SYBASE®

Installation Guide

Database Expert

15.0.2

Contents

About This Book

Audience   This guide explains the system requirements and installation processes for Sybase® Database Expert. This manual is an installation guide and reference manual for:

- System administrators installing Database Expert

- Database administrators interested in providing developers an advanced tool for tuning SQL statements

Assumptions   This book assumes that you are familiar with:

- The components of your platform, such as directories, files, and environment variables

- Platform-specific commands, such as commands used to change directories and mount a CD

- Sybase servers

- SQL statements

How to use this book   This book contains these chapters:

- Chapter 1, "Overview," describes the user roles, system requirements, and product limitations of Database Expert.

- Chapter 2, "Installing Database Expert," provides specific instructions for installing and removing Database Expert using InstallShield. It also includes information about directory structures.

- Appendix A, "SySAM 2.0 Administration," provides information about configuring Sybase Software Asset Management (SySAM) to perform license administration.

Related documents   **Database Expert documentation**   The following Database Expert documents are available on the *Getting Started with Database Expert* CD:

- The Database Expert installation guide (this book) for your platform explains how to install the Database Expert software.

- The Database Expert release bulletin for your platform contains last-minute information not documented elsewhere. A more recent version of the release bulletin may be available on the Sybase Product Manuals Web site.

Database Expert online documentation   Database Expert documentation includes online help in the product.

Adaptive Server® Enterprise documentation   Database Expert works with Sybase Adaptive Server Enterprise. To refer to the Adaptive Server Enterprise documentation on the Sybase Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/ and select the Adaptive Server Enterprise product.

Other sources of information

Use the Sybase Getting Started CD, the SyBooks™ CD, and the Sybase Product Manuals Web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.

- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

  Some documentation may be provided in PDF format, which you can access through the PDF directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.

  Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.

- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

  To access the Sybase Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/.

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

❖ **Finding the latest information on product certifications**

1   Point your Web browser to Technical Documents at
    http://www.sybase.com/support/techdocs/.

2   Select Products from the navigation bar on the left.

3   Select a product name from the product list and click Go.

4   Select the Certification Report filter, specify a time frame, and click Go.

5   Click a Certification Report title to display the report.

❖ **Finding the latest information on component certifications**

1   Point your Web browser to Availability and Certification Reports at
    http://certification.sybase.com/.

2   Either select the product family and product under Search by Product; or
    select the platform and product under Search by Platform.

3   Select Search to display the availability and certification report for the
    selection.

❖ **Creating a personalized view of the Sybase Web site (including support
    pages)**

Set up a MySybase profile. MySybase is a free service that allows you to create
a personalized view of Sybase Web pages.

1   Point your Web browser to Technical Documents at
    http://www.sybase.com/support/techdocs/.

2   Click MySybase and create a MySybase profile.

**Sybase EBFs and
software
maintenance**

❖ **Finding the latest information on EBFs and software maintenance**

1   Point your Web browser to the Sybase Support Page at
    http://www.sybase.com/support.

2   Select EBFs/Maintenance. If prompted, enter your MySybase user name
    and password.

3   Select a product.

4   Specify a time frame and click Go. A list of EBF/Maintenance releases is
    displayed.

Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as a Technical Support Contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click Edit Roles to add the "Technical Support Contact" role to your MySybase profile.

5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

Conventions The formatting conventions used in this manual are:

Formatting example	To indicate
command names and method names	When used in descriptive text, this font indicates keywords such as: • Command names used in descriptive text • C++ and Java method or class names used in descriptive text • Java package names used in descriptive text
myCounter variable *Server*.log *myfile.txt*	Italic font indicates: • Program variables • Parts of input text that must be substituted • File names
sybase/bin	Directory names appearing in text display in lowercase unless the system is case sensitive. A forward slash ("/") indicates generic directory information. A backslash ("\") applies to Windows users only.
File	Save	Menu names and menu items display in plain text. The vertical bar indicates how to navigate menu selections, such as from the File menu to the Save option.

`create table`
 	
`table created`
	Monospace font indicates:
	• Information that you enter on a command line or as program text
	• Example output fragments

Accessibility features This document is available in an HTML version that is specialized for accessibility. You can navigate the HTML with an adaptive technology such as a screen reader, or view it with a screen enlarger.

For information about how Sybase supports accessibility, see Sybase Accessibility at http://www.sybase.com/accessibility. The Sybase Accessibility site includes links to information on Section 508 and W3C standards.

If you need help   Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you cannot resolve a problem using the manuals or online help, please have the designated person contact Sybase Technical Support or the Sybase subsidiary in your area.

CHAPTER 1   **Overview**

This chapter describes the system and licensing requirements for installing Sybase Database Expert. It also discusses the required user roles and privileges, and the limitations of the product.

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Product summary

Database Expert allows Adaptive Server Enterprise database administrators to analyze, predict, preempt, diagnose, optimize, and manage performance changes to ensure that mission-critical business applications run optimally. Database Expert allows you to maximize application performance by focusing on database factors that contribute to 90% of performance problems—SQL statements, indexes, and database changes.

Database Expert provides the following modules and functionality:

- Performance diagnostics

    - SQL Inspector

    - SQL Collector for Monitor Server

    - SQL Scanner

    - Performance Monitor

- Performance optimization

    - SQL Optimizer

    - Index Advisor

- • Abstract Plan Manager
- • Performance management
  - • Configuration Analyzer
  - • Migration Analyzer
  - • Index Impact Analyzer
  - • Index Usage Analyzer
- • Database administration
  - • Database Explorer
  - • Object Extractor
  - • SQL Worksheet
- • Development
  - • SQL Formatter
  - • Code Finder
- • Functionality
  - • User-defined temp table
  - • SQL History
  - • SQL Repository
  - • Common SQL functions
  - • Editor functions
  - • Activity log
  - • Reports
  - • Plan help
  - • Database Expert assistant

See the Database Expert online help for complete instructions on using this tool.

System requirements

The minimum system requirements for installing Database Expert are:

- Operating system:

Operating system	Service pack
Windows XP Pro	1.0 or later
Windows 2000	4.0 or later
Windows 2003	1.0 or later

- Processor – Pentium III or compatible processor

- Memory – 256MB RAM

- Disk space (in megabytes):

Installation type	Disk space requirement
Typical	137MB
Full (includes files for all languages)	198MB

Note If you need to install a SySAM license server on the same machine as Database Expert, an additional 69MB disk space is required.

Software requirements

Database Expert has the following software version requirements:

- Database Expert version 15.0.2 requires Adaptive Server Enterprise 15.x, or Adaptive Server Enterprise 11.9.2, or 12.x with the latest corresponding ESD for that version.

- To use SQL Collector for Monitor Server, you must have Adaptive Server Enterprise Monitor Server installed and running. You must also have the Adaptive Server Enterprise 15.0 or later client installed. For information on how to install Monitor Server, see the *Adaptive Server Enterprise Installation Guide for Windows*.

- To use Abstract Plan Manager, you must have Adaptive Server Enterprise version 12.0 or later installed and running.

- To use SQL Inspector and Performance Monitor, you must have Adaptive Server Enterprise version 12.5 ESD #3 or later installed and running.

- To use the QP Metrics option in the SQL Inspector, you must have Adaptive Server Enterprise 15.0 or later installed and running.

Sybase software asset management

Database Expert includes the Sybase Software Asset Management System (SySAM) 2.0 implementation. SySAM 2.0 configuration is mandatory.

SySAM product licensing software allows you to:

- Manage Database Expert entitlements

- Perform asset management tasks by viewing and analyzing historic data

- Control Database Expert use within your organization

How SySAM works

Database Expert uses SySAM to "check out" a license for product functionality, then checks the license back in when the product is no longer in use. The basic SySAM components are:

- Database Expert linked with SySAM libraries

- One or more local license files

- Optionally, a SySAM network license server

When you install the product, you choose to configure an unserved license or a network license server. Both configurations create a local license file on the same machine as Database Expert in *%SYBASE%\SYSAM-2_0\licenses*. When you start Database Expert, the product searches for a license in the default location—*%SYBASE%\SYSAM-2_0\licenses*—looking at all files with a *.lic* extension. The local license file contains the actual licenses or a pointer to a SySAM network license server. When a license is successfully checked out, Database Expert continues to start.

Using an unserved license

When you configure an unserved license, Database Expert does not connect to a network license server, but obtains the required license information directly from the local license file.

When you use an unserved license configuration, there is no network license server. In this configuration, Database Expert reads the unserved license and directly checks out the required license. You activate the licenses for each machine separately; that is, you do not have centralized control over licenses. You also do not have asset management or reporting capabilities, and the license must be rehosted if you move Database Expert from one machine to another.

When using an unserved configuration, the local *%SYBASE%\SYSAM-2_0\licenses* directory contains all necessary licenses. You do not maintain a license server.

Setting up an unserved configuration

During Database Expert installation, select the option to use a local license file. When you are activating licenses from the Sybase Software Product Download Center (SPDC) at https://sybase.subscribenet.com, select the "Unserved" license format and save the license in the local license directory at *%SYBASE%\SYSAM-2_0\licenses*.

To change to a local license file after installation is complete, edit the **.lic* file in *%SYBASE%\SYSAM-2_0\licenses* directory to comment out the lines that point Database Expert to the network license server. Use the instructions in the preceding paragraph to activate the unserved license required for Database Expert on this machine and save it in the local *%SYBASE%\SYSAM-2_0\licenses* directory.
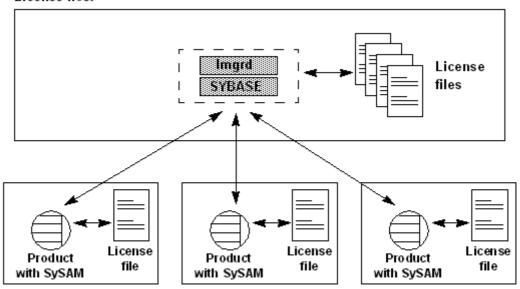
Using a network license server

When you configure a network license server, the server uses two daemons—the lmgrd FLEXlm daemon and the vendor (SYBASE) daemon—to handle license check-in and check-out for licensed products. Using the pointer in the local license file, Database Expert connects to the network license server and attempts to check out a license (ASE_SDBE).

In a network license server configuration, the license server host runs the network license server. The local license file on the Database Expert machine contains a pointer to the network license server.

Figure 1-1: Network license server configuration

Multiple users connect to the network license server to obtain the required license. You can activate several licenses simultaneously, you have total control over license use, and you have access to complete asset management and reporting capabilities.

You can use an existing network license server or install a new one. The network license server can be installed on the same host with Database Expert or as a standalone system. The number of free cycles on the machine with Database Expert and the total expected license server activity should dictate whether a standalone system is needed. See Chapter 4, "Selecting License Server Machines," in the *FLEXnet Licensing End User Guide* for system requirements.

Setting up a network license server

To install a network license server on a separate system, use the SySAM installer in the *SySAM* directory on the product CD. When activating licenses at the Sybase Product Download Center, select the "Served" license model. Save the activated license file in your machine's *%SYBASE%\SYSAM-2_0\licenses* directory. See "Installing a new license server" on page 19 for instructions.

To configure Database Expert to use the network server, specify the network server host name and port number during installation. Specify the host ID for the network license server host when you obtain a license from the Sybase Software Product Download Center. After installation, you can edit the **.lic* file in *%SYBASE%\SYSAM-2_0\licenses* and change the network license server host name and port number if necessary.

Note A license responds only to the license server that you specify when you obtain the license from the Sybase Software Product Download Center.

Limitations

The SySAM network license server has the following limitations:

1   You cannot start the SySAM network license server until there is at least one "Served" license copied into the *%SYBASE%\SYSAM-2_0\licenses* directory. Obtain a "Served" license from the Sybase Software Product Download Center before starting the license server. See "Managing licenses" on page 31.

2   Database Expert version 15.0.2 uses the SySAM 2.0 licensing technology. On any one machine, you can have only one instance of a license server running. You must make some adjustments to use earlier versions of SySAM with Database Expert 15.0.2. See "Co-existing with earlier versions of SySAM" on page 12.

Using multiple network license servers

As part of a failover plan or a load-balancing system, you can have multiple SySAM network license servers running a subset of the total licenses. The SySAM network license servers can be connected by a local area network (LAN) or by a wide area network (WAN).

This configuration is an excellent load-balancing mechanism for physically distant locations. You can specify the local servers ahead of the remote servers in the license location list.

To specify multiple license servers, you set up the SYBASE_LICENSE_FILE or LM_LICENSE_FILE environment variable to contain a list of license files, where each license file refers to one of the network license servers. Database Expert uses this list to check-out licenses, starting with the first server on the list. If check-out fails for any reason, Database Expert attempts to check out licenses using the second server in the list, and so on.

Although this configuration provides a basic level of failover protection, if one or more license servers in the list are down, the licenses served by these servers are no longer available, so the total number of available licenses is reduced until the servers restart.

Note See "Redundant License Server Systems" in Chapter 4, "Selecting License Server Machines," of the *FLEXnet Licensing End User Guide,* for more information.

Setting up multiple network servers

To use multiple network license servers, install a network license server on two or more servers using the instructions in "Installing a new license server" on page 19.

To configure Database Expert to use multiple network servers, specify the network server addresses in the SYBASE_LICENSE_FILE environment variable as *port@host* separated by a semi-colon (;). For example:

```
set SYBASE_LICENSE_FILE=1700@tokyo;1700@chicago
```

Database Expert attempts to use the first server in the list. If that fails for any reason, Database Expert tries to use the second server.

Using three-server redundancy

To achieve true high availability, you can set up Database Expert to acquire a license that is used in a three-server redundant configuration. The same license is served by all three license servers. With three-server redundancy, if any two of the three license servers are running (referred to as a quorum), the system is functional and serves its total complement of licenses.

Machines in a three-server redundant configuration must:

• Run the same operating system

• Communicate with each other

• Reside on the same subnet

The three servers must be located physically close to each other. This form of redundancy requires that the servers exchange heartbeats periodically, and poor communication can cause poor performance. Avoid configuring redundant servers with slow communication or dial-up links.

Three-server redundancy provides only hardware failover protection and does not provide load-balancing because only one of the three servers is "master," capable of issuing licenses. Because all clients must contact the "master," all clients must have reliable networking to a single machine. To implement load-balancing, see "Setting up multiple network servers" on page 8.

Note Because Sybase provides grace periods for any licensing issues, setting up the license servers for failover may be unnecessary. Database Expert operations are not compromised as long as license server issues are fixed within the grace period.

Setting up three-server redundancy

To use this configuration, you must acquire licenses that are set up for such an environment. When you activate your licenses, specify the three-server redundancy option.

Install the network license server on the three selected machines and deploy the license obtained on all three machines. See "Installing a new license server" on page 19 for instructions.

To configure Database Expert to use these redundant network servers, specify the addresses for three servers in SYBASE_LICENSE_FILE environment variable as *port@host* separated by a semi-colon (;). For example:

```
set SYBASE_LICENSE_FILE=1700@srv1;1700@srv2;1700@srv3
```

Any two of the servers specified in SYBASE_LICENSE_FILE must be running for checkout to succeed.

Using alternative license file locations

You can specify alternate license locations using the SYBASE_LICENSE_FILE and LM_LICENSE_FILE environment variables. The product looks at the locations provided in these variables before looking in the default location.

Note See "Specifying Location of the License File" in Chapter 2, "License File Basics," of the *FLEXnet Licensing End User Guide*.

To access this guide, go to the Sybase Product Manuals Web site at Product Manuals at http://www.sybase.com/support/manuals/, select the Adaptive Server Enterprise product from the drop-down list, then select Adaptive Server 15.0 core documentation. Select the Eclipse icon for online documentation. The *FLEXnet Licensing End User Guide* appears at the end of the Adaptive Server 15.0 documentation list in the left pane.

Portions of the *FLEXnet Licensing End User Guide* and the *SAMreport Users Guide* are included in this guide with the permission of Macrovision Corporation.

License availability and grace periods

If Database Expert cannot obtain a suitable license, the product does not run. A license is considered unavailable if it cannot be checked out or the license cannot be issued during a grace period. Licenses can be unavailable during start-up or runtime.

When SySAM detects a checkout failure, the event is logged in the Database Expert SySAM error log, *%SYBASE%\DatabaseExpert-15_0_2\sysam.log*, which you can use to diagnose any unexpected licensing failures. After the initial checkout failure, periodic events are logged during a grace period.

If a suitable license cannot be found when requested, Database Expert evaluates if a license can be issued during a grace period. There are three types of grace periods:

*   Install time – when you configure a new Database Expert (or upgrade an earlier version to 15.0.2), you have 30 days to activate and configure the appropriate license.

*   Runtime – a runtime grace period is evaluated when one of these conditions occurs:

- A license was not checked out at start-up, but there is a history of successfully using the requested license on this machine.

- A license that was successfully checked out at start-up becomes unavailable at a later time.

If Database Expert encounters either situation, it enters into a 30-day runtime grace period. If the problem is not resolved within 30 days, Database Expert stops running; however, the user can save any work and exit. If the problem that causes the license to be unavailable is fixed during the runtime grace period, Database Expert automatically picks up the license and no longer operates in the grace period.

- Support renewal time – this grace period allows you enough time to update the license after renewing support. The support grace period for Database Expert is one year.

This means that you can install and use EBFs and updates that are released up to one year past the end-of-support date recorded in the license.

If Database Expert cannot obtain a license, SySAM evaluates whether a license can be issued under a grace period.

If a SySAM license cannot be acquired

If the license cannot be issued during the grace period, then Database Expert does not start and errors are reported in the error log file.

The error messages indicate the product's inability to obtain a valid license, and why the license could not be obtained. You must fix the license failure before you can use Database Expert.

Acquiring SySAM licenses during the grace period

If the license can be issued during the grace period, the issue is logged and Database Expert starts. The log entry looks similar to this:

```
00:00000:00000:2005/07/05 15:46:08.84 kernel  Sybase
Licensing: Using licenses from: /opt/sybase/
SYSAM-2_0/licenses
00:00000:00000:2005/07/05 15:46:08.91 kernel  Sybase
Licensing: Checked out graced license for 1
<license_name>
(2005.0703) will expire Tue Jul  5 15:47:02 2005.
00:00000:00000:2005/07/05 15:46:08.91 kernel  Sybase
Licensing: Cannot find license file
```

Database Expert continues to operate normally until the issue causing the license failure is fixed, or until the grace period expires. The error message indicates the date and time the grace period is scheduled to end. The error log entry is repeated with increasing frequency while Database Expert operates in the grace period until you fix the issue causing the license failure. When the issue is fixed, Database Expert automatically acquires the license and moves from grace period mode into normal mode. If Database Expert cannot obtain the license before the grace period expires, Database Expert stops running.

Note If you obtain a Database Expert license from a network license server, Database Expert periodically executes a "heartbeat" with the network license server. A successfully acquired license could be invalidated during the heartbeat; for example, the acquired had an expiration date or the network license server was restarted and other Database Expert instances acquired all available licenses before this instance could reacquire a license. If this happens, Database Expert enters a grace period. This information is written in the error log, and is similar to the information written to the error log when you initially start the product.

Select Help | About in Database Expert to see the current license status.

Co-existing with earlier versions of SySAM

Database Expert version 15.0 and later uses the SySAM licensing technology and an updated license format. On any machine, you can have only one instance of a license server running. You must make some adjustments to use earlier versions of SySAM with Database Expert version 15.0 and later.

Case 1   If you are using a central network server for Database Expert version 15.0 and later, and a network license server-based SySAM license for earlier versions of the product, migrate to Database Expert version 15.0 or later:

1   Update the network license software with the version provided in Database Expert version 15.0 and later. Use the instructions in "Setting up a network license server" on page 7.

2   Copy the earlier license files (typically a single file named *license.dat*) into the new *%SYBASE%\SYSAM-2_0\licenses* directory and rename *license.dat* to *license.lic*.

3   Shut down the old license server and start the new license server.

4   Copy any new licenses into this new directory.

Old and new Sybase software now use this license server.

Case 2

If you are using individual license servers for earlier versions of Database Expert, with each machine running earlier Sybase software hosting a local license server, Sybase recommends that you move to a single network license server model to migrate to Database Expert version 15.0 and later.

❖ **Using a central license server only for new licenses**

1 Select the machine for the new network license server and install the SySAM network license server supplied with Database Expert on that machine.

2 If this machine is already running an older license server, use the instructions in Case 1 to migrate the local licenses. All new licenses are now installed on this machine.

3 Point the Database Expert installation to this license server. Use the lmpath utility (see "Using SySAM utilities" on page 38) to do this or edit *license.lic* (after renaming *license.dat* to *license.lic*) and add these lines at the beginning of the file:

```
SERVER <network license server hostname> ANY <license server port>
VENDOR SYBASE
USE_SERVER
```

❖ **Migrating old licenses to a new central license server**

1 Set up the new SySAM network license server using the instructions in "Setting up a network license server" on page 7.

2 Collect licenses from all old local license servers to deploy to the new network license server.

a Create a new license file that includes the contents of all individual licenses from each earlier local license server.

When you create the new license file, discard the license header from each file. The header is the first three lines that start with "SERVER," "VENDOR," and "USE_SERVER."

b Create one license header with the above three lines in the merged file to match the requirements on the new network license server and save this file as *license.lic* in the *%SYBASE%\SYSAM-2_0\licenses* directory.

3   Shut down the earlier individual license servers on each machine and point the software to the new license server. Use the lmpath utility (see "Using SySAM utilities" on page 38) to do this or edit the *license.lic* (after renaming *license.dat* to *license.lic*) file on each installation by adding these lines at the beginning of the file:

```
SERVER <network license server hostname> ANY <license server port>
VENDOR SYBASE
USE_SERVER
```

Case 3   If you are not using the network license server for Database Expert, no changes are required to the previous software. When fulfilling Database Expert version 15.0 and later licenses, select the unserved license model and copy the license locally on each installation. The software runs appropriately, however, you lose the asset management functionality in this approach. See "Choosing the appropriate license server configuration" on page 18 for the pros and cons of using a network license server versus using a local license file.

Managing licenses from multiple vendors

If you use software from multiple vendors that use Macrovision's FLEXnet technology, you can consolidate licenses from all vendors to centrally manage the licenses. See Chapter 3, "Managing Licenses from Multiple Vendors," in the *FLEXnet Licensing End User Guide*.

User roles

The InstallShield setup process defines various user roles. Different user roles have different responsibilities and privileges. These user roles clarify the way Adaptive Server Enterprise and Database Expert are integrated into your system:

•   Operating System Administrator – the individual who maintains the operating system. This individual has superuser or "root" privileges.

•   Sybase System Administrator – the individual in charge of system administration, creating user accounts, assigning permissions on databases, and creating new databases. During installation, the System Administrator's login name is "sa". The "sa" login is not a UNIX login. The "sa" login is specific to Adaptive Server and is used to log in to Adaptive Server using the isql command.

> • Sybase Login – the "sybase" login is a UNIX login that owns all Sybase installation directories and files, sets permissions on those directories and files, and installs and upgrades Sybase software.

Database Expert login privileges

You must have the privileges listed below to access Database Expert functions and modules.

- To create and drop indexes in the Index Advisor and Index Impact Analyzer, you must have the privilege to create and drop indexes.

- You must have sa_role to:

    - Use SQL Collector for the Monitor Server module

    - Terminate the Run Result function when the SQL statement produces a result set in the SQL Optimizer and SQL Worksheet modules

    - Access the dbcc traceon information

- To optimize a SQL statement that is used in a cursor in the Syntactical SQL Optimizer, you must have the privilege to create a procedure.

- You must have the mon_role to access the SysSQLText and monSysStatement monitoring tables to use:

    - SQL Inspector

    - Performance Monitor

Adaptive Server Enterprise configuration parameters

In Adaptive Server Enterprise, you must set the parameters listed below:

- To access the Database Object's DDL text in Database Explorer, Object Extractor, and SQL Scanner:

    ```
    sp_configure "select on syscomments.text", 1
    ```

- To access the Estimated I/O Cost estimation in SQL Optimizer, Index Advisor, Configuration Analyzer, and Index Impact Analyzer:

    ```
    sp_configure "allow resource limits", 1
    ```

- To capture SQL statements with SQL Collector for Monitor Server:

    ```
    sp_configure "event buffers per engine", 2000
    sp_configure "max SQL text monitored", 4096
    ```

```
sp_configure "enable monitoring", 0
```

Note In Adaptive Server Enterprise 12.5.0.3, SQL Collector for Monitor Server requires enable monitoring be set to 0 (zero) and SQL Inspector and Performance Monitor requires that enable monitoring be set to 1. This parameter is not available in earlier versions of Adaptive Server. In Adaptive Server Enterprise 12.5.1 and later, enable monitoring is not required for SQL Collector for Monitor Server.

• To save abstract plans in the SQL Optimizer module and use the Abstract Plan Manager module:

```
sp_configure "abstract plan cache", 0
sp_configure "abstract plan replace", 0
```

• To retrieve SQL statements using QP Metrics in the SQL Inspector:

```
sp_configure "enable metrics capture", 1
```

• To use the SQL Inspector and Performance Monitor modules:

```
sp_configure "enable monitoring", 1
sp_configure "sql text pipe active", 1
sp_configure "sql text pipe max messages", 100
sp_configure "plan text pipe active", 1
sp_configure "plan text pipe max messages", 100
sp_configure "statement pipe active", 1
sp_configure "statement pipe max messages", 5000
sp_configure "errorlog pipe active", 1
sp_configure "errorlog pipe max messages", 1024
sp_configure "deadlock pipe active", 1
sp_configure "deadlock pipe max messages", 1024
sp_configure "wait event timing", 1
sp_configure "process wait events", 1
sp_configure "object lockwait timing", 1
sp_configure "SQL batch capture", 1
sp_configure "statement statistics active", 1
sp_configure "per object statistics active", 1
```

The Adaptive Server monitoring tables are used by the Performance Monitor and SQL Inspector. For information about installing these tables, see the Adaptive Server Enterprise 15.0 *Performance and Tuning: Monitoring and Analyzing* guide.

CHAPTER 2   **Installing Database Expert**

This chapter explains how to install Database Expert.

Overview

The installation process copies all of the files from the installation media to the hard drive. At the end of the installation, the Database Expert software is ready to use.

The basic process for installing Database Expert is:

1   Perform pre-installation tasks related to license administration as described in "SySAM pre-installation tasks."

2   Perform the installation as described in "Installing Database Expert."

SySAM pre-installation tasks

Before you install Database Expert, you must plan the type of SySAM license configuration you want to use. Depending on your configuration choice, you may also need to perform additional pre-installation tasks before installing Database Expert.

In this section you:

1   Choose the appropriate SySAM licensing configuration. SySAM allows you to acquire a license using a local file or you can acquire a license from a network license server. See "Choosing the appropriate license server configuration" on page 18.

2   Install a new network license server if necessary. See "Installing a new license server" on page 19.

Choosing the appropriate license server configuration

When you configure your license server, you must choose between configuring for a local license file, or for a network license server.

Serverless configuration

If you are using a serverless configuration, the local *%SYBASE%\SYSAM-2_0\licenses* directory should contain all necessary licenses. You do not maintain a license server.

When you use a serverless configuration, you must activate the licenses for each machine separately; that is, you do not have centralized control over your licenses. You also do not have asset management or reporting capabilities, and your license must be rehosted if you move Database Expert from one machine to another.

Network license server configuration

In this setting, you can activate several licenses at once. You have full control over license use, and complete asset management and reporting capabilities.

Before you install Database Expert, decide which SySAM configuration to use:

•   Serverless model using "Unserved" licenses

•   Network license server using "Served" licenses

     If you are going to use a network license server, decide whether to use an existing license server or a new license server.

     •   If you use an existing license server, you must know the server host name and port number.

- To create a new license server before installing Database Expert, see "Installing a new license server" on page 19.

Note Sybase recommends that you obtain the license files from the Sybase Product Download Center (SPDC) at https://sybase.subscribenet.com before you begin installation.

Installing a new license server

Perform the following steps to install a new license server on a different machine from the Database Expert you want to run:

1   Install the licensing tools:

   a   Insert the product CD into the CD drive. If the Database Expert Installer starts automatically, click Cancel to exit the Database Expert Installer.

   b   On the product CD, launch the SySAM installer by executing:

   ```
   SySAM\setup.exe
   ```

   c   The Welcome Window displays. Click Next.

   d   Accept the license agreement.

   e   Enter or select the destination directory.

   f   Select the Full installation.

   g   Click OK to install the SySAM licensing tools.

2   Get the host ID for the machine on which the new license server will run. To get the host ID:

   a   Open a Command Prompt window and go to *%SYBASE%\%SYBASE_SYSAM%\bin* where *%SYBASE%* is the Sybase installation directory and *%SYBASE_SYSAM%* is *SYSAM-2_0*.

   b   Enter:

```
lmutil lmhostid
```

> **Note** If your machine has multiple network adapters, lmutil lmhostid returns host IDs associated with each adapter. Choose one of the IDs. Avoid using IDs for removable network adapters.

    c   Save the host ID to use later at the Sybase Product Download Center.

3   Go to the Sybase Product Download Center (SPDC) at https://sybase.subscribenet.com.

4   Get the license you want to install.

    a   Log in to your account. When you place an order for Sybase software, the Sold To and Ship To contacts become members of the Sybase Product download Center account, and their e-mail addresses are automatically added as a login. The Sold To Contact is also established as the administrator of the account. Each member receives a welcome message from the Sybase Product Download Center, which contains a login name and password. In addition, technical support contacts are added as members to the Sybase Product Download Center account.

        The administrator can add new members to their Sybase Product Download Center account at any time.

    b   Select the product for which to activate licenses.

    c   Complete the License Activation wizard to generate required licenses. The generated licenses are displayed when the wizard completes.

    d   Click Save All to save the license file. Make sure you save the license file with the extension *.lic*.

> **Note** Although license files can have any name you choose, the file extension must be "*.lic*".

5   Copy the license file in the licenses directory *%SYBASE%\%SYBASE_SYSAM%\licenses* on the network license server machine.

6   Start the SySAM network license server:

    a   In a Command Prompt window, go to:

        %SYBASE%\%SYBASE_SYSAM%\bin

b   Enter:

```
sysam start
```

Or, start the license server from the Windows Services panel (Start | Settings | Control Panel | Administrative Tools | Services).

7   Validate that the license daemon is running by entering:

```
sysam status
```

8   Close the Command Prompt window.

Installing Database Expert

This section explains how to install Database Expert.The InstallShield installation provides a graphical user interface (GUI) that allows the user to view and respond to the Installer's questions. After answering all questions that display in the GUI Installer, the product is installed.

You can also install the product using a "silent installation," which allows you to run the install process unattended. Refer to "Silent installation" on page 25 for instructions.

InstallShield installation

InstallShield creates the target installation directory, if it does not already exist, and unloads all selected components into that directory.

At the end of the installation, you can verify the product installation. You may need to perform additional configuration procedures before you can use Database Expert.

Note If you have an earlier version of Database Expert, you must uninstall that software before you install version 15.0.2. Refer to "Removing Database Expert components" on page 28 for instructions.

❖   **Installing Database Expert**

1   Log in to your Windows computer using an account with Windows administrator privileges.

2   Free system resources and release any Sybase DLLs by closing any open applications or utilities, including currently installed Sybase products or the SySAM Manager.

Warning! If any Sybase executables or DLLs are loaded into memory, and the installation program tries to overwrite any of the files that are in use, the installation program may generate an error and provide an error log.

---

3   Insert the Sybase Database Expert CD in the CD drive.

4   InstallShield should start automatically. If it does not, select Start | Run, and enter the following, where *<x:>* is your CD drive:

    <x:>\setup.exe

Click OK.

5   When the Installer Welcome screen displays, click Next.

6   The next screen asks "What would you like to do?" Select one of the following:

   • Install licensed copy of Sybase Database Expert 15.0.2 – select this option if you purchased the software.

   • Evaluate Sybase Database Expert 15.0.2 – select this option to evaluate the software for a 30-day trial period.

Click Next.

7   If you selected "Install licensed copy of Sybase Database Expert 15.0.2" on the previous screen, when the license key screen displays, select one of these options:

   • Specify license keys – click Browse to go to the location where you previously copied the unserved license file. (Refer to "SySAM pre-installation tasks" on page 17 for details.)

   • Use previously deployed license server – if you are using a served license, enter the Host Name and Port Number used to access the license server.

- Continue installation without a license key – select this option if you do not have a license key to enter.

Note If you select "Specify license keys" or "Use previously deployed license server," the Installer verifies whether you have a valid license.

If the Installer is unable to verify a valid license, you are allowed to continue with the installation. However, the product will stop working in 30 days, unless you obtain and install an appropriate license.

Click Next.

8   When the license selection displays, select your location from the drop-down list, read the license terms, click "I agree," then click Next.

Not every country is listed in the drop-down list. If your country is not listed, select the most appropriate location.

9   InstallShield checks for an existing *SYBASE* directory structure.

- If a *%SYBASE%* environment variable is not defined, the Install Directory window opens. The directory you enter becomes the *%SYBASE%* environment variable.

  Enter an installation directory, then click Next.

- If a *%SYBASE%* environment variable was previously defined, that value becomes the installation directory where Database Expert and any other Sybase required components are automatically installed. The Install Directory window does not display.

10   In the Install Type window, choose the installation type:

- Typical – installs the required components. If Open Client™ is installed, the regular language modules are also installed.

- Full – installs all components.

- Custom – allows you to select optional components.

  Note If you select a Custom installation, the Products and Features Selection window displays. Select the products and components to install.

  Components installed in a standard installation appear with the check box selected to the left of the product name. Click to select or unselect subcomponents.

If the installer finds that a component is already installed, it displays an "installed" tag to the right of that component and the installer overwrites the current files.

Make your selections, then click Next.

11 The Product Selection Summary window displays the components selected for installation. Verify that you selected the correct type of installation and have enough disk space to complete the process.

Click Next to continue.

12 The Install Progress window shows the installation's progress.

Note If an installer message asks if you want to overwrite older versions of some files with newer versions from the product CD, select "No to All," unless you have a reason for wanting older versions of the connectivity, language, or SySAM files to be installed.

When the screen states that the installation was successful, click Next.

13 In you are installing a licensed copy of Sybase Database Expert, the next screen allows you to configure the SySAM e-mail alert message mechanism. At the prompt "Do you want to configure e-mail alerts?" choose:

• Yes – to receive e-mail message alerts about SySAM events, then enter your e-mail messaging details.

• No – if you do not want to receive e-mail message alerts regarding SySam events.

Click Next to continue.

14 Click Finish. The shortcut for Database Expert is placed in the Sybase directory with all other previously installed Sybase products. If this directory does not exist, it is automatically created.

If you encounter errors, refer to "Troubleshooting" on page 28.

Silent installation

A silent installation (sometimes referred to as an unattended install) is done by running the Installer and providing a response file that contains answers to all of the Installer's questions. There are two methods of generating a response file for the Installer. The first method is to run the Installer in GUI mode and record all of the responses into a response file. This response file then be edited with an editor to customize the responses if needed.

The second method is to run the Installer and have it write out a template file. The template file contains all of the questions, but no responses. It can then edited to provide responses for each of the questions. The Installer is then invoked with the response file and all questions are answered by reading from the response file.

To perform the silent installation using the resource file that you created by running the Installer through the installation process:

1   Change default directory to the CD.

2   Run the setup program with the -options -record *<filename>*:

```
.\setupConsole.exe -options-record <full_path response file>
```

3   Run through the installation saving all of the responses.

4   Edit the response file to customize it for your needs.

5   Run the setup program with the -options filename and -silent command line arguments. Additionally you must include the -W argument that indicates that you accept the license agreement.

```
.\setupConsole.exe -silent -options <full_path response file> -W
SybaseLicense.agreeToLicense=true
```

> **Note** When the silent installation is finished, restart the machine.

To generate a template response file, skip step 3 and alter step 2 above to do the following:

```
.\setupConsole.exe -options-template <full path response file>
```

In either case it is possible to custom configure the servers as well as being able to select a typical install and use the default configuration values.

Except for the absence of the GUI screens all actions of the Installer are the same and the result of an installation in silent mode is exactly the same as one done in GUI mode with the same responses.

Note The value for -options, -options-template, and -options-record must specify an absolute path.

Installation in silent mode can fail when a response is required from the user. Such a response is required when files already exist on disk and appear to be newer than the files the installer is attempting to install, or when files have been modified by the user.

Set the following options at the command line level to specify actions to take when installing in silent mode:

- replaceExistingResponse – stores your response to whether you want to replace a file that currently exists on your system with the one being installed.

- replaceNewerResponse – stores your response to whether you want to replace a file that currently exists on your system with the one being installed if the existing file is newer than the file being installed.

- removeExistingResponse – stores your response to whether you want to remove a file that currently exists on your system.

- removeModifiedResponse – stores your response to whether you want to remove a file that has been modified since installation.

Any of these options can be specified on the command line or within the options file as follows:

```
-G replaceNewerResponse=<value>
```

Valid entries for *<value>* are:

- `yesToAll`

- `yes`

- `noToAll`

- `no`

For example:

```
.\setupConsole.exe -silent -options <full path response file>
-W SybaseLicense.agreeToLicense=true
-G replaceNewerResponse=yesToAll
```

Installation directory structure

Database Expert is installed into a new or existing *%SYBASE%* directory structure. Shared components are installed in separate subdirectories.

For example, Database Expert 15.0.2 is installed in *%SYBASE%\Database Expert-15_0_2*. The SySAM component, required for Database Expert, is installed in *%SYBASE%\SYSAM-2_0*. InstallShield builds the installation directory structure shown in Table 2-1.

Table 2-1: Database Expert directory structure under %SYBASE%

Directory	Contents
\OCS-15_0	Open Client and Open Server™ 15.0 directories and files[a]
\Database Expert-15_0_2	Product-specific (unshared) files required to run Database Expert
\SYSAM-2_0	Sybase System Asset Management (SySAM) version 2.0 manager files (*\bin*), license files (*\licenses*), and library files (*\lib*)
\collate	Unicode files[b]
\ini	Adaptive Server Enterprise *sql.ini* file that contains entries (host name and port number) for each server in the installation
\locales	Localization files
\charsets	Character sets and sort order
\uninstall	Files used by InstallShield to uninstall Database Expert software

[a,b] The data created by Sybase Database Expert is stored in the directory *C:\Documents and Settings\<user_name>\Application Data\Software\<product_name>*.

Starting Database Expert

InstallShield automatically creates the shortcut that adds Database Expert to the Windows Start menu. Start Database Expert by selecting Start | Programs | Sybase | Sybase Database Expert.

Removing Database Expert components

To uninstall Database Expert, use the Windows Add/Remove Programs utility:

1   Select Start | Settings | Control Panel | Add/Remove Programs.

2   When the Add/Remove Programs window opens, select Sybase Database Expert from the list of installed programs and click Change/Remove.

3   Follow the instructions on the screen, then close the Add/Remove Programs window when the uninstall is finished.

Troubleshooting

This section discusses common problems and error messages you may encounter.

Common problems

If you have problems running Database Expert after you log in to your database, your machine may not have sufficient resources. Try to adjust:

•   Disk space – Sybase recommends that you have at least 50MB of free disk space to run Database Expert. Close all other applications. You may need to restart your machine.

•   Virtual memory – increase the virtual memory setting in Windows:

    a   For Windows 2000 and XP, select Start | Settings | Control Panel | System.

    b   When the System Properties window opens, select the Advanced tab, then select Performance Options.

    c   In the Performance Options window, click Change.

    d   In the Virtual Memory window, increase the Paging File Initial Size and Maximum Size up to the available space that displays.

    e   Click Set, then click OK to close the window. Close any other open windows.

Error messages

- `Failed to initialize the application.`

  This message is from the Windows operating system, and indicates that the current user does not have the correct permissions in the Windows Registry.

  Set the Windows Registry permissions for Database Expert:

  ```
  HKEY_CURRENT_MACHINE                     (F)
  |___Sybase                               (F)
  |   |___Database Expert                  (F)
  |       |____Current Version             (F)
  |           |__Connections               (F)
  |           |__Monitor Server Connection (F)
  |           |__Performance Monitor       (F)
  |           |__Preferences               (F)

  HKEY_LOCAL_MACHINE                       (R)
  |___Sybase                               (R)
  |   |___Database Expert                  (R)
  |       |____Current Version             (R)
  ```

- `Invalid Sybase Monitor Server login.`

  - Verify that Monitor Server is installed. Monitor Server is shipped with Adaptive Server Enterprise 11.5 or later.

  - Verify that Monitor Server is up and running.

  - Verify that the following two Adaptive Server parameters are set:

    - event buffers per engine = 2000

    - max SQL text monitored = 4096

  - Restart the server to accept the parameter changes.

  - Verify that the tempdb system segment is large enough for Monitor Server. You may want to add an extra 20MB to tempdb.

  - Make sure the Monitor Server is configured on the same machine as the database server you want to monitor.

  - Use dsedit to ping the remote Monitor Server to ensure that a connection is available.

- Verify that the Adaptive Server and Monitor Server are defined in the *%SYBASE%\ini\sql.ini* file. The names in the *sql.ini* file must match the name of the Adaptive Server and the Monitor Server on the database server.

- When you are adding a new collector, make sure the name for the Monitor Server matches exactly the name of the Monitor Server in the *sql.ini* file.

- Verify that sa_role privileges are assigned to your login.

- `Failed to connect to Sybase.`

  Check that other Sybase products, such as isql, connect successfully to the database, using the same login name, password, and host string.

APPENDIX A   **SySAM 2.0 Administration**

Database Expert uses Sybase Software Asset Management (SySAM) version 2.0 to perform license administration and asset management tasks.

Managing licenses

The Sybase Product Download Center is an online kiosk where you obtain license keys to enable Sybase software.

When you purchase software from Sybase, go to the download site at https://sybase.subscribenet.com. When your order is processed, you receive an e-mail message that includes the above URL, your login, and your password for the Sybase Product Download Center.

When you purchase software from a Sybase reseller, go to the download site at https://sybase.subscribenet.com/webkey. Use the certificate that you received in your software package to enter the activation string.

Before you go the Sybase Product Download Center, determine:

*   Your license configuration – whether to use the network license server or a serverless SySAM configuration.

*   The host ID for the servers you want to run.

    *   If you are going to use a serverless configuration, you need the host ID for the machine where Database Expert will run.

- • If you are going to use a network license server, you need the host ID of the machine where the license server will run.

To obtain a host ID, go to *%SYBASE%\SYSAM-2_0\bin* and execute:

```
lmutil lmhostid
```

Note If you want to obtain the hostid before installing Database Expert, the lmutil executable binary is available as a standalone download from the Sybase Product Download Center.

- • The host name for the network license server if you are using a license server.

- • The TCP/IP port number to be used by the network license server if you are using a license server. If you do not specify the port number, the network license server uses the first available port number in the 27000 through 27009 range.

At the Sybase Product Download Center, you can:

- • Generate a license file for an order.

- • Generate a license file for partial fulfilment of an order. For example, if you want ten copies of the software, you can acquire five now and obtain the remaining copies later.

- • Download ordered software.

- • Complete the remaining fulfillment for an order.

- • Rehost a license. To change the machine where a license is located, you must generate a new license file at the Sybase Product Download Center.

- • View a history of fulfilled licenses and re-download the licenses.

- • Obtain updated licenses after renewing support.

Note When you renew software support with Sybase, the SySAM licenses are updated with the new support date. Download updated licenses from the Sybase Product Download Center after renewing support. The designated support contact receives an e-mail message when a support renewal is processed. The support date is checked when you install Database Expert to verify the your support is current when the update is posted.

If you cannot access the Sybase Product Download Center or have problems generating license keys, contact Sybase Customer Services and Support. They can generate the license keys on your behalf and provide the keys to you.

The Sybase Product Download Center keeps a record of the license keys you have activated, and allows you access the records of the software for which you are licensed.

Using the options file to manage licenses

Use the options file (*%SYBASE%\SYSAM-2_0\licenses\SYBASE.opt*) to provide control to the Database Expert license from the network server. For example, you may want to limit the machines on which Database Expert can be run, or restrict usage to particular users.

For example, the following options file restricts the use of Database Expert to the users Tom, Sam, and Harry:

```
# the dbe_group are
GROUP dbe_group tom sam harry
INCLUDE ASE_SDBE GROUP dbe_group
```

Note When you specify INCLUDE, you must include all machines or all users licensed for the product in the host group. A machine or a user that is not included in the host group will not be able to use the product.

Starting and stopping network license servers

❖ **Manually starting SySAM servers**

When you install a network license server on Windows, it is configured to startup automatically as a Windows service.

1   In a Command Prompt window, go to *%SYBASE%\SYSAM-2_0\bin*.

2   Enter:

```
sysam start
```

❖ **Manually stopping a SySAM server**

1   In a Command Prompt window, go to *%SYBASE%\SYSAM-2_0\bin*.

2   Enter:

        sysam stop

❖   **Starting and stopping SySAM as an automatic service**

   •   When you install a network license server on Windows, it is automatically
       configured to start as a Windows service.

Borrowing a license to work offline

Use the lmborrow option to check out licenses from the network license server,
if you will be disconnected from the network for extended period of time.

Database Expert periodically executes a "heartbeat" on the network license
server to update license status. If the machine running Database Expert is
disconnected from the network, these heartbeats fail and eventually the
software becomes unavailable. Borrowing a license before disconnecting from
the network suspends the heartbeat checks and provides full use of the software
while disconnected.

Specify the end time when you perform the borrow operation. At the end of the
lease, you can obtain a new lease by connecting back to the network. You can
also return a license earlier than the lease end time.

Note You cannot borrow a license when you are use local license files.

❖   **Borrowing a license using *lmborrow***

1   Before disconnecting from the network, shut down Database Expert.

2   Go to *%SYBASE%\SYSAM-2_0\bin*.

3   In a Command Prompt window, enter:

        lmutil lmborrow SYBASE enddate [time]

   where endate [time] is the desired borrow end date.

Note Run lmborrow from the same machine on which licenses are being
borrowed, and from the same user that starts Database Expert.

For example, the following command sets the end date at 1 p.m. on August 20th, 2005:

```
lmutil lmborrow SYBASE 20-aug-2005 13:00
```

The maximum borrow time is 30 days. Your license administrator can reduce the maximum borrow time following the instructions in "Returning a borrowed license early" on page 35.

4   Start Database Expert. The checked out license is borrowed.

5   Disconnect from the network.

❖   **Displaying status on a borrowed license**

1   In a Command Prompt window, go to *%SYBASE%\SYSAM-2_0\bin*.

2   Enter:

```
lmutil lmborrow -status
```

❖   **Returning a borrowed license early**

1   Connect to the network.

2   Shut down Database Expert.

3   In a Command Prompt window, go to *%SYBASE%\SYSAM-2_0\bin*.

4   Return each borrowed license by entering:

```
lmutil lmborrow -return [-c licfile]
[-d display_name] feature
```

For example, the following command returns the ASE_SDBE license:

```
lmutil lmborrow  -return -c
%SYBASE%\SYSAM-2_0\licenses -d  myhost ASE_SDBE
```

❖   **Renewing a borrowed license**

1   Connect to the network.

2   Shut down Database Expert.

3   Return the currently borrowed license if the lease has not expired.

4   Execute the steps to borrow licenses with a new lease end date.

See "License Borrowing with BORROW" in Chapter 8, "Mobile Licensing," in the *FLEXnet Licensing End User Guide*, and Chapter 7, "License Administration Tools," for more details.

Enabling the network license server REPORTLOG file

The network license server can produce a REPORTLOG file that records license use.

Note Asset management reporting capabilities require a report log.

The report log is enabled by adding this command in the options file, where *report_log_path* is the report log file for this vendor daemon.

```
REPORTLOG [+]report_log_path
```

Sybase recommends that you prepend the *report_log_path* with a plus (+) character to append logging entries, otherwise, the file is overwritten each time the daemon starts.

Note The Database Expert installation automatically creates an options file with REPORTLOG enabled. The options file, *SYBASE.opt*, is located in *%SYBASE%\SYSAM-2_0\licenses*.

On Windows, path names that include spaces must be enclosed in double quotes. If you start lmgrd as a service, the default location for the report log file is *C:\WINNT\system32* unless you specify a fully qualified path name.

Using SAMreport

SAMreport is a report generator that records the license use of FLEXnet-licensed applications. SAMreport records license use based on license activity recorded in the FLEXnet report logs, and on selected criteria that includes product and feature name, user, date and time, and display or host.

The SAMreport install program is on the Database Expert installation media in the *\samreport* directory.

Note The recommended *%SAMreport_home%* location is *%SYBASE%\SYSAM-2_0\samreport*.

SAMreport provides these report types:

- Usage Over Time – produces a line graph that shows the maximum number of licenses in use over a period of time.

- High Water Mark – produces a line graph that shows the maximum number of licenses used during the specified time period.

- Summary Barchart – provides a format to compare license use across users and features, based on calculations made in the Usage Summary report.

- Usage Efficiency – shows how long each successive license for a given product was in use.

- Usage Summary – produces text output that summarizes usage statistics for each product.

- Server Coverage – documents the time during which the license server was servicing licenses.

- Raw – shows individual use events, not a summary of license use. In general, a Raw report provides one line of data for every license checkout, listed in chronological order of check-in.

❖ **Using SAMreport**

1   To start SAMreport:

- Select Start | Programs | SAMreport | SAMreport; or

- Double-click *report.exe* in the *%SAMreport_home%* directory; or

- Open a Command Prompt window, go to the *%SAMreport_home%* directory, and enter:

    ```
    report
    ```

2   To stop SAMreport, select File | Exit or click Exit in the SAMreport user interface.

Managing and collecting logs

SAMreport must access report logs on the SySAM license server on which you want the report. If you are using a serverless license, the report log files must be on the local machine. If you are using a network license server, the report log files must be accessible via a network-mounted server. SAMreport does not manage this task; you must manually copy the reports to the appropriate local or network machine and map a drive to the network server if necessary.

> **Note** Appendix A of the *SAMreport Users Guide* discusses how to manage report logs, including scripts to automate collection of such logs. To access this guide, go to the Sybase Product Manuals Web site at Product Manuals at http://www.sybase.com/support/manuals/, select the Adaptive Server Enterprise product from the drop-down list, then select Adaptive Server 15.0 core documentation. Select the Eclipse icon for online documentation. The *SAMreport Users Guide* appears at the end of the Adaptive Server 15.0 documentation list in the left pane.
>
> Portions of the *FLEXnet Licensing End User Guide* and the *SAMreport Users Guide* are included with permission of Macrovision Corporation.

Using SySAM utilities

SySAM provides these utilities, which allow the license administrator to manage network licensing activities:

- lmborrow – supports license borrowing.

- lmdiag – diagnoses license checkout problems.

- lmdown – shuts down selected license daemons.

- lmhostid – reports the system hostid.

- lminstall – converts license files to different formats.

- lmnewlog – moves existing report log information to a new file name or starts a new report log file with the existing file name.

- lmpath – allows direct control over license file path settings.

- lmremove – releases a failed license to the pool of free licenses.

- lmreread – directs the license daemon to reread the license file and to start any new vendor daemons.

- lmstat – displays the license server system status.

- lmswitch – controls the size and location of the debug log.

- lmswitchr – switches the report log to a new file name.

- lmver – reports the FLEXnet licensing version of a library or binary file.

For more information, see Chapter 7 in the *FLEXnet Licensing End-User Guide*.

The *sysam* script located in *%SYBASE%\SYSAM-2_0\bin* provides a wrapper for the most frequently used FLEXlm utilities. To display the help text, which provides complete instructions, enter the following command in a Command Prompt window:

```
sysam help
```

To display detailed help on a specific action, enter:

```
sysam help <action>
```

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Database Expert