently depending on whether the applications are used at the same time.

If your vendors supply configuration guidelines for Server configuration parameters, you will need to adjust your configuration based on these guidelines.

If the applications run concurrently (that is, if two or more applications are using the database server at the same time) ...
You should configure the server by adding together all the recommended values for each parameter. For example, if one application vendor suggests Access Number of Sessions should be set to 400, and another application vendor suggests this parameter should be set to 600, then you should set it to 1000. If the default value is higher than the sum of the recommended settings, then do not change the default value.
Do not add up the recommended values for any buffer size settings, or log file size settings. Use the largest recommended setting. Again, do not change the default if it is larger than any vendor recommendation.

If the applications do not run concurrently (that is, if only one application is running at any given point in time) ...
You should configure the server by using the largest recommended value for each parameter. For example, if one application vendor suggests Access Number of Sessions should be set to 400, and another application vendor suggests this parameter should be set to 600, then you should set it to 600. If the default value is higher than the largest recommended setting, then do not change the default value.

Settings Affected by Multiple Applications

Most server settings are not affected when you are running multiple applications. This section explains the settings that may need to be adjusted for multiple applications.

Access | Number of Sessions

All the other settings in the **Access** category are managed dynamically by the server engine. Because each client may open multiple sessions with the database, this setting may need to be adjusted if you have a hundred or more concurrent clients accessing the server.

You can determine whether you need to increase this setting by using **Monitor** to inspect the maximum and peak values of **Total Remote Sessions**. To start **Monitor**, click the **Start** menu and select **Programs | Pervasive | Pervasive.SQL 2000i | Utilities | Monitor**. From the **Monitor** menu, select **MicroKernel | Communications**. If the **Peak** value of **Total Remote Sessions** is at or near the maximum, you should increase the maximum value.

Compatibility | Create File Version

Some applications may require that new files be created with version 6.x file format, while other applications may require version 7.x file format (the default).

These applications can run concurrently only if new files are not created during run time. There is no way to toggle the setting back and forth for each application, unless you wish to do it by hand or write a program to do so using the **Distributed Tuning Objects**.

If the applications do not create new files during runtime, then this setting is not relevant for multiple applications.

Data Integrity | Transaction Durability

Some applications may require durable transactions, while others may not. If you have two application vendors recommending different values for this parameter, then you should set it to **On**. Generally, having transaction durability turned on does not affect applications that do not use transactions.

Memory Usage | Extended Operation Buffer Size

Use the default value or the largest value recommended by any application vendor, whichever is largest.

Performance Tuning | Cache Allocation Size

If the installed memory allows, the cache should be set to a size equal to the sum of all data files that will be open at the same time.

Concurrent Local and Remote Applications

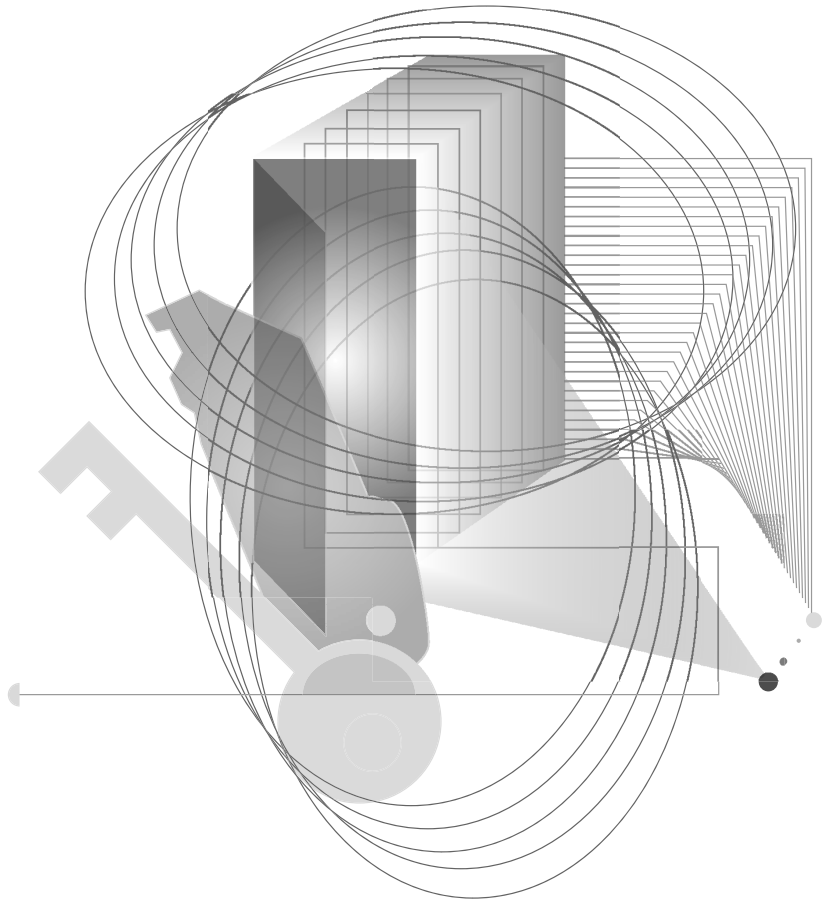
The Server engine allows both remote client requests as well as communications from applications running on the same computer as the server. This section explains what server Configuration settings are used to enable remote and local access.



Note To perform these steps, you must have administrative rights on the Windows server or be logged in as a user who is a member of the Pervasive_Admin group defined on the server.

► To enable database connections from both remote and local applications

- 1 You must be sitting at the Windows server computer where the database server runs. Start Pervasive Control Center. Click the **Start** menu, then choose **Programs | Pervasive | Pervasive Control Center**.
- 2 Double-click **Pervasive.SQL 2000i Engines**. Double-click the icon representing your server. Double-click **Configuration** for your server.
- 3 Enter the user and password as prompted.
- 4 Double-click **Server** and click **Access**. In the right-hand window pane, double-click **Accept Remote Requests**. Set the value to **On**. If you wish to prevent the server from accepting client connections from other computers, set the value to **Off**. Click **OK**.
- 5 Double-click **Client** and click **Access**. Double-click **Local**. Set the value to **On**. Click **OK**.
- 6 Double-click **Requester**. If you want to be able to access databases on other computers, set the value to **On**. If you plan to access data on this computer only, set the value to **Off**. Click **OK**.
- 7 Double-click **Target Engine**. Set the value to **Server Only**. Click **OK**.
- 8 Click  to apply the changes. You must restart the server engine for the changes to take effect.



INSTALLING AND CONFIGURING SERVER ENGINE ON NETWARE

Installing Pervasive.SQL 2000i on NetWare

Instructions for NetWare Server Installation or Patching

This chapter contains procedures for installing Pervasive.SQL 2000i on a NetWare server.

This chapter contains the following sections:

- “Before You Begin” on page 8-2
- “Patching an Existing Pervasive.SQL 2000 Installation” on page 8-8
- “Installing the Pervasive.SQL 2000i Server Components” on page 8-15
- “Common Questions After Installing Pervasive.SQL 2000i” on page 8-24

Before You Begin

This section contains information with which you need to be familiar to install Pervasive.SQL 2000i.

Before installing Pervasive.SQL 2000i, begin by reviewing the following documents for important information:

- *Chapter 2, “Preparing to Install Pervasive.SQL 2000i”* - This chapter provides important information including system requirements and platform specific notes that are relevant to your operation.
- *“What’s New in Pervasive.SQL 2000i”* - This document is included in your product package and contains information regarding the latest features and improvements in this release.
- *README file* - This file is located on the distribution media and contains late-breaking product news that could not be included in the product documentation.

Platform Notes for NetWare

This section contains notes that may be helpful in installing Pervasive.SQL 2000i on a NetWare server.

- If your Windows client is running Advanced Power Management, disable it while installing Pervasive.SQL 2000i. The power management can cause a Pervasive.SQL 2000i installation to fail if the client that is remotely installing the NetWare server is suspended during the install. In Windows 95, you control the advanced power management via the Power icon on the Control Panel. In Windows 2000, you control this Control Panel setting via the Power Options icon, under the APM tab.
- Because some versions of NetWare include Btrieve 6.10, Btrieve system files already exist on the server and possibly on the clients. Back up these files and then remove them. If you do not remove them, set them to read/write so that the installation can overwrite them (the installation routine also backs them up). Refer to Btrieve 6.10 documentation for a component list.
- To install Pervasive.SQL 2000i, you must have rights to the SYS: volume and to the System directory on the server on which the product is being installed.

- The Pervasive.SQL 2000 server component is installed in the System directory of the SYS: volume, and all other supporting files are installed, by default, to subdirectories of the PVSW directory in the root of the SYS: volume (as described in “What Files Are Installed as Part of Pervasive.SQL 2000i?” on page 8-25.)
- *NetWare 3.x only:* The NetWare Loadable Module TLI.NLM must be loaded on the server before starting Pervasive.SQL 2000i, in order for the products to function correctly. Later versions of NetWare should have loaded this module automatically; however, in any version of NetWare, the module must be loaded for Pervasive.SQL to function correctly.
- In all versions of NetWare, before starting Pervasive.SQL 2000i the NetWare Loadable Module appropriate to the communication protocol being used must be loaded before starting Pervasive.SQL 2000i. If the SPX communication protocol is being used, then SPXS.NLM must be loaded on the server before starting Pervasive.SQL 2000i. If the TCP/IP protocol (the default) is being used, then TCP/IP must be correctly configured on the server before starting Pervasive.SQL 2000i.
- Note: TCP is the default communication protocol used by the relational engine. This is configured in the ODBC.INI file provided with Pervasive.SQL 2000i. In order to use the SPX communication protocol, after installation but before use you must open the file `sys:\odbc\odbc.ini` and change the line which says "MgrUseTransport=TCP" to say "MgrUseTransport=SPX".
- Prior to installing Pervasive.SQL 2000i, any existing Pervasive.SQL applications must be stopped on the client machines, and the Pervasive.SQL server engine must be stopped by performing the **SQLSTOP** and **BSTOP** commands from the NetWare server console.



Note **SQLSTOP** is the command entered on the NetWare server console to stop the SQL engine in previous versions of Pervasive.SQL. This command has changed to **MGRSTOP** in Pervasive.SQL 2000; once Pervasive.SQL 2000i has been installed, **SQLSTOP** will no longer be a valid command.

- If you have any trouble with the following installation, see Chapter 21, “Troubleshooting After Installation.”

Installing Over Existing Pervasive Products

Your Btrieve 6.x and Scalable SQL 4.x licenses will not be migrated to Pervasive.SQL 2000i.

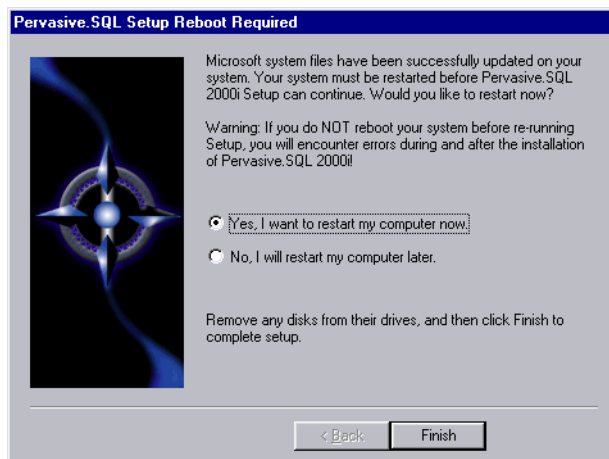


Note If you are upgrading from Btrieve 6.15 or 6.30 and wish to make use of all the new version features, you must rebuild your data files so they use the version 7 file format. See the *Pervasive.SQL User's Guide* section for detailed information on how to use the Rebuild Utilities to convert your data files.

Installation Tips

- When installing Pervasive.SQL 2000i for the first time on a system, Setup will check if all of the needed system files meet the minimum requirements. In some cases, these files are locked by the operating system and a reboot is required before Setup can continue. The following dialog box is displayed if this is the case.

Figure 8-1 Pervasive.SQL 2000i Setup Reboot Required



Click Yes to reboot the system. Setup is then automatically be restarted.



Note It is strongly recommended that you reboot your system if you encounter this message. If you do not reboot your system, Setup will encounter failures during engine and utilities configuration.

If you have any trouble with the following installation, see Chapter 21, “Troubleshooting After Installation.”

NetWare Security and Configuration Issues

This section details security issues relating to installing Pervasive.SQL 2000i on the NetWare platform.

Rights Required to Install

To install Pervasive.SQL 2000i on a NetWare server you should be an administrator of the server object on which you are installing the database. Just having supervisor rights is not adequate. This will allow you to configure, monitor, and set up DSNs for the server after installation. However, you can do an installation if you just have read/write rights to the root of the server, but you will NOT be allowed to configure, monitor, and add DSNs.

Easiest Method to Authorize Users to Administer Databases

All other users that are administrators for the NetWare server object where Pervasive.SQL 2000i is installed will have rights to perform administrative functions on the database too. This means the user must have Supervisor rights to the NDS Server object itself, not just Supervisor rights to the `sys:` volume.

This implementation is the easiest to set up and administer and is adequate if your users can be administrators for both the NetWare server and the Pervasive.SQL 2000i database.

Alternative and More Restrictive Method to Authorize Users to Administer Databases

After installation you can optionally add a group named `Pervasive_Admin` and add members who have the right to administer only the database engine without giving them full administrative rights on the entire server. In order to add this group and add users to it, you must have the proper Novell NetWare rights enforced by NetWare to add objects into the NDS tree on NetWare

4.x or later or create groups on NetWare 3.2. On NetWare 4.x or later, the `Pervasive_Admin` group object must be set up in the same NDS container as the server (or servers) with Pervasive.SQL 2000i installed. If all your Pervasive.SQL 2000i servers are installed at the same level in your NDS tree, then only one `Pervasive_Admin` group is required for all of them.

If you have multiple Pervasive.SQL 2000i servers at varying levels in your NDS tree, you must set up multiple `Pervasive_Admin` groups, one for each NDS context level running a Pervasive.SQL engine. You do not need to have the same member list for each

`Pervasive_Admin` group. On NetWare 3.2, the group `Pervasive_Admin` must be set up on the same server that has Pervasive.SQL 2000i installed.

If you have additional questions on this topic or would like to review examples of NDS trees and user rights, please refer to the section "Additional Information on `Pervasive_Admin` and NDS" in the HTML file:

<http://www.pervasive.com/support/technical/papers/psql2kftf.html>

Configuring Client/Server Connectivity

The NetWare relational engine can accept connections from remote clients using only one homogenous protocol at a time. Your NetWare Pervasive.SQL 2000i ODBC engine is by default configured to accept TCP/IP connections only. If you have TCP/IP configured but only have SPX on your server, you will still need to configure your server for SPX. Pervasive.SQL 2000i currently does not default to SPX. If you do not have an entry in your client's "hosts" file, or in your DNS server's tables, for the NetWare server you are connecting to, you may receive connect errors such as a Status 3103.

If you want to connect using IP, you must do one of the following:

- Add the NetWare server's name/address into your DNS server's tables
- Add the NetWare server's name/address into your local hosts file (`\winnt\system32\drivers\etc\hosts` for NT, `\windows\hosts` for 95/98); or
- Specify the actual IP address in the client DSN's Server Address" field.

If you want to connect using SPX, you must either:

- Use Pervasive Control Center Configuration Utility to change the SQL engine's Supported Protocols; or
- Edit the file in sys:\odbc\odbc.ini on your NetWare server and set:

```
[SQLManager]
```

```
MgrUseTransport=SPX
```



Note The Btrieve interface is configured to use either protocol after installation.

Patching an Existing Pervasive.SQL 2000 Installation

If you have an existing Pervasive.SQL 2000 installation on your machine, the installation program for Pervasive.SQL 2000i behaves differently than on a machine with no Pervasive.SQL 2000 components.

This section details the differences you will see with the patch installation.

- “Situation Where Install Runs in Patch Mode”
- “How Patch Mode Differs from Regular Installation”
- “Patching Procedure” on page 8-9
- “How to Run Standard Installation Instead of Patching” on page 8-13

Situation Where Install Runs in Patch Mode

The Pervasive.SQL 2000i installation enters patch mode if both of the following are true:

- You have existing Pervasive.SQL 2000 components on the installation machine.
- You did not run the uninstall program for your previous Pervasive.SQL 2000 installation.



Note Install can only patch Pervasive.SQL 2000 versions prior to Pervasive.SQL 2000i (SP3). If you need to rerun install at a later date, uninstall Pervasive.SQL 2000i before reinstalling. Install does not support patching a machine that is already running Pervasive.SQL 2000i.

How Patch Mode Differs from Regular Installation

The patch installation differs from a regular installation in these ways:

No Prompting

- The patch install does not prompt you for installation choices such as installation directory, program folders, user count licenses, or component choices.
- Pervasive System Analyzer runs in a silent mode. It automatically archives all your existing components before installing the new Pervasive.SQL 2000i components.

Existing Files and Licenses Updated

After installation:

- Your existing Pervasive.SQL directory contains the updated files.
- Your Windows start menu contains updated links.
- Your existing user licenses are migrated to Pervasive.SQL 2000i.

Older Scalable SQL Components Preserved During Patch

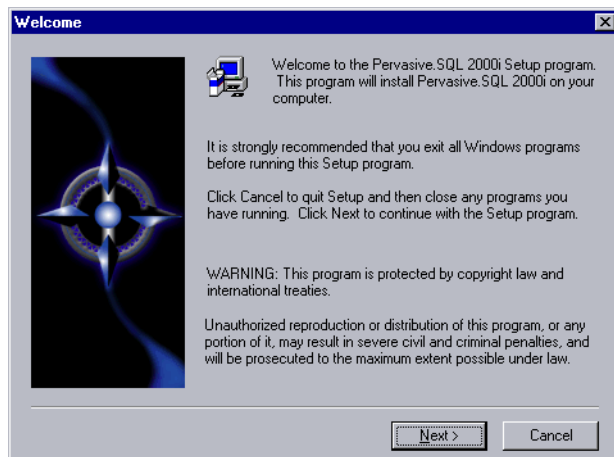
If you have a version of Scalable SQL installed on the same machine as your previous version of Pervasive.SQL 2000, they are not affected by the patch install. The patch installation only replaces and upgrades Pervasive.SQL 2000 components. In this situation, the install behaves as documented in the section “Installing the Pervasive.SQL 2000i Server Components” on page 8-15.

Patching Procedure

Follow these steps to patch your Pervasive.SQL 2000 installation to Pervasive.SQL 2000i:

- 1 Launch the installation program from your Windows machine.
 - a. Insert the Pervasive.SQL 2000 Server for NetWare CD in the CD-ROM drive of your Windows machine.
 - b. If the installation does not start automatically, click **Start**, select **Run**, and type `drive:setup` where *drive* is the drive letter of your CD-ROM device.

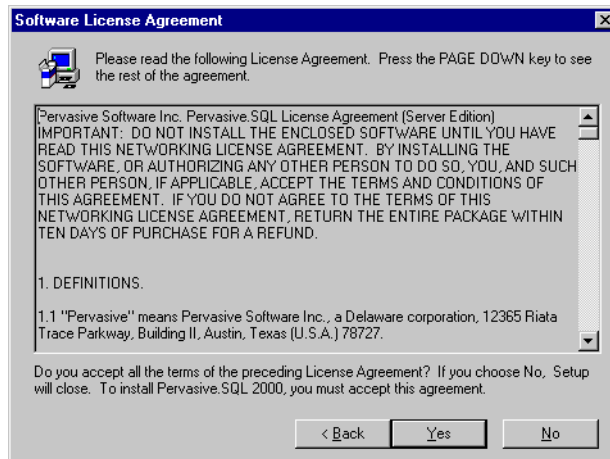
Figure 8-2 Pervasive.SQL 2000 Setup Welcome Dialog Box



Click **Next** to proceed with the installation.

2 Read and accept the Software License Agreement

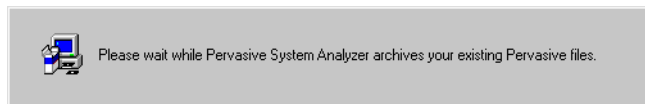
Figure 8-3 Pervasive Software's Software License Agreement



Read the Pervasive Software License Agreement. Click **Yes** to accept the terms of the agreement and continue the patch installation.

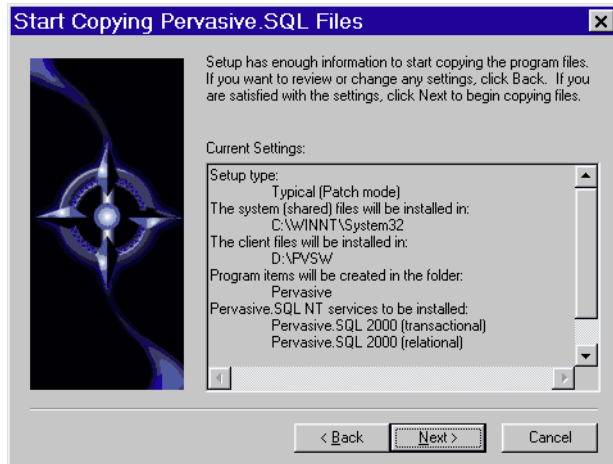
3 Pervasive System Analyzer will now archive previous Pervasive.SQL 2000 components. If need be, you can restore these components later using PSA.

Figure 8-4 Pervasive System Analyzer Preparing your System for Patching



4 Verify your installation settings.

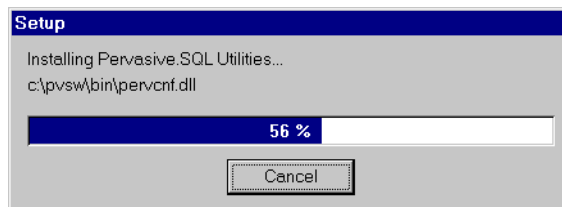
Figure 8-5 Your Selected Patch Installation Settings



If the displayed selections are correct, click **Next** to continue.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

Figure 8-6 Setup Begins Copying Files



Note Only click **Cancel** if you want to stop installation and exit the Setup process.

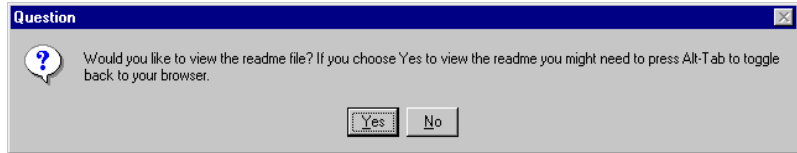
5 After the files are copied, Install automatically performs the following functions:

- Sets up your new database engines as NetWare NLMs.
- Migrates your existing user count
- Configures your client interfaces

- Configures program icons and start menu
 - Ensures environment variables are set correctly
- 6 Read the README file.

If you did not read the README file prior to installation as described in “Before You Begin” on page 8-2, please do so now.

Figure 8-7 Option to view the Readme file.



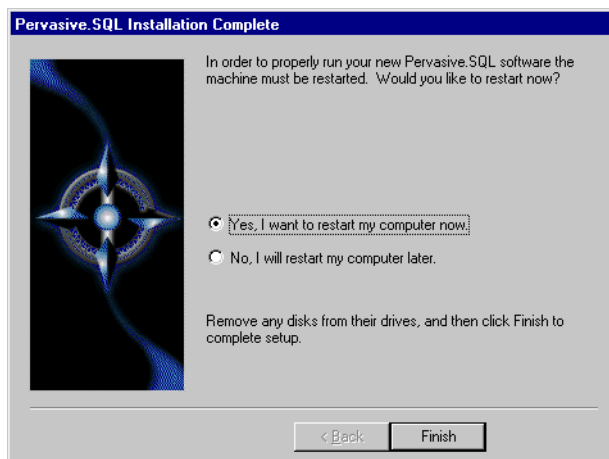
It is highly recommended that you click Yes and view the Readme file, if you have not yet done so.

Once you have selected to view the readme file, it is automatically displayed using your current browser or text editor application.

- 7 Your Pervasive.SQL 2000i server patch is complete.

The following dialog box informs you that the installation is complete.

Figure 8-8 Installation Complete Dialog Box



You should always leave the **Yes, I want to restart my computer now** check box selected.

Click **Finish**.



Note If you have any trouble with the installation, see Chapter 21, “Troubleshooting After Installation.”

If installed files could not be copied because they were locked in memory, a reboot may be necessary at this point.

The installation program modifies the PATH, and CLASSPATH environment variables at the end of the installation process. These settings control how your Windows operating system finds Pervasive components. These environment variables are stored in the Control Panel under the Environment tab on the System icon. In Windows 2000, this option is under the Advanced tab of the System icon in the Control Panel.

How to Run Standard Installation Instead of Patching

You may want to perform a regular upgrade installation, as opposed to the patch installation, if any of the following are true:

- You already installed Pervasive.SQL 2000i but wish to reinstall it.
- You want to specify a different installation directory than the one used by your current Pervasive.SQL components.
- You want to be aware of which Pervasive.SQL 2000 components Pervasive System Analyzer is archiving, or you want to archive other versions of Pervasive software during the installation process.
- Your existing Pervasive.SQL 2000 installation did not contain features that you now need, such as Networked client support.

If any of these items apply to you, follow this uninstall procedure for your existing Pervasive.SQL 2000 components before proceeding with the Pervasive.SQL 2000i installation:

► To uninstall existing Pervasive.SQL 2000 components:

- 1 Stop your existing Pervasive.SQL 2000 engines if they are running.
- 2 Click **Start | Settings | Control Panel**

- 3** Click **Add/Remove Programs**
- 4** Find the entry for your Pervasive.SQL 2000 product (one of the following)
 - Pervasive.SQL 2000 NetWare Server
 - Pervasive.SQL 2000 Workgroup
 - Pervasive.SQL 2000 Workstation
- 5** Click **Add/Remove** to remove the installation. You may be prompted to restart your system if any files were in use.
- 6** You can now install following the procedure in “Installing the Pervasive.SQL 2000i Server Components” on page 8-15.

Installing the Pervasive.SQL 2000i Server Components

You cannot install the NetWare server from the local console. You must install the Pervasive.SQL 2000 for NetWare server remotely from a Windows client machine.

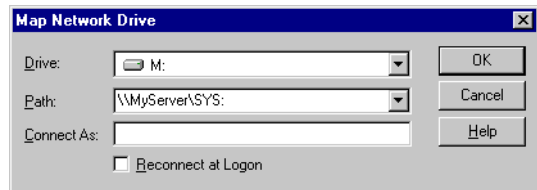
► **To install Pervasive.SQL 2000i on a NetWare server:**

- 1 Map a drive letter to the remote server.
 - a. Double-click **My Computer**. If the toolbar is not visible, click **View** and select **Toolbar**. Click the **Map Network Drive** button.



- b. Map a drive letter to the SYS: volume on the remote server as shown in the **Map Network Drive** dialog box.

Figure 8-9 Mapping a Drive

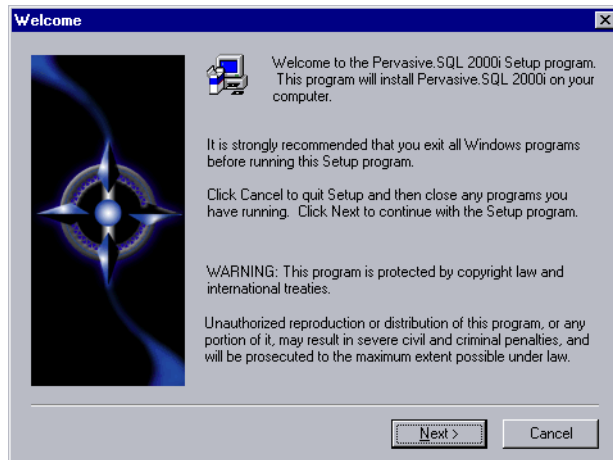


- 2 Launch the installation program from a client workstation.
 - a. Insert the Pervasive.SQL 2000i Server for NetWare CD in the CD-ROM drive of your client machine.
 - b. If the installation does not start automatically, click **Start**, select **Run**, and type `drive:setup` where drive is the drive letter of your CD-ROM device. The following dialog box displays:



Note Please see “Installation Tips” on page 8-4 regarding the Pervasive.SQL 2000i Setup Reboot Required dialog box.

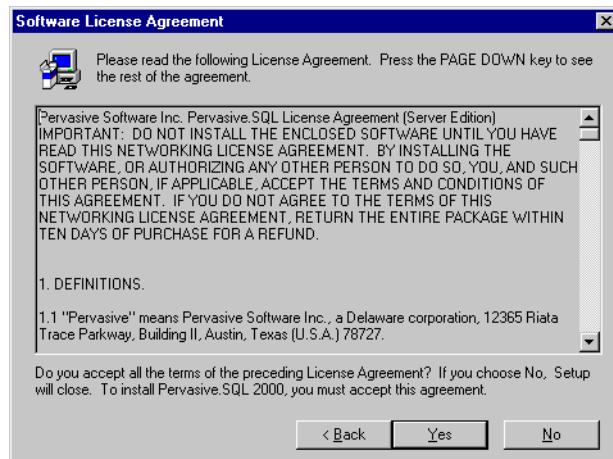
Figure 8-10 Pervasive.SQL 2000i Installation Welcome



Click Next to proceed with the installation.

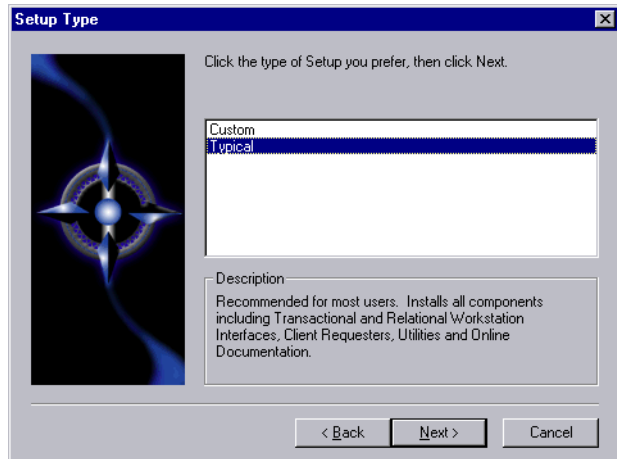
- 3 Accept the Pervasive.SQL License agreement by clicking Yes.

Figure 8-11 Accepting the License Agreement



- 4 Select whether you want to do a typical or custom installation.

Figure 8-12 Setup Type



The typical installation, which is recommended for most users, takes default actions for most operations performed during the installation. The custom installation lets you choose the components you want to install and specify the program name.

The typical NetWare server installation installs the following components:

- Pervasive.SQL 2000i Engine (including ODBC interface)
- Client installation copies
- Online documentation

During a custom NetWare server installation, the following components are optional:

- Online documentation
- Network client support
- Client installation programs for DOS and Windows

Click **Next** to proceed with the installation.

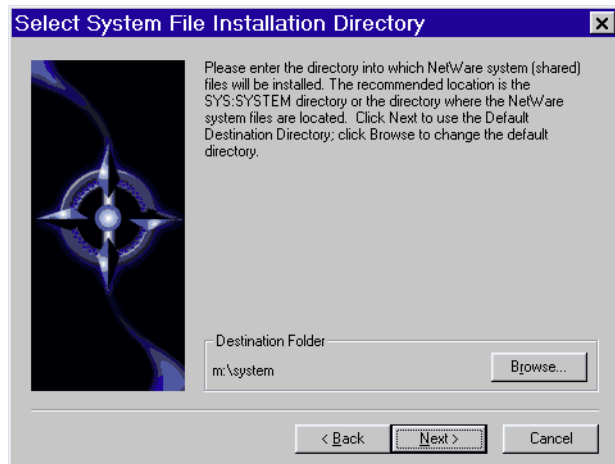
- 5 Select your system components installation directory.

Select the system volume on which to install the Pervasive.SQL 2000i server components.

The NetWare server engine is copied by default to SYS:\SYSTEM. You can specify a different location for the server software. In this example dialog, the SYS: volume is mapped to drive letter M.

If you install to a different directory, ensure that the directory is included in the server's SEARCH path. Refer to your NetWare documentation for more information about the SEARCH command.

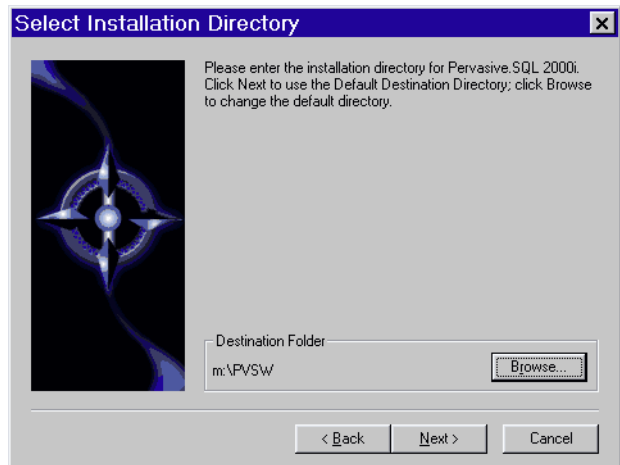
Figure 8-13 Select System File Installation Directory Dialog Box



6 Select non-system components installation directory.

The online documentation and client installations are copied by default to SYS:\PVSW. You can select a different location for the non-system software. In this example dialog, the SYS: volume is mapped to drive letter M.

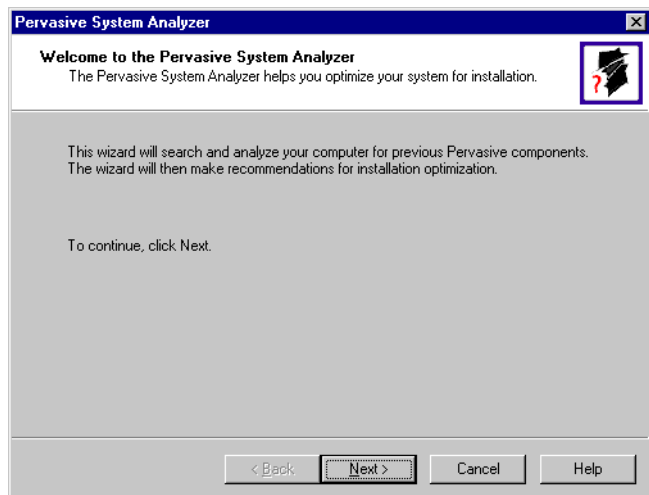
Figure 8-14 Select Installation Directory Dialog Box



- 7 Allow Pervasive System Analyzer to check for older Pervasive components on your NetWare server.

Next the Pervasive System Analyzer (PSA) launches. PSA scans your system for previous versions of Pervasive Software products.

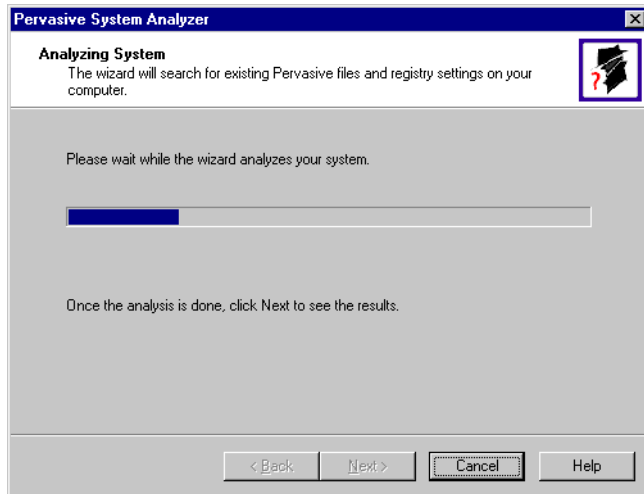
Figure 8-15 Pervasive System Analyzer Welcome Screen



8 Analyze your system.

Click **Next** to continue with the installation and begin system analysis. As PSA analyzes your system the following dialog box displays.

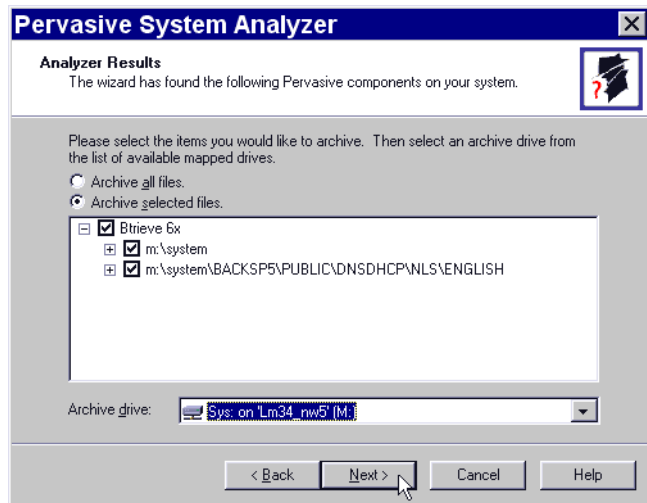
Figure 8-16 System Analysis Using PSA



The progress bar completes as PSA analyzes your system. When PSA has completed the initial system analysis, click the **Next** button to continue and see the results.

The following dialog shows what might display if you had older Btrieve 6 files present on the NetWare server when you installed. Pervasive suggests that you allow PSA to archive those files so that the installation of Pervasive.SQL 2000i can proceed without conflict. If need be, you can restore these archived files later using PSA.

Figure 8-17 Pervasive System Analyzer Results

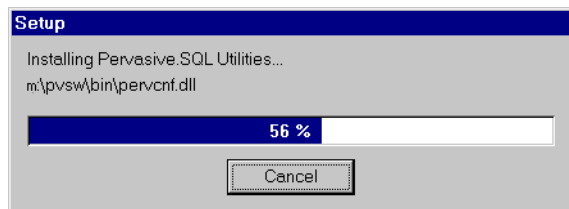


Click **Next** to display your current installation settings. Click **Next** again to start file copying.

- 9 Files are copied to your local workstation and to the NetWare server.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

Figure 8-18 Setup Begins Copying Files

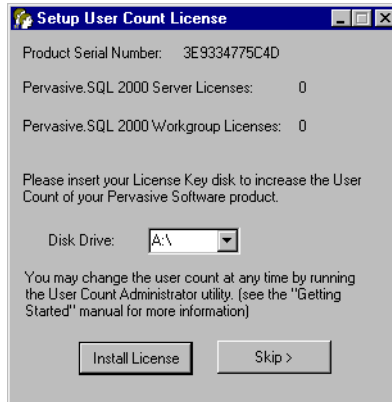


Note Only click **Cancel** if you want to stop installation and exit the Setup process.

10 Apply your user count key.

Once all the files are copied to your hard drive, the installation presents a dialog box allowing you to insert a Pervasive.SQL 2000i license key floppy into your machine and have it applied to the server. This will allow a certain number of remote clients to connect to your server and access data files.

Figure 8-19 Setup User Count License Dialog Box



Insert your license key disk into drive A: and click **Install License**. Your Pervasive.SQL 2000 server is set to the number of users specified in the license key.

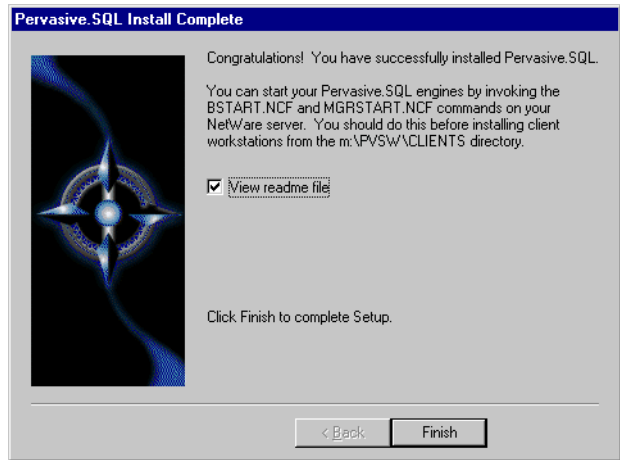


Note If you do not yet have a license key or it is not with you at the moment, you can still continue with the installation. Click **Skip** at the **Setup User Count License** dialog box and run the **User Count Administrator** utility at a later time to install a user count license key. Please wait until the installation is complete.

11 Your Pervasive.SQL 2000i server installation is complete.

A dialog box will appear asking if you want to read the README.TXT file. It is highly recommended that you leave the **View readme file** check box selected and click **OK**. The following dialog box informs you that the installation is complete.

Figure 8-20 Installation Complete Dialog Box



Click **Finish**.

In order to start Pervasive.SQL 2000i on your NetWare machine you must run the **BSTART** and **MGRSTART** scripts on the NetWare server console.



Note If you had any trouble with the installation, see Chapter 21, "Troubleshooting After Installation."

Due to NetWare OS-level dependencies on BTRIEVE.NLM, you must restart the NetWare server to load the new version of BTRIEVE.NLM.

Common Questions After Installing Pervasive.SQL 2000i



Note This section contains information that you should read after running the installation program. If you are having problems with your installation, go to Chapter 21, “Troubleshooting After Installation” or get help online from our Knowledge Base website at <http://support.pervasive.com/kb>.

How Do I Use NetWare Directory Services (NDS) with Pervasive.SQL 2000i?

For information on Pervasive.SQL 2000 support of NDS, see the topic “NetWare Directory Services (NDS) Formats” on page 17-7.

More documentation on how NDS relates to Pervasive.SQL 2000 is available in the Knowledge Base of Pervasive’s Home Page (<http://support.pervasive.com/kb>). Search using the keyword “NDS” on the Support section of the site.

How Do I Read the Online Documentation?

Pervasive.SQL 2000i documentation for Win32 platforms is in either Microsoft HTML Help or Microsoft Windows Help, depending on the version of Internet Explorer on your system (the Pervasive.SQL 2000i install program determines this for you and installs the correct set for your system). To read the documentation, select **Start | Programs | Pervasive | Pervasive.SQL 2000i | Documentation | Pervasive.SQL 2000i Documentation** from the Windows **Start** menu.

Documentation for Win16 platforms is in the form of Acrobat files. Shortcuts to these files are found in the **Pervasive.SQL** documentation file group. The installation program for an Acrobat reader is available on the Pervasive.SQL 2000i (Server Edition) CD-ROM.

There is also a README file on the distribution media that has the latest changes and additions to Pervasive.SQL 2000i.

What Files Are Installed as Part of Pervasive.SQL 2000i?

Once installed, the Pervasive.SQL 2000 files reside in the following directory structure. This structure is located on the SYS volume.

\SYSTEM	NLMs and all other system files
\PVSW	
\CLIENTS	Pervasive.SQL 2000 client setup programs
\WIN	Pervasive.SQL 2000 Windows client installation program. Valid for Windows 3.x, 9x, NT, and 2000.
\DOS	DOS Pervasive.SQL 2000 Requester files. These files must be manually copied to a DOS client.
\DEMODATA	Contains a sample SQL database.
\DOC	User documentation
\SAMPLES	Contains the sample data file SAMPLE.BTR.
\ODBC	ODBC NLMs

Network Settings for Server Engine on NetWare

How to Configure Network Settings for a NetWare-based Pervasive.SQL Server

This chapter explains the default network settings for your database server engine and how to customize these setting if your network requires changes to the default values.

The chapter contains the following sections:

- “Determining What Kind of Network You Have” on page 9-2
- “Default Settings” on page 9-3
- “Setting Up TCP/IP Support” on page 9-5
- “Setting Up SPX Support” on page 9-7
- “Disabling Certain Protocols” on page 9-9

Determining What Kind of Network You Have

This section explains how to determine the network protocol that you should use with the database engine. If you already know what protocol or protocols are supported on your network, you can skip this section.

Server Engine on NetWare

If you have a NetWare network, you must determine whether it is running SPX, TCP/IP, or both. You can find out whether TCP/IP is supported by checking to see if TCPIP.NLM is loaded on the server.

Mixed NetWare and Microsoft Network

It is possible to run Btrieve applications over SPX on Microsoft networks, but ODBC applications over SPX require a NetWare server for name resolution. If you do not have a NetWare server on your network, you may not use SPX for ODBC applications.

Default Settings

When using Pervasive.SQL on a NetWare server, you can use either TCP/IP or IPX/SPX protocols.

When both network protocols are available, however, Pervasive.SQL clients will first attempt to use TCP/IP.

If you wish to use only IPX/SPX, you can disable TCP/IP using the Configuration utility as documented in “Disabling Certain Protocols” on page 9-9.

This section explains what server Configuration settings are related to networking support, and what the default values mean.

You can change these settings within PCC by double-clicking **Configuration** for the given database engine, then double-clicking **Server**, then **Communication Protocols**.

AutoReconnect Timeout

Default: 180 seconds

If Pervasive AutoReconnect is enabled, this setting specifies how long the engine and client attempt to contact each other after a network interruption has occurred. By default, the client and server attempt to connect for three minutes before giving up. If the value of **Enable AutoReconnect** is **Off**, then the **AutoReconnect Timeout** value is ignored.

Enable AutoReconnect

Default: Off

This setting determines whether the client and server attempt to reconnect to each other in the event of a network outage. If set to **On**, it allows the database connections to recover from intermittent or temporary network interruptions. If this value of this setting is **Off**, then the client returns a status code to the application immediately upon any failure to connect to the server, and the connection context is not preserved.

If you have this setting turned **On**, you can specify how long the client and database engine should attempt to reconnect by using the setting **AutoReconnect Timeout**.

Listen IP Address

Default: 0.0.0.0

This setting specifies the IP address of the network interface card that the MicroKernel should listen on when the server computer has two network cards installed. This value is ignored if the server computer has only one network card, or if the value of **TCP/IP Multihomed** is **On**. This value is also ignored if TCP/IP is not in use by the database engine.

Supported Protocols

Default: SPX, TCP/IP

This setting specifies the vendor protocols that the database engine should attempt to use. When more than one protocol is specified, upon start up, the engine attempts to connect on all specified protocols. The protocol that connects first is then used for the remainder of the session.

You can often improve initial connection performance by removing the protocols that are not used on your network. For example, if you have a Server engine on an all-TCP/IP network, removing NetBIOS and SPX support may reduce the wait time during initial connections to the engine.

TCP/IP Multihomed

Default: Off (Server); On (Workgroup)

If your server computer has two network interface cards installed, you can use this setting to specify whether the server engine should listen on both network connections. If your computer has two network cards and this setting is turned off, you must use the setting **Listen IP Address** to specify which network card the server engine should use.

Setting Up TCP/IP Support

By default, TCP/IP is supported between Pervasive.SQL clients and remote engines. If you have modified the default settings or need to verify that TCP/IP support is available, refer to this section.



Note In order to perform any of the tasks in this section, you must have administrative rights on the NetWare server, or be a member of the Pervasive_Admin group defined on the server.

► Enabling TCP/IP Support

Follow this procedure to ensure that the database engine can communicate with clients over TCP/IP networks.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target engine. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication Protocols**. In the window to the right, double-click on **Supported Protocols**.
- 4 A smaller dialog box appears, showing a list of **Available** protocols and a list of **Selected** protocols. If the list of Selected protocols includes the value **Microsoft TCP/IP**, then TCP/IP is already supported.

If the list of Selected protocols does not include **Microsoft TCP/IP**, then you should click on this value in the left-hand window, and then click the > button to move it into the list of Selected protocols. Once the value appears in the right-hand window, click **OK**.

- 5 Click  to apply the changes. You must restart the server engine for the changes to take effect.

- 6 Remember that you also need to confirm that your client computers are configured to use TCP/IP, as well. Please refer to Chapter 17, “Client Network Configuration.”

► Enabling Multihomed TCP/IP Support

Follow this procedure when your server machine has two network cards installed. By default, Pervasive.SQL assumes that you only have one network card installed.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target engine. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication Protocols**. In the window to the right, double-click on **TCP/IP Multihomed**.
- 4 If you want the server engine to listen for client connections on both network cards, change the value to **On**. If you want the server engine to listen on only one card, change the value to **Off**. Click **OK**. If you only have one network card, this setting is ignored.
- 5 If your server computer has two network cards, and you set the value of **TCP/IP Multihomed** to **Off**, you must double-click the setting **Listen IP Address** and specify the TCP/IP address of the card you want the server engine to listen to. If you do not specify an IP address, the server engine will not receive communications from either network card.
- 6 Click  to apply the changes. You must restart the server engine for the changes to take effect. You do not need to make any changes to client settings.

Setting Up SPX Support

By default, SPX is supported between Pervasive.SQL clients and servers. If you have modified the default settings or need to verify that SPX support is available, refer to this section.

Your network's SPX Frame Type setting does not have any effect on Pervasive.SQL.



Note In order to perform any of the tasks in this section, you must have administrative rights on the NetWare server, or be a member of the Pervasive_Admin group defined on the server.

► Enabling SPX Support

Follow this procedure to ensure that the server engine can communicate with clients over SPX networks.



Note Prior to loading Pervasive.SQL, SPXS.NLM must be loaded.

- 1** From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2** In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the server engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3** Double-click on the icon representing your target server. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication Protocols**. In the window to the right, double-click on **Supported Protocols**.
- 4** A smaller dialog box appears, showing a list of **Available** protocols and a list of **Selected** protocols. If the list of Selected protocols includes the value **Microsoft SPX II** or **Novell SPX II**, then SPX is already supported.

If the list of Selected protocols does not include one of the above values, then you should click on this value in the left-hand window, and then click the > button to move it into the list of Selected protocols. Once the value appears in the right-hand window, click **OK**.

- 5 Click  to apply the changes. You must restart the server engine for the changes to take effect.
- 6 Remember that you also need to confirm that your client computers are configured to use SPX, as well. Please refer to Chapter 17, “Client Network Configuration.”

Disabling Certain Protocols

It may be possible to improve performance on the initial connection to the database by disabling database communications support for any protocols that are not available on your network or that you do not wish to use.



Note In order to perform any of the tasks in this section, you must have administrative rights on the computer where the database engine is installed, or be a member of the Pervasive_Admin group defined on that computer.

► To Remove Support for a Specific Network Protocol



Note This procedure does not affect your operating system configuration in any way. This procedure only prevents the database communications system from attempting communications on unavailable or undesired protocols.

- 1 From the **Start** menu, choose **Programs | Pervasive | Pervasive Control Center (PCC)**.
- 2 In the PCC window, double-click on **Pervasive.SQL 2000i Engines** to display a list of the engines registered with PCC.

If the server engine you want to configure is not listed, right-click on **Pervasive.SQL 2000i Engines** and choose **Register New Engine**.
- 3 Double-click on the icon representing your target server. Double-click **Configuration**. Login if prompted. Double-click **Server**. Click on **Communication protocols**. In the window to the right, double-click on **Supported protocols**.
- 4 A dialog box appears, showing a list of **Available** protocols and a list of **Selected** protocols. If the list of **Selected** protocols includes a value that is not supported on your network or that you do not wish to use, click on the value and then click the < button to move it into the list of **Available** protocols. Repeat for any other protocols you do not wish to use. You must leave at least one protocol in the **Selected** protocols list.

Once the given value(s) appear in the left-hand list, click **OK**.

- 5** Click  to apply the changes. You must restart the server engine for the changes to take effect.
- 6** Remember that you also need to confirm that your client computers are configured to use the protocol remaining in the **Selected protocols** list. Please refer to Chapter 17, “Client Network Configuration.”

Application Configuration on NetWare

chapter

10

Issues for Configuring Applications on the NetWare Platform

The chapter contains the following sections:

- “Local Applications on NetWare Servers” on page 10-2
- “NSS Volume Support” on page 10-3

Local Applications on NetWare Servers

- You can run NLM-based local NetWare applications in NetWare 3.2, 4.10, 4.11, 5.0, and 5.1.
- The NLM environment does not recognize drive letters or environment variables. Thus, for commands that require a filename, the name must include the full pathname, such as SYS:\NWSQL\DEMODATA\PATIENTS.DTA. If you do not specify a volume, the utility assumes SYS: is the volume.

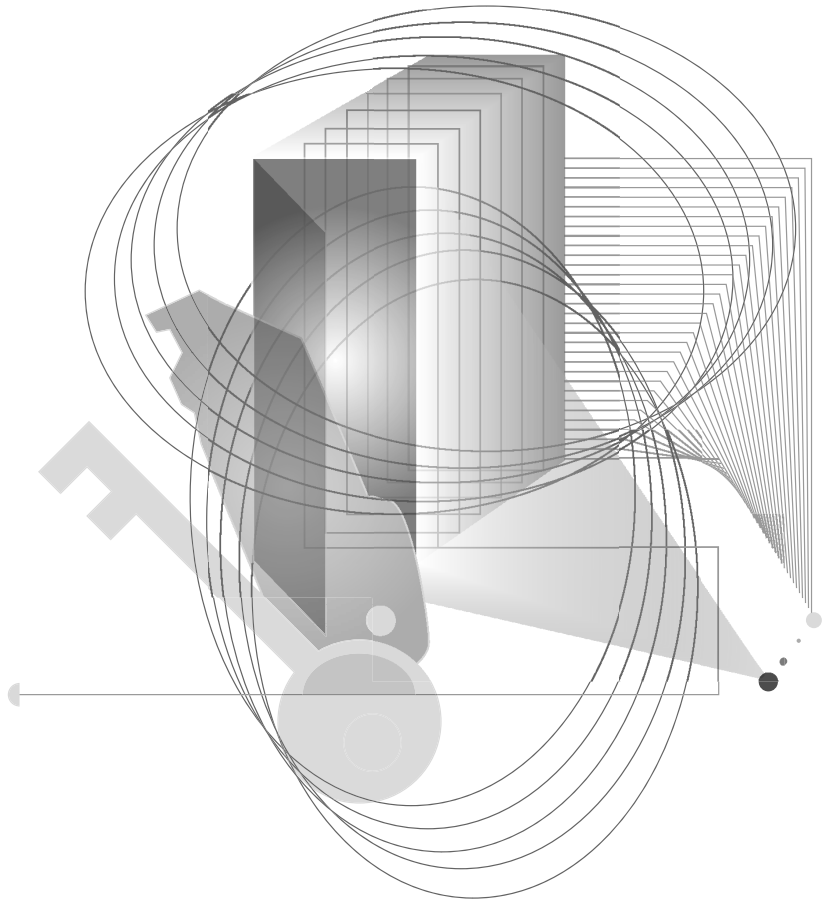
NSS Volume Support

Pervasive.SQL supports NetWare Storage Services (NSS) volumes on NetWare 5 and up, provided that you load the NSS volumes prior to starting the database engine. For example, you should issue the BSTART or MGRSTART command only after loading the NSS volumes as shown here:

```
LOAD NSS  
MOUNT ALL  
SYS:ETC\INITSYS.NCF  
MGRSTART or BSTART
```

Also, please note that database updates performed against data files on NSS volumes may run more slowly than with earlier versions of NetWare. As noted in Novell TID 2952147 (<http://www.novell.com>), “NSS is optimized for reading files.” Updates “will almost always perform a little faster on the legacy file system.”

Based on this information, you may wish to store frequently-updated data files on regular NetWare volumes rather than NSS volumes.



INSTALLING AND CONFIGURING SERVER ENGINE ON LINUX OR SOLARIS

First-time Installation on Linux or Solaris

Instructions for First-time Linux or Solaris Server Installation

This chapter contains procedures for installing and running Pervasive.SQL 2000i. The chapter contains the following sections:

- “Before You Begin” on page 11-2
- “Installing the Pervasive.SQL 2000i Server Components” on page 11-3
- “Configuring Pervasive.SQL 2000i for UNIX” on page 11-6
- “Common Questions After Installing Pervasive.SQL 2000i” on page 11-7

Before You Begin

This section contains information you need to be familiar with to successfully install Pervasive.SQL 2000i.

Before installing Pervasive.SQL 2000i, begin by reviewing the following documents for important information:

- *Chapter 2, “Preparing to Install Pervasive.SQL 2000i”* - This chapter provides important information including system requirements and platform specific notes that are relevant to your operation.
- *“What’s New in Pervasive.SQL 2000i”* - This document is included in your product package and contains information regarding the latest features and improvements in this release.
- *README.TXT file* - This file is located on the distribution media and contains late-breaking product news that could not be included in the product documentation.

Samba Package Installation

If you are planning to access the Pervasive.SQL 2000i Btrieve interface across a network from a Windows-based client, we recommend that the Samba package be installed on the server. Please refer to the Samba website, <http://www.samba.org>, for installation and configuration instructions.

After installing Pervasive.SQL 2000i you will want to look at “Supported Path Formats” on page 13-5 for information regarding Samba’s path configuration.

This release was tested with Samba versions 2.0.3 and 2.0.5.

Platform Notes for UNIX

This document provides information for users of Pervasive.SQL 2000i. If you have any trouble with the following installation, see Chapter 21, “Troubleshooting After Installation.”

Installing the Pervasive.SQL 2000i Server Components

The Pervasive.SQL installation package is available in several versions:

- Pervasive.SQL-server-2000-Solaris.sparc.tar.Z – sparc Solaris version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-RedHat52.i386.rpm – RedHat 5.2, Linux version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-RedHat60.i386.rpm – RedHat 6.0, 6.1, 6.2 Linux version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-SuSE61.i386.rpm – SuSE 6.1, 6.2, Linux version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-Caldera22.i386.rpm – Caldera 2.2, 2.3, Linux version



Note To install these packages, you must be logged in as root. If you are installing from the CD, you must be at the CD root directory.

Solaris Install Procedure

► To install Pervasive.SQL 2000i (Server Edition) on a Solaris machine:

To unpack, type the following at the command line:

```
zcat Pervasive.SQL-server-2000-Solaris.sparc.tar.Z |  
tar xf -
```

To run package manager, get into an unused directory and type the following at the command line:

```
pkgadd -d .
```



Note If you had any trouble with installation, see Chapter 21, “Troubleshooting After Installation.”

Linux Install Procedure

➤ **To install Pervasive.SQL 2000i (Server Edition) on a Linux machine:**

For Red Hat 5.2 install, run RPM as follows:



Note The build number, shown in bold typeface in the following instructions, indicate the Pervasive build number of the package.

```
rpm -ivh Pervasive.SQL-server-2000.SP3.2xx.xxx-  
RedHat52.i386.rpm
```

For Red Hat 6.0/6.1/6.2 install, run RPM as follows:

```
rpm -ivh Pervasive.SQL-server-2000.SP3.2xx.xxx-  
RedHat60.i386.rpm
```

For SuSE 6.1/6.2 install, run RPM as follows:

```
rpm -ivh Pervasive.SQL-server-2000.SP3.2xx.xxx-  
SuSE61.i386.rpm
```

For Caldera 2.2/2.3 install, run RPM as follows:

```
rpm -ivh Pervasive.SQL-server-2000.SP3.2xx.xxx-  
Caldera22.i386.rpm
```



Note If you had any trouble with installation, see Chapter 21, “Troubleshooting After Installation.”

Installation Information

For all installations, the package manager copies all necessary files onto disk (default location is `/usr/local/psql` for Linux, and `opt/PVSWpsql` for Solaris) and runs a post-installation script which performs the following tasks:

- Creates user `psql` and group `pvs`
- Sets user:group ownership to `psql:pvs` for the installed files
- Stops Pervasive.SQL daemons if they are running
- Removes any existing license and applies 20 user, 30 day limited license

- Launches both Pervasive.SQL daemons – `mkded` and `sqlmgr`
- Creates a new ODBC DSN (data source name) for the DEMODATA test database
- Creates a new Samba share `PSQLDATA` if Samba configuration file is found
- Creates startup/shutdown scripts for Pervasive.SQL daemons

After the installation script is finished, you should verify that both engines (`mkded` – transactional, `sqlmgr` – relational) are running with the UNIX `ps` utility:

Type the following at the command prompt:

```
ps -e | egrep 'mkded|sqlmgr'
```

On Linux, you can verify that the RPM packager installed the Pervasive.SQL package by issuing the following at the command prompt:

```
rpm -q 'Pervasive.SQL-server'
```

User Count License

It is highly recommended that you go through the README.TXT file to find out the latest information on updating your user count information.

Once you have completed installation, you may need to update your user count license by using the `ucutil` utility. It can be done anytime before using Pervasive.SQL from a client. Information about how to do this can be found in “Updating Your User Count From a UNIX Command Line” on page 18-10. Detailed information about `ucutil` can also be found in the man pages and in the documentation for “ucutil” located in the “Unix Supplementary Documentation” section of *Pervasive.SQL User’s Guide*.



Note You must be logged in as root to run the `ucutil` utility. Otherwise, you will receive a status code indicating that the user count file could not be opened.

Accessing README file information

It is highly recommended that you go through the README.TXT file to find out the latest changes and additions to Pervasive.SQL 2000i.

Configuring Pervasive.SQL 2000i for UNIX

See the following chapters for configuration information for UNIX platforms:

- Chapter 13, “Network Settings for Linux and Solaris”
- Chapter 14, “Application Configuration on Linux and Solaris”

Common Questions After Installing Pervasive.SQL 2000i

This section contains information that you should read after running the installation program. If you are having problems with your installation, go to Chapter 21, “Troubleshooting After Installation” or get help online from our Knowledge Base website at <http://support.pervasive.com/eSupport>.

How Do I Read the Online Documentation?

Man pages are provided for the executable files. To make these man pages available, add `$PVSW_ROOT/man` to your `MANPATH` environment variable.

Online documents in HTML format are available in the following directory:

Linux

```
/usr/local/psql/docs/html
```

Solaris

```
/opt/PVSWpsql/docs/html
```

There is also a README.TXT file on the distribution media that has the latest changes and additions to Pervasive.SQL 2000i.

What Files Were Installed as Part of Pervasive.SQL 2000i?

For a given OS platform, installing Pervasive.SQL 2000i places the directories and files specified below on your system. `$PVSW_ROOT` refers to the root directory where Pervasive.SQL files are installed. By default it is set to the following:

Linux - Default \$PVSW_ROOT

```
/usr/local/psql
```

Solaris - Default \$PVSW_ROOT

```
/opt/PVSWpsql
```

Path from \$PVSW_ROOT	File	Description
./	README	General info and release notes
./bin		
	btadmin	Add Pervasive user and passwords
	butil	Btrieve maintenance utility
	dbmaint	Database maintenance utility
	dsnadd	Add DSN utility
	mkded	Btrieve database server daemon
	odbcci.so	ODBC driver shared object
	odbctest	ODBC client utility
	sqlmgr	Pervasive.SQL connection manager
	ucinit	User count initialization utility
	ucmgr.so	User count manager shared library
	ucutil	User count manager utility
./data/demodata		Sample University database
	billing.mkd	Billing table
	class.mkd	Class table
	course.mkd	Course table
	dept.mkd	Department table
	enrolls.mkd	Enrolls table
	faculty.mkd	Faculty table
	field.ddf	Field DDF file
	file.ddf	File DDF file
	index.ddf	Index DDF file
	person.mkd	Person table
	room.mkd	Room table

Path from \$PVSW_ROOT	File	Description
	student.mkd	Student table
	tuition.mkd	Tuition table
./data/samples		
	sample.btr	Sample Btrieve file
	upper.alt	Alternate collating sequence
./etc		
	bti.ini	MicroKernel configuration settings: generated automatically on first engine startup.
	btpasswd	User passwords file
	dbnames.cfg	Master table of database names
	odbc.ini	ODBC settings
./include		
	btitypes.h	Cross-platform Btrieve types
	btrapi.h	BTRV() and BTRVID() functions
	btrconst.h	Btrieve constants
	btrport.h	Byte ordering/alignment macros
./lib		
	libsrde.so	Soft link to libsrde.so.1.0
	libsrde.so.1.0	Pervasive.SQL ODBC driver
	libbtrvif.a	Btrieve client requester library
	libbtrvif.so.1.0	Btrieve client requester shared library
	libbtrvif.so	Soft link to libbtrvif.so.1.0
	libiodbc.so.2.0.50	ODBC driver manager shared library
	libiodbc.la	ODBC driver manager library
	libiodbc.so	Soft link to libiodbc.so.2.0.50

Path from \$PVSW_ROOT	File	Description
	libiodbc.so.2	Soft link to libiodbc.so.2.0.50
	ucmgr.so	License management shared library
	ucmgr.so.1	Soft link to ucmgr.so
	ucmgr.so.1.0	Soft link to ucmgr.so
./log		Log files directory
./man/man1		Man pages directory
	btadmin.1	btadmin man page
	butil.1	butil man page
	dbmaint.1	dbmaint man page
	mkded.1	mkded man page
	sqlmgr.1	sqlmgr man page
	ucutil.1	ucutil man page
./samples/config		Configuration sample
	bti.ini	Sample bti.ini configuration file
./samples/controlc		Ctrl-C sample program
	Makefile	
	btitypes.h	
	btrapi.h	
	btrconst.h	
	btrport.h	
	controlc.c	
./samples/reqsamp		Simple MicroKernel client program
	Makefile	
	btitypes.h	
	btrapi.h	

Path from \$PVSW_ROOT	File	Description
	btrconst.h	
	btrport.h	
	reqsamp.c	

Where To Go From Here

The RPM package utility simplifies the installation process. Your Pervasive.SQL 2000i package should be ready to use.

- If you are having difficulties after upgrading, please see Chapter 21, “Troubleshooting After Installation”.
- For information about user counts, see Chapter 18, “Working With User Counts”.

Upgrade Installation Procedure for Linux or Solaris

How to Upgrade an Existing Installation of Pervasive.SQL 2000i on UNIX platforms

This chapter contains procedures for upgrading an existing installation of Pervasive.SQL 2000i on UNIX platforms.

The chapter contains the following sections:

- “Before You Begin” on page 12-2
- “Upgrading the Pervasive.SQL 2000i Server Components” on page 12-3
- “Configuring Pervasive.SQL 2000i for UNIX” on page 12-6
- “Common Questions After Upgrading Pervasive.SQL 2000i” on page 12-7

Before You Begin

This section contains information you need to be familiar with to successfully upgrade Pervasive.SQL 2000i.

Before installing Pervasive.SQL 2000i, begin by reviewing the following documents for important information:

- *Chapter 2, “Preparing to Install Pervasive.SQL 2000i”* - This chapter provides important information including system requirements and platform specific notes that are relevant to your operation.
- *“What’s New in Pervasive.SQL 2000i”* - This document is included in your product package and contains information regarding the latest features and improvements in this release.
- *README file* - This file is located on the distribution media and contains late-breaking product news that could not be included in the product documentation.

Samba Package Installation

If you are planning to access the Pervasive.SQL 2000i Btrieve interface across a network from a Windows-based client, Pervasive recommends that the Samba package be installed on the server. Please refer to the Samba website, <http://www.samba.org>, for installation and configuration instructions.

After installing Pervasive.SQL 2000i you will want to look at “Supported Path Formats” on page 13-5 for information regarding Samba’s path configuration.

This release was tested with Samba versions 2.0.3 and 2.0.5.

Platform Notes for UNIX

This document provides information for users of Pervasive.SQL 2000i. If you have any trouble with the following installation, see Chapter 21, “Troubleshooting After Installation.”

Upgrading the Pervasive.SQL 2000i Server Components

The Pervasive.SQL installation package is available in several versions:

- Pervasive.SQL-server-2000-Solaris.sparc.tar.Z – sparc Solaris version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-RedHat52.i386.rpm – RedHat 5.2, Linux version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-RedHat60.i386.rpm – RedHat 6.0, 6.1, 6.2 Linux version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-SuSE61.i386.rpm – SuSE 6.1, 6.2, Linux version
- Pervasive.SQL-server-2000.servicepack.majorbuild.minorbuild-Caldera22.i386.rpm – Caldera 2.2, 2.3, Linux version



Note To install these packages, you must be logged in as root. If you are installing from the CD, you must be at the CD root directory.

Solaris Upgrade Procedure

► **To upgrade Pervasive.SQL 2000i (Server Edition) on a Solaris machine:**

To unpack, type the following at the command line:

```
zcat Pervasive.SQL-server-2000-Solaris.sparc.tar.Z |
tar xf -
```

To run package manager, get into an unused directory and type the following at the command line:

```
pkgadd -d .
```



Note If you had any trouble with installation, see Chapter 21, “Troubleshooting After Installation.”

Linux Upgrade Procedure ➤ **To upgrade Pervasive.SQL 2000i (Server Edition) on a Linux machine:**

For Red Hat 5.2 install, run RPM as follows:

```
rpm -Uvh Pervasive.SQL-server-2000.SP3.2xx.xxx-RedHat52.i386.rpm
```

For Red Hat 6.0/6.1/6.2 install, run RPM as follows:

```
rpm -Uvh Pervasive.SQL-server-2000.SP3.2xx.xxx-RedHat60.i386.rpm
```

For SuSE 6.1/6.2 install, run RPM as follows:

```
rpm -Uvh Pervasive.SQL-server-2000.SP3.2xx.xxx-SuSE61.i386.rpm
```

For Caldera 2.2/2.3 install, run RPM as follows:

```
rpm -Uvh Pervasive.SQL-server-2000.SP3.2xx.xxx-Caldera22.i386.rpm
```



Note If you had any trouble with installation, see Chapter 21, “Troubleshooting After Installation.”

Installation Information

For all installations, the package manager copies all necessary files onto disk (default location is `/usr/local/psql` for Linux, and `opt/PVSWpsql` for Solaris) and runs a post-installation script which performs the following tasks:

- Creates user `psql` and group `pvs`
- Sets user:group ownership to `psql:pvs` for the installed files
- Stops Pervasive.SQL daemons if they are running
- Removes any existing license and applies 20 user, 30 day limited license
- Launches both Pervasive.SQL daemons – `mkded` and `sqlmgr`
- Creates a new ODBC DSN (data source name) for the DEMODATA test database
- Creates a new Samba share PSQDATA if Samba configuration file is found
- Creates startup/shutdown scripts for Pervasive.SQL daemons

After the installation script is finished, you should verify that both engines (`mkded` – transactional, `sqlmgr` – relational) are running with the UNIX `ps` utility:

Type the following at the command line:

```
ps -e | egrep 'mkded|sqlmgr'
```

On Linux, you can verify that the RPM packager upgraded the Pervasive.SQL package by issuing the following at the command prompt:

```
rpm -q 'Pervasive.SQL-server'
```

User Count License

It is highly recommended that you go through the README.TXT file to find out the latest information on updating your user count information.

Once you have completed installation, you may need to update your user count license by using the `ucutil` utility. It can be done anytime before using Pervasive.SQL from a client. Detailed information about `ucutil` can be found in the man pages and in the documentation for “ucutil”, which is located in *Pervasive.SQL User's Guide*.

Accessing README file information

It is highly recommended that you go through the README.TXT file to find out the latest changes and additions to Pervasive.SQL 2000i.

Configuring Pervasive.SQL 2000i for UNIX

See the following chapters for configuration information for UNIX platforms:

- Chapter 13, “Network Settings for Linux and Solaris”
- Chapter 14, “Application Configuration on Linux and Solaris”

Common Questions After Upgrading Pervasive.SQL 2000i

This section contains information that you should read after running the installation program. If you are having problems with your installation, go to Chapter 21, “Troubleshooting After Installation” or get help online from our Knowledge Base website at <http://support.pervasive.com/eSupport>.

How Do I Read the Online Documentation?

Man pages are provided for the executable files. To make these man pages available, add `$PVSU_ROOT/man` to your `MANPATH` environment variable.

Online documents in HTML format are available in the following directory:

Linux

```
/usr/local/psql/docs/html
```

Solaris

```
/opt/PVSUpsql/docs/html
```

There is also a README.TXT file on the distribution media that has the latest changes and additions to Pervasive.SQL 2000i.

What Files Were Installed as Part of Pervasive.SQL 2000i?

During the upgrade, your existing Pervasive.SQL files were updated to the latest versions. For a list of all files, see “What Files Were Installed as Part of Pervasive.SQL 2000i?” on page 11-7.

Where To Go From Here

The RPM package utility simplifies the upgrade process. Your upgraded Pervasive.SQL 2000i package should be ready to use.

If you are having difficulties after upgrading, please see Chapter 21, “Troubleshooting After Installation”.

Network Settings for Linux and Solaris

How to Configure the Network Settings for your Pervasive.SQL Server on Linux and Solaris

The chapter contains the following sections:

- “Default Settings” on page 13-2
- “Configuring the Solaris and Linux Servers” on page 13-4

Default Settings

This section explains what server Configuration settings are related to networking support, and what the default values mean.

You can change these settings within PCC by double-clicking **Configuration** for the given database engine, then double-clicking **Server**, then **Communication Protocols**.

AutoReconnect Timeout

Default: 180 seconds

If Pervasive AutoReconnect is enabled, this setting specifies how long the engine and client attempt to contact each other after a network interruption has occurred. By default, the client and server attempt to connect for three minutes before giving up. If the value of **Enable AutoReconnect** is **Off**, then the **AutoReconnect Timeout** value is ignored.

Enable AutoReconnect

Default: Off

This setting determines whether the client and server attempt to reconnect to each other in the event of a network outage. If set to **On**, it allows the database connections to recover from intermittent or temporary network interruptions. If this value of this setting is **Off**, then the client returns a status code to the application immediately upon any failure to connect to the server, and the connection context is not preserved.

If you have this setting turned **On**, you can specify how long the client and database engine should attempt to reconnect by using the setting **AutoReconnect Timeout**.

Supported Protocols

Default: SPX, TCP/IP, NetBIOS

This setting specifies the vendor protocols that the database engine should attempt to use. When more than one protocol is specified, upon start up, the engine attempts to connect on all specified protocols. The protocol that connects first is then used for the remainder of the session.

You can often improve initial connection performance by removing the protocols that are not used on your network. For example, if you have a Server engine on an all-TCP/IP network, removing NetBIOS and SPX support may reduce the wait time during initial connections to the engine.



Note Linux and Solaris engines support only TCP/IP.

Configuring the Solaris and Linux Servers

The following sections explain how to get Pervasive.SQL configured on your UNIX server.

Security Configuration

The following sections discuss security issues that need to be addressed before using Pervasive.SQL 2000i.

ODBC/SQL Security

Please refer to Chapter 19, “Connecting Clients to a Pervasive.SQL Database” for specific information on setting up database security for ODBC/SQL applications.

ODBC applications running locally on the server must be run as a user belonging to the same group as that with which the engine was started (the default is `pvsu`). Please refer to the next section, “Btrieve Security”, for additional information.

Btrieve Security

Authentication

There are several ways to authenticate Btrieve users in this product. The `UnixAuthenticate` setting in `bti.ini` is used to set a preferred method. The default value is `WORKGROUP`. Just as with the Workgroup engine, all incoming connections are granted. If additional security is required, set `UnixAuthenticate` to `BTPASSWD` or `PAM`. This allows only authorized users to gain access.

While `BTPASSWD` uses a special user and password database stored in `$PVSU_ROOT/etc/btpasswd`, `PAM` (Pluggable Authentication Modules) employs robust and flexible UNIX authentication which can utilize your custom authentication schemes. To modify `BTPASSWD`, use the `btadmin` utility as described in “Unix Supplementary Documentation” in *Pervasive.SQL User's Guide*. For `PAM`, consult your OS documentation about setting up `PAM`.

If you have a Samba server on the same machine as Pervasive.SQL, another method of authentication is available. See “Samba Authentication” on page 13-9.

File Access Authorization

Once authentication is complete, the engine will work with Btrieve databases on your behalf. The engine is started with the default user ID `pysql`, group ID `pvsu`. This means the engine can only access files that are accessible to either this specific user and group or to everyone. This remains true regardless of the authentication method used to connect to the engine or whether the access is remote or local. It is possible to run engines with other user IDs but is not recommended as it can cause a security breach.



Note It is strongly advised that you not start the engine as root. A warning message will display if you try to do so.

Administrative Right

When working with remote monitor or configuration such as with the Distributed Tuning Interface or Win 32 client utilities, the MDKE checks users and passwords against the `$PVSU_ROOT/etc/btpasswd` file when `UnixAuthenticate` is set to `WORKGROUP` or `BTPASSWD`. A special admin flag should be set for users that are allowed to access the Distributed Tuning Interface remotely (see “btadmin” in the “Unix Supplementary Documentation” section of *Pervasive.SQL User’s Guide*). When `UnixAuthenticate` is set to `PAM`, only members of `pvsu-adm` group are allowed access.

Local Access Security

See Chapter 14, “Application Configuration on Linux and Solaris” for information on this topic.

Supported Path Formats

From Win32 clients, the order of actual parsing is as follows:

- `\\server\share\relative\path`
share denotes a valid Samba share, made accessible to a Windows client.

server reads `smb.conf` (its location is specified by the `SmbConf` setting in `bti.ini`) to determine the absolute path to the shared directory, then combines it with the relative path to get a full UNIX path. The location of `smb.conf` is essential for valid resolution of the file path supplied in this format on the client. If the relative path is not correct, status 12 is returned.

- Drive:\path

drive must be a Samba drive mapped on the client. It is the client responsibility to convert it into the latter format and pass to a server, which never knows a drive mapping on the client.



Note Client users must be advised that share names on a UNIX server are case sensitive. When mapping drives to a UNIX server they must pay careful attention to the case of the share name if they want all their utilities to work properly.

- If neither `smb.conf` nor the share name are found, the path defaults to `\\server\absolute\path` format. If the absolute path is not correct, status 12 is returned.

Server and Client Settings

While these settings can be changed at the server, you can also view and modify them from a Win32 client using the Configuration utility available in the Pervasive Control Center.

Server

Edit `$PVSW_ROOT/etc/bti.ini` to change settings, and do not forget to restart the engine (`/etc/init.d/psql restart`).

- `SmbConf=<path>`

This defines the path to the Samba configuration file (`smb.conf`), which is parsed on engine startup to determine mapping between share names and server directory locations.



Note In order to make changes in `smb.conf` visible to the engine, you must restart the engine.

- `UnixAuthenticate={WORKGROUP | BTPASSWD | PAM}`

This defines the primary method of authentication used by the server. If you want more security on the server and do not want to store RTSS passwords in the registry, Samba authentication should be used. See “Samba Authentication” on page 13-9 for more information.

- ♦ WORKGROUP

This is the default. The workgroup engine is emulated in this mode. All requests for remote connections are granted. This mode can be used with pre-Service Pack 1 clients as well. Samba authentication is not used in this case.

WORKGROUP should be used while running applications on a trusted network segment or if you must use pre-Service Pack 1 Pervasive.SQL 2000 for clients.

- ♦ BTPASSWD

The `btadmin` utility is used to configure user names and passwords. File `$PVSW_ROOT/etc/btpasswd` stores them. User names and passwords should be specified from the client using the RTSS setting.

BTPASSWD should be used if stronger security is needed for the server and you want user names and passwords different from any user authentication scheme employed on the UNIX server.

- ♦ PAM

Standard UNIX authentication is used with PAM. Members of `pvsadm` group can configure and monitor the engine remotely (in addition to root user). User names and passwords should be specified from the client using the RTSS setting.

PAM should be used if you want to use existing user names and passwords on the UNIX server. PAM is also very flexible and there are many custom PAM modules, especially for Linux. Check the PAM home page <http://www.us.kernel.org/pub/linux/libs/pam/> for more information on PAM capabilities.

If `UnixAuthenticate` is set to BTPASSWD or PAM, the engine requires a user name and password be supplied by the client

- To add a user to the btpasswd file run the following command in the directory containing btadmin utility:

```
% btadmin <username>
```
- If this user will require administrator rights (to use remote engine configuration via the Pervasive Control Center), type

```
% btadmin a+ <username>
```

When performing Btrieve operations, if the username or password are incorrect, the MKDE returns Status 94 every time you attempt to create or open database files.

Client RTSS Setting

If you are using BTPASSWD or PAM authentication on your server, user names and passwords must be set up using the Configuration Utility in the Pervasive.SQL 2000i Control Center. It can be found under the NetWare RTSS category, Runtime Server Support setting. It should be set in the format *<user>,<password>*. User names and passwords should be configured the same as on the server, but not necessarily the same as the Windows network user names and passwords.

To change the RTSS:

- 1 Open the Pervasive Control Center
- 2 Run the Configuration utility
- 3 Select Client->Netware RTSS ->Runtime Server Support
- 4 Enter the username and password in the following format:

username, password

When performing Btrieve operations, if the username or password are incorrect, the MKDE returns Status 94 every time you attempt to create or open database files.

This password is stored in the Windows Registry on the client machine. If the client computer is shared by multiple users or needs to have higher security, you may wish to consider Samba Authentication. In this case, set “Runtime Server Support” to No. For further information, see “Samba Authentication” on page 13-9.

Samba Authentication

If you are not emulating the Workgroup engine and the RTSS user name and password are not supplied to the client software, another client authentication method may be used. However, this is only true when there is a Samba server up and running on the computer with Pervasive.SQL 2000i. It is initiated by the client when other ways of authentication are not available.

How does it work?

- The server creates a well-known FIFO share via Samba. FIFO is created in `$PVSW_ROOT/etc/pipe/mkde.pip`. `$PVSW_ROOT/etc/pipe` should be shared by Samba as `PVPIPE$`.



Note The trailing \$ means this share will be hidden. The Pervasive.SQL client components automatically take care of accessing this pipe as `\\<server>\PVPIPE$\mkde.pip` (case-insensitive); you do not need to perform any explicit actions or modify your application to access this pipe. The only exception to this is if you are troubleshooting your Samba or Pervasive.SQL configurations (see section on Troubleshooting below).

- When a client connects to the remote engine and discovers the engine returns UNIX in the version block, it will first look in the registry (RTSS) setting) for authentication information. If the user name and password are not found there, the client connects to the above pipe and receives client authentication information from the server, which will be validated later.
- To be authenticated, you must be able to connect to the share and read the pipe. This is one way of specifying who can use the engine and who cannot. The easiest way to do this is to utilize the Samba “valid users” setting in `smb.conf` (Samba configuration file). If the client is unable to get authentication, status 3106 (The Pervasive Network Services layer encountered a connection failure) will be returned.

How to set up PVPIPE\$ for Samba share

While this should be done by the installation procedure (if Samba is installed on the server), an example of setting up the Pervasive pipe is shown below:

```
#####  
#####  
[PVPIPE$]  
comment = Pervasive pipes  
  
path = /usr/local/psql/etc/pipe <for Linux>  
      path = /P.SQL/Solaris/opt/PVSWpsql/etc/pipe <for Solaris>  
  
force group = pvsw# force group pvsw when accessing pipe  
- will be  
# useful if primary group for this user is not pvsw  
  
valid users = @pvsw# only members of group pvsw will  
have access  
  
oplocks = False# Absolutely necessary - prevents caching  
on the client  
  
#####  
#####
```

To configure access to files shared through Samba, read the Samba documentation.



Note By allowing a client read access to PVPIPE\$, that client is authorized to access the engine remotely.

Troubleshooting

A simple way ensure the client gets proper authentication is to enter `\\<yourserver>\pvpipe$\mkde.pip` at the command prompt. You should see a lot of question marks (unprintable symbols), occasional printables and beeps. If you do not, check your Samba configuration to be sure you have rights to read this pipe. If you do but still get error 94, use the Configuration utility to validate your RTSS setting.

Application Configuration on Linux and Solaris

chapter

14

Issues for Configuring the Linux and Solaris Platforms after Installation

This chapter contains procedures for configuring Pervasive.SQL 2000i on the Linux and Solaris platforms.

The chapter contains the following sections:

- “Local Btrieve Applications on UNIX Servers” on page 14-2
- “Using Perl and ODBC with Pervasive.SQL 2000i for Linux” on page 14-4
- “Pervasive.SQL Account Management on UNIX” on page 14-5

Local Btrieve Applications on UNIX Servers

The product is available for the following operating systems:

- Sun Solaris 2.6, 7
- Red Hat Linux 5.2, 6.0, 6.1, 6.2
- Caldera OpenLinux 2.2, 2.3
- S.u.S.E. Linux 6.1, 6.2

Relational access to Pervasive.SQL 2000i is through ODBC. Applications based on the Scalable SQL APIs are not supported.

Versions of the Btrieve requester library for these operating systems are provided for linking with client applications. The requester library exports the BTRV() and BTRVID() function call symbols, which enable access to all Btrieve operations via the standard Btrieve C Application Program Interface (API). This release also contains Btrieve C API header files to support application development on UNIX.

Applications linked with the UNIX Btrieve requester library contained in this release can only access a local Pervasive.SQL engine. However, you can access the database server engine remotely from Win32 workstations using TCP/IP networking. Also, the Pervasive.SQL 2000i Win32 utilities can be used to access and administer a UNIX engine remotely. These utilities include the Pervasive.SQL Control Center, SQL Data Manager, Monitor, and Configuration.

Btrieve 7.90 requester for UNIX has been tested using the following vendor-supported compilers:

- Sun Solaris 2.6, Sun Solaris 7 –
SunSoft WorkShop Compilers 5.0 98/12/15 C 5.0
- Linux –
egcs-2.90.29 980515 (egcs-1.0.3 release)
gcc 2.7.2.3

***Local Access
Security***

Local Btrieve access is done via shared memory with permission 0660. This allows access to the user and group (`psql:pvsw` by default) with which the engine was started. All users running programs accessing the Btrieve engine locally must be included in the group `pvsw`. Otherwise status 20 (MicroKernel or Btrieve Requester is inactive) will be returned.

Using Perl and ODBC with Pervasive.SQL 2000i for Linux



Note This procedure assumes you have a working installation of Pervasive.SQL 2000i, Perl, and some ODBC distribution. A free version is available at <http://www.iODBC.org>.

► To Get Pervasive.SQL to work with Perl's ODBC Interface:

- 1 Download the DBI (database interface) support for Perl.
Read the README or INSTALL for instructions.
- 2 Download the ODBC DBD database driver for Perl.
Please see the installation instructions in the README or INSTALL file.
- 3 Make sure you have the proper environment variables set, as shown in the following example. Note, this is also explained in the iODBC docs.

Code Snippet for Perl and DBI

```
print "using odbc...\n";
use DBI;
$dbName = "DBI:ODBC:DEMODATA";
$dbUserName = "";
$dbPassword = "";
print "connecting...\n";
$sql = "SELECT * FROM class";
$dbh = DBI->connect($dbName, $dbUserName,
    $dbPassword);
$dataObject = $dbh->prepare($sql);
$dataObject->execute();
while(@row=$dataObject->fetchrow_array)
{
    print "$row[0]\t$row[1]\t$row[2]\n\n"
}
```

Pervasive.SQL Account Management on UNIX

When you install Pervasive.SQL 2000i on a UNIX server,

After Installation Behavior

- You must be logged in as user `psql` to run utilities. User ‘`psql`’ has no password and can only be accessed through the root account.
- All Pervasive files have `user:group` ownership `psql:pvsw`
- You must be logged in as root to run the start and stop scripts for the Pervasive.SQL engines.
- You must be logged in as root to run the User count administrator utility (`ucutil`).
- You can run utilities (except `ucutil`) on other accounts if you add the necessary environment variables to your `.bash_profile` as indicated in “Using Utilities from Accounts Other than PSQL”.

Configuring the User Environment

The single environment variable `$PVSW_ROOT` is used to determine the location of installed components. Generic locations for configuration files are `$PVSW_ROOT/etc.`, for executables `$PVSW_ROOT/bin`, and for shared libraries `$PVSW_ROOT/lib`.

It is recommended that you add `$PVSW_ROOT/bin` to your `PATH` environment variable, and `$PVSW_ROOT/lib` to `LD_LIBRARY_PATH`.

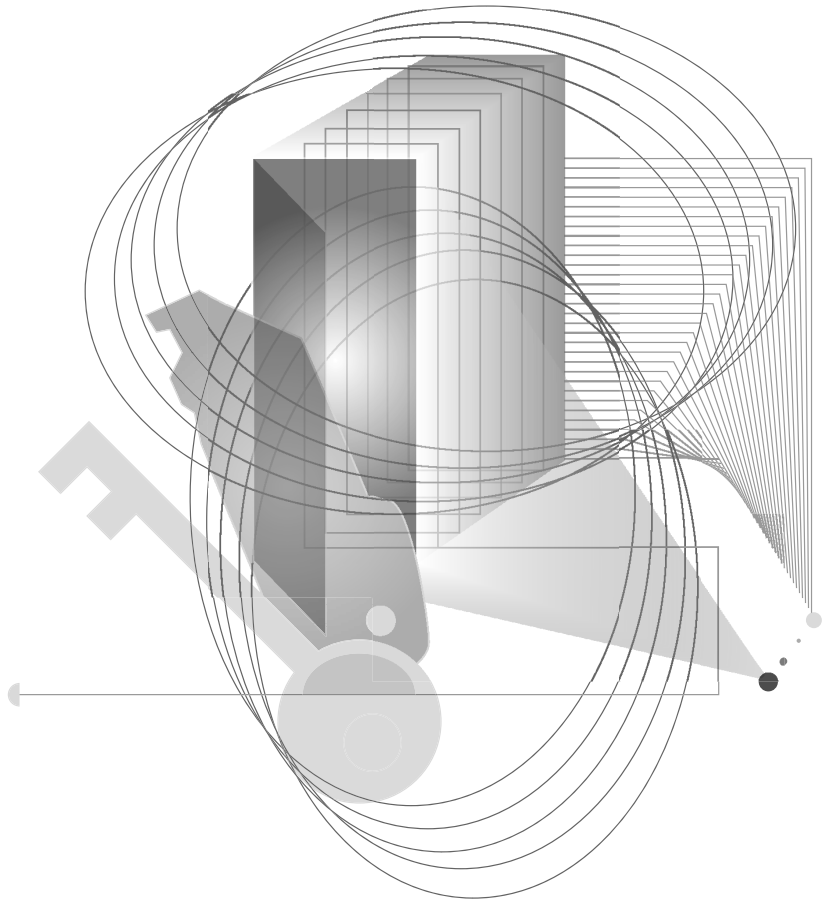
Using Utilities from Accounts Other than PSQL

Open your `.bash_profile`. Make the following adjustments to your profile.

Here is an example of a modified profile:

```
PVSW_ROOT=/usr/local/psql
PATH=$PATH:$PVSW_ROOT/lib:$PVSW_ROOT/bin:/usr/lib
LD_LIBRARY_PATH=$PVSW_ROOT/lib:$PVSW_ROOT/bin:/usr/lib
MANPATH=$MANPATH:$PVSW_ROOT/man
BREQ=$PVSW_ROOT/lib
```

```
export USERNAME BASH_ENV PATH PVSW_ROOT
```

INSTALLING AND CONFIGURING PERVASIVE.SQL CLIENT SOFTWARE

Installing Pervasive.SQL Requesters

How to Install Pervasive.SQL Client Requester Software for Connecting to Servers

To access network files from a workstation using a Pervasive.SQL application, you must use the appropriate requester at that workstation. Your application's Pervasive.SQL calls go through the Requester, which sends them to the server for processing and then returns the reply to your application.

Pervasive.SQL supplies Requester programs for the following environments: Windows NT/2000, Windows 9x, Windows 3.x, and DOS. The Requesters use the TCP, SPX or NetBIOS protocols to communicate with the server MicroKernel, depending on the type of server you have. Ensure that your workstation has the appropriate network protocol suite software installed.



Note Clients using Windows 3.x or DOS operating systems will have only transactional access to the data files. No relational access is available for these platforms.

You do not load or unload the Requester explicitly (except for the DOS requester); the system loads the Requester with the first application call to Pervasive.SQL and unloads the Requester when you exit your application.

This chapter contains the following topics:

- “Before You Begin” on page 15-2
- “Patching an Existing Pervasive.SQL 2000 Client Installation” on page 15-3
- “Installing the Pervasive.SQL 2000i Client Components” on page 15-9
- “Where To Go From Here” on page 15-20

Before You Begin

This section contains information with which you need to be familiar to successfully install Pervasive.SQL 2000i.

Before installing Pervasive.SQL 2000i, begin by reviewing the following documents for important information:

- *Chapter 2, “Preparing to Install Pervasive.SQL 2000i”* - This chapter provides important information including system requirements and platform specific notes that are relevant to your operation.
- *“What’s New in Pervasive.SQL 2000i”* - This document is included in your product package and contains information regarding the latest features and improvements in this release.
- *README.TXT file* - This file is located on the distribution media and contains late-breaking product news that could not be included in the product documentation.

Requester Notes

The Pervasive.SQL Server installation includes an installation for the Win32 and Win16 clients. Follow these steps during the installation process. The steps are discussed in detail in the sections that follow.

- If you are a system administrator or VAR and want to configure a large number of client workstations, read Chapter 16, “Distributing the Pervasive Client” before configuring individual workstations.
- Read about configuration issues in Chapter 17, “Client Network Configuration”.
- To install DOS requesters, see “Installing DOS Requesters” on page 16-8 of Chapter 16, “Distributing the Pervasive Client.”

Patching an Existing Pervasive.SQL 2000 Client Installation

If you have an existing Pervasive.SQL 2000 installation on your machine, the installation program for Pervasive.SQL 2000i behaves differently than on a machine with no Pervasive.SQL 2000 components.

This section details the differences you will see with the patch installation.

- “Situation Where Install Runs in Patch Mode”
- “How Patch Mode Differs from Regular Installation”
- “Patching Procedure” on page 15-4
- “How to Run Standard Installation Instead of Patching” on page 15-7

Situation Where Install Runs in Patch Mode

The Pervasive.SQL 2000i installation enters patch mode if both of the following are true:

- You have existing Pervasive.SQL 2000 components on the installation machine.
- You did not run the uninstall program for your previous Pervasive.SQL 2000 installation.



Note Install can only patch Pervasive.SQL 2000 versions prior to Pervasive.SQL 2000i (SP3). If you need to rerun install at a later date, uninstall Pervasive.SQL 2000i before reinstalling. Install does not support patching a machine that is already running Pervasive.SQL 2000i.

How Patch Mode Differs from Regular Installation

The patch installation differs from a regular installation in these ways:

No Prompting

- The patch install does not prompt you for installation choices such as installation directory, program folders, user count licenses, or component choices.
- Pervasive System Analyzer runs in a silent mode. It automatically archives all your existing components before installing the new Pervasive.SQL 2000i components.

Existing Files and Licenses Updated

After installation:

- Your existing Pervasive.SQL directory contains the updated files.
- Your Windows start menu contains updated links.
- Your existing user licenses are migrated to Pervasive.SQL 2000i.

Older Scalable SQL Components Preserved During Patch

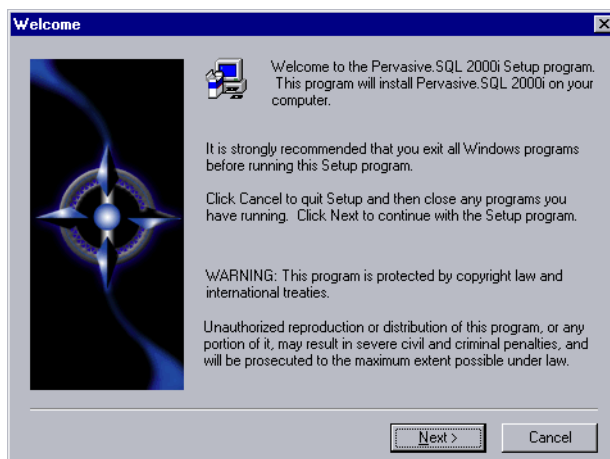
If you have a version of Scalable SQL installed on the same machine as your previous version of Pervasive.SQL 2000, they are not affected by the patch install. The patch installation only replaces and upgrades Pervasive.SQL 2000 components. In this situation, the install behaves as documented in the section “Installing the Pervasive.SQL 2000i Client Components” on page 15-9.

Patching Procedure

Follow these steps to patch your Pervasive.SQL 2000 installation to Pervasive.SQL 2000i:

- 1 Launch the installation program from your Windows machine.
 - a. Insert the Pervasive.SQL for Windows CD in the CD-ROM drive of your Windows client machine.
 - b. If the installation does not start automatically, click **Start**, select **Run**, and type `drive:setup` where *drive* is the drive letter of your CD-ROM device.

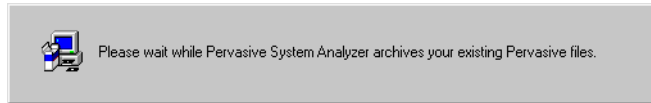
Figure 15-1 Pervasive.SQL Setup Welcome Dialog Box



Click **Next** to proceed with the installation.

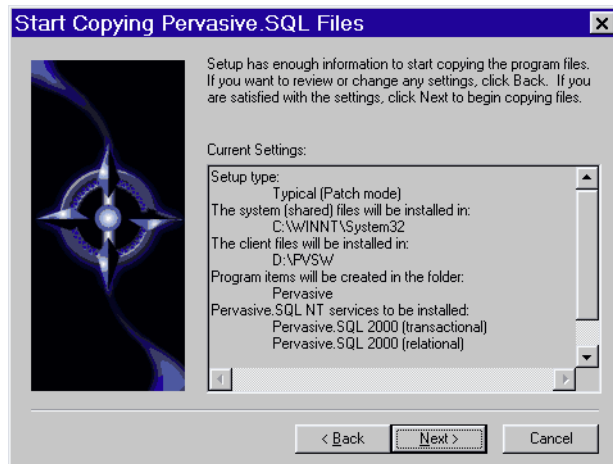
- 2 Pervasive System Analyzer will now archive previous Pervasive.SQL 2000 components. If need be, you can restore these components later using PSA.

Figure 15-2 Pervasive System Analyzer Preparing your System for Patching



- 3 Verify your installation settings.

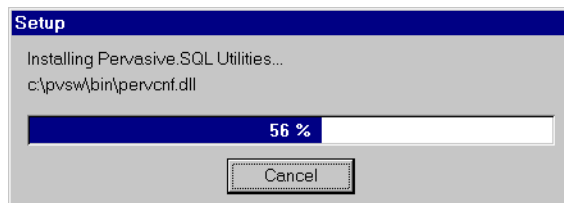
Figure 15-3 Your Selected Patch Installation Settings



If the displayed selections are correct, click **Next** to continue.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

Figure 15-4 Setup Begins Copying Files





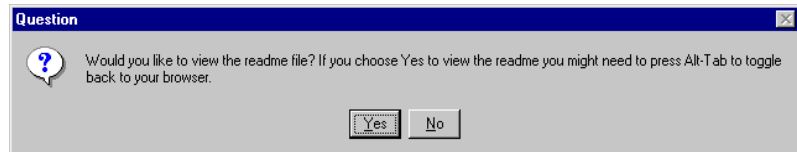
Note Only click **Cancel** if you want to stop installation and exit the Setup process.

- 4 After the files are copied, Install automatically performs the following functions:
 - Configures your client interfaces
 - Configures program icons and start menu
 - Ensures environment variables are set correctly

- 5 Read the README file.

If you did not read the README file prior to installation as described in “Before You Begin” on page 15-2, please do so now.

Figure 15-5 Option to view the Readme file.



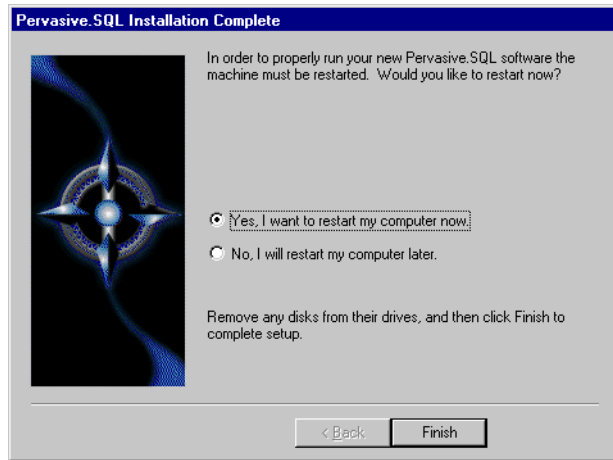
It is highly recommended that you click **Yes** and view the Readme file, if you have not yet done so.

Once you have selected to view the readme file, it is automatically displayed using your current browser or text editor application.

- 6 Your Pervasive.SQL 2000i client patch is complete.

The following dialog box informs you that the installation is complete.

Figure 15-6 Installation Complete Dialog Box



You should always leave the **Yes, I want to restart my computer now** check box selected.

Click **Finish**.



Note If you have any trouble with the installation, see Chapter 21, “Troubleshooting After Installation.”

If installed files could not be copied because they were locked in memory, a reboot may be necessary at this point.

The installation program modifies the PATH, and CLASSPATH environment variables at the end of the installation process. These settings control how your Windows operating system finds Pervasive components. These environment variables are stored in the Control Panel under the Environment tab on the System icon. In Windows 2000, this option is under the Advanced tab of the System icon in the Control Panel.

How to Run Standard Installation Instead of Patching

You may want to perform a regular upgrade installation, as opposed to the patch installation, if any of the following are true:

- You already installed Pervasive.SQL 2000i but wish to reinstall it.
- You want to specify a different installation directory than the one used by your current Pervasive.SQL components.

- You want to be aware of which Pervasive.SQL 2000 components Pervasive System Analyzer is archiving, or you want to archive other versions of Pervasive software during the installation process.
- Your existing Pervasive.SQL 2000 installation did not contain features that you now need.

If any of these items apply to you, follow this uninstall procedure for your existing Pervasive.SQL 2000 components before proceeding with the Pervasive.SQL 2000i installation:

➤ **To uninstall existing Pervasive.SQL 2000 components:**

- 1 Click **Start | Settings | Control Panel**
- 2 Click **Add/Remove Programs**
- 3 Find the entry for your Pervasive.SQL 2000 product (one of the following)
 - Pervasive.SQL 2000 Client
- 4 Click **Add/Remove** to remove the installation. You may be prompted to restart your system if any files were in use.
- 5 You can now install following the procedure in “Installing the Pervasive.SQL 2000i Client Components” on page 15-9.

Installing the Pervasive.SQL 2000i Client Components

► To install Pervasive.SQL 2000i client software on a Windows client:

- 1 Launch the installation program from your Windows client.
 - If installing from CD-ROM: insert the Pervasive.SQL Server CD in the CD-ROM drive of your Windows client machine. If the installation does not start automatically, click **Start**, select **Run**, and enter `drive:setup` where *drive* is the drive letter of your CD-ROM device.
 - If installing from a server: first map the server you will be installing from to a drive letter on the client machine.
 - For clients on UNIX servers:
See the README file for the latest information on installing client components from a server directory.
 - For 32-bit Windows clients on Windows and NetWare servers:
Click **Start**, select **Run** and type
`drive:\pvs\clients\win\setup` where *drive* is the drive letter to which the server is mapped.
 - For 16-bit Windows clients on Windows and NetWare servers:
Double-click the **File Manager** icon in the Main Program Group. Then click on the **Map Network Drive** button.

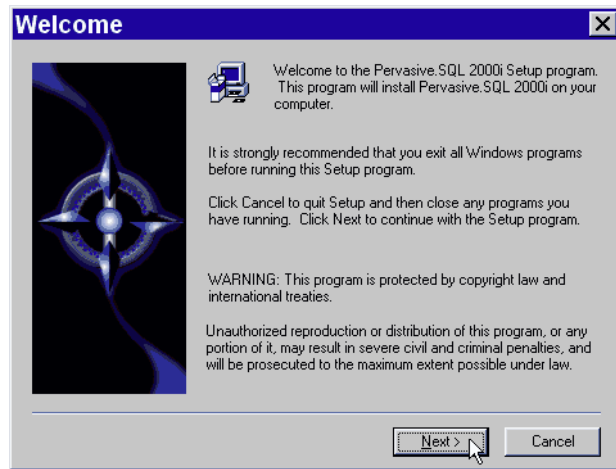


Map a drive letter to `drive:\pvs\clients`, where *drive* is the installation directory of the Pervasive.SQL 2000i server.



Note Clients using Windows 3.x operating systems will have only transactional access to the data files. No relational access is available for these platforms.

Figure 15-7 Pervasive.SQL Welcome Dialog Box



Click Next to proceed with the installation.

- 2 Select whether you want to do a typical, network or custom installation.



Note If installing directly from a Pervasive.SQL server with client support, a third install option, Network, is displayed. This option is not available when installing from CD-ROM or a server that does not include client support.

Figure 15-8 Setup Type Dialog Box – CD-ROM installation

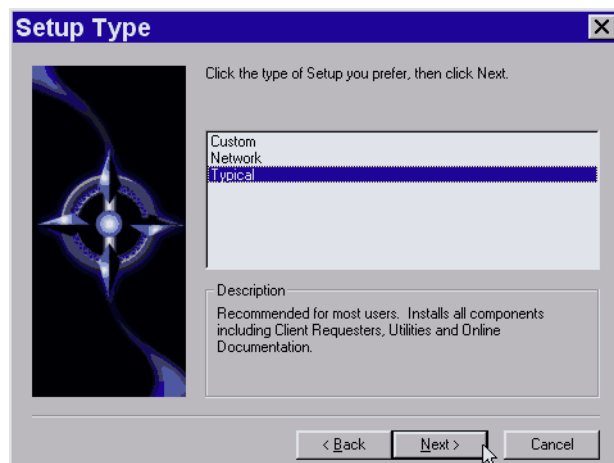
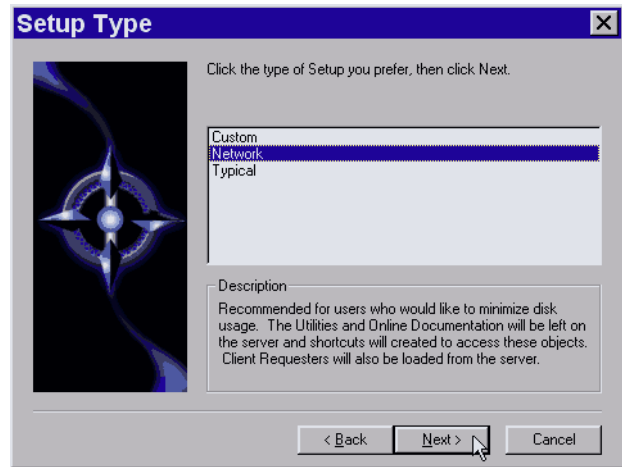


Figure 15-9 Setup Type Dialog Box – Network Installation



When installing from a server mapped to a network drive, the **Network** installation option is available. This option copies to the local client's hard drive only those files necessary to enable the client to run Pervasive.SQL directly from the server. Requesters, utilities, and online documentation are not copied to the client; however, shortcuts to those objects on the server are created on the client machine.

The typical installation, which is recommended for most users, takes default actions for most operations performed during the installation. The custom installation lets you choose the components you want to install and specify the program folder name.

The typical client installation installs the following components:

- Transactional and relational interfaces
- Client requesters (MS-DOS, Win16 and Win32 requesters)
- Utilities
- Online documentation

If you choose a custom install, skip to “Custom Installation Path” on page 15-16. At the end of that section you will return to this section to continue the installation.

Click **Next** to proceed with the installation.

3 Selecting your client installation directory.

The default installation location for Pervasive.SQL 2000i is C:\PVSW, assuming the Windows system drive is C:\. You can select a different location for the installation as shown in the following dialog box:

Figure 15-10 Selecting Installation Directory Dialog Box



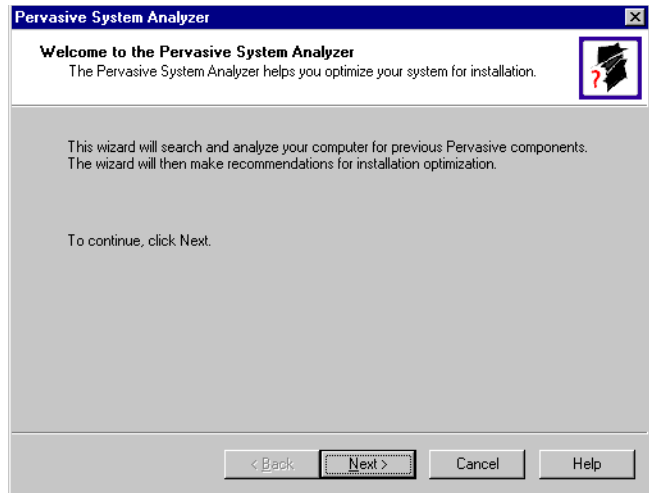
If you want to change the default directory, click **Browse** and select the desired directory.

Click **Next** to proceed with the installation.

4 Perform PSA Tests to ensure that your machine is ready for client components.

The Pervasive System Analyzer (PSA) launches. PSA scans your system for previous versions of Pervasive Software products.

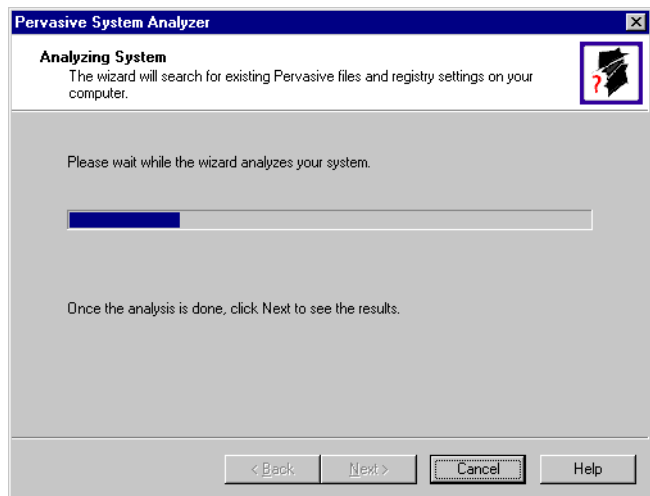
Figure 15-11 Pervasive System Analyzer Welcome Screen



5 Analyze your system.

Click **Next** to continue with the installation and begin system analysis. As PSA analyzes your system the following dialog box displays.

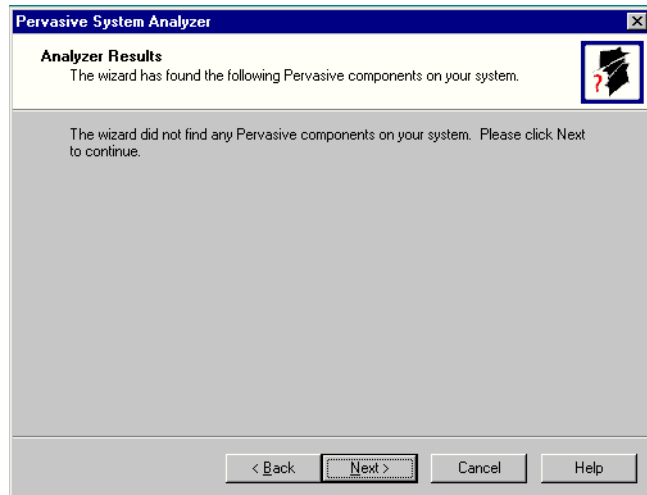
Figure 15-12 System Analysis Using PSA



The progress bar completes as PSA analyzes your system. When PSA has completed the initial system analysis, click the **Next** button to continue and see the results.

If you do not have any previous versions of Pervasive Software products, the following dialog box displays.

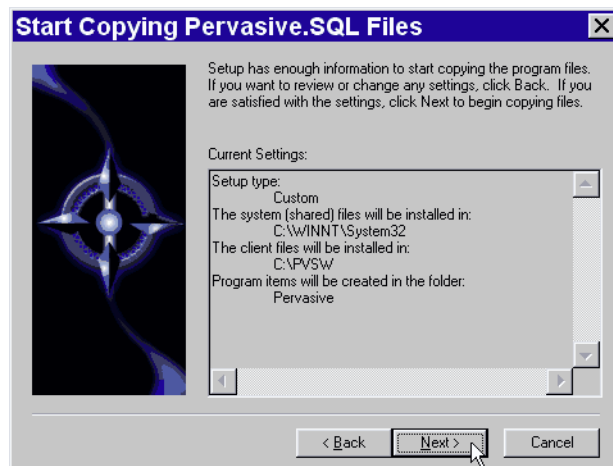
Figure 15-13 Pervasive System Analyzer Results



Click **Next** to display your current installation settings.

6 Verify your installation settings.

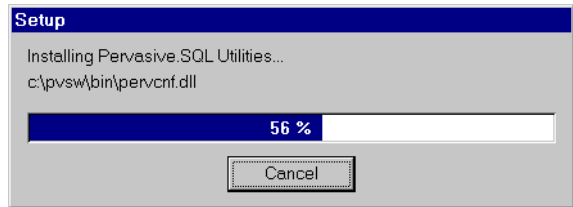
Figure 15-14 Your Selected Installation Settings



If the displayed selections are correct, click **Next** to continue.

Pervasive.SQL setup begins to copy the necessary files to complete your specified installation requirements.

Figure 15-15 Setup Begins Copying Files



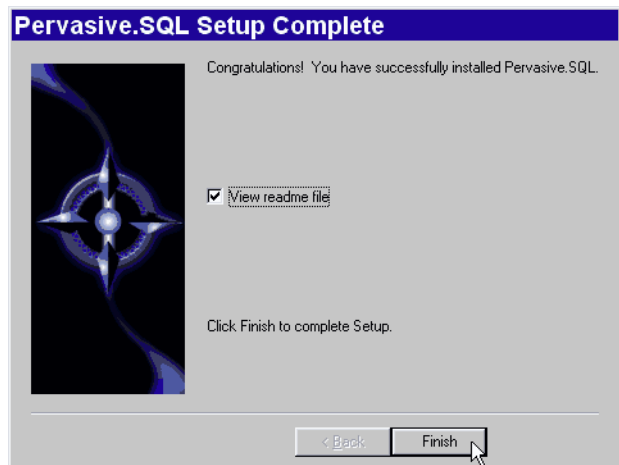
Note Only click **Cancel** if you want to stop installation and exit the Setup process.

Click **Finish** to complete the installation.

7 Your Pervasive.SQL 2000i client installation is complete

On Windows 9x machines, a dialog box will appear asking if you want to read the README.TXT file. It is highly recommended that you leave the **View readme file** check box selected and click **OK**. On Windows NT/2000, the following dialog box informs you that the installation is complete.

Figure 15-16 Installation Complete Dialog Box



Click **Finish**.

On Windows 9x machines, the install program will present the “Install Complete” dialog box and suggest a machine reboot. Windows 9x users should reboot their machines to complete the installation.



Note If installed files could not be copied because they were locked in memory, a reboot may be necessary at this point.

The install program modifies the PATH, \$PVSW_ROOT and CLASSPATH variables at the end of the installation process. These settings control how Windows finds Pervasive components. These environment variables are stored in the **Control Panel** under the **Environment** tab on the **System** icon on Windows NT machines. On Windows 2000 machines, this setting is stored in the **Control Panel** under the **Advanced** tab on the **System** icon.

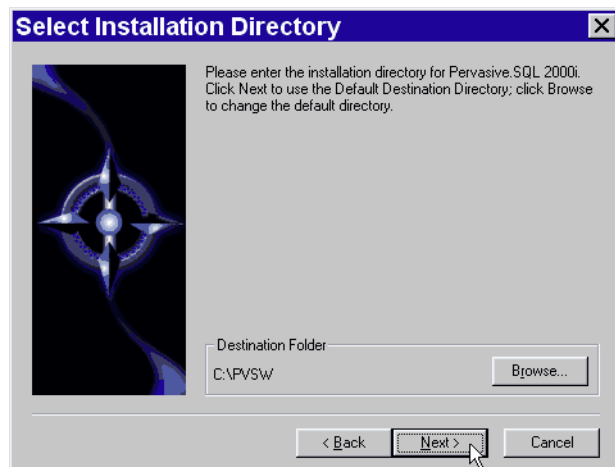
Custom Installation Path

This section describes how to customize your installation of Pervasive.SQL 2000i.

1 Choose the client installation directory.

The default installation location for Pervasive.SQL is C:\pvs\sw. You can specify a different location for the installation as shown in the following dialog box:

Figure 15-17 Choosing the Client Installation Directory of Pervasive.SQL



If you wish to change the default directory, click **Browse** and select the desired directory.

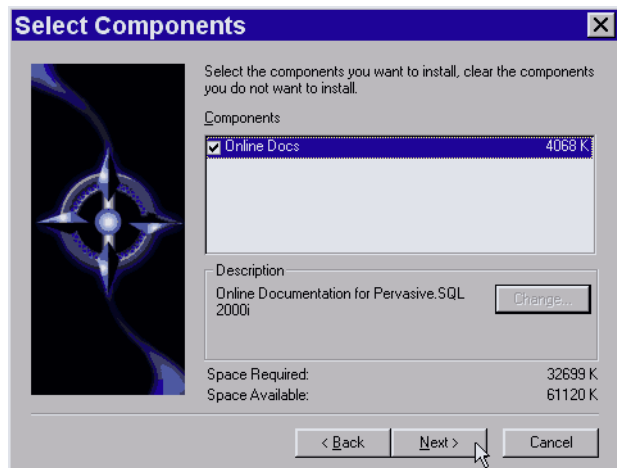
Click **Next** to proceed with the installation.

2 Select components to install.

Select the components that you wish to install.

The only optional component Pervasive.SQL 2000i client install currently offers is online documentation. Select Online Docs if you wish the online documentation to be installed. When you are finished, click **Next**.

Figure 15-18 Choose Components To Install

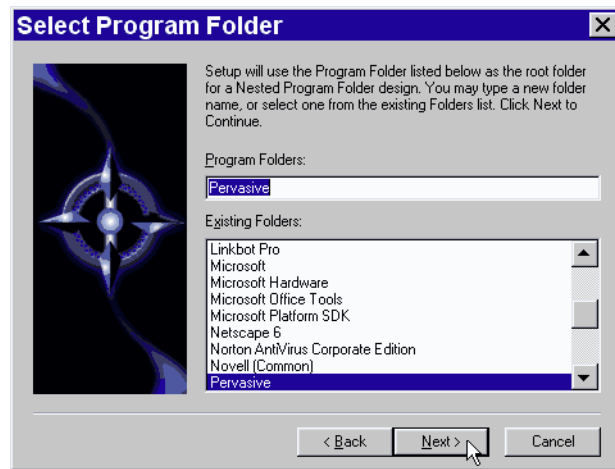


3 Choose the folder in which to place menu items.

Specify the folder in which the Start Menu items will be placed. Pervasive Install suggests a name for the folder, which you can accept by clicking **Next**.

If you have previously done an install on this machine, Install recommends that you do not use the same folder name so that your ability to cleanly uninstall the software in the future is preserved.

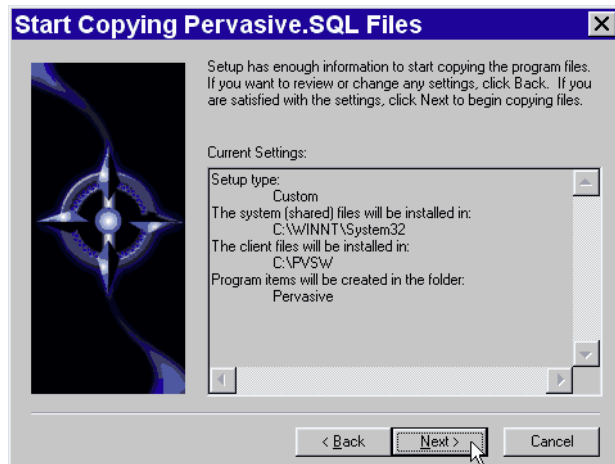
Figure 15-19 Choosing your Start Menu Folder



- 4 When your custom installation choices are complete, installation begins.

Install now has enough information to start the installation process. A dialog box displays the list of options you have selected. If you want to change any of these selections, click **Back**. If the displayed selections are correct, click **Next** to continue.

Figure 15-20 Your Custom Installation Selections



Now the custom path rejoins the Typical installation path. See the step “Perform PSA Tests to ensure that your machine is ready for client components.” on page 15-12.

Where To Go From Here

A proper configuration is essential to smooth operation of your requester software. See Chapter 17, “Client Network Configuration” for detailed information on how to configure Pervasive.SQL requesters.

If you need to install DOS requesters, please see “Installing DOS Requesters” on page 16-8 of Chapter 16, “Distributing the Pervasive Client.”

Distributing the Pervasive Client

How to Install Clients for your Pervasive.SQL Server

To access network files from a workstation using a Pervasive.SQL application, you must use the appropriate requester at that workstation. Your application's Pervasive.SQL calls go through the Requester, which sends them to the server for processing and then returns the reply to your application.

If this is the first time you are installing a requester, follow the topics in the order in which they appear in this chapter:

- “Introduction to Client Distribution” on page 16-2
- “Minimal Clients: Using the Pervasive.SQL Server for Requester Operations” on page 16-3
- “Installing Clients Using a Systems Management Server” on page 16-7
- “Installing DOS Requesters” on page 16-8
- “Where To Go From Here” on page 16-10

If you are installing requesters for the first time, we recommend that you read the entire chapter.

Introduction to Client Distribution

The Pervasive.SQL Server installation includes an installation for the Win32 and Win16 clients. This client installation, if Pervasive.SQL was installed to the default location of C:\PVSW, is located at:

`C:\PVSW\CLIENTS\WIN`

All Pervasive.SQL server installations also contain the client components. That is, every Pervasive.SQL server is also a client.

You can install your clients individually by mapping a drive to the server's client install directory. Or, you can install a minimal client that uses the server for some of its functionality.

You can also use a Systems Management Server to install Pervasive.SQL clients. The following section details these options for installing a large number of clients.

Minimal Clients: Using the Pervasive.SQL Server for Requester Operations



Note Clients on a UNIX server must be set up one at a time. For instructions on installing requesters on a client connected to a UNIX server, see “Installing the Pervasive.SQL 2000i Client Components” on page 15-9.

If you have a setup with many clients it is easier to manage client installation from a central source. Pervasive.SQL 2000i uses networked client support to manage your clients.

If you have a Windows NT or 2000 server, you can also use a Systems Management Server to help redistribute and manage your clients.

Installing Clients Using Networked Client Support

Substantial disk space savings can be achieved by a client-server setup where a large number of clients share a common location for requester files. This also allows for a system administrator to easily upgrade every client on a network by merely installing a single product update on the server.

Prior to Pervasive.SQL 2000i users had to set up their system to allow clients to share requester resources on their own. The new Pervasive.SQL 2000i install can now handle this for you automatically. The steps outlined below assume that a Pervasive.SQL server was installed with both client install images and “client support.” Both of these options must have been selected for networked client support to work properly.

► To set up a client machine to use requesters installed on the server:

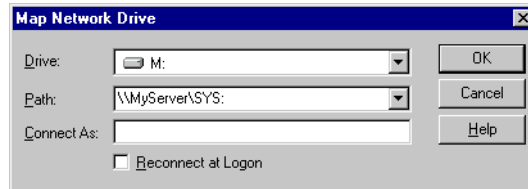
- 1 Map a drive letter to the remote server.
 - Double-click **My Computer**. Click the **Map Network Drive** button (shown below). If the toolbar is not visible, click **View** and select **Toolbar**.



- If the remote server is a Windows NT or 2000 server, map a drive letter to its root directory.

- If the remote server is a NetWare server, map a drive letter to the SYS: volume on the remote server as shown in the following diagram:

Figure 16-1 Mapping a Drive



2 Launch the installation program from the server.



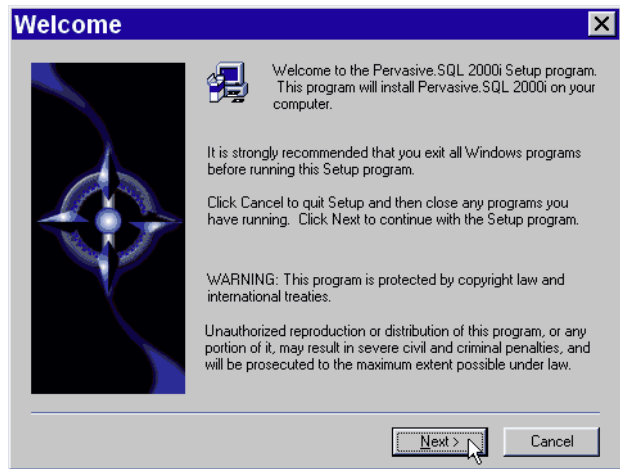
Note Do not run the installation program from Network Neighborhood or Windows Explorer.

Using the mapped drive letter from the previous step, change to the proper client installation program directory on the server and start the client install. From a DOS command prompt these commands would be:

```
x:
cd \pvs\clients\win
setup
```

The following dialog box displays:

Figure 16-2 Pervasive.SQL Setup Welcome Dialog Box

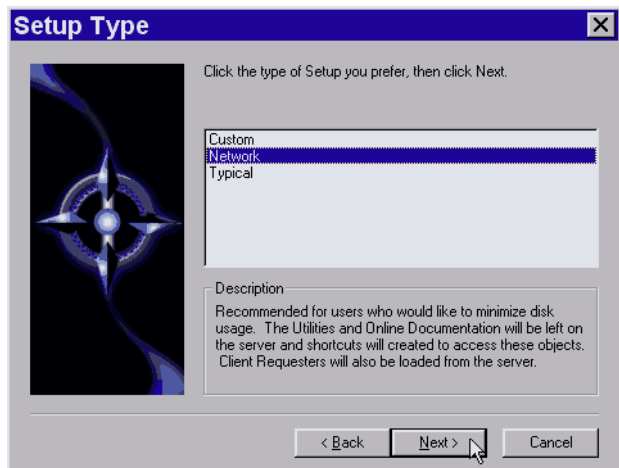


Click Next to proceed with the installation.

3 Choose network client install option.

If you do not see the Network client option, the Pervasive.SQL server was not installed with “Client Support” enabled and you will not be able to use the Network install feature.

Figure 16-3 Setup Type Dialog Box – Network Installation



Select the network install option and click Next to continue.

4 Continue with install.

At this point the network install option proceeds like a typical client install as described in “Installing the Pervasive.SQL 2000i Client Components” on page 15-9.

Installing Clients Using a Systems Management Server

Pervasive.SQL 2000i client installation programs now include a Systems Management Server Package Definition Format (.pdf) file. This allows the Systems Management Server to perform a silent installation of the client or server software.

For client install images copied to a server, the PDF file is located in the same directory as the setup.exe file of the client installation (that is, `c:\pvsw\clients\win\psqlclnt.pdf`).

The steps to perform a Systems Management Server silent installation are beyond the scope of this manual. Please refer to your Systems Management Server documentation for more information on that topic.

Installing DOS Requesters

Overview

Pervasive.SQL 2000i supports DOS Btrieve applications in several different ways. This, however, depends on the current configuration and environment of the workstation.

The following choices are available:

- Win32 DOS Box support: Allows a DOS application to run in a DOS box on a Windows NT or Windows 9x workstation. This enables direct communication to the Windows 32-bit workstation components rather than to the database engine. This configuration can be used with either a local Pervasive.SQL 2000i workstation or workgroup engine, or a remote Pervasive.SQL 2000i server engine. The TCP/IP or SPX protocol supported for client/server access depends on the configuration of the Windows 32-bit components.
- DOS TCP/IP requester (BREQTCP): Allows a DOS application to run in any Windows DOS box or on a DOS workstation, and communicate to a remote Pervasive.SQL 2000i server engine via the TCP/IP protocol.
- DOS SPX requester (BREQUEST or BREQNT): Allows a DOS application to run in any Windows DOS box or on a DOS workstation, and communicate to a remote Pervasive.SQL 2000i server engine via the SPX protocol.

There are different reasons for using these different options, including:

- Pervasive.SQL 2000i Workstation and Workgroup products only support the Win32 DOS Box configuration.
- DOS and Windows 3.1x operating systems require the DOS TCP/IP or SPX requesters when accessing a remote server engine.
- A particular environment may have only one of the supported protocols available.

Windows 9X/NT

The preferred Requester for Windows 9X/NT is BTRBOX. You can use this Requester even for legacy DOS applications.



Note Use the BREQUEST/BREQNT/BREQTCP Requesters ONLY if you experience a problem with BTRBOX.

Win16 and DOS Workstations

The Requesters for non-Win32 boxes are:

- BREQUEST
- BREQNT
- BREQTCP



Note Please see <http://www.pervasive.com/support/knowledge/files/psqltt-98072402..tml> for choices and configurations available for running a DOS application on a Windows 95/98/ME or Windows NT/2000 workstation communicating with a Pervasive.SQL server.

► To install Pervasive.SQL 2000i client software on a DOS client:



Note Clients using the DOS operating system will have only transactional access to the data files. No relational access is available for this platform.

Installation of the DOS requesters is a matter of copying the files to the desired directory on your hard drive.

- 1 Find the \\pvsw\dos directory on the Pervasive.SQL 2000i installation CD.
- 2 Copy the \\pvsw\dos directory to the desired directory on your hard drive.

To configure your DOS requesters, go to “Using the DOS Requesters” on page 17-26.

Where To Go From Here

After installing the client requesters, see Chapter 17, “Client Network Configuration” for information on how to correctly configure the network settings of clients.

Client Network Configuration

How to Configure your Pervasive.SQL Clients

To access network files from a workstation using a Pervasive.SQL application, you must use the appropriate requester at that workstation. Your application's Pervasive.SQL calls go through the Requester, which sends them to the server for processing and then returns the reply to your application.

This chapter contains the following sections.

- “Default Settings” on page 17-2
- “How to Configure the Pervasive Clients” on page 17-4
- “Network Path Formats Supported by Pervasive Requesters” on page 17-6
- “Using TCP/IP to Connect to a NetWare Server” on page 17-13
- “Using SPX to Connect to a NetWare Server” on page 17-14
- “Using TCP/IP to Connect to a Windows NT/2000 Server” on page 17-17
- “Using SPX to Connect to a Windows NT/2000 Server” on page 17-20
- “NetBIOS and the Pervasive.SQL Server Engine” on page 17-23
- “Using TCP/IP to Connect to a Linux or Solaris Server” on page 17-24
- “Using the DOS Requesters” on page 17-26

Default Settings

This section lists the settings that are relevant to client networking.

TCP/IP is the default protocol for Pervasive.SQL. That is, TCP/IP is tried first if more than one protocol is set to be available.

Enable AutoReconnect

Default: Off

This setting determines whether the client and server attempt to reconnect to each other in the event of a network outage. If set to **On**, it allows the database connections to recover from intermittent or temporary network interruptions. If this value of this setting is **Off**, then the client returns a status code to the application immediately upon any failure to connect to the server, and the connection context is not preserved.

If you have this setting turned **On**, you can specify how long the client and database engine should attempt to reconnect by using the setting **AutoReconnect Timeout** in the Server configuration.



Note This feature is not available on 16-bit clients.

Supported Protocols

Default: SPX, TCP/IP, NetBIOS

This setting specifies the vendor protocols that the database engine should attempt to use. When more than one protocol is specified, upon start up, the engine attempts to connect on all specified protocols. The protocol that connects first is then used for the remainder of the session.

You can often improve initial connection performance by removing the protocols that are not used on your network. For example, if you have a Server engine on an all-TCP/IP network, removing NetBIOS and SPX support may reduce the wait time during initial connections to the engine.

On UNIX platforms, TCP/IP is the only supported protocol on the server.



Note The Server engines do not support the NetBIOS protocol.

TCP/IP Timeout for Communications Requester

Default: 15 seconds

This setting specifies the number of seconds the requester should wait for a TCP/IP connect request to succeed before timing out.

How to Configure the Pervasive Clients

This section contains information on configuring Pervasive client software.

- Configuring the Win32 Requester
- Configuring the Win16 Requester



Note For information on configuring DOS requesters, see “Using the DOS Requesters” on page 17-26.

Configuring the Win32 Requester

The Win32 Requester serves as the Pervasive.SQL client for Windows 9X/ME and Windows NT/2000 workstations. You configure the Win32 Requester using the Configuration Utility within the Pervasive Control Center.

► To Configure the Win32 Requester

- 1** Click **Start**, point to **Programs** and select **Pervasive**.
- 2** Select **Pervasive Control Center**.
- 3** Click **Pervasive.SQL Engines** and select the local machine.
- 4** Select **Configuration** and then **Client**.
- 5** Refer to the *Pervasive.SQL Advanced Operations Guide* in section “Configuration Reference” for detailed information on the Configuration utility and settings.

Win32 Configuration Notes

WOW Application Users: The Win16 Requester provides thunking over to the Win32 Requester, which then handles your request as it does one from a Win32 application. To use these thunking capabilities, be sure to use the requesters included with the Pervasive.SQL package, and not those from an earlier version of Btrieve.

Configuring the Win16 Requester

The Win16 Requester serves as the Btrieve client for Windows 3.x environments. It can also be used in conjunction with Thunking in Windows 95 and Windows NT workstations.



Note Clients using the 16-bit requesters will have only transactional access to the data files. No relational access will be available.

➤ **To Configure the Win16 Requester from Windows 3.x:**

- 1 Double-click on the Pervasive SQL 2000 Program Group.
- 2 Double-click on Setup (Win16).
- 3 Refer to the *Pervasive.SQL Advanced Operations Guide* in section “Configuration Reference” for detailed information on the Configuration utility and settings.

➤ **To Configure the Win16 Requester from Windows 95/NT:**

- 1 Click Start, point to Programs, then Pervasive, and select Pervasive Control Center.
- 2 Expand **Pervasive.SQL 2000i servers** and expand the desired server.
- 3 Expand **Configuration** and expand **Client-16 bit**.
- 4 Refer to the *Pervasive.SQL Advanced Operations Guide* in section “Configuration Reference” for detailed information on the Configuration utility and settings.

Win16 Configuration Notes

To access a Windows NT server, your workstation must have the Microsoft Network Client for DOS and Windows loaded. You also need the NetWare SPX protocol stack. Pervasive Software recommends using the ODI drivers from Novell. You do not need to run NETX.EXE or be logged in to a NetWare server.

WOW Application Users: You must install both the Win16 Requester and the Win32 Requester. The Win16 Requester provides thunking over to the Win32 Requester, which then handles your request as it does one from a Win32 application. To use these thunking capabilities, be sure to use the requesters included with this package, and not those from an earlier version of Btrieve. Also, be sure to enable the Requester’s **Use Thunk** option.

Network Path Formats Supported by Pervasive Requesters

When using your Requester, you connect to the Pervasive server engine to access data files. This section shows the variations on network file syntax you can use to access files on your network using Btrieve or SQL applications.

Pervasive.SQL supports the Universal Naming Convention (UNC) and Drive path formats (explicit and current) across the majority of operating environments, including:

Table 17-1 Supported UNC and Drive Path Formats

Application Types	Environments	Network Client	Novell Login Types
Transactional	Windows (32-bit)	Microsoft	Bindery
Relational	Windows (16-bit)	Novell	NDS
	DOS		

For more information on the path formats, see the sections that follow:

- “Universal Naming Convention (UNC) Path Formats” on page 17-6
- “Drive-based Formats” on page 17-7
- “NetWare Specific Formats” on page 17-7
- “UNIX Path Formats” on page 17-12

Universal Naming Convention (UNC) Path Formats

The following UNC path formats are supported on all clients to all servers:

```
\\ServerName\volume\path\file  
\\ServerName\volume:[\]path\file
```

UNC syntax is resolved correctly regardless of the actual type of network operating system (NOS) that is operating on the target server.



Note In all instances above, backslashes (\) can be interchanged with forward slashes (/) except for the double backslash (\\). The syntax [\] indicates that the backslash is optional.

Drive-based Formats

The following drive representations are supported on all clients to all servers:



Note Do not map drive letters to the \\Tree\VolumeObject format found in Network Neighborhood. See “NetWare Directory Services (NDS) Formats” on page 17-7.

```
drive:file
drive:[\]path\file
file
[\]path\file
..\file
```

NetWare Specific Formats

NetWare path formats on all clients only to NetWare servers:

```
volume:[\]path\file (ServerName is derived from current
drive)
```

NetWare Directory Services (NDS) Formats

Pervasive.SQL provides enhanced Novell Directory Service support over previous versions of Pervasive.SQL through complete integration with Novell's IntranetWare Client for Windows NT, Windows 95, and Windows 3.x, and Microsoft's Service for Novell Directory Services for Windows 95 (MSNDS). These enhancements provide the following benefits to users and network administrators:

- Better integration with NDS authentication capabilities when accessing the Pervasive.SQL Server Engine for NetWare.
- Ability to resolve server names into network address by querying NDS instead of relying on the NetWare Bindery.
- Support for NDS Volume and Directory Map objects in Btrieve file operations.



Note Pervasive does not support the \\Tree\\VolumeObject format found in Network Neighborhood. See “NetWare Directory Services (NDS) Formats” on page 17-7.

If you want to run 32-bit applications in an NDS environment, the Pervasive.SQL requesters work best with the Novell IntranetWare clients installed on the workstation. The following sections detail the level of support that Pervasive offers.

Support for Novell Clients for NetWare

Pervasive.SQL was tested with the following Novell clients:

- IntranetWare Client for Windows NT v4.11
- IntranetWare Client for Windows 95 v2.2
- IntranetWare Client for DOS/Windows 3.x v2.2

Each of these clients provide the set of NDS specific APIs needed by the Pervasive.SQL requesters to integrate fully with the NDS environment. All Pervasive.SQL requesters will detect these clients' presence automatically; no additional Pervasive.SQL configuration changes are required. When these clients are available to the Pervasive.SQL requesters, the following operations are supported:

- Network login via NDS (bindery context does not need to be set on the target server)
- NetWare server address resolution for SPX addresses
- Drive letters mapped to NDS Volume Objects through either the Map utility or Network Neighborhood may be used to specify Btrieve file names or SRDE dictionary and data directories
- NDS Volume Objects and Directory Map Objects may be used to specify Btrieve file names with Win32, and Win16 applications

The file name and path formats supported by the Pervasive.SQL requesters through the Novell clients are listed in the table below:

Table 17-2 File name and Path formats for Novell Clients for NetWare

Format	Btrieve Apps	Notes	SQL Apps
<drive letter>:[\]path\file	✓	(1)	✓
\\server\volume\path\file	✓		✓
\\server\volume:[\]path\file	✓		✓
server\volume:[\]path\file	✓		✓
volume:[\]path\file	✓	(4)	✓
VolumeObject:[\]path\file	✓	(2) (3)	✗
\\VolumeObject\path\file	✓	(2) (3)	✗
DirectoryMap:[\]path\file	✓	(2) (3)	✗
\\DirectoryMap\path\file	✓	(2) (3)	✗
\\Tree\VolumeObject\path\file	✗		✗
\\Tree\DirectoryMap\path\file	✗		✗

1 <drive letter> can be redirected to a server\volume:, or NDS Volume or Directory Map object.

2 Not supported by the Btrieve DOS requester.

3 See Novell documentation for rules about specifying NDS context when using NDS objects.

4 Requires that the current drive is mapped to the target NetWare server.

Support for Microsoft Clients for NetWare

Pervasive.SQL was tested with the following Microsoft clients for NetWare:

- Microsoft Service for Novell Directory Services (Windows 95)

- Microsoft Client Service for NetWare (Windows NT/2000). This client limits your NDS support; Pervasive recommends using the Novell IntranetWare client.
- Microsoft Client Service for NetWare (Windows 95)



Note The Win16 Requesters require the Novell components NWCALLS.DLL and NWNET.DLL. Win32 Requesters using the Microsoft Service for NDS also require these files.

The file name and path formats supported by the Pervasive.SQL requesters using Microsoft's clients for NetWare on Windows 9X/ME and Windows NT/2000 are listed in the following table.

Table 17-3 File name and Path formats for Microsoft Clients for NetWare

Format	Btrieve Apps		Notes	SQL Apps
	Win16	Win32		
<drive letter>:[\]path\file	✓	✓	(1)	✓
\\server\volume\path\file	✓	✓		✓
\\server\volume:[\]path\file	✓	✓		✓
server\volume:[\]path\file	✓	✓		✓
volume:[\]path\file	✓	✓	(4)	✓
VolumeObject:[\]path\file	✓	✗	(2) (3) (5)	✗
\\VolumeObject\path\file	✓	✗	(2) (3) (5)	✗
DirectoryMap:[\]path\file	✓	✗	(2) (3) (5)	✗
\\DirectoryMap\path\file	✓	✗	(2) (3) (5)	✗
\\Tree\VolumeObject\path\file	✗	✗		✗
\\Tree\DirectoryMap\path\file	✗	✗		✗

1 <drive letter> can be redirected to a server\volume:, or NDS Volume or Directory Map object on Windows 95 with MSNDS. On Windows NT 4.0 with CSNW, <drive letter> can only be redirected to a server\volume: name; using Network Neighborhood to map a <drive letter> to an NDS object is not supported for Win32 applications.

2 Not supported by the Btrieve DOS requester.

- 3 Supported for applications using the Win16 Pervasive requesters only (with no thunking to 32-bit).
- 4 Requires that the current drive is mapped to the target NetWare server.
- 5 See Novell documentation for rules about specifying NDS context when using NDS objects.

Implementation Notes for the Microsoft NetWare Clients

The Microsoft Service for Novell Directory Services (MSNDS) allows Windows 95 workstations to login to NDS trees and redirect drive letters to NDS servers. MSNDS also supports Windows 16-bit 'NDS-aware' applications by supporting the Novell Windows 16-bit client DLLs, NWCALLS.DLL and NWNET.DLL. MSNDS does not provide 32-bit API support for NDS-aware applications. Windows 95, however, does provide a thunk mechanism allowing 32-bit applications to call 16-bit applications. The Pervasive.SQL requesters take advantage of that mechanism to provide NDS support, although currently the 32-bit requesters do not allow NDS object names to be used in UNC-style paths as they do with the Novell clients. On Windows 95 workstations with MSNDS installed, the Pervasive.SQL requesters support the following NDS operations:

- Network login via NDS (bindery context does not need to be set on the target server)
- NetWare server address resolution for SPX addresses
- Drive letters mapped to NDS Volume Objects or Directory Map Objects through either the Map utility or Network Neighborhood may be used to specify Btrieve file names, or SRDE dictionary and data directories when logging into a Pervasive.SQL database, only with WIN16 applications
- NDS Volume Objects and Directory Map Objects may be used to specify Btrieve file names, only with Win16 applications

Like MSNDS, the Microsoft Client Service for NetWare (CSNW) on Windows NT 4.0 allows Windows NT 4.0 workstations to log in to NDS trees and redirect drive letters to NDS servers, as well as supporting Windows 16-bit 'NDS-aware' applications by supporting the Novell Windows 16-bit client DLLs. CSNW does not provide 32-bit API support for NDS-aware applications. Unlike Windows 95, Windows NT does not provide a thunk mechanism allowing 32-bit applications to initiate calls to 16-bit applications (it does allow 16-bit applications to call 32-bit applications, which the Pervasive requesters support). The lack of support for 32-bit 'NDS-aware' applications coupled with the lack of a thunk mechanism for 32-bit

to 16-bit calling conventions significantly reduces the ability of the Pervasive.SQL requesters to support NDS environments. On Windows NT 4.0 workstations with CSNW installed, Pervasive.SQL supports the following NDS operations:

- Network login via NDS for DOS applications and Win16 applications that do not thunk to the Win32 requester (bindery context does not need to be set on the target server)
- Network login via NDS for Win32 applications, when accessing the Pervasive.SQL for NetWare server engine using SPX as the transport
- NetWare server address resolution for SPX addresses
- NDS Volume Objects and Directory Map Objects may be used to specify Btrieve file names for Win16 applications that do not thunk to the Win32 requester

UNIX Path Formats

Incoming paths on a UNIX server using Samba will be processed as follows in order of relative priority:

Share names

`\\<server>\<sharename>\<path>`

The smb.conf file must be configured to accept *<sharename>*, otherwise it will default to the following:

Absolute paths

`\\<server>\<absolute_path>`

If the smb.conf file is not configured properly or not found on the target server, the absolute path is used.

For more information on the UNIX versions of Pervasive.SQL 2000i, see the “Unix Supplementary Documentation” section of *Pervasive.SQL User’s Guide*.

Using TCP/IP to Connect to a NetWare Server

This section documents the use of TCP/IP when connecting to a Pervasive.SQL server running on a NetWare machine.

Configuring Pervasive.SQL 2000i to use TCP/IP

TCP/IP is the default protocol when connecting to NetWare servers, meaning that if both TCP/IP and SPX protocols are available, TCP/IP is the first one the Communications Requester attempts to use.

If you have a working TCP/IP setup from your client to your NetWare server, you should not have to do anything in addition to make Pervasive.SQL work with TCP/IP and NetWare.

Configuring a Client For the Server IP Address

You must have your server's IP address configured properly on your clients-for Pervasive.SQL to function. There are two ways to do this for Windows clients.

► To configure your clients to use the server IP address, do one of the following:

For Windows 9X/NT clients:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click **Network**, select **Protocols**, select **TCP/IP** and click **Properties**. Click the **DNS** tab. Enable **DNS** and enter the appropriate server information.

For Windows 2000 clients:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click **Network and Dial-up Connections**, select **Local Area Connection** and click **Properties**. From the component list, select **TCP/IP** and click **Properties**. Enable **DNS** and enter the appropriate server information.

or

- Enter your Server IP address/name in the hosts file:
 \WINNT\SYSTEM32\DRIVERS\ETC\HOSTS file (Windows NT/2000).
 \WINNT\SYSTEM\DRIVERS\ETC\HOSTS file (Windows 95).

Using SPX to Connect to a NetWare Server

This section documents the use of SPX when connecting to a Pervasive.SQL server running on a NetWare machine.

Configuring Pervasive.SQL 2000i to use SPX

SPX is a native protocol to NetWare. There should be no special requirements for operating Pervasive.SQL with SPX on NetWare. However, note the following:

SPX is not the default protocol for Pervasive.SQL. Consequently, if you have both TCP/IP and SPX installed, Pervasive.SQL attempts to use TCP/IP first. If you want SPX to be used, follow these steps:

► To Configure your Clients to use SPX with NetWare Servers if Both TCP/IP and SPX are Installed:

- 1 Click **Start**, point to **Programs** and select **Pervasive**.
- 2 Select **Pervasive Control Center**.
- 3 Expand **Pervasive.SQL 2000i Engines** and expand the desired engine.
- 4 Expand **Configuration** and expand **Client**.
- 5 Select the **Communication protocols** and, in the right-hand pane, right-click on **Supported protocols**.
- 6 Highlight **Microsoft TCP/IP** from the list of selected protocols and click the < button to move it off the selected list.
- 7 Click **OK**.

To use SPX with NetWare, also ensure that your network packet size is appropriate for your network. By default the **Receive Packet Size** option of the Configuration utility (detailed in the *Pervasive.SQL Advanced Operations Guide*) is set to 1500, which is the correct value for Ethernet networks. If, however, you have a Token-ring network, use the Configuration utility to modify your **Receive Packet Size** to 4096.

Using Either Microsoft or Novell's SPX when Connecting to NetWare Servers

If you select Novell SPX using the **Supported Protocols** setting in the Configuration utility, this means that all Pervasive SPX calls will be made through the Novell component NWIPXSPX.DLL. Both Novell and Microsoft support this DLL, so you could be using Microsoft SPX even though the Pervasive setting shows that you are using Novell SPX.

► To determine which version of SPX (Microsoft or Novell) you are using from your Windows workstation:

In Windows NT:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click **Network**, and look for **IPX/SPX** in the list. If the entry says "IPX/SPX compatible-protocol", you have Microsoft's SPX installed. Otherwise, you are using Novell's IPX/SPX protocol.

In Windows 2000:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click **Network and Dial-up Connections**, select **Local Area Connection** and click **Properties**. Look for **IPX/SPX** in the list. If the entry says "IPX/SPX compatible-protocol", you have Microsoft's SPX installed. Otherwise, you are using Novell's IPX/SPX protocol.

Pervasive.SQL supports both the Microsoft and Novell versions of SPX. If you do not use the Novell Client 32 to communicate with the NetWare server, you could encounter a Status Code 3119 when you first attempt a connection to the NetWare server. Subsequent connections should clear that condition.

Changing the Default Server Listening Port (Advanced)

Most users should never have to use this procedure. This procedure should only be performed by a system administrator.

In normal TCP/IP operation, clients use a particular port number to communicate with servers. Pervasive.SQL by default listens on port 1583. For TCP/IP to function properly, all clients and all servers must use the same port.

Pervasive recommends that you do not modify the server listening port unless you have a conflict with port number of 1583. If you do have a conflict, you can override the Pervasive Database port settings with an entry in the SERVICES file for each machine. The SERVICES file is located at:

```
SYS:\ETC\SERVICES
```

For example, if you wanted to change the listening port to 80 for Pervasive.SQL, you would add the following entry in your SERVICES file:

```
psql 80/tcp
```

After changing your server listening port, you must stop and restart your Pervasive.SQL services for the changes to take effect. See “Using Pervasive.SQL” in *Pervasive.SQL User’s Guide*.



Note Entries in the NetWare SERVICES file are NOT case-sensitive.

Using TCP/IP to Connect to a Windows NT/2000 Server

This section documents the use of TCP/IP when connecting to a Pervasive.SQL server running on a Windows NT/2000 machine.

Tasks

Configuring a Client for the Server IP Address

You must have your server's IP address configured properly on your Pervasive.SQL requesters for Pervasive.SQL to function. You can do this in one or two ways depending on which client requester platform you are using:

► **To configure your clients to use the server's IP address, do one of the following:**

For Windows 95/NT clients:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click on the **Network** icon, double-click on **TCP/IP** in the list. Click the **DNS Configuration** tab. Enable DNS by selecting the corresponding button and entering the appropriate server information. This is the preferred method for Windows clients.

For Windows 2000 clients:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click on the **Network and Dial-up Connections** icon, double-click on **Local Area Connection**, and click on the **Properties** button. From the component list, select **TCP/IP** and click the **Properties** button. Enable DNS by selecting the corresponding button and entering the appropriate server information.

or

- Enter your Server IP address/name in the hosts file:
 \WINNT\SYSTEM32\DRIVERS\ETC\HOSTS file (Windows NT/2000).
 \WINDOWS\SYSTEM\DRIVERS\ETC\HOSTS file (Windows 95).

Preventing the Windows Dial-Up Network Dialog Box from Displaying When Using a Pervasive Application with TCP/IP

The Windows Dial-Up Networking dialog box can display when a TCP/IP request is made to Windows. Usually, this is to make an

Internet connection, but this feature can be an annoyance when using Pervasive applications and TCP/IP.

➤ **To Prevent the Dial-Up Networking Dialog Box from Displaying Automatically:**

- 1 Click Start, point to Settings and select Control Panel.
- 2 Double-click the Internet icon in Control Panel.
- 3 Click the Connection tab.
- 4 Clear the check box titled **Connect to the Internet As Needed**. In Windows 2000, this button is titled **Dial whenever a network connection is not present**.



Note While this stops the dialog box from displaying with Pervasive applications, this also has the side effect that other applications such as Internet browsers will no longer automatically spawn the **Dial-Up Networking** dialog box when a connection to the Internet is needed. In that case, you need to connect to the Internet manually using Dial-Up Networking.

According to Microsoft, the **Connect to the Internet As Needed** check box is designed to launch Dial-Up Networking whenever TCP/IP is used by an application, so this behavior is correct.

Changing the Default Server Listening Port (Advanced)

Most users should never have to use this procedure. This procedure should only be performed by a system administrator.

In normal TCP/IP operation, clients use a particular port number to communicate with servers. By default, Pervasive.SQL listens on port 1583. For TCP/IP to function properly, all clients and all servers must use the same port numbers.

Pervasive recommends that you do not modify the server listening port unless you have a conflict. If you do have a conflict, you can override the Pervasive.SQL port settings with an entry in the

SERVICES file for each machine, client and server. The SERVICES file is located at:

Windows NT/2000 \WINNT\SYSTEM32\DRIVERS\ETC\SERVICES

Windows 9X \WINDOWS\SERVICES

For example, if you wanted to change the listening port to 80 for Pervasive.SQL, you would add the following entry in your SERVICES file:

```
psql 80/tcp
```



Note Entries in the Windows NT SERVICES file are case-sensitive.

After changing your server listening port, you must stop and restart your Pervasive.SQL services for the changes to take effect. See the section “Using Pervasive.SQL” in *Pervasive.SQL User’s Guide*.

Using SPX to Connect to a Windows NT/2000 Server

This section documents the use of SPX when connecting to a Pervasive.SQL server running on a Windows NT/2000 machine.

Name Resolution

If you are using Btrieve applications only, then you can use SPX in an all-Windows environment. If you have an ODBC application, however, Pervasive.SQL depends on NetWare for name resolution. You will need at least one NetWare server to perform name resolution for your ODBC applications.

Tasks

Configuring Pervasive.SQL 2000i to use IPX/SPX

IPX/SPX is not a native protocol on the Windows NT/2000 platforms. If you want to use IPX/SPX, perform *all* of the following procedures to ensure proper operation with Pervasive.SQL 2000i.

Changing Pervasive's configuration to use IPX/SPX with Windows NT/2000:

➤ **If you have both TCP/IP and IPX/SPX Installed in the Network Icon of the Control Panel, you must remove TCP/IP from the client configuration to make IPX/SPX function with Pervasive applications:**

- 1** Click Start, point to Programs and select Pervasive.
- 2** Select Pervasive Control Center.
- 3** Expand Pervasive.SQL 2000i Engines and expand the desired engine.
- 4** Expand Configuration and expand Client.
- 5** Select the Communication protocols and, in the right-hand pane, right-click on Supported protocols.
- 6** Highlight Microsoft TCP/IP from the list of selected protocols and click the < button to move it off the selected list.
- 7** Click OK.

Changing Windows Configuration to Make IPX/SPX Run with Pervasive.SQL:

➤ **Ensure that your IPX/SPX settings are correct**

In the Windows NT Control Panel:

- 1 Click **Start**, point to **Settings** and select **Control Panel**.
- 2 Double-click on the **Network** icon.
- 3 Select **IPX/SPX Compatible Transport** and click **Properties**.
- 4 Click the **Advanced** tab.
- 5 Under **Frame Type** setting, ensure that the correct frame type for your network is selected. Do not use **Auto Frame Type Detection**.
- 6 Still under the **Advanced** tab, click **Network Address**.
- 7 Enter a non-zero value for your network address. For information about what your network address should be, contact your system administrator.

In the Windows 2000 Control Panel:

- 1 Click **Start**, point to **Settings** and select **Control Panel**.
- 2 Double-click on the **Network and Dial-up Connections** icon.
- 3 Select **Local Area Connection** and click **Properties**.
- 4 Scroll down to **IPX/SPX/NetBIOS Compatible Transport**, highlight and click the **Properties** button.
- 5 In the **Frame Type** field, ensure that the correct frame type for your network is selected. Do not use **Auto Detect**.
- 6 In the **Network number** field, enter a non-zero value for your network address. For information about what your network address should be, contact your system administrator.

➤ **Ensure that your IPX/SPX Maximum Packet size (MaxPktSize) is set correctly in the Windows NT/2000 registry:**

- 1 Click **Start** and select **Run**.
- 2 Type `regedit` and press **Enter**.

- 3** Find the registry entry using the following paths:
Windows NT:
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\NwlnkIPX\NetConfig*driver_name*\MaxPktSize.
Windows 2000:
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\NwlnkIPX\Parameters\Adapters*name*\MaxPktSize.
- 4** Ensure that the **MaxPktSize** setting in the Windows registry is set to 576 decimal or 240h.

NetBIOS and the Pervasive.SQL Server Engine

Pervasive.SQL does not support NetBIOS using the server engine.
Only the Workstation and Workgroup engines support NetBIOS.

Using TCP/IP to Connect to a Linux or Solaris Server

Your Samba must be properly configured on your Linux or Solaris server in order to properly network with Windows-based clients. See Chapter 13, “Network Settings for Linux and Solaris” for more information.

Tasks

Configuring a Client for the Server's IP Address

You must have your server's IP address configured properly on your Pervasive.SQL requesters for Pervasive.SQL to function. You can do this in one or two ways depending on which client requester platform you are using:

➤ **To configure your clients to use the server's IP address, do one of the following:**

For Windows 95/NT clients:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click on the **Network** icon, double-click on **TCP/IP** in the list. Click the **DNS Configuration** tab. Enable DNS by selecting the corresponding button and entering the appropriate server information. This is the preferred method for Windows clients.

For Windows 2000 clients:

- Click **Start**, point to **Settings** and select **Control Panel**. Double-click on the **Network and Dial-up Connections** icon, double-click on **Local Area Connection** and then click the **Properties** button. From the component list, select **TCP/IP** and click **Properties**. Enable DNS by selecting the corresponding button and entering the appropriate server information. This is the preferred method for Windows clients.

or

- Enter your Server IP address/name in the hosts file
 \WINNT\SYSTEM32\DRIVERS\ETC\HOSTS file (Windows NT/
 2000).
 \WINDOWS\SYSTEM\DRIVERS\ETC\HOSTS file (Windows 95).

Preventing the Windows Dial-Up Network Dialog Box from Displaying When Using a Pervasive Application with TCP/IP

The Windows Dial-Up Networking dialog box can display when a TCP/IP request is made to Windows. Usually, this is to make an Internet connection, but this feature can be an annoyance when using Pervasive applications and TCP/IP.

► To Prevent the Dial-Up Networking Dialog Box from Displaying Automatically:

- 1** Click **Start**, point to **Settings** and select **Control Panel**.
- 2** Double-click the **Internet** icon in Control Panel.
- 3** Click the **Connection** tab.
- 4** Clear the check box titled **Connect to the Internet As Needed**. In Windows 2000, this button is titled **Dial whenever a network connection is not present**.



Note While this stops the dialog box from displaying with Pervasive applications, this also has the side effect that other applications such as Internet browsers will no longer automatically spawn the **Dial-Up Networking** dialog box when a connection to the Internet is needed. In that case, you need to connect to the Internet manually using Dial-Up Networking.

According to Microsoft, the **Connect to the Internet As Needed** check box is designed to launch Dial-Up Networking whenever TCP/IP is used by an application, so this behavior is correct.

Using the DOS Requesters

This section documents the use of DOS requesters.

Overview

Pervasive.SQL 2000i supports DOS Btrieve applications in several different ways. The exact method, however, depends on the current configuration and environment of the workstation.

Requesters Available

The following choices are available:

- Win32 DOS Box support: Allows a DOS application to run in a DOS box on a Windows NT or Windows 9x workstation. This enables direct communication to the Windows 32-bit workstation components rather than to the database engine. This configuration can be used with either a local Pervasive.SQL 2000 workstation or workgroup engine, or a remote Pervasive.SQL 2000 server engine. The TCP/IP or SPX protocol supported for client/server access depends on the configuration of the Windows 32-bit components.



Note DOS Box support must be used for Workstation and Workgroup engines. These engines do not support the DOS requesters described below.

- DOS TCP/IP requester (BREQTCP): Allows a DOS application to run in any Windows DOS box or on a DOS workstation, and communicate to a remote Pervasive.SQL 2000 server engine via the TCP/IP protocol.
- DOS SPX requester (BREQUEST or BREQNT): Allows a DOS application to run in any Windows DOS box or on a DOS workstation, and communicate to a remote Pervasive.SQL 2000 server engine via the SPX protocol.



Note BREQTCP, BREQUEST, and BREQNT are explained in *Getting Started with Pervasive.SQL* (Server edition).

There are different reasons for using these different options, including:

- Pervasive.SQL 2000 Workstation and Workgroup products support only the Win32 DOS Box configuration.
- DOS and Windows 3.1x operating systems require the DOS TCP/IP or SPX requesters when accessing a remote server engine.
- Any given network environment must have only one of the supported protocols available.

Supported Configurations

The table below shows the DOS requester configurations that are supported.

Table 17-4 Supported DOS Requester Configurations

Requester	Workstation/ Workgroup on Windows 95/98/ME	Workstation/ Workgroup on Windows NT/2000	Client on Windows 95/ 98/ME to Remote Server Engine	Client on Windows NT/ 2000 to Remote Server Engine
DOS Box	✓	✓	✓	✓
BREQTCP			TCP/IP only	TCP/IP only
BREQNT			SPX only	SPX only
BREQUEST			SPX to NetWare only	SPX to NetWare only

The preferred Requester for Windows is BTRBOX. You can use this Requester even for legacy DOS applications, and for Workstation/Workgroup applications.



Note Use the BREQUEST/BREQNT/BREQTCP Requesters ONLY if you experience a problem with BTRBOX. These Requesters are supported for access to Server engines only, not to Workstation or Workgroup engines.

Win16 and DOS Workstations

The Requesters for non-Win32 boxes are:

- BREQUEST
- BREQNT
- BREQTCP

The following sections document the steps for running DOS applications on Windows NT and Windows 2000, Windows 9x, and DOS.

- “Running DOS applications on Windows NT/2000”
- “Running DOS applications on Windows 95/98”
- “Verifying the DOS Configuration”
- “DOS TCP/IP Technical Information”
- “Configuring the Pervasive.SQL 2000i DOS Requester”

Running DOS applications on Windows NT/2000

To run a Pervasive application on a Windows NT/2000 workstation or locally on a Windows NT/2000 server, you should always install the Windows client components. Note, these are installed on the Windows NT/2000 server by default. You can find the Windows client installation on the Pervasive.SQL 2000 CD in the \clients\win directory. Typically, the client installation programs are also installed automatically on your Pervasive.SQL 2000i server in the \pvs\clients\win directory.

After the Windows client component installation, you will have everything you need to run a DOS, Windows 16-bit, or Windows 32-bit application. The default DOS application support installed is the Win32 DOS Box configuration.

Using/Disabling Win32 DOS Box Support

Under Windows NT/2000, the DOS Box Install configures the drivers to be completely transparent. Thus, you are able to immediately open a command prompt and run a DOS Btrieve application. The CONFIG.NT file, located in the WINNT\SYSTEM32 directory, contains the command that enables DOS application support. This file is similar to the old Config.SYS in DOS. Windows NT and Windows 2000 load it for each DOS session opened. In here, the Install places the following path to load the Win32 DOS Box driver:

```
DEVICE = C:\PVS\BIN\BTRDRV.R.SYS
```

To disable the Win32 DOS box support to use the DOS TCP/IP or SPX requester, you must follow these steps:

- 1 Remove the files BTRDRV.R.SYS and BTRVDD.SYS from your system; these are installed by default in the \pvs\bin directory.

- 2 Edit the Config.NT file (using Notepad) in the folder WINNT\SYSTEM32. Delete or invalidate the line:

```
DEVICE=C:\PVSW\BIN\BTRDRV.R.SYS
```



Note Each configuration (Win32 DOS Box, DOS TCP/IP and DOS SPX Support) is mutually exclusive. You must disable the existing configuration before configuring your machine for a new configuration.

Using DOS TCP/IP Support (BREQTCP)

To use the DOS TCP/IP requester on a Windows NT or Windows 2000 workstation, you must first disable the Win32 DOS Box support as described above, and then enable the DOS TCP/IP requester configuration.

To enable BREQTCP support on Windows NT/2000, follow these steps:

- 1 Copy the following six files into your %SystemRoot%\SYSTEM directory. %SystemRoot% refers to your Windows directory, typically C:\WINNT. You can determine the value for %SystemRoot% by opening a DOS box and entering the SET command.

```
BREQTCP.EXE
BREQTCP.MSG
JSBDOSWS.EXE
JSBDOSWS.DLL
MSOCKLIB.RC
VSLDOS.INI
```

- 2 Click **Start**, point to **Settings** and select **Control Panel**.
- 3 Double-click the **System** icon and click the **Environment** tab.
In Windows 2000, double-click the **System** icon and click the **Advanced** tab to get to the environment variables setting.
- 4 Add the following environment variable:

```
VSL=%SystemRoot%\SYSTEM
```



Note There must NOT be a trailing semicolon in this statement.

Once the DOS TCP/IP requester is setup, follow the following steps to run a DOS application:

- 1 Start a DOS session.
- 2 Run JSBDOSWS.EXE
- 3 Load BREQTCP.EXE from the \pvsw\bin directory; this needs to be loaded in each DOS session running a Btrieve application.
- 4 Run your application.



Note The commands to load JSBDOSWS and BREQTCP can be put in your AUTOEXEC.NT file. You can load JSBDOSWS with the Load High command.

To stop a DOS application, unload the requester components by entering the command BREQTCP /u followed by JSBDOSWS /u in the DOS box before closing it.

Using DOS SPX Support (BREQUEST/BREQNT)

There are two DOS SPX Btrieve requesters:

- BREQNT.EXE is the "dual mode" requester that can be used by a DOS application to communicate to either a Windows NT or a NetWare server.
- BREQUEST.EXE is a NetWare-only version of the DOS SPX requester.

BREQUEST exists for historical purposes before Windows NT support was available, and is still provided because it requires smaller memory than BREQNT. If you are accessing Pervasive.SQL on a NetWare server and if you are running low on DOS conventional memory, you may need to use BREQUEST. If you are accessing a Windows NT server, you must use BREQNT.

In order to use the DOS SPX requester on a Windows NT or Windows 2000 workstation, you must first disable the Win32 DOS Box support as described above; there are no special steps required to enable the DOS SPX requester configuration.

A DOS application can be run with the SPX protocol to a remote server engine by following these steps:

- 1 Start a DOS session.
- 2 Load BREQNT.EXE or BREQUEST.EXE from the \PVSW\BIN directory; this needs to be loaded in each DOS session running a Btrieve application.
- 3 Run your application.

To stop a DOS application, unload the requester by entering the command `BREQUEST /u` or `BREQTCP /u` in the DOS box before closing it.

Running DOS applications on Windows 95/98

To run a Pervasive application on a Windows 95/98 workstation, you must always install the Windows client components. These are found on the Pervasive.SQL 2000 CD in the \clients\win directory.

Typically, the client installation programs are also installed on your Pervasive.SQL 2000i server in the \pvsw\clients\win directory by default.

After the Windows client component installation, you will have everything you need to run a DOS, Windows 16-bit, or Windows 32-bit application. The default DOS application support installed is the Win32 DOS Box configuration.

Using/Disabling Win32 DOS Box Support on Windows 95/98



Note Legacy DOS applications must use the BTRBOX configuration on Windows95/98. In fact, it is the only supported configuration with the Workstation and Workgroup engine products. However, with client/server products, you can run DOS applications with either the BTRBOX configuration, or the legacy 16-bit DOS requesters.

If the DOS application is being run on a DOS or Windows 16-bit operating system, then the legacy 16-bit DOS requesters **MUST** be used. BTRBOX works on Win32 operating systems only.

Installation Instructions

To run a DOS application with the Win32 DOS Box configuration follow these steps:

- 1 Start BTRBOX95:
 - a. Select the BtrBox95 icon to launch from the **Start | Programs | Pervasive | Pervasive.SQL 2000i | Utilities** menu.
 - b. Load from the \pvsw\bin directory. A minimized dialog appears indicating active support. You must leave this dialog running.

Closure of this dialog will unload BTRBOX95. You will only need to run BTRBOX once -- you may have multiple DOS sessions open using a single instance of the driver.
- 2 Start a DOS session.
- 3 Load BDOSSTUB.EXE from the \pvsw\bin directory; this needs to be loaded in each DOS session running a Btrieve application.
- 4 Run your application.



Note You MUST reboot after the initial installation of the Windows client components in order for the Win32 DOS Box support to function. A device driver (VxD) is registered and will not load until reboot.

The proper order to stop a DOS application is as follows:

- 1 Stop the DOS application.
- 2 Close the DOS box.
- 3 Stop BTRBOX95.

If you do not follow this order, BTRBOX95 or the database engine may not unload properly.

In situations where stopping and restarting all clients is recommended, you should perform all three steps above. Simply stopping and starting your client applications is not sufficient.

To disable the Win32 DOS box support in order to use the DOS TCP/IP or SPX requester, you must follow these steps:

- 1 Remove the files BTRBOX95.EXE, BDOSSTUB.EXE, and BTRBOX95.VXD from your system; these are installed by default in the \pvs\bin directory.
- 2 Using REGEDIT, remove the following key from your registry:

```
HKEY_LOCAL_MACHINE\System\Current Control Set\
  Services\VXD\BtrBox95
```

Each configuration (Win32 DOS Box, DOS TCP/IP and DOS SPX Support) is mutually exclusive. You must disable the existing configuration before configuring your machine for a new configuration.



Caution Editing your registry is dangerous and can cause you to reinstall your entire computer. If you do not feel comfortable doing this, please obtain the services of a qualified technician. Pervasive can accept no responsibility for a damaged Registry.

Using DOS TCP/IP Support (BREQTCP)

To use the DOS TCP/IP requester on a Windows 9x workstation you must first disable the Win32 DOS Box support as described above, and then enable the DOS TCP/IP requester configuration using the following steps:

- 1 Ensure you have the following five files in your PVS\BIN directory. These files are installed as part of the clients\win installation. Make sure PVS\BIN is included in your path.

```
BREQTCP.EXE
BREQTCP.MSG
JSBDOSWS.VXD
MSOCKLIB.RC
VSLDOS.INI
```

- 2 Use a text editor such as Notepad to edit your AUTOEXEC.BAT file located in your root directory. Make sure the following line is in the file:

```
SET VSL=C:\PVS\BIN
```

- 3 Edit your SYSTEM.INI file with a text editor such as Notepad. SYSTEM.INI is a Windows system file that is located in your Windows directory (for example, C:\WINDOWS). In the section [386enh], ensure the following line exists

```
DEVICE=JSBDOSWS.VXD
```

- 4 Restart Windows 95/98 to register your changes.

Once the DOS TCP/IP requester is setup, follow these steps to run a DOS application:

- 1 Start a DOS session.
- 2 Load BREQTCP.EXE from the \pvs\bin directory; this needs to be loaded in each DOS session running a Btrieve application.
- 3 Run your application.

To stop a DOS application, enter the command BREQTCP /u in the DOS box to unload the requester.

Using DOS SPX Support (BREQUEST/BREQNT)

There are two DOS SPX Btrieve requesters. BREQNT.EXE is the "dual mode" requester used by a DOS application to communicate to either a Windows NT or a NetWare server. BREQUEST.EXE is a NetWare-only version of the DOS SPX requester. This exists for historical purposes before Windows NT support was available, and is still provided because it requires smaller memory than BREQNT. If you are accessing Pervasive.SQL on a NetWare server and if you are running low on DOS conventional memory, you may need to use BREQUEST. If you are accessing a Windows NT server, you must use BREQNT.

To use the DOS SPX requester on a Windows 9x workstation, you must first disable the Win32 DOS Box support as described above; there are no special steps required to enable the DOS SPX requester configuration.

A DOS application can be run with the SPX protocol to a remote server engine by following these steps:

- 1 Start a DOS session.
- 2 Load BREQNT.EXE or BREQUEST.EXE from the \pvs\bin directory; this needs to be loaded in each DOS session running a Btrieve application.

3 Run your application.

To stop a DOS application, unload the requester by entering the command BREQUEST /u or BREQTCP /u in the DOS box before closing it.

Running DOS applications on Windows 3.1 or DOS

DOS Btrieve application support on Windows 3.1 or DOS workstations is only available through the DOS TCP/IP or DOS SPX requesters.

Both allow a DOS application to communicate to a Windows NT/2000 or NetWare server running the client/server version of Pervasive.SQL 2000i.

Using DOS TCP/IP Support (BREQTCP)

To use the DOS TCP/IP requester on a DOS or Windows workstation, you must have one of the following TCP/IP stacks:

- Microsoft LAN Manager
- Novell LAN Workplace
- FTP Software 2.2 or greater

You can enable the DOS TCP/IP requester configuration using the following steps:

- 1 Copy the following files to the target directory; if you are running Windows 3.x, the target directory is the %windir%\SYSTEM directory. If you are running DOS only, the target directory is the directory where you installed the Pervasive.SQL DOS client software. These files can be found in the clients\dos directory on your Pervasive.SQL 2000i CD or in the PVSU\Clients\DOS directory of a Pervasive.SQL 2000i server.
 - ♦ BREQTCP.EXE
 - ♦ BREQTCP.MSG
 - ♦ M3OPEN.EXE
 - ♦ MNOVLWP.EXE
 - ♦ MFTP22.EXE
 - ♦ MSOCKLIB.RC
 - ♦ VSLDOS.*

- 2 Rename your VSLDOS file to VSLDOS.INI in your target directory.

If Your TCP stack is	Rename this file to VSLDOS.INI
<i>Microsoft LAN Manager</i>	VSLDOS.M3
<i>Novell LAN Workplace</i>	VSLDOS.LWP
<i>FTP Software</i>	VSLDOS.FTP

- 3 Edit AUTOEXEC.BAT file located in the root directory. Add the following line to the file:

```
SET VSL=[jsb-location]
```

where [jsb-location] is the fully-qualified path of the directory where you placed the VSLDOS.INI file. For example, C:\WINDOWS\SYSTEM if you use Windows 3.x or C:\PVSU\BIN for DOS.

- 4 Restart the computer to register the AUTOEXEC.BAT changes.
- Once the DOS TCP/IP requester is setup, follow these steps to run a DOS application:

- 1 Make sure your TCP/IP components are loaded, as described by your TCP/IP stack provider.
- 2 Run the JSB executable appropriate for your TCP stack:
 - M3OPEN.EXE (Microsoft)
 - MNOVLWP.EXE (Novell)
 - MFTP22.EXE (FTP)
- 3 Load BREQTCPIP.EXE.
- 4 Run your application.

VENDOR-SPECIFIC NOTES

MICROSOFT LAN MANAGER

- 1 Ensure that the NUMSOCKETS parameter in the [SOCKETS] section of TCPUTILS.INI is set to the maximum concurrent number of connections required.

- 2 SOCKETS.EXE is a Terminate and Stay Resident (TSR) program that allows applications to use the Microsoft LAN Manager TCP/IP stack. SOCKETS.EXE must be located in the same directory as the other Microsoft LAN Manager TCP/IP executable.

NOVELL LAN WORKPLACE

Using Novell's LAN Workplace for DOS with BREQTC.PEXE requires that the environment variable EXCELAN be set to the Novell base directory. For example, if you installed LAN Workplace in the C:\NET directory, do a SET EXCELAN=C:\NET prior to loading MNOVLWP.EXE and BREQTC.PEXE.

FTP SOFTWARE

- 1 Ensure that you allocate enough TCP and packet buffers for your application within the FTP kernel.
e.g. 'kernel-name' -t 16 -p 20
allocates 16 TCP connections and 20 packet buffers.
- 2 Once the maximum number of connections is reached, it may prove difficult to effect any connection thereafter until all, or almost all, connections have been closed. You are therefore recommended to set the maximum number of connections to a high number.

To stop a DOS application, unload the requester components by entering the command BREQTC.P /u at the DOS prompt, followed by [JSB executable] /U, where [JSB executable] is either M3OPEN.EXE, MNOVLWP.EXE, or MFTP22.EXE. If running in a Windows DOS box, unload the requester components before closing the DOS box.

Using DOS SPX Support (BREQUEST/BREQNT)

There are two DOS SPX Btrieve requesters. BREQNT.EXE is the "dual mode" requester that can be used by a DOS application to communicate to either a Windows NT or a NetWare server. BREQUEST.EXE is a NetWare-only version of the DOS SPX requester. This exists for historical purposes before Windows NT support was available, and is still provided because it has a smaller memory requirement than BREQNT. If you are accessing Pervasive.SQL on a NetWare server and if you are running low on DOS conventional memory, you may need to use BREQUEST. If you are accessing a Windows NT server, you must use BREQNT.

A DOS application can be run with the SPX protocol to a remote server engine by following these steps:

- 1 At a DOS prompt, load BREQNT.EXE or BREQUEST.EXE from the \pvsw\bin directory; this needs to be loaded in each DOS session running a Btrieve application in a Windows environment.
- 2 Run your application.

To stop a DOS application, unload the requester by entering the command BREQUEST /u or BREQTCP /u in the DOS box before closing it.

Verifying the DOS Configuration

To verify that the install completed successfully, you need a pure DOS Btrieve application. One of the simplest application ships with the server engines. You will find BUTIL.EXE in the PVSW\Clients\DOS directory. Running this command by itself will show a list of available commands. Do this one time to ensure the copyright information says Butil for DOS, not Windows NT. You will then want to access a Btrieve file. You can use the BUTIL -STAT command to do this. If the command completes successfully, your DOS support is functioning as designed.

Try a command like this:

```
BUTIL -STAT f:\pvsw\samples\sample.btr
```

Here, "f:" is a drive letter mapped to your server and "f:\pvsw\samples\sample.btr" is the path and filename of an existing Btrieve data file. A successful completion will return information about the data file. Otherwise, you will see a status code indicating the problem. Pervasive Technical Support can help you resolve any problems.

DOS TCP/IP Technical Information

BREQTCP.EXE is a DOS executable that runs on various DOS and Windows platforms. It is built using JSB Corporation's Virtual Socket Library (VSL). VSL implements an API based on the Berkeley 4.3 sockets standard that enables development of platform-independent and transport-independent network applications. For information about JSB Corporation, visit their site at <http://www.jsb.com>.

Components of the Btrieve TCP/IP Requester

- DOS TCP/IP Requesters: BREQTCP.EXE, BREQTCP.MSG
- VSL DOS components: M3OPEN.EXE, MNOVLWP.EXE, MFTP22.EXE
- VSL Windows 95/98 Components: JSBDOSWS.VXD
- VSL Windows NT Components: JSBDOSWS.EXE, JSBDOSWS.DLL
- VSL Platform specific configuration files - VSLDOS.INI, VSLDOS.M3, VSLDOS.LWP, VSLDOS.FTP
- VSL Multiplatform resource file: MSOCKLIB.RC

System Requirements for Btrieve TCP/IP Requester

Server software requirements

- Pervasive.SQL 2000i
- TCP/IP configured correctly at server

You must have one of the following client operating systems:

- Windows NT 4.0 or greater
- Windows 2000 SP1 or greater
- Windows 95/98
- DOS 5.0 or greater
- Windows 3.1 or Windows For Workgroups

For DOS, you must have one of the following TCP/IP stacks:

- Microsoft LAN Manager
- Novell LAN Workplace
- FTP Software 2.2 or greater

Conventional memory required to load with defaults

- Windows NT/2000
 - ♦ BREQTCP.EXE 81984
 - ♦ JSBDOSWS.EXE 30400 (Upper memory)
- Windows 95/98
 - ♦ BREQTCP.EXE 85792
 - ♦ JSBDOSWS.VXD 0 (No conventional memory used)
- DOS 5.0 or greater

- BREQTCP.EXE 81456
- M3OPEN.EXE 43280 (Microsoft LAN Manager)
- MNOVLWP.EXE 66880 (Novell LAN Workplace)
- MFTP22.EXE 69424 (FTP Software PC/TCP)

Accessing NetWare Servers

You must have your Pervasive.SQL server IP address configured properly on your clients for Pervasive.SQL to function. There are two ways to do this.

To configure your clients to use the server's IP address, do ONE of the following:

- Use the Control Panel to enable DNS

In Windows 95/98 or NT:

- a. Click **Start**, point to **Settings** and select **Control Panel**.
- b. Select **Network, TCP/IP** and click **Properties**.
- c. Click the **DNS** tab.
- d. Enable DNS and enter the appropriate server information.
- e. Verify correct configuration using the TCP/IP 'ping' to ping the server by name.

In Windows 2000:

- a. Click **Start**, point to **Settings** and select **Control Panel**.
- b. Select **Network and Dial-up Connections**, and the **Local Area Connection**.
- c. From the component list, select **TCP/IP** and then click **Properties**.
- d. Enable DNS by selecting the corresponding button and entering the appropriate server information.
- e. Verify correct configuration using the TCP/IP 'ping' to ping the server by name.

or

- Enter your Server IP address/name in the hosts file:
 \WINNT\SYSTEM32\DRIVERS\ETC\HOSTS file (Windows NT/
 2000).
 \WINNT\SYSTEM\DRIVERS\ETC\HOSTS file (Windows 95).



Note BREQTCP will return Btrieve status 20 if it is unable to resolve the server name into an IP address, or if the IP address is incorrect or unreachable.

Known Issues

This section contains notes on technical issues.

Multiple DOS Boxes

When running BREQTCP on Windows 95/98, only one DOS box is supported. Unloading BREQTCP is not sufficient to release the JSB VxD. The DOS box must be closed before another DOS box can load BREQTCP.

On Windows NT, there is no restriction on the number of DOS boxes that can be invoked.

Use of DOS Requesters on the Windows NT platform

There are some configuration requirements when you use the DOS Requester (BREQTCP, BREQNT or BREQUEST) with Windows NT.

- To run a DOS application using the DOS requester in a Windows NT DOS box to access a NetWare server, NW16.EXE must be loaded prior to loading BREQTCP. Pervasive Software recommends you load it from AUTOEXEC.NT. If the NWLink IPX/SPX compatible transport is installed, these files are located in the WINNT\SYSTEM32 directory.
- DOS applications are not supported through the DOS Requester when running on the Windows NT server where the data files you are trying to access reside. You must use the Win32 DOS Box Support as installed by Pervasive.SQL 2000i to access local files.

IP Address caching in Windows 95/98

After adding a target IP address for a NetWare server in the local Windows 95/98 hosts file, BREQTCP must be unloaded and reloaded.

After correcting a target IP address for a NetWare server in the local Windows 95/98 hosts file, the Win95/98 system may need to be restarted to restart the JSB VxD.

BREQTCP caches both valid and invalid IP addresses while the JSB VSL VxD caches valid IP addresses. The result is that modifications to the hosts file will not affect BREQTCP and may not affect the JSB VSL VxD depending upon prior attempts cached. This can be confusing when you are trying to modify a target IP address in the local host's file or on a DNS server.



Note The Windows 95/98 'ping' utility does not exhibit this behavior, so ping may work while BREQTCP requires that Windows 95/98 be restarted.

Diagnosing BREQTCP.EXE initialization failures

You may receive the following error message when loading BREQTCP:

```
BREQTCP-10: The function InitSocketLibrary returned  
an error.
```

If you see this message, you can determine the cause by using this checklist:

- ☐ Verify that the JSB VSL components appropriate to your workstation are loaded. Refer to the "Using DOS TCP/IP Support (BREQTCP)" section for your operating system for instructions on loading the JSB VSL components.
- ☐ Verify that you set the VSL environment variable to the directory where you placed the VSLDOS.INI file.
- ☐ Verify that the VSLDOS.INI you are using is correct. You should copy the appropriate VSL platform specific configuration file into your installation directory and renamed it VSLDOS.INI. It is not necessary to modify the VSLDOS.INI file. Refer to the "Using DOS TCP/IP Support (BREQTCP)" section for your operating system to find the correct version of the configuration file for your platform.
- ☐ On Windows 95/98, ensure another DOS box using BREQTCP is open. This is the multiple DOS box condition described above.

Configuring the Pervasive.SQL 2000i DOS Requester



Note There is no DOS requester for the SQL Relational Database Engine. All database transactions on DOS must be done through the MicroKernel.

Before configuring the Pervasive.SQL 2000i DOS Requester, review this section for any information necessary to your operation. You should also read the READDOS.TXT file on the distribution media.

You must load the Pervasive.SQL DOS Requester at a workstation running DOS before that workstation can access network data files. There are three versions of the DOS Requester: BREQUEST, BREQNT, and BREQTCP.

Version	Used On	Communication Protocol Used
BREQUEST	Local area networks that use only NetWare servers. BREQUEST uses less memory than BREQNT in accessing NetWare servers.	SPX
BREQNT	Local area networks that use Windows NT (or a combination of NetWare and Windows NT). You can also use BREQNT from a DOS box from Windows NT or Windows for Workgroups. BREQNT requires that the DOS workstations accessing the file server have the following components loaded: ◆ To run BREQNT from DOS or Windows, load the Microsoft Network Client for MS-DOS and Windows. You also must use the NetWare SPX protocol stack. Pervasive recommends using the ODI drivers from Novell. You do not need to run NETX.EXE or be logged on to a NetWare server if you are using a Windows NT-only LAN. ◆ To run BREQNT from a DOS box in Windows for Workgroups, load the Microsoft Windows for Workgroups Network Client.	SPX
BREQTCP	Local area networks that use NetWare or Windows NT servers. You CANNOT use this requester from a Windows 95 or Windows NT DOS box.	TCP/IP

The DOS Requester loads into a DOS workstation's memory as a Terminate and Stay Resident (TSR) program. You can access local as

well as remote files by running a Pervasive.SQL engine on your machine.

Use of DOS Requesters on the Windows NT platform

There are some configuration requirements when you use the DOS Requester with Windows NT.

- To run a DOS application using the DOS requester in an NT DOS box, NW16.EXE and NWIPXSPX.EXE must be loaded prior to loading BREQNT or BREQUEST. Pervasive Software recommends you load them from AUTOEXEC.NT. If the NWLink IPX/SPX compatible transport is installed, these files are located in the WINNT\SYSTEM32 directory.
- Only IPX/SPX is allowed for DOS requesters on Windows NT DOS boxes. TCP/IP (using BREQTCP) is not supported.
- DOS applications cannot run on the NT server where the data files you are trying to access reside. If attempted, a nonzero status code results.

Loading the Btrieve DOS Requester

Load the DOS Requester at the workstation by entering one of the following commands:

```
[path] BREQUEST [options]
[path] BRREQNT [options]
[path] BREQTCP [options]
```

path The path to the directory where the DOS Requester is stored. You can omit the path name if the DOS Requester is stored on the default drive or if it is located in a directory in your search path.

option Any of the configuration options described in "Btrieve DOS Requester Options" on page 17-45.

For example, if the Requester is on the default drive and you want to specify a 2,048 byte data message length, enter BREQNT /D:2048.



Note The forward slash (/) before the configuration option is the only valid character you can use. If you specify a dash (-) or a backslash (\), the Requester may load improperly.

Unloading the Btrieve DOS Requester

To unload the DOS Requester, use the /U parameter of the DOS Requester (BREQUEST, BREQNT, or BREQTCP; see “Unload Requester (/U)” on page 17-49), or the DOS Requester utility, BREQUTIL.EXE. At the workstation where the DOS Requester is loaded, enter BREQUTIL -STOP.

To determine the version of your DOS Requester, you can enter BREQUTIL -VER.

If files have been left open (for example, when an application does not issue a Close operation for each open file, or does not issue a Reset), simply logging out of one or more servers from a workstation does not close data files or terminate the Btrieve communications connection to the server. To close data files and terminate the connection, you must unload the Btrieve requester.

Btrieve DOS Requester Options

There are several configuration options for the Btrieve DOS Requester.

NetWare Runtime Server Support (/C)

Range: /C:0 | /C:1 | /C:1,*username,password*

Default: /C:1

Memory Required: Not applicable

Runtime Server Support allows access to the MicroKernel running on a NetWare Server that the user is not attached to. The workstation must have a network connection to one or more servers, but not necessarily the target Btrieve server. Using this option, you can enable or disable NetWare Runtime server support.

/C:0 Disables NetWare Runtime Server support.

/C:1 Enables NetWare Runtime server support. The MicroKernel looks at the username for the drive (current server) on which you are presently running.

If the username is SUPERVISOR or ADMIN, the MicroKernel searches for another username in the table of usernames for the servers to which you have a network connection.

If the username is not SUPERVISOR or ADMIN, the MicroKernel searches for that username on the NetWare Runtime server. If it is not a valid username, the MicroKernel returns Status Code 94, Permission Error, at the time of the Open or Create request on the NetWare Runtime server.

/C:1, *username, password*

Enables NetWare Runtime server support. The MicroKernel Database Engine verifies the specified username and password for the NetWare Runtime server. The MicroKernel returns an error if the specified username is not found or the password is invalid.

username Preferred login name on the NetWare runtime server. If you specify **SUPERVISOR** for the username, the MicroKernel returns status 99 at the time of the Open or Create.

password Login password for the specified user.

Data Message Length (/D)

Range: 532 through 57,000 bytes (55,512 bytes is the upper limit for BREQNT)

Default: 4096 bytes

Memory Required: 355 bytes + data message length

This option specifies the length of the largest record (or the largest portion or chunk of a record) you want to access through the MicroKernel. (If you omit this option, the Requester uses the default value, 4096). The Requester uses this value to calculate the length of the data message buffer reserved for passing records between the MicroKernel and your applications. The requester maintains one copy of the data message buffer.

The value you enter here should not exceed the largest communication buffer size you configure for the MicroKernel through the Configuration utility since that is the maximum message that the server communication agent can receive.

Specify the data message length in bytes. For example, if the largest record your application uses is 3,000 bytes, specify the /D option as follows:

```
/d:3000
```



Note Specifying a higher value than you need for the /D option does not improve performance and could waste workstation memory.

DOS Session Load (/L)

Range: Not applicable

Default: Not applicable

Memory Required: Not applicable

To run a DOS-based Btrieve application in a Windows DOS box, you must have the DOS Requester loaded in each DOS session. However, if you have already loaded the DOS Requester before loading Windows, you cannot load the DOS Requester in any subsequent DOS session. Consequently, you cannot run the DOS-based Btrieve application in the DOS box.

In each Windows DOS session that will be running a Btrieve-based application, load the DOS Requester with the /L option. Doing so loads another instance of the DOS Requester that is available only to the DOS session. This operation provides the DOS session with its own copy of the DOS Requester that is available only to the DOS session, and prevents the DOS session from using the instance of the DOS Requester that you loaded before starting Windows.



Note Versions of Btrieve for NetWare prior to 6.15 required the DOS requesters to be loaded before Windows in order to run Win16 applications. This is no longer necessary.

Receive Packet Size (/M)

Range: 532-4,096

Default: 532 (BREQUEST) or 1514 (BREQNT or BREQTCP)

Memory Required: 3 * Receive Packet Size

This option serves the same function as the **Receive Packet Size** setting for the NetWare Btrieve Communications Manager server setting (described in *Pervasive.SQL User's Guide*). It has the same range as the server parameter but has different default that is optimized for the DOS requester.

Real-Time Data Compression (/O)

Range: None

Default: No compression

Memory Required: Approximately 32 KB on the workstation and 32 KB per client on the server

In many cases (such as when implementing extended reads or huge records), this option can help reduce network traffic and increase performance by reducing the number of packets required to complete a request to the MicroKernel. This option may, however, adversely affect memory and performance due to the compress and uncompress work that must be done.

Compressing and decompressing data takes extra CPU time on both the server and client sides. Because of overhead, do not use this option with fast networks or with slow workstations for clients.



Note This is not to be confused with Data Compression Flag. For more information on Data Compression Flag, see *Pervasive.SQL Advanced Operations Guide*.

Number of Servers (/S)

Range: 1 through 8, or more if memory permits

Default: 8

Memory Required: 27 bytes per server

The /S option specifies the number of MicroKernel Database Engine with which the requester can simultaneously communicate.

Number of Tasks (/T)

Range: 1 through 32,000

Default: 0

Memory Required: 9 bytes per task

The /T option specifies the maximum number of workstation tasks that can access the server engine at one time using the BTRVID function. Applications that use the BTRV function are not affected by this option. For more information about whether you should set this option, refer to the documentation for your Btrieve application.

Unload Requester (/U)

Range: Not applicable

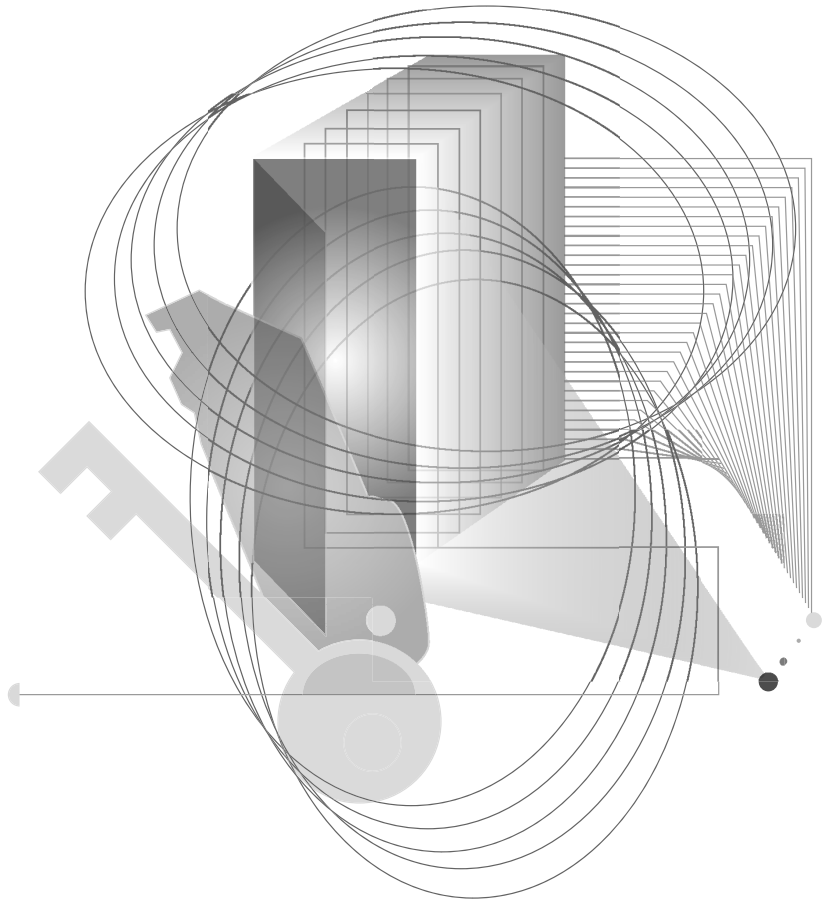
Default: Not applicable

Memory Required: Not applicable

This option unloads the Btrieve requester from memory. It performs the same function as a BREQUITL -STOP command.

Help (/?)

The /? option lists the options that are available.



AFTER INSTALLATION

Working With User Counts

chapter

18

Understanding and Upgrading User Counts for Pervasive.SQL 2000i Server

This chapter explains how to work with Pervasive.SQL licenses. This chapter contains the following topics:

- “Understanding Pervasive.SQL 2000i User Counts” on page 18-2
- “Applying Additional User Count Licenses” on page 18-4
- “Using the User Count Administrator” on page 18-5
- “Updating Your User Count and Licenses in Windows” on page 18-7
- “Updating Your User Count Using Command Line Utilities” on page 18-8



Note Users with UNIX servers must go to “Updating Your User Count From a UNIX Command Line” on page 18-10 to upgrade user counts from the server.

Understanding Pervasive.SQL 2000i User Counts

Each user count allows one remote computer to connect to the Pervasive database engine.

What counts as a single user count?

A single workstation that is using TCP/IP or SPX protocol to access Pervasive.SQL on a given server counts as one user.

Users are counted by being given a unique Media Access Control (MAC) address. On a local area network or Ethernet, the MAC address is your computer's unique hardware address. Multiple applications on a single client computer are not counted as separate users.

Where do I obtain a user count license?

User counts are obtained as a software key issued by Pervasive Software or your application vendor if the Pervasive.SQL database is embedded.

Your Pervasive.SQL Server product includes a user count key disk. In addition, you can obtain a key on disk by purchasing a User Count Increase kit from your Pervasive Software product distributor or your software vendor. You can increase the user count incrementally by a given number of users, usually 10 or more at a time for a client/server and one or more at a time above 3 users for the Workgroup engine, up to an unlimited number of users. When you reach 200 users, you effectively have an unlimited user count environment.

How long does the upgrade take?

Using the User Count Administrator, you can upgrade user counts almost instantaneously: apply the user count key and restart the engine to activate the new user count.

The following User Count Utilities are available:

Graphical User Count Utility (not available in UNIX)	See "Updating Your User Count and Licenses in Windows" on page 18-7.
Command Line User Count Utilities	Select the utility for your platform: "Updating Your User Count From a Windows NT Command Line" on page 18-9 "Updating Your User Count From a NetWare Server Console" on page 18-9 "Updating Your User Count From a UNIX Command Line" on page 18-10

Applying Additional User Count Licenses

You can purchase additional user count licenses and apply them to your Server engine at any time.

To perform the upgrade, simply follow the instructions provided in “Updating Your User Count and Licenses in Windows” on page 18-7 or “Updating Your User Count Using Command Line Utilities” on page 18-8.



Note You must restart the engine after applying the license for it to take effect.

Using the User Count Administrator



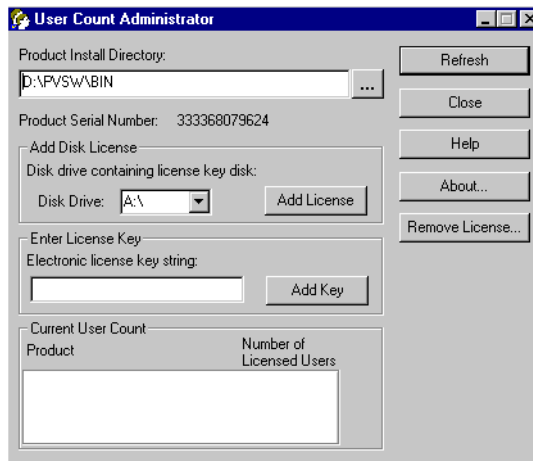
Note Users with UNIX servers must go to “Updating Your User Count From a UNIX Command Line” on page 18-10 to upgrade user counts from the server.

As shipped, Pervasive.SQL has an initial user count of zero. During installation, you were presented with the step to Setup the User Count License and the option to install the license or skip the step and return to it later. User counts are increased by adding the user count “key” included with your Pervasive.SQL distribution.

After product installation, you can use the User Count Administrator, a PCC utility, to increase the Pervasive.SQL user count. You obtain a disk key by purchasing a User Count Increase kit from one of the Pervasive Software product distributors.

You can run the User Count Administrator locally on a Windows NT server or remotely on a Windows NT or Windows 95 client. The figure below shows the **User Count Administrator** dialog box.

Figure 18-1 User Count Administrator Dialog Box



Click **Refresh** to update the information in the dialog box. (You may need to refresh the information if, for example, you change the Product Install Directory.)

Click **Remove License** to display a list of all incremental user counts you have applied. You can use this dialog box to remove individual user count licenses. Because the User Count Administrator displays only the highest version of each product in the current user count, you may want to remove a license if you inadvertently install a user count key from a higher version while still using a previous version of the product.

The table below describes the elements in the User Count Administrator dialogs.

Table 18-1 Elements in the User Count Administrator Dialog Box

Product Install Directory	Specify the path where the Pervasive.SQL engine is installed.
Product Serial Number	Displays the unique serial number assigned to the product.
Disk Drive	Specifies the disk drive letter that contains the user count key disk.
Add License	Applies the specified disk key.
Electronic License Key String	Specifies the 16 character license key string used to increase your user count.
Add Key	Applies the specified electronic license key.
Product	Lists the products installed.
Number of Licensed Users	Lists the current user counts for the specified products.

Updating Your User Count and Licenses in Windows

➤ **To start the Pervasive.SQL User Count Administrator:**

- 1 On the Start menu, click Programs | Pervasive | Pervasive.SQL 2000i | Utilities.
- 2 Select User Count Administrator from the list.

➤ **To increase your user count using a license key disk:**

- 1 Start the User Count Administrator as described above.
- 2 If the user count license is in a disk drive other than A, then use the drop down box to specify the drive on which the license is located.
- 3 Click Add License.

➤ **To increase your user count using an electronic license key string:**

- 1 Start the User Count Administrator as described above.
- 2 In the Electronic License key string field, enter your 16 character license key.
- 3 Click Add Key.

➤ **To remove a user count license:**

- 1 Start the User Count Administrator as described above.
- 2 Click Remove License.
- 3 Select the license you want to remove from the list and click Remove Single License.

Updating Your User Count Using Command Line Utilities

In addition to the graphical User Count Administrator, a command-line User Count Maintenance Utility is available for Windows NT, NetWare, and UNIX. The command-line utility uses the same syntax on all platforms.

```
NTUCUTIL -D<drive> | -G<code> | -K<key> | -S | -M<Path>
[-T<path>]
```



Note The NetWare versions of the utilities are prefixed with “NW” in place of “NT”. For example, the NetWare User Count Maintenance Utility is named “NWUCUTIL.” The UNIX versions of the utilities have no prefixes; therefore, the UNIX User Count Maintenance Utility is named “ucutil.”

The command-line options are described in the following table

Table 18-2 User Count Maintenance Utility Command Line Options

Option	Function
-D<drive>	Specifies the drive containing the user count key disk.
-G<code>	Returns the user count for the specified product code. The product code for Pervasive.SQL 2000i is 11. (To get a list of all products and codes, specify the -G option with no code.)
-K<key>	Specifies a key number with which to increase the user count.
-S	Displays the product serial number.
-T<path>	Specifies the target directory where Pervasive.SQL is installed, if not in the current directory.

To run the User Count utility, follow the instructions for your platform:

- “Updating Your User Count From a Windows NT Command Line” on page 18-9.
- “Updating Your User Count From a NetWare Server Console” on page 18-9.
- “Updating Your User Count From a UNIX Command Line” on page 18-10.

Updating Your User Count From a Windows NT Command Line

You can run the Windows NT version of the User Count Maintenance Utility locally at a command prompt.



Note If you use Windows 3.x, you cannot use this version of the User Count utility. Use the User Count Administrator instead.

The command syntax for the command prompt version is as follows. Options are described in Table 18-2 on page 18-8.

NTUCUTIL [options...]

➤ **To increase the Pervasive.SQL user count**

- 1 Insert a Pervasive.SQL license key disk into your disk drive.
- 2 Register the user count increase using the -D option, as in the following command example:

```
ntucutil -da:
```

➤ **To determine the current Pervasive.SQL user count**

Execute the following command from a Windows NT command prompt:

```
ntucutil -g11
```

Updating Your User Count From a NetWare Server Console

You can run the NetWare User Count Maintenance Utility locally at the server console (NWUCUTIL).

➤ **To increase the Pervasive.SQL user count**

- 1 Insert a Pervasive.SQL license key disk into your NetWare server's disk drive.
- 2 Register the user count increase using the -D option, as in the following command examples

```
LOAD nwucutil -da:
```

► **To check the current Pervasive.SQL user count on NetWare:**

- 1 Use the NWUCUTIL module with the -g switch to determine the user count. At a server prompt (either at the server console or through RCONSOLE) type:

```
LOAD nwucutil -g11
```

- 2 The user count displays on the console.

NOTE: This information can also be obtained using the User Count Administrator utility launched from the PCC.

Updating Your User Count From a UNIX Command Line

Run the User Count Maintenance Utility locally at a command prompt. The options are described in Table 18-2 on page 18-8 and can be found in the `ucutil` man page.

It is highly recommended that you go through the README.TXT file to find out the latest changes and additions to Pervasive.SQL 2000i.

```
ucutil -Dpath | -Gcode | -Kkey | -S | [-Tpath]
```



Note To update the User Counts in UNIX, you must have administrator rights on the server.

► **Updating the User Count under UNIX**

- 1 Login as root.
- 2 Stop all Pervasive.SQL engines by typing


```
/etc/init.d/psql stop    on Solaris or  
/etc/rc.d/init.d/psql stop    on Linux
```
- 3 Set your current directory to the installed location of your Pervasive.SQL executables, such as `/usr/local/psql/bin`. Run one of the following at the command line as your situation dictates:
 - If you are installing Pervasive.SQL 2000i for the first time:


```
rm *sys; ./ucinit -C11; ./ucinit  
-Qpath_to_ucmgr.key_key_file
```
 - If you are adding licenses from a file:

- ```
./ucutil -Dpath_to_dir_with_license_file
```
- If you are manually entering a license key:

```
./ucutil -Klicense_key
```



---

**Note** If you have a valid license file (`ucmgr.sys`) on diskette and both of the user count utilities fail to recognize the new license, try these steps:

1. Copy the file from the diskette to your current directory:

```
cp /mnt/floppy/ucmgr.key .
```

2. Invoke the user count initializer, forcing it to read from your current directory (you must type the period):

```
ucutil -d.
```

Note that the directory containing `ucutil` must be in your default search path. Your license should now be installed.

---

After successfully installing the license, the User Count Manager creates a file named `ucmgr.sys` in the `bin` directory where Pervasive.SQL is installed.

### ► Determining the User Count under UNIX

Execute the following command at the command prompt from the root user account:

```
ucutil -g11
```



# Connecting Clients to a Pervasive.SQL Database

---

*How to Connect Clients to the Sample Database on a Pervasive.SQL Server Machine*

A sample database called DEMODATA is included on every Pervasive.SQL server installation. This chapter shows how to use a Pervasive.SQL client to:

- ☐ Connect to a machine that is running a Pervasive.SQL server.
- ☐ Use the Pervasive Control Center to find the DEMODATA database.
- ☐ Access information in DEMODATA tables using Pervasive Control Center.

This chapter contains the following sections:

- “Basics About Pervasive.SQL Servers and Clients” on page 19-2
- “Connect a Client to a Pervasive.SQL Server” on page 19-3
- “Use the Client to Obtain Data from the Server” on page 19-5
- “Become an Expert User” on page 19-9

## Basics About Pervasive.SQL Servers and Clients

You should note the following about Pervasive.SQL servers and clients.

### ***Servers***

- Pervasive.SQL servers are also clients. The client components of Pervasive.SQL are installed with every server install. So you can use your server machine to connect to other servers as a client.

### ***Clients***

- You can use Pervasive Control Center to connect to remote machines on which a server engine of Pervasive.SQL is installed.
- You will need to login as an administrative user on the remote server to perform most functions.



## Connect a Client to a Pervasive.SQL Server

This procedure shows how to connect to a Pervasive.SQL server.

**1** Start PCC

Click **Start | Programs | Pervasive | Pervasive Control Center**

**2** Register a Server Engine in your Namespace.

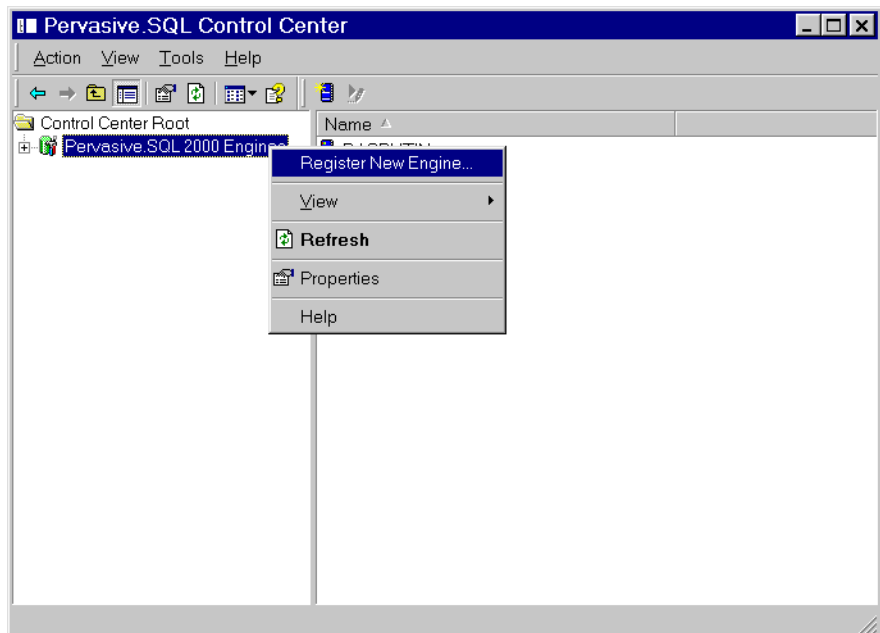
Right-click on **Pervasive.SQL 2000i Engines** (displayed in your namespace) and select **Register New Engine**.

The Namespace is the column on the left side of the Control Center window that contains a list of machines to which you are connected.



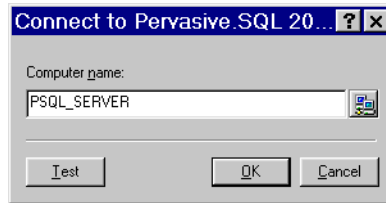
**Note** The machines listed in your namespace will remain between Control Center sessions. To remove a machine, right-click on the machine name and select **Delete**.

*Figure 19-1 Registering a New Engine*



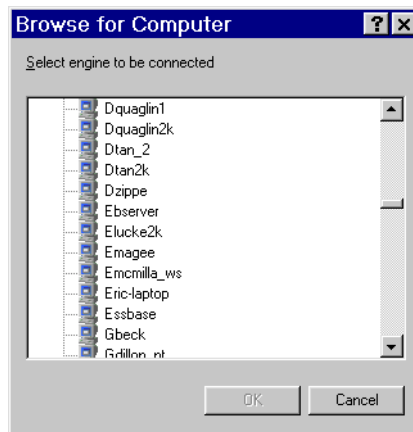
A dialog is displayed that allows you to choose the machine name where the Pervasive.SQL server resides.

Figure 19-2 Choosing a Computer Name



- 3 If you are unsure of the computer name, click the button to the right of the name field and select a computer name from the Network list that appears.

Figure 19-3 Choosing a Computer Name



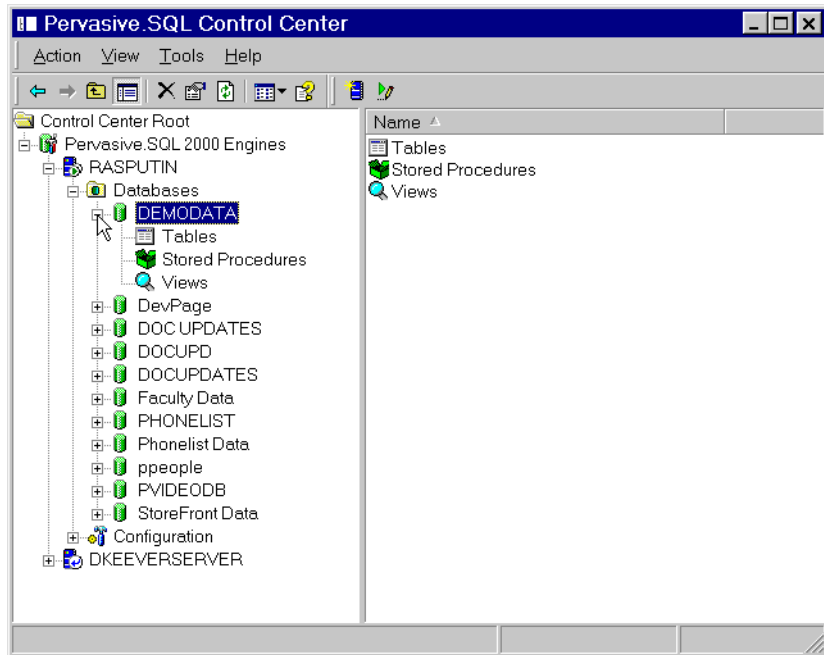
- 4 Click OK to add the machine to your namespace, or click Test to test the connection first.
- 5 You need to be authenticated on the remote server, and a dialog displays prompting you for a user name and password. Enter the values in the appropriate field and click OK.
- 6 You are now connected to the remote Pervasive.SQL server.

## Use the Client to Obtain Data from the Server

Once you are connected to the database:

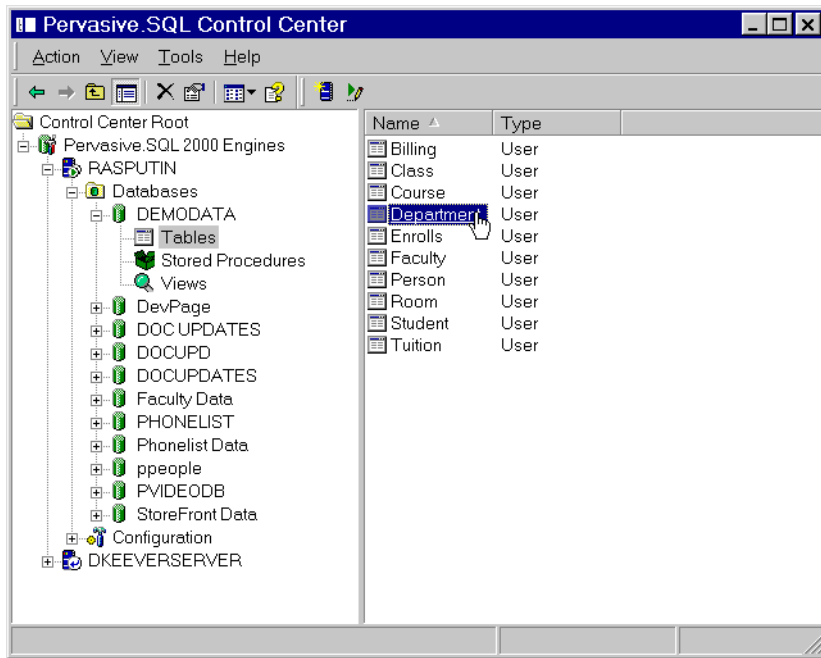
- 1 Expand the Databases list for your server as shown in Figure 19-4 on page 19-5.

Figure 19-4 Expanding the Databases List for a Machine



- 2 Find DEMODATA in the list and click on the plus (+) sign.
- 3 Select Tables from the list.
- 4 Click on the table DEPARTMENT as shown in Figure 19-5 on page 19-6.

Figure 19-5 Selecting the DEPARTMENT Table in DEMODATA

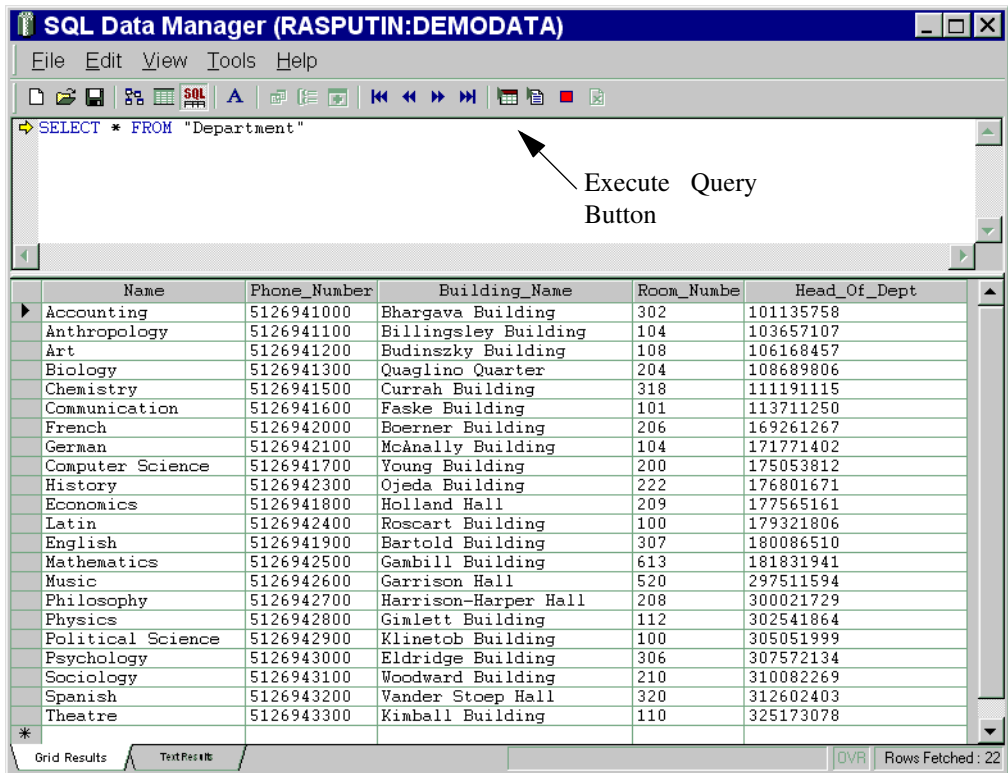


- 5 By default, a “SELECT \* FROM” query is run and the table results are displayed in an active grid as shown in Figure 19-6 on page 19-7

The active grid that loads when your data is displayed is updateable. That is, changes you make to the data in that grid are stored to the database.

If you wish to browse the data without the risk of mistakenly updating data, click the Text Results tab at the lower-left of the SQL Data Manager window, as shown in Figure 19-6.

Figure 19-6 Displaying the DEPARTMENT Table in DEMODATA



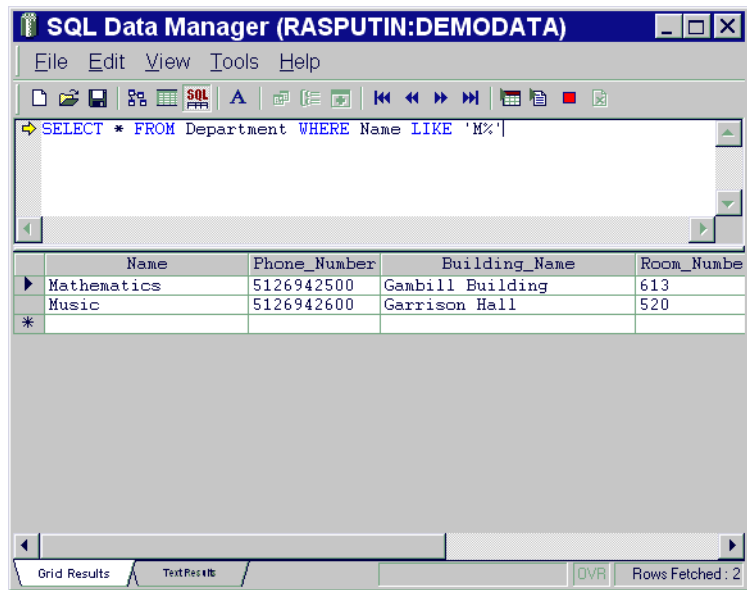
## 6 Refine your query

To show how to modify a basic query, restrict the results to only departments that start with the letter 'M' by altering the query at the top half of the screen and clicking the Execute Query button, which is shown in Figure 19-6.

```
SELECT * FROM Department WHERE Name LIKE 'M%'
```

You can see the results of the query in Figure 19-7 on page 19-8.

Figure 19-7 Refining Your Query - DEPARTMENT Table in DEMODATA



## **Become an Expert User**

Now that you can do some basic database access using Pervasive Control Center, you may want to continue learning about other features.

### ***Users's Guide***

This manual contains an overview of the Pervasive Control Center and instructions for performing basic tasks.

### ***Advanced Operations Guide***

This manual contains advanced operating and maintenance tasks, including database operations.





# *Taking Full Advantage of Upgrade*

---

*Rebuilding MicroKernel Data Files to the Latest Version Gains Functionality*

This chapter contains information about taking advantage of the latest features in Pervasive.SQL 2000i MicroKernel data files.

The chapter contains the following sections:

- “Issues After Upgrading” on page 20-2
- “Converting MicroKernel Data Files” on page 20-3
- “Command-Line Rebuild Utility” on page 20-10
- “Deleting Temporary Files” on page 20-13

## **Issues After Upgrading**

You are not required to rebuild your data files. Pervasive.SQL is completely backward compatible in respect to data file formats supporting file formats 5.x and 6.x.

This said, it is important to note that there are certain Pervasive.SQL features and functionality that will be unavailable if you do not rebuild your data files to the version 7 format.

The Pervasive.SQL features that are available with version 6.x file format are:

- Performance improvement
- Transaction Logging and Durability if your data file contains a unique key
- International Sort Rule (ISR) support

The Pervasive.SQL features that are available only with the version 7 file format are:

- New 64 GB file size limit
- Transaction Logging and Durability if your data file does not contain a unique key

## Converting MicroKernel Data Files

The Rebuild utility is a tool that can convert older Btrieve data files to the current Pervasive.SQL format. While the current engines remain compatible with the older files, there are several reasons for converting the files including support for nullable columns and performance improvements.

*Table 20-1 Rebuild Utility Conversions*

| Original File Format | Converted File Format | Reason for Conversion                                                                                                                                |
|----------------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-7.x              | 7.x                   | Take advantage of 7.x features and improve general performance.                                                                                      |
| 7.x                  | 7.x                   | Original file does not have a system key.                                                                                                            |
| Pre-6.0              | 6.x                   | Take advantage of 6.x features and improve general performance. Use this option only if you are still running the 7.x engine with other 6.x engines. |

The Rebuild utility comes in three forms with Pervasive.SQL 2000i: a 32-bit GUI version for Windows 9x/ME/NT/2000, a 16-bit GUI version for Windows 3.x and a command-line version that runs as an NLM on NetWare.

The file format that results from the conversion depends on the value set for the MicroKernel's Create File Version configuration option. For example, if the Create File Version value is 7.x then running the Rebuild utility on version 6.x files will result in the rebuilt files being converted to version 7.x format.



**Note** If your files are already in 7.x format, you do not need to rebuild. Pervasive.SQL 2000i has the same file format as Pervasive.SQL 7.

If you have more than one server engine available, you may wish to use each of your available server engines to rebuild a portion of the total number of files that must be converted. During your scheduled down time for the upgrade, you may find it helpful to copy large files out to the computers where the other server engines are, and then

copy the files back when you are finished converting. That way you can share the burden of converting among a number of CPUs.

You can use the **Continue on Error** option in combination with a \*.\* file list to convert all the data files in a directory, even if other types of files exist in the directory. The other types of files generate an error when the Rebuild utility attempts to open them. If you have the **Continue on Error** option set, the utility ignores each of these errors and skips to the next file.

If you have files in the same directory that are already in the version 7 format, they are also rebuilt, and the physical order of the records in these files may be changed depending on the rebuild options you select. You cannot convert from a more recent format back to an earlier format. For example, you cannot convert a version 7 data file to version 6.x format.

There is currently no facility to perform a recursive or multi-directory conversion without building a list of all the individual directories or individual files that you wish to convert.

Before running the Rebuild utility, back up all the data files you plan to convert. Having backup copies ensures against data loss if a power interruption occurs while the utility is running.



---

**Note** Large files, such as 3 or 4 GB, may take several hours to convert.

---

To ensure that the backup is successful, perform one or more of the following operations:

- Close all data files before running the backup utility.
- Use continuous operations.
- Use a backup utility that opens the files in exclusive write mode so that other processes cannot write to the files. Ensure that the backup utility has exclusive rights to the files.



---

**Note** You cannot run the Rebuild utility on a file that is in continuous operation mode.

---

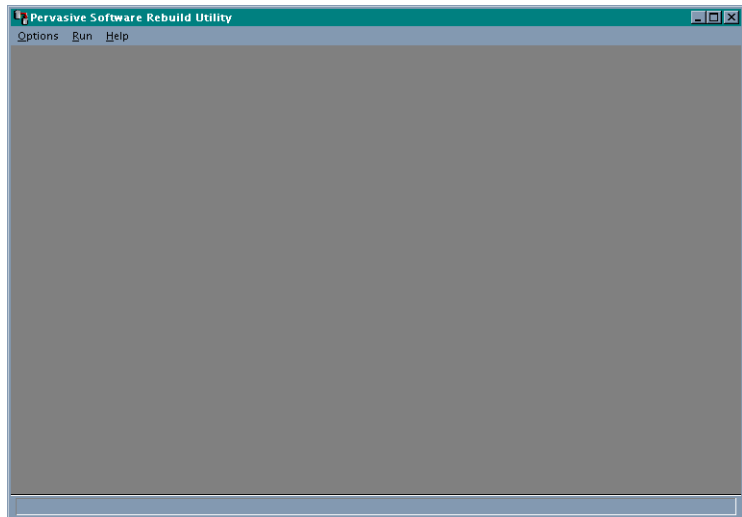
## ***Running the GUI Rebuild Utility***

There are three ways to start the GUI Rebuild utility:

- On a 32-bit Windows machine, select **Tools**, then **Rebuild** from the Pervasive Control Center menu.
- On a 32-bit Windows machine, from the Windows **Start** menu, select **Programs**, then **Pervasive**, then **Pervasive.SQL 2000i**, then **Utilities**, then **Rebuild**.
- On a 16-bit Windows machine, in the Pervasive.SQL 2000i program group, double-click the **Rebuild** utility icon.

The main window displays as illustrated in Figure 20-1.

*Figure 20-1 Rebuild Utility Main Window*



## ***Getting Help***

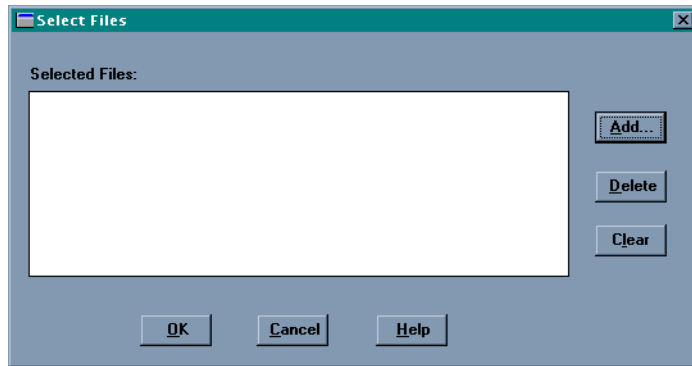
You can access a Help file from either the **Help** menu or by clicking **Help** in any dialog box.

## ***Converting a Data File***

### **► To convert a data file:**

- 1 Choose **Select Files** from the **Options** menu. The **Select Files** dialog box appears (Figure 20-2.)

Figure 20-2 Select Files Dialog Box

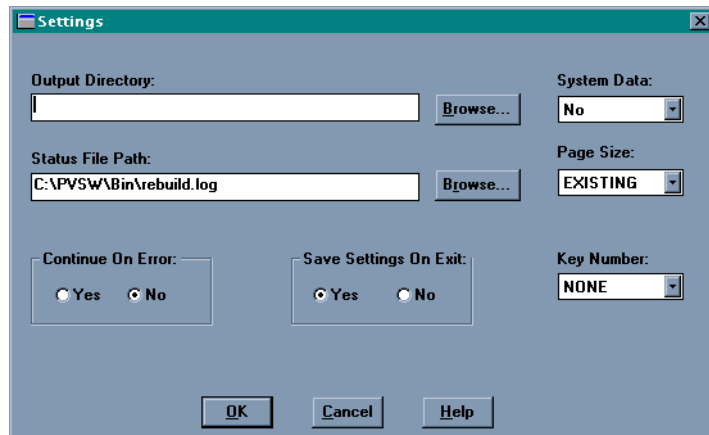


- 2 Click **Add** and select the file you want to rebuild. You can select more than one file to rebuild at a time. Click **OK** when you have finished adding files to rebuild.

The Rebuild utility deletes the original file after rebuilding it if the file is being rebuilt in the same directory. If the new file is in a different directory, the original file is not deleted.

- 3 Before you rebuild the file(s), you may want to specify settings. Choose **Settings** from the **Options** menu. The Settings dialog box displays as illustrated in Figure 20-3.

Figure 20-3 Settings Dialog Box



You can change the configuration options for the Rebuild utility before you rebuild your selected file or files. These options are defined in Table 20-2.

Table 20-2 Controls in the Settings Dialog Box

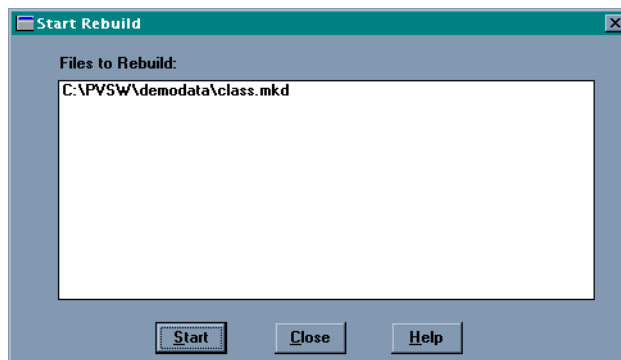
| Control                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output Directory        | <p>Specifies an alternate location for the rebuilt files. (The default location is the current directory.) You must specify a directory that already exists.</p> <p>This option lets you rebuild large files on a different server. The MicroKernel and its communications components must be loaded on the server that contains the rebuilt files. Do <i>not</i> use wildcard characters in the path.</p> <p>If the Output Directory location is different than the original file's location, the original file is not deleted during the rebuild. If the output directory is the same as the original file, the original file is deleted upon completion of the rebuild.</p> |
| Status File Path        | <p>Specifies a location for the rebuild log file. (The default location is the current working directory.) Do <i>not</i> use wildcard characters in the path.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Continue on Error       | <p>Determines whether the Rebuild utility continues if it encounters an error during the rebuild process. If you select Yes, the utility continues with the next file even if an error occurs. The utility notifies you of non-MicroKernel data files or other errors but continues rebuilding data files. If you select No, the utility halts the rebuild if it encounters an error.</p> <p>This option is useful if you have specified wildcard characters for the rebuilt files.</p>                                                                                                                                                                                        |
| Save Settings Upon Exit | <p>Saves the current values in this dialog box for use in subsequent Rebuild sessions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| System Data             | <p>Specifies whether files are rebuilt with system data. The MicroKernel cannot perform logging for a file with no system-defined log key when no user-defined unique key exists.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Table 20-2 Controls in the Settings Dialog Box *continued*

| Control    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page Size  | <p>Specifies the page size (in bytes) of the new files. Choose either EXISTING, 512, 1024, 2048, 3072, or 4096. If you select EXISTING, the utility uses the existing page size. The utility changes the page size if the original size does not work.</p> <p>For example, assume you have a v5.x file with a page size of 1,024 and 24 keys. Because Btrieve 6.0 and later supports only 23 keys for a page size of 1,024, the utility automatically selects a new page size for the file and writes an informative message to the status file.</p>                                                                                                                                                                 |
| Key Number | <p>Specifies the key by which the utility reads when rebuilding a file. If you specify NONE for this option, the utility clones the files, drops the indexes, copies the records into the new files, and rebuilds the indexes. Because this method is faster and creates smaller files than specifying a key number, use it whenever possible.</p> <p>This method may create a new file in which the records are in a different physical order than in the original file.</p> <p>If you specify a key number, the utility clones and copies the files without dropping and replacing indexes. While this method is slower than specifying NONE, it is available in case you do not want to rebuild your indexes.</p> |

- 4 After you specify the settings, you need to start the file conversion process. Select **Start Rebuild** from the **Run** menu. The Start Rebuild dialog box displays as indicated in Figure 20-4.

Figure 20-4 Start Rebuild Dialog Box



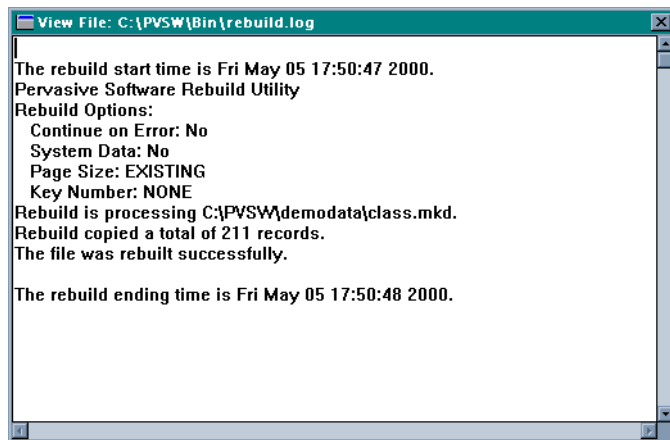


- 5 Click **Start** to begin the rebuild process, which converts all of the listed files.

When the process completes, a message dialog box informs of the success or failure of the conversion and prompts you to view the results.

- 6 Click **Close** when you have finished converting files.
- 7 To display the results, select **View Status File** from the **Run** menu. The REBUILD.LOG file is displayed as illustrated in Figure 20-5.

Figure 20-5 Start Rebuild Dialog Box



The Rebuild utility writes to the status file for every file it attempts to convert. The log file (REBUILD.LOG by default) is an ASCII text file that is placed by default in the directory in which you run the Rebuild utility from.

You can examine the log file by selecting the View Status File command from the Run menu. The rebuild settings are listed for every file. If you disabled the **Continue on Error** setting, the status file contains the information up to the point of the error. If the rebuild was not successful, the status file contains error messages explaining why the rebuild failed.

## Command-Line Rebuild Utility

This section provides detailed instructions for using the command-line Rebuild utility which runs only as an NLM on NetWare.

### ***Running the Rebuild Utility on NetWare***

#### ➤ **To run the Rebuild utility for NetWare:**

- 1 Run RCONSOLE from a workstation, or go to the server's console.
- 2 Enter one of the following commands at the prompt:

```
LOAD BREBUILD [-option ...] file
or
LOAD BREBUILD @command_file
```

### ***Changing Configuration Options***

#### ➤ **To change the configuration options for the Rebuild utility for NetWare:**

The *Option command* specifies the configuration options for the utility. Precede each option letter with a dash (–). Do not place a space between the dash and the option letter or between the option letter and its value. You can enter the option letter in either uppercase or lowercase.

–B[*path*]                      Specifies an alternate location for the rebuilt files. (The default location is the current directory.) You can also specify a different server with this option. On your local server, you must have the MicroKernel Database Engine and the Message Router loaded. On a remote server, you need the MicroKernel Database Engine and communications components loaded. Do *not* use wildcard characters in the path you specify.

–C                              Instructs the utility to continue with the next file even if an error occurs. The utility notifies you of non-MicroKernel data files or other errors but continues rebuilding data files.

This option is useful if you have specified wildcard characters for the rebuilt files.

- D Converts pre-6.0 supplemental indexes (which allow duplicates) to 6.x or 7.x indexes with linked-duplicatable keys. (By default, the utility preserves the indexes as repeating-duplicatable keys.) If you access your data files only through Btrieve and your files have a relatively large number of duplicate keys, you can use this option to enhance the performance of the Get Next and Get Previous operations.
- If you are using Scalable SQL to access your data files, do *not* use the –D option.
- M0 | –M2 Specifies the conversion method, as follows:
- M0 Clones and copies the files without dropping and replacing indexes. While this method is slower than M2, it is available in case you do not want to rebuild your indexes.
- M2 (Default) Clones the files, drops the indexes, copies the records into the new files, and rebuilds the indexes. Since this method is faster and creates smaller files than the M0 method, use it whenever possible.
- The M2 method may create a new file in which the records are in a different physical order than in the original file.
- P[nnn] Specifies the page size (in bytes) of the new files. If you specify –P with no page size, the utility chooses the optimum page size for your file.
- If you do not specify the –P parameter, the utility changes the page size if the original size does not work.
- For example, assume you have a v5.x file with a page size of 1024 and 24 keys. Since Btrieve 6.0 and later supports only 23 keys for a page size of 1024, the utility automatically selects a new page size for the file and displays an informative message on the screen.
- K[nn] Specifies the key by which the utility reads when rebuilding a file. If you do not specify this option, the utility reads the file in physical order.
- T Does not preserve the Transaction Tracking System (TTS) bit during conversion. If you specify this option, the utility clears the TTS bit if it was set. If you do not specify this option, the utility sets the TTS bit when creating the new file if the original file had the TTS bit set.

*File* and *@command\_file* are defined as follows:

|                      |                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>file</i>          | Specifies the set of files to convert. Use full directory names, including the volume name. You may use wildcards (* and ?) in these file names. The Rebuild utility applies the original file's owner name and level to the new file.                                                                                                                                                                  |
| <i>@command_file</i> | Specifies a command file for the utility to execute. You can include multiple entries in one command file. Each entry in the command file contains the utility options (if any) and the set of files to convert, followed by <end> or [end]. When specifying the files to convert, be sure to use full directory names, including the volume name. You can use wildcards (* and ?) in these file names. |

The following is an example of a Rebuild utility command file:

```
-C sys:\mydir*.* <end>
-C -P1024 dta:\dir*.* <end>
-M0 -K0 sys:\ssql*.* <end>
```

The following example places the rebuilt files in a different directory on the server:

```
LOAD BREBUILD -Bsys:\newfiles -C -P4096
sys:\oldfiles*.*.mkd
```

## ***Viewing the Rebuild Log File***

After rebuilding your files, check the utility's log file to see if any errors occurred during the conversion. The BREBUILD.LOG is an ASCII text file, which is placed in the SYS:\SYSTEM directory. You can examine the log file using a text editor.

## **Deleting Temporary Files**

By default, the Rebuild utility creates temporary files in the same directory in which the conversion takes place. Therefore, you need enough disk space in that directory (while the Rebuild utility is running) to accommodate both the original file and the new file. You can specify a different directory for storing these files using the Output Directory option in the interactive version of the utility or using /B option in the NetWare version.

Normally, the Rebuild utility deletes temporary files when the conversion is complete. However, if a power failure or other serious interruption occurs, the Rebuild utility may not delete the temporary files. If this occurs, look for file names such as \_T-xxxxx.TMP and delete them



# Troubleshooting After Installation

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## *How to Proceed When You Encounter Errors During Installation*

Pervasive Software provides several features and tools in Pervasive.SQL 2000i that help to prevent configuration and installation problems.

Some of these utilities are installed and run as part of the installation process and all can be run later to evaluate configuration and registry settings and to troubleshoot problems. They are shown in Table 21-1.

- “Troubleshooting Tools” on page 21-2
- “Troubleshooting Strategies” on page 21-3
- “Diagnosing Problems with Pervasive System Analyzer (PSA)” on page 21-4
- “Checking Network Connectivity Using PSA” on page 21-5
- “Verifying Database Engine is Running” on page 21-8
- “Checking Client Functionality” on page 21-11
- “Obtaining File, Client, and Engine Version Number” on page 21-14
- “How to Get Additional Help” on page 21-19

## Troubleshooting Tools

The following table describes some tools that can help you avoid or solve problems.

*Table 21-1 Pervasive Tools that Assist in Installation and Problem Determination*

| Feature/<br>Component     | Function                                                                                                                                        | For More<br>Information                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Pervasive System Analyzer | Analyzes system components, runs communication tests, and archives or restores previous database engine files on your system.                   | See “Diagnosing Problems with Pervasive System Analyzer (PSA)” on page 21-4.                                            |
| Smart Components          | Smart Components is an internal design in Pervasive.SQL that ensures that Pervasive software components always load with compatible components. | Refer to the <i>Pervasive.SQL Advanced Operations Guide</i> .                                                           |
| Knowledge Base            | Provides information about many Pervasive software configurations and common environments.                                                      | Search the Pervasive Knowledge base at: <a href="http://support.pervasive.com/kb/">http://support.pervasive.com/kb/</a> |



## Troubleshooting Strategies

Pervasive Software hopes that your installation process completes without experiencing any problems. However, this depends on a number of factors, including proper network support, and operating system configuration.

If something does go wrong during an installation, Pervasive offers some tools that can help in diagnosing the problem. This chapter explores some of the troubleshooting techniques that you can use.

### ***Checklist for Problems***

- ☐ Did you see any error messages displayed during installation?
- ☐ Does the Network function correctly?
- ☐ Is the Engine running?
- ☐ Is the Client software correctly functioning?
- ☐ Are there errors in your PVSU.LOG file?

### ***Troubleshoot the Problem***

The rest of this section contains procedures that you can use in verifying your installation.

- “Checking Network Connectivity Using PSA” on page 21-5
- “Verifying Database Engine is Running” on page 21-8
- “Checking Client Functionality” on page 21-11
- “Obtaining File, Client, and Engine Version Number” on page 21-14
- “How to Get Additional Help” on page 21-19

## Diagnosing Problems with Pervasive System Analyzer (PSA)

Pervasive.SQL 2000i introduces you to a new diagnostic tool: PSA.

Pervasive System Analyzer (PSA) is conveniently integrated into the product installation and available as a stand-alone diagnostic tool to help you with the following tasks:

- Troubleshoot network problems
- Detect previous installations of Btrieve or Pervasive.SQL on your system
- Note other factors that influence your networking environment
- Perform archives and/or restorations of previously-installed versions of Pervasive.SQL

PSA replaces the features that were previously offered by SmartScout and InstallScout.

### ***How to Start PSA***

#### ➤ **To run PSA, follow these steps:**

- 1 Start PSA by doing one of the following:
  - Go to:  
**Start | Programs | Pervasive | Pervasive.SQL 2000i | Utilities | Pervasive System Analyzer.**
  - Double-click the PSA icon in Windows Explorer (95/NT) or File Manager (Windows 3.x).
  - Enter `psa.exe` (Win32) from the command line in a Win32 DOS box (Windows 9.x, Windows NT/2000 only). This assumes that the Pervasive installation directory is in your path.
  - Select **Run** from the **Start** menu (all Windows) or from the **File** menu (Windows 3.x), and enter `psa.exe` (Win32) and press **Enter**. This assumes that the Pervasive installation directory is in your path.



---

**Note** SmartScout was replaced by Pervasive System Analyzer starting in Pervasive.SQL 2000i Service Pack 3. The documentation on SmartScout has been removed.

---

### ***SmartScout Replaced by PSA***

## Checking Network Connectivity Using PSA

If you suspect that network connectivity may be the source of your problem, the Pervasive System Analyzer Utility can help you check this.

► **To check Network Connectivity using Pervasive System Analyzer:**

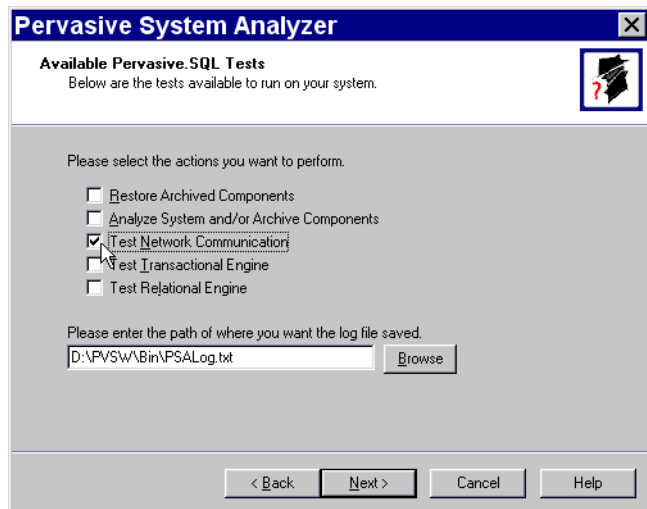
- 1 Load Pervasive System Analyzer.

Click **Start | Programs | Pervasive | Pervasive.SQL 2000i | Utilities | Pervasive System Analyzer**

- 2 Click **Next** after the Welcome screen displays

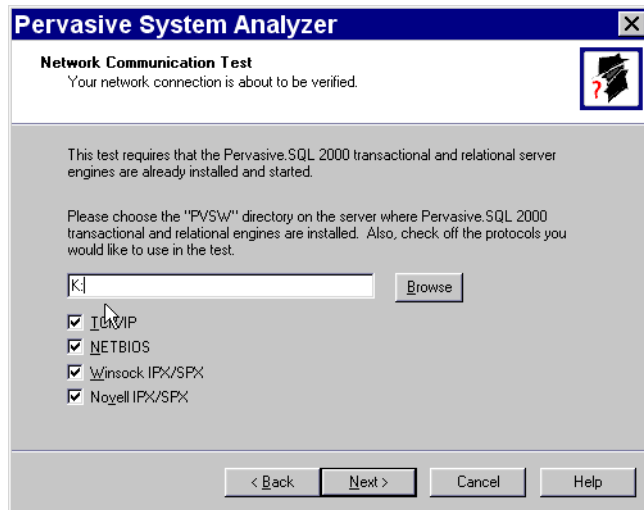
- 3 Choose the **Network Communications** test as shown in Figure 21-1. Before starting the test by clicking **Next**, choose the path where you want the log file written. The log file will contain information that may help you in diagnosing the problem.

Figure 21-1 Select Network Test



- 4 Enter the path to your network server in the dialog box that follows as shown in Figure 21-2.

Figure 21-2 Select Network Path



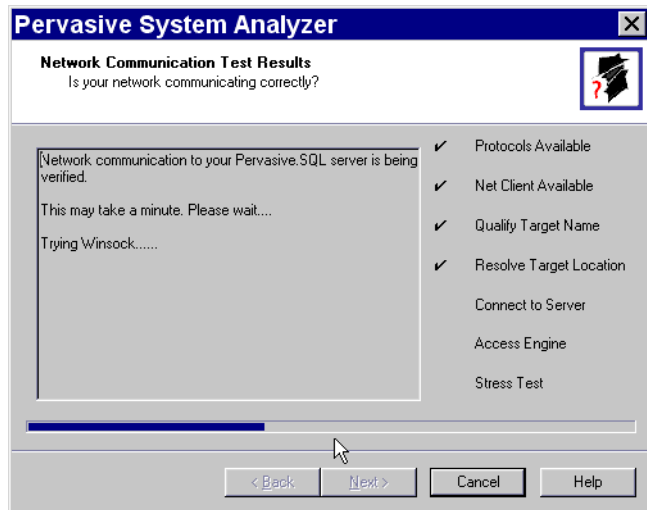
You can enter a path based on a mapped drive, or a UNC path. On UNIX platforms, specify the Samba share for Pervasive.

- Windows-based platforms: \\my\_server\pvsw
- Unix-based platforms: \\my\_server\psqldata (psqldata is default Samba share).

Click **Next** to start the test.

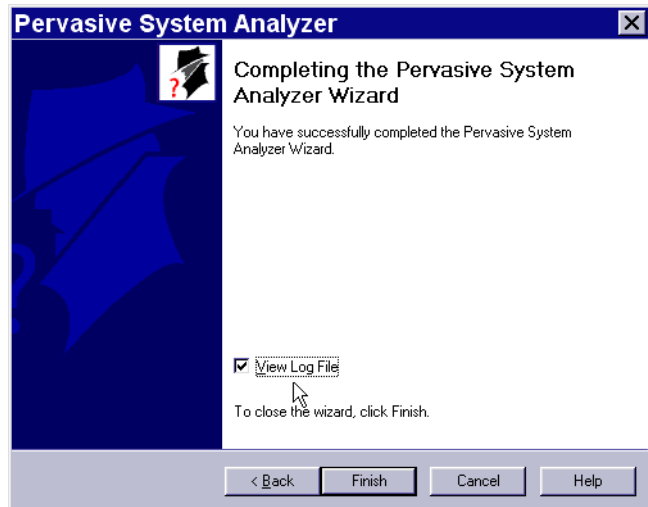
- 5 While the test is running, you can see its progress as shown in Figure 21-3 on page 21-7.

Figure 21-3 Network Test In Progress



- 6 When the test is complete, this screen will show the results of the test. Click Next to display the finish page.

Figure 21-4 Choosing to Display the Log File



- 7 Select the check box to view the log, as shown in Figure 21-4. The log file contains information that may help you diagnose the problem. The log file remains in the directory you chose earlier (see Figure 21-1 on page 21-5).

## Verifying Database Engine is Running

To verify that the Pervasive.SQL server engine is running, see the procedure for your platform:

- “Windows NT and 2000”
- “Linux or Solaris” on page 21-10
- “NetWare” on page 21-10

### ***Windows NT and 2000***

You can use the Services function of the Windows control panel.

#### ➤ **Using the Control Panel to Check Pervasive Services on Windows NT or Windows 2000:**

- 1** Click the **Start** menu, point to **Settings** and select **Control Panel**.
- 2** On Windows NT, double-click on the **Services** icon.

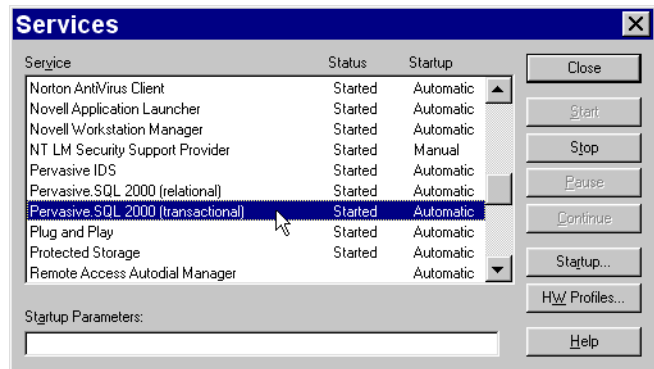
On Windows 2000, point to **Administrative Tools**, then to **Services**.

- 3** Type ‘P’ or scroll the list of services until you reach the following services.
  - Pervasive.SQL 2000 (transactional)
  - Pervasive.SQL 2000 (relational)

Both of these services must be started if Pervasive.SQL 2000i is to function correctly.

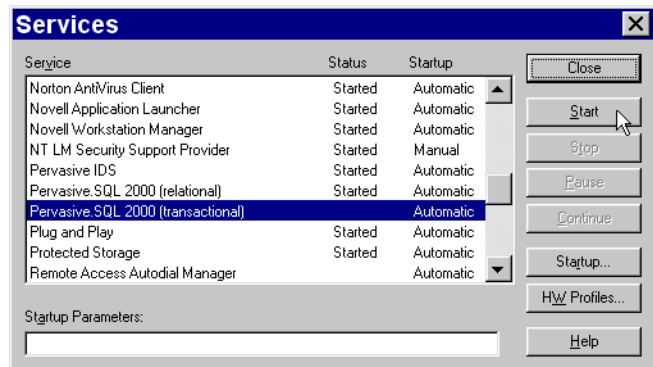
The second column (Status) displays whether or not the service is currently running. The third column (Startup) indicates whether the service is set to automatically start on system startup or start manually.

Figure 21-5 Displaying the Services Status



- 4 If a service is not started, select it in the list and click the **Start** button on the right side of the dialog as shown in Figure 21-6 on page 21-9.

Figure 21-6 Starting a Service



**Linux or Solaris** You can verify that both engines (mkded – transactional, sqlmgr – relational) are running with the UNIX `ps` utility:

Type the following at a command line:

```
ps -e | egrep 'mkded|sqlmgr'
```

➤ **To start the Pervasive.SQL services in UNIX:**

Enter the following at the command line under the root user account:

**Linux**

```
etc/rc.d/init.d/psql start
```

**Solaris**

```
etc/init.d/psql start
```

**NetWare**

You can verify that both engines are running by issuing the same commands that start the engines. NetWare will notify you that they are already loaded.

```
BSTART
MGRSTART
```



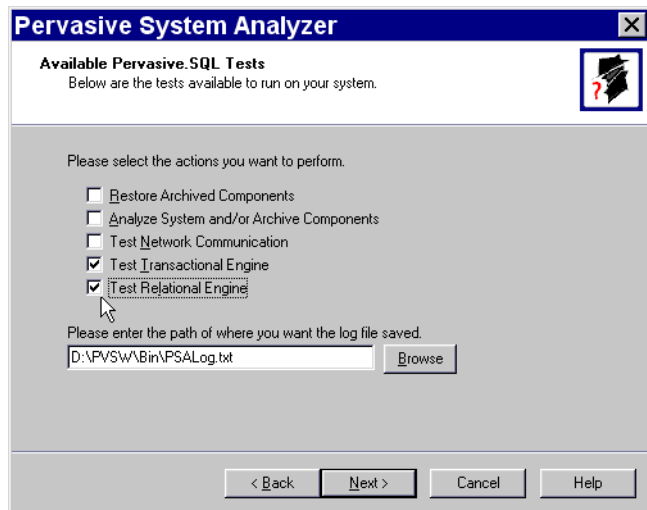
## Checking Client Functionality

If you want to test the client components as the possible source of problems, use the Pervasive System Analyzer utility.

► **To check Client Software Functionality using Pervasive System Analyzer:**

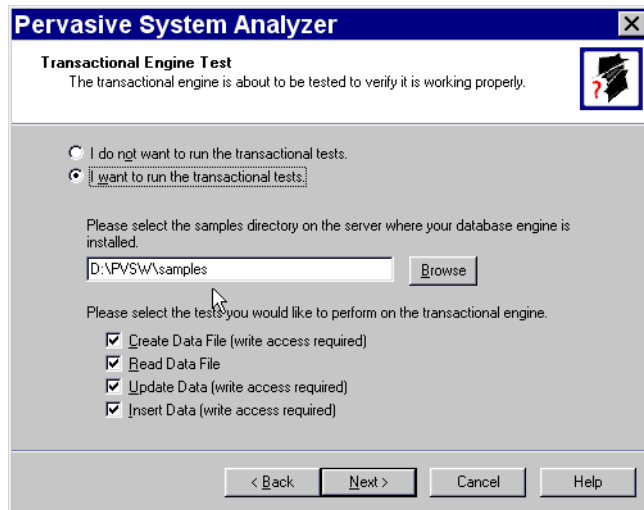
- 1 Load Pervasive System Analyzer.  
Click **Start** | **Programs** | **Pervasive** | **Pervasive.SQL 2000i** | **Utilities** | **Pervasive System Analyzer**
- 2 Click **Next** after the Welcome screen displays.
- 3 Choose the **Test Transactional Engine** and **Test Relational Engine** tests as shown in Figure 21-7. Before starting the tests by clicking **Next**, choose the path where you want the log file written. The log file will contain information that may help you in diagnosing the problem.

Figure 21-7 Select Transactional and Relational Engine Tests



- 4 Click **Next** to set up the Transactional test. The resulting dialog is shown in Figure 21-8.

Figure 21-8 Transactional Test Setup Dialog

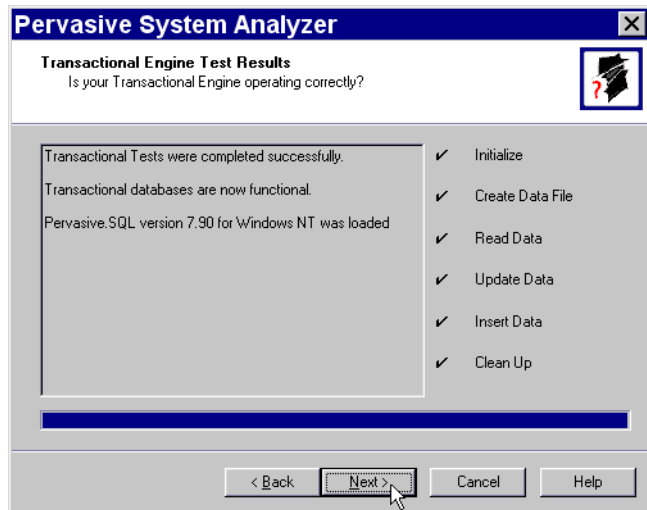


- 5 The dialog should be preconfigured to the location of the SAMPLES directory of your Pervasive installation. If not, enter the path of your SAMPLES directory in the appropriate field.

To target a Pervasive.SQL server on a UNIX platform, include the Samba path share in the field. For example,  
`\\unix_server\psqldata\samples.`

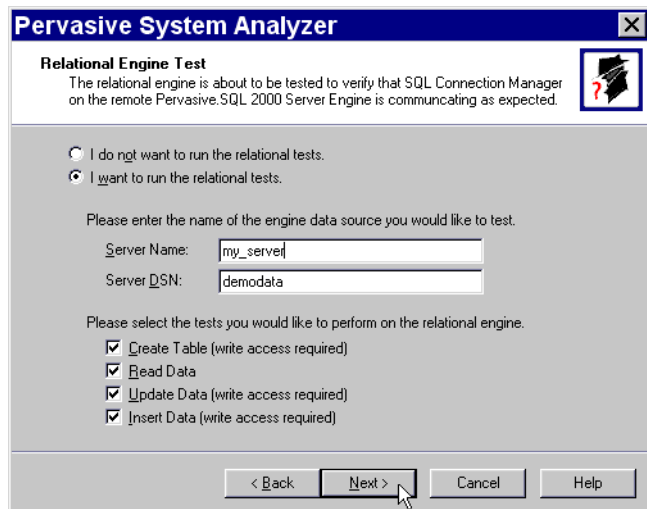
Click **Next** to start the test.

Figure 21-9 Transactional Test Results Dialog



- 6 After the Transactional test completes, the results are displayed on the screen, noting any errors that occurred. Click **Next** to set up the Relational test.

Figure 21-10 Relational Test Set Up Dialog



- 7 In the Server Name field, enter the name of the machine to which you want to run the Relational test if it is not the local machine. Click **Next** to run the test. A dialog similar Figure 21-9 displays when the Relational test is completed.

## Obtaining File, Client, and Engine Version Number

You can use Pervasive.SQL utilities to verify that the client and engines have the version number you expect, or to check the version of a particular file.

### ***Determining Client and Engine Version***

You can check the engine and client versions using Function Executor on Windows platforms or using the BUTIL command-line utility on all platforms:

#### **Using Function Executor**

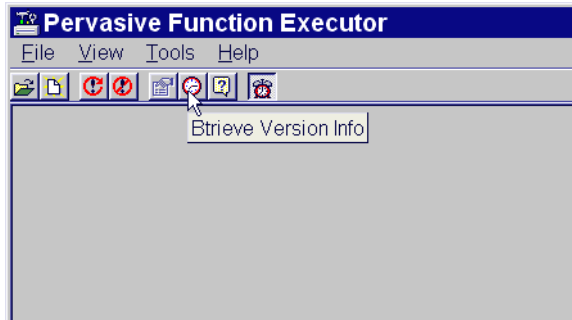
- 1 Load the Function Executor Utility.

Click **Start | Pervasive | Pervasive.SQL 2000i | Utilities | Function Executor**

Function Executor is a utility that simulates Btrieve client operations using the Pervasive.SQL requesters.

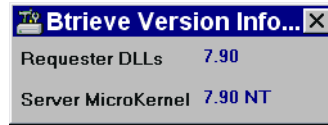
- 2 Select the **Btrieve Version Info** button, which appears as a clock icon. The correct button is shown in Figure 21-11.

*Figure 21-11 Selecting the Btrieve Version button*



- 3 After choosing the **Btrieve Version Info** button, a dialog displays that indicates the version of the client requesters and the engine.

Figure 21-12 Btrieve Version Info Display



## Using the BUTIL Utility

From a command prompt, enter the following:

```
BUTIL -VER
```

The requester and engine versions are then displayed.

## Determining a File Version

You can determine the file version of a MicroKernel data file using the Pervasive Control Center or Function Executor on Windows platforms, or using the BUTIL command-line utility on any platform:

- Using the Pervasive Control Center to select the properties of a table.
- Using Function Executor to open and then query the version of a file.
- Using BUTIL command-line utility to query the statistics of the file.

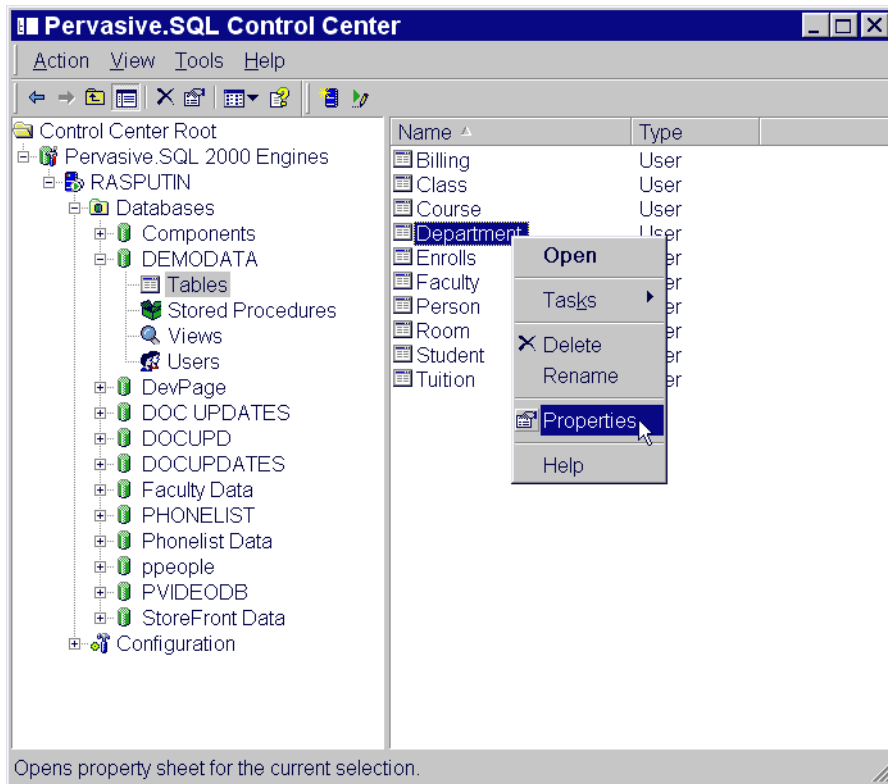
## Using the Pervasive Control Center

You can use the Pervasive Control Center to perform this task.

### ► To Determine the File Version of a Table Using Pervasive Control Center

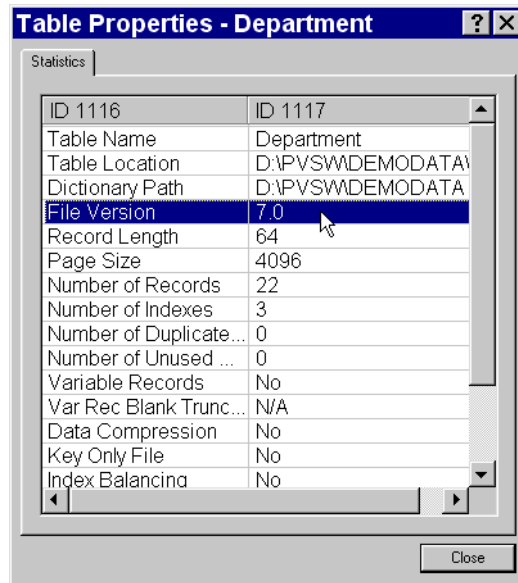
- 1 Click Start | Programs | Pervasive | Pervasive Control Center
- 2 Find the database by expanding its name in the Control Center namespace on the left.
- 3 Right-click on a table name and select Properties as shown in Figure 21-13.

Figure 21-13 Obtaining a File Version with the Pervasive Control Center



- 4 The table properties are displayed, which includes the file version of the underlying MicroKernel data file.

Figure 21-14 Table Properties Page



## Using Function Executor

The Function Executor utility can simulate Btrieve operations and can be used to determine the file version by performing the following operations:

- 1 Open (0)
- 2 Version (26)

The Function Executor utility is documented in more detail in *Pervasive.SQL Advanced Operations Guide*.

## Using BUTIL command-line utility

Use the -stat parameter of BUTIL to query the file statistics, which includes information about:

- File version
- Pages
- Records
- Keys

Type the following at a command prompt:

```
butil -stat <filename>
```

For example, to query the statistics of the file DEPT.MKD of the DEMODATA database included with Pervasive.SQL:

```
butil -stat dept.mkd
```

The BUTIL utility (available on Windows, NetWare, Linux, and Solaris) is documented in more detail in *Pervasive.SQL Advanced Operations Guide*.



## How to Get Additional Help

Pervasive Software strives to ensure that your product installation is easy and successful. If you encounter problems during the installation that are not covered in this manual, please contact Pervasive Software in one of the following ways and we will address your problem promptly.

For general questions, common problem resolution, client/server issues, your first line of support should be the Pervasive Software Knowledge Base, a web-based searchable index of all Pervasive technical information. This is located at <http://support.pervasive.com/kb>.

For developer-related issues, visit the following web sites:

- Pervasive Developer Center  
<http://www.pervasive.com/developerzone>
- PervasiveDevWire: Free developer-oriented e-mail news service at  
<http://www.pervasive.com/developerzone/emailnews>

If your installation is not successful, or you encounter problems not documented in the Pervasive.SQL manuals or on the Knowledge Base, contact Pervasive Software Customer Support in one of the following ways:

- Open an electronic incident at [http://www.pervasive.com/support/Email\\_Support.taf](http://www.pervasive.com/support/Email_Support.taf)
- Fax or telephone the Support Center in your region. See *Pervasive.SQL User's Guide* for a complete list of technical support contacts.

### **Thirty-Day Free Technical Support**

If you still have questions or problems relating to your Pervasive.SQL 2000i installation, you can obtain help from the Pervasive Customer Support department.

Your purchase of Pervasive products entitles you to 30 days of free technical support for installation and configuration problems.

See the following section, “Pervasive.SQL Resources and Contacts” on page 22-1 for information on how to contact Pervasive Software Customer Support.



# *Pervasive.SQL Resources and Contacts*

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*A Guide to Pervasive.SQL Customer Information Resources*

Pervasive Software strives to ensure that your experience with Pervasive.SQL 2000i is successful. This chapter describes the resources and information available to you as a valued customer of Pervasive Software.

The following variety of resources can help you get answers to your questions, troubleshoot problems, and interact with the Pervasive team as well as with other customers:

- “Printed Documentation” on page 22-2
- “Developer Center” on page 22-3
- “Pervasive.SQL Knowledge Base” on page 22-4
- “FTP Site” on page 22-5
- “Online Documentation” on page 22-6
- “DevWire” on page 22-7
- “DevTalk” on page 22-8
- “Newsgroup” on page 22-9
- “E-Mail” on page 22-10
- “Technical Support” on page 22-11

## Printed Documentation

Pervasive.SQL 2000i SP3 comes with a printed copy of *Getting Started* and *Status Codes Quick Reference*. A complete suite of online documentation is installed on Windows when you choose the **Typical** installation procedure. It is available as an option in the **Custom** installation procedure. The content is accessible through the **Start** menu:

**Programs | Pervasive | Pervasive.SQL 2000i | Documentation | Pervasive.SQL 2000 Documentation.**

Printed versions of the following titles are available for purchase:

- *Getting Started with Pervasive.SQL* (Server or Workstation/Workgroup edition)
- *Pervasive.SQL User's Guide*
- *SQL Engine Reference*
- *Status Codes and Messages*
- *Pervasive Products and Services*
- *Advanced Operations Guide*
- *What's New in Pervasive.SQL 2000i*

To order manuals, please contact Pervasive Software using one of the following methods:

Online: <http://www.pervasive.com/products/manuals/>

E-mail: [salesupport@pervasive.com](mailto:salesupport@pervasive.com)

Phone: 1-800-287-4383

## **Developer Center**

The Pervasive Software Web site is a great source for Pervasive.SQL information: <http://www.pervasive.com>. It is your most immediate source for assistance with the product.

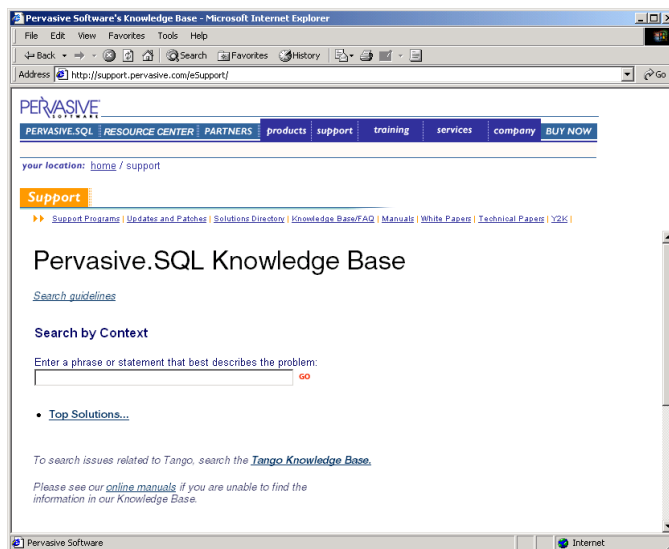
The link shown below is commonly referred to as Developer Center. It is a great starting point from which to navigate to available downloads, documentation, product updates, news articles, sample code and tutorials. Developer Center also provides access to an expansive technical library and training information.

<http://www.pervasive.com/developerzone/>

## Pervasive.SQL Knowledge Base

The Pervasive.SQL Knowledge Base Online is a searchable database for technical information regarding installation, configuration, component management, product defect status, and answers to the frequently asked questions (FAQs). The Knowledge Base, shown below, uses an associative problem-solving technology to perform contextual searches and can be used to quickly find specific answers to your questions about Pervasive products.

<http://support.pervasive.com/eSupport/>



## **FTP Site**

Pervasive Software strives to maintain close ties to developers using Pervasive.SQL for their database applications. On the Pervasive FTP site, you can find practical resources such as downloadable updates and patches to our product offerings as well as additional debugging tools, documentation, third-party tools, and beta releases.

<ftp://ftp.pervasive.com/support/>

## Online Documentation

The latest versions of Pervasive.SQL product manuals in CHM, HLP, and PDF format are available for download from the Pervasive Software web site. These titles include:

- *Getting Started with Pervasive.SQL* (Server or Workstation/Workgroup edition)
- *What's New in Pervasive.SQL 2000i*
- *Pervasive.SQL User's Guide*
- *SQL Engine Reference*
- *Status Codes and Messages*
- *Pervasive Products and Services*
- *Advanced Operations Guide*

<http://www.pervasive.com/support/technical/product/>



## DevWire

DevWire is a monthly newsletter on all things Pervasive: learn about Beta cycles and releases, Service Pack releases, current topics, FYIs, Q & As, Pervasive Software Events in your area, trade shows where you can find us, and much more!

To subscribe to DevWire, send an e-mail message with “**add**” as the subject line to [devwire@pervasive.com](mailto:devwire@pervasive.com).

## DevTalk

Pervasive Software's DevTalk discussion forums are a great way to share ideas with other customers, get technical questions answered, and give feedback directly to Pervasive Software. Check out the figure below to see some of the topics currently being discussed and watch the web site for new topics as they appear!

<http://www.pervasive.com/devtalk/>

- Pervasive.SQL
  - Pervasive.SQL 2000
    - [Installation / Configuration](#)
    - [Pervasive.SQL SP3 Beta](#)
  - Pervasive.SQL 2000 SDK
    - [Sales & Marketing](#)
    - [SDK Technical](#)
    - [SDK Documentation](#)
  - Pervasive.SQL 7
    - [Sales & Marketing](#)
    - [General Product Tech](#)
    - [NetWare / WinNT Server Engine](#)
    - [Workstation Engine](#)
    - [Documentation](#)
- List Servers
  - [Tango-Talk](#)

## **Newsgroup**

Many Pervasive.SQL customers enjoy participation in a newsgroup—a learning environment in which users help users, with some participation by Pervasive Software. The newsgroup is managed by the end-user community, posting and answering questions as they wish.

Pervasive Software is represented in the worldwide network of news discussion groups at:

`news://comp.databases.btrieve`

## **E-Mail**

Pervasive Software welcomes your comments, suggestions and requests for assistance via e-mail. Please submit to the following contacts:

- **docs@pervasive.com**  
For comments or concerns regarding the content of Pervasive.SQL documentation. Requests for manuals should be directed to your sales representative or [salesupport@pervasive.com](mailto:salesupport@pervasive.com).
- **techsupport@pervasive.com**  
For technical support for Pervasive.SQL. For a faster response, we recommend submitting your request via the e-mail support form located at:  
[http://www.pervasive.com/support/Email\\_Support.taf](http://www.pervasive.com/support/Email_Support.taf)
- **salesupport@pervasive.com**  
For information about Pervasive.SQL sales matters such as contacts, pricing, and product specifications. You may also submit the sales information form located at:  
[http://www.pervasive.com/contact/email\\_sales.tml](http://www.pervasive.com/contact/email_sales.tml)
- **developer@pervasive.com**  
For developer relations. A great way for developers to communicate their ideas about all Pervasive products, interfaces and programs.
- **beta@pervasive.com**  
For questions regarding beta products and general beta information, including Pervasive's Beta Program.
- **info@pervasive.com**  
For general information about the company, marketing efforts, public relations, and other general questions.
- **investor.relations@pervasive.com**  
For questions by investors.

## Technical Support

### Pervasive Software Technical Support Call Centers

- Support Center (Headquarters-Austin)  
Hours: 7 A.M. to 7 P.M. Central Standard Time.  
Phone: 512.231.6000  
Toll Free: 800.287.4383
- European Service and Support Center (Belgium)  
Hours: 9 A.M. to 6 P.M. Central Europe Time.  
Phone: +32 2 710-1660

For detailed contact information for Pervasive Software offices worldwide, refer to *Pervasive Products and Services*.

To receive a faster response to your technical support questions, we recommend using the electronic support method located at:  
[http://www.pervasive.com/support/Email\\_Support.taf](http://www.pervasive.com/support/Email_Support.taf)



# Index

## A

- About Pervasive.SQL 2000i 1-1
- Accessing
  - Readme file 5-5
- Administrative rights
  - needed for installation 2-10
- Advantages of Pervasive.SQL 1-2
- Analyzing, network 21-5
- Application
  - compatibility 2-10
- Applications
  - configuration scenarios 7-1
  - configuring concurrent local and remote 7-5
  - configuring for multiple 7-2
- Authentication, Btrieve 13-4
- AutoReconnect Timeout 6-3, 9-3, 13-2

## B

- Beginning installation 15-2
- BREQNT.EXE 17-26
- BREQTCP.EXE 17-26
- BREQUEST.EXE 17-26
- BSTART, loading NSS volumes first 10-3
- Btadmin utility 13-8
- Bti.ini 13-4, 13-6
- BTRBOX 17-26
- Btrieve
  - licenses 4-3, 5-4, 8-4
  - requesters
    - configuration 17-4, 17-43
    - installation, large environment 16-7
  - security 13-4
- BUTIL utility 21-15

## C

- Cache Allocation Size
  - multiple applications and 7-4
- Checklist
  - for installation 2-6
- Citrix MetaFrame 3-3

## Client

- determining version 21-14
- DOS support 17-26
- installation 15-9
  - custom 15-16
  - large environment 16-3, 16-7
- NetBIOS support 17-23
- Pervasive.SQL 2000i 2-2
- RTSS setting 13-8
- software requirements 2-10
- SPX support 17-20
- system requirements
  - Unix 2-8
- TCP/IP support 17-17, 17-24
- troubleshooting 21-11

## Communications

- testing 21-5
- troubleshooting 21-4

## Compatibility

- of vendor applications 2-10

## Components

- installing during Custom setup 4-17
- installing during custom setup 5-26
- of Pervasive.SQL 2000i 2-2
- troubleshooting 21-4

## Configuration

- bti.ini 13-4, 13-6
- Pervasive.SQL clients 17-4
- requesters
  - DOS 17-43
  - Win16 17-4
  - Win32 17-4
- settings affected by multiple applications 7-2
- Unix 11-6, 12-6, 13-4
  - client 13-8
  - security 13-4
  - server 13-6

- Configuring
  - application scenarios 7-1
  - concurrent local and remote applications 7-5
  - database engine on terminal server 3-5
  - multiple applications, for 7-2
  - server engine with two network cards 6-6, 9-6
  - SPX support for Windows server 6-7, 9-7
  - TCP/IP support for Windows server 6-5, 9-5
- Connectivity, testing 21-1
- Converting
  - data files
    - with command-line Rebuild utility 20-10
    - with interactive Rebuild utility 20-5
- Converting MicroKernel Data Files 20-3
- Create File Version
  - multiple applications and 7-3
- Custom Installation
  - components 4-17, 5-26
  - path 5-26
- Custom installation
  - client 15-16
  - server, Windows 4-17
- Custom Setup
  - installation option 2-5

## D

- Data files
  - converting
    - with command-line Rebuild utility 20-10
    - with interactive Rebuild utility 20-5
- Database engine
  - multiple on terminal server 3-5
- Database engine, checking status 21-8
- Determining
  - type of network 6-2, 9-2
- DevTalk, web forum 22-8
- DevWire, monthly newsletter 22-7
- Diagnosing system problems 21-4
- Documentation
  - NetWare 8-24
  - Pervasive.SQL 2000i 2-3
  - Readme file 2-11
  - Unix 11-5, 12-5, 18-10
  - Windows 4-24, 5-33
- DOS Box
  - preferred for Windows 9x/NT 17-27

- DOS box 17-26
- DOS requesters, using 17-26

## E

- Enable AutoReconnect 6-3, 9-3, 13-2, 17-2
- Engine, checking status 21-8
- Engine, determining version 21-14
- Engines supported
  - with previous releases 2-10
- Extended Operation Buffer Size
  - multiple applications and 7-3

## F

- Features
  - Comparison of Server, Workgroup, Workstation 1-5
  - Pervasive.SQL 1-4
- File conversion, Windows 4-23, 5-32
- File rebuilding 20-1
- File version, determining 21-15
- Files
  - deleting temporary 20-13
- Files installed
  - NetWare 8-25
  - Unix 11-7, 12-7
  - Windows 4-24, 5-33
- Frame type 6-7, 9-7
- Function Executor utility 21-15

## I

- Increasing user count licenses 18-4, 18-5
- Installation
  - before you begin 15-2
  - checklist 2-6
  - client 15-9
  - Custom
    - Windows 4-17
  - custom 5-26
    - client 15-16
  - documents to review prior to 4-2, 15-2
  - NetWare
    - before you begin 8-2
  - options 2-4
    - Custom 2-5
    - Typical 2-4



- over existing Pervasive products 4-3, 5-4, 8-4
- overview 2-2
- patch install 5-6, 8-8, 15-3
- permissions needed 2-10
- requesters
  - large environment 16-3, 16-7
- Samba 11-2, 12-2
- scheduling upgrade 2-11
- Server
  - Windows 4-1
- server
  - NetWare 8-15
  - Unix 11-1, 11-3, 12-1, 12-3
  - Unix, Linux 11-4, 12-4
  - Unix, Solaris 11-3, 12-3
  - Windows 4-5, 5-1, 5-13, 5-34
- tips for NetWare 8-4
- tips for Windows 4-3, 5-4
- Unix
  - before you begin 11-2
- Windows
  - before you begin 4-2
- Installation location (server)
  - Pervasive.SQL 1-4
- Installation, problems during 21-1
- Installing
  - on a terminal server 3-3
  - on Microsoft Terminal Server 3-3
- Introduction
  - Pervasive.SQL 2000i 1-1
- IPX/SPX 17-20

## L

- License files
  - ucmgr.sys 18-11
- License Key
  - User Count 4-11
- Licenses
  - Btrieve 6.x 4-3, 5-4, 8-4
  - Pervasive.SQL 1-4
  - Scalable SQL 4.x 4-3, 5-4, 8-4
- Licensing
  - database engine on terminal server 3-4
- Linux. *See* Unix
- Listen IP Address 6-3, 9-4

- Loading
  - NSS volumes before BSTART/MGRSTART 10-3
- Local applications
  - concurrent with remote 7-5

## M

- MGRSTART, loading NSS volumes first 10-3
- Microsoft Terminal Server 3-3
  - installing 3-3
- MultihomedTCP/IP network support 6-4, 9-4
- Multiple applications
  - configuring for 7-2
- Multiple network cards
  - configuring server engine for 6-6, 9-6

## N

- NetBIOS
  - not supported by Server engine 6-2, 6-4
- NetBIOS Port 6-4
- NetBIOS support 17-23
- NetWare 8-22
  - client installation 15-9
  - determining user count 18-10
  - engine status 21-10
  - files installed 8-25
  - installation 8-15
    - before you begin 8-2
  - installation, tips 8-4
  - mapping drives 8-15
  - network requirements 2-8
  - online documentation 8-24
  - path formats 17-7
  - platform notes 8-2
  - system requirements
    - server 2-7
  - updating user count 18-9
  - user count licenses 8-22
- NetWare NSS volumes 10-3
  - slower on updates 10-3

- Network 2-8
  - determining what type 6-2, 9-2
  - path formats 17-6
    - drive-based formats 17-7
    - NetWare 17-7
    - UNC 17-6
    - Unix 17-12
  - requirements
    - NetWare 2-8
    - Unix 2-9
    - Windows NT 2-8
- Network cards
  - configuring multiple 6-3, 6-4, 9-4
  - configuring server engine for multiple 6-6, 9-6
- Network configuration
  - AutoReconnect Timeout 6-3, 9-3, 13-2
  - Enable AutoReconnect 6-3, 9-3, 13-2, 17-2
  - Listen IP Address 6-3, 9-4
  - NetBIOS port 6-4
  - supported protocols 6-4, 9-4, 13-2, 17-2
  - TCP/IP Multihomed 6-4, 9-4
  - TCP/IP timeout 17-3
- Network connectivity, testing 21-5
- Network protocols
  - removing unused 6-9, 9-9
- Networking
  - setting up SPX for Windows server 6-7, 9-7
  - setting up TCP/IP for Windows server 6-5, 9-5
- NSS volume support 10-3
- Number of Sessions
  - multiple applications and 7-3

## O

- ODBC
  - requires NetWare server if SPX protocol used 6-2, 9-2
  - security 13-4
- Online Documentation
  - Pervasive.SQL 2000i 2-3
  - Readme file 2-11
- Online documentation
  - NetWare 8-24
  - Unix 11-5, 12-5, 18-10
  - Windows 4-24, 5-33

- Options
  - for Custom installation 2-5
  - for installation 2-4
  - for Typical installation 2-4
- Overview
  - for installation 2-2

## P

- Patch installation 5-6, 8-8, 15-3
- Patches
  - recommended for Unix OS 2-9
- Path formats
  - drive-based 17-7
  - NetWare 17-7
  - network 17-6
  - UNC 17-6
  - Unix 17-12
- Performance
  - NSS volumes slower on updates 10-3
- Permissions
  - needed for installation 2-10
  - terminal server 3-3
- Pervasive Software Website 21-19
- Pervasive System Analyzer 21-4, 21-5, 21-11
- Pervasive.SQL 1-3
  - Additional User Licenses 1-4
  - advantages 1-2
  - features 1-4
  - installation location (server) 1-4
  - software configuration 17-4
    - DOS requesters 17-43
    - Win16 requesters 17-4
    - Win32 requesters 17-4
  - transactional access 1-3
- Pervasive.SQL 2000i
  - about 1-1
  - Client 2-2
  - Components 2-2
  - Database Engine 2-2
  - introduction 1-1
  - Online Documentation 2-3
  - Utilities 2-2
  - Wizards 2-3
- Pervasive.SQL engines, status of 21-8

- Platform notes
  - NetWare 8-2
  - Unix 11-2, 12-2
  - Windows 4-2, 5-3
- Pre-installation notes, Unix 11-2, 12-2
- Previously released engines
  - support for 2-10
- Protocol
  - IPX/SPX 17-20
  - SPX 17-14
  - TCP/IP 2-9, 14-2, 17-17
- Protocols
  - determining correct 6-2, 9-2
  - NetBIOS not supported by server 6-2
  - removing unused 6-9, 9-9
  - supported network 6-4, 9-4, 13-2, 17-2
- PSA 21-5, 21-11

## R

- Reading
  - Readme file 5-5
- Readme
  - accessing 5-5
- Readme file 2-11
  - as part of installation 4-2, 5-2, 15-2
- Rebuild utility 4-23, 5-32, 20-1
  - command line options 20-10
  - deleting temporary files 20-13
  - examples for NetWare 20-12
  - running on NetWare 20-10
  - settings 20-7
- Relational access
  - using Pervasive.SQL 1-3
- relational access 1-3
- Remote applications
  - concurrent with local 7-5
- Remote Configuration
  - on terminal server 3-5
- Requester
  - preferred for Windows 9x/NT 17-27

- Requesters
  - configuration
    - DOS 17-43
    - Win16 17-4
    - Win32 17-4
  - installation
    - large environment 16-3, 16-7
- Requirements
  - Unix network 2-9
  - Unix OS Patches 2-9
- Requirements, software 2-10
- Requirements, software *See* Software requirements.
  - 2-9, 2-10
- Requirements, system *See* System requirements.
- Reviewing What's New
  - prior to installation 4-2, 15-2
- Rights
  - needed for installation 2-10
- RTSS 13-8
- Runtime Notes
  - database engine on terminal server 3-5
- Runtime Server Support *See* RTSS

## S

- Samba installation 11-2, 12-2
- Scalable SQL 4.x licenses 4-3, 5-4, 8-4
- Security
  - btadmin 13-8
  - Btrieve 13-4
  - ODBC 13-4
  - Unix 13-4
- Server
  - installation
    - NetWare 8-15
    - Unix 11-1, 11-3, 12-1, 12-3
    - Unix, Linux 11-4, 12-4
    - Unix, Solaris 11-3, 12-3
    - Windows 4-1, 4-5, 5-1, 5-13, 5-34
  - software requirements 2-9
  - system requirements
    - NetWare 2-7
    - Unix 2-7
    - Windows NT 2-6
- Server engine
  - NetBIOS not supported 6-2, 6-4

- Server engines supported
  - previously released 2-10
- Server Features
  - in comparison to Workgroup and Workstation 1-5
- Services, checking status 21-8
- Setup Type
  - Custom 2-5
  - Typical 2-4
- SmartScout 21-4
- Software configuration
  - DOS requesters 17-43
  - Win16 requesters 17-4
  - Win32 requesters 17-4
- Software requirements
  - Client 2-10
  - Server 2-9
  - Workstation/Workgroup 2-10
- Solaris
  - engine status 21-10
- Solaris. *See* Unix
- SPX 17-14
  - frame type 6-7, 9-7
  - requires NetWare server for ODBC applications 6-2, 9-2
- SPX support
  - setting up for Windows server 6-7, 9-7
- SPX support, for clients 17-20
- Sqlmgr utility
  - bt.ini 13-4, 13-6
- Starting
  - Rebuild utility on NetWare 20-10
- Status, of database engine 21-8
- Support, obtaining 21-19
- Supported Protocols 6-4, 9-4, 13-2, 17-2
- System requirements
  - Client
    - Unix 2-8
  - Network 2-8, 2-9
  - Server
    - NetWare 2-7
    - Unix 2-7
    - Windows NT 2-6
- Systems Management Server 16-7

## T

- TCP/IP 2-9, 14-2, 17-17
- TCP/IP Multihomed 6-4, 9-4
- TCP/IP support
  - for clients 17-17, 17-24
  - setting up for Windows server 6-5, 9-5
- TCP/IP Timeout for Communications Requester 17-3
- Technical Support 21-19
- Technical support, for installation 21-19
- Temporary files, deleting 20-13
- Terminal Server 3-3
  - Citrix MetaFrame 3-3
  - database engine licensing 3-4
  - Microsoft 3-3
  - multiple database engines 3-5
  - permissions 3-3
  - user counts and 3-4
- Testing
  - network connectivity 21-5
- Testing, client functionality 21-11
- Transaction Durability
  - multiple applications and 7-3
- Transactional access
  - using Pervasive.SQL 1-3
- Troubleshooting 21-1
  - communications 21-4
  - components 21-4
- Types
  - of installation 2-4
    - Custom 2-5
    - Typical 2-4
- Typical Setup
  - installation option 2-4

## U

ucmgr.sys file 18-11

Universal Naming Convention *See* Network path formats, UNC.

### Unix

client installation 15-9

configuration 11-6, 12-6, 13-4

client 13-8

security 13-4

server 13-6

determining user count 18-11

engine status 21-10

files installed 11-7, 12-7

installation 11-1, 11-3, 12-1, 12-3

before you begin 11-2

Linux 11-4, 12-4

Solaris 11-3, 12-3

IPX/SPX not used 2-9

network requirements 2-9

online documentation 11-5, 12-5, 18-10

path formats 13-5, 17-12

platform notes 11-2, 12-2

pre-installation notes 11-2, 12-2

system requirements 2-7

TCP/IP 2-9, 14-2

updating user count 18-10

user count licenses 11-5, 12-5

utilities

btadmin 13-8

sqlmgr, bti.ini 13-4, 13-6

### Unix Client

system requirements 2-8

### Unix OS Patches

requirements 2-9

UnixAuthenticate 13-4, 13-5, 13-6

### Updates

slower on NetWare NSS volumes 10-3

### Upgrading

installation 2-11

patch installation 5-6, 8-8, 15-3

Upgrading, steps to take after 20-1

User Count Administrator Interface 18-4, 18-5

User count licenses 8-22

determining user count

NetWare 18-10

Unix 18-11

Windows NT 18-9

increasing 18-4, 18-5

license key 4-11, 5-20, 8-22

Unix 11-5, 12-5

updating user count

NetWare 18-9

Unix 18-10

### User counts

terminal server and 3-4

### User Licenses

additional 1-4

### Utilities 18-4, 18-5

Pervasive.SQL 2000i 2-2

Rebuild 4-23, 5-32

SmartScout 21-4

sqlmgr

bti.ini 13-4, 13-6

## V

Vendor Compatibility 2-10

Verifying, engine status 21-8

Version, engine and client 21-14

version, how to determine in files 21-15

Version, of files 20-1

## W

Website 21-19

### What's New

reviewing 4-2, 15-2

### Windows

file conversion 4-23, 5-32

files installed 4-24, 5-33

installation 4-1, 5-1, 5-34

before you begin 4-2

installation, custom 4-17

installation, tips 4-3, 5-4

online documentation 4-24, 5-33

platform notes 4-2, 5-3

Windows 2000 Terminal Server 3-3

Windows 3.x

requesters needed 17-27

## Windows NT

- client installation 15-9

- determining user count 18-9

- system requirements 2-8

  - Server 2-6

## Wizards

- Pervasive.SQL 2000i 2-3

## Workgroup Features

- in comparison to Server and Workstation 1-5