

Product Documentation

Embarcadero® Performance Center™

Evaluation Guide

Version 2.7

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INTRODUCTION TO EMBARCADERO'S PERFORMANCE CENTER

Performance Center is a database monitoring application that allows for quick problem determination, ensuring both availability and performance. Its intuitive interface and 24x7 architecture addresses the problems of managing medium to large database installations by relatively few database administrators (DBAs).

Performance Center is uniquely designed to help DBAs address performance on an enterprise level. This is done through several key components. First is the Health Index, which is one easy-to-read statistic that conveys the overall health of a database. Next is the Enterprise view, which allows you to check both database availability and performance from one central location. The Alarm Center provides a query mechanism that can scan all of your monitored datasources for thresholds that have been violated, eliminating the need to check for problems on a database-by-database basis. Finally, the Web monitoring capabilities of Performance Center allow DBAs to monitor their database environment from any standard Web browser, with no client software needing to be present on the workstation being used. These features, combined with historical reports, easy navigation, robust notifications, and many others, make Performance Center a tool that will increase the efficiency and productivity of any database administrator.

PRODUCT BENEFITS BY AUDIENCE

DATABASE ADMINISTRATORS

Performance Center is critical for organizations concerned with proactively ensuring that databases are running at peak efficiency, while at the same time providing a way to quickly resolve problems when they do occur. With its intuitive approach to problem determination combined with expert help for every monitored statistic, even intermediate to novice DBAs can become extremely productive. Solving problems using the expert help recommendations, as well as observing the many things that can cause performance degradation, actually serves as a tutorial for less experienced administrators. For the advanced DBA who simply cannot be everywhere at once, Performance Center's customization allows him or her to effectively have a set of virtual eyes on a vast array of databases at one time.

DATABASE ADMINISTRATOR MANAGEMENT

Getting a handle on precisely how well a company's databases are performing is often quite challenging. There is a real tendency for users to think that the databases are always the cause of a performance problem, even when many other factors may be at work. Moreover, defending Service Level Agreements is often impossible due to the lack of real-world data showing things like database availability. With Performance Center's Historical Reports, all this information (and much more) can be easily captured and presented at an executive summary

level. This information is valuable not only to management, but also the DBA who may realize that a certain database performed poorly over the past month and may require more attention in the short term.

ABOUT THIS EVALUATION GUIDE

This evaluation guide is intended to help you get started using Embarcadero's Performance Center.

After completing this evaluation guide, you will have the foundation you need to explore the many features and benefits of Performance Center against your own databases. You will have learned how to add datasources for monitoring, view your monitored datasources at an enterprise level, set thresholds and alarms for statistics, drill down into problems to obtain more granular information, and generate historical reports. You'll also have become familiar with some frequently used navigational techniques and customization options.

This guide is divided into seven sections:

Session 1: Getting Started with Performance Center

Session 2: Adding Monitored Datasources to Performance Center

Session 3: Monitoring the Enterprise

Session 4: Using SQL Text Capture

Session 5: Configuring and Using Thresholds

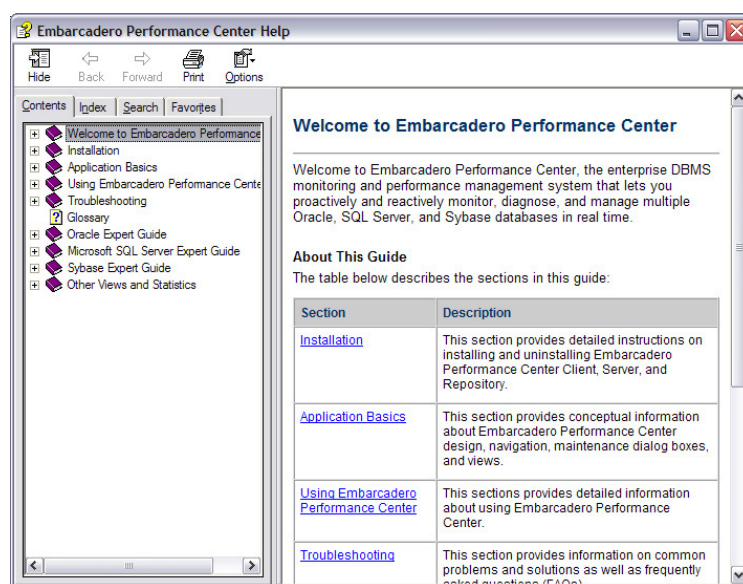
Session 6: Configuring and Using the Health Index

Session 7: Researching Problems and Determining Courses of Action

Session 8: Generating Historical Reports

Session 9: Using the Web Client

Once you've started, you can select **Help** from the toolbar to find many additional resources that complement and build on many of the activities shown in this brief guide.



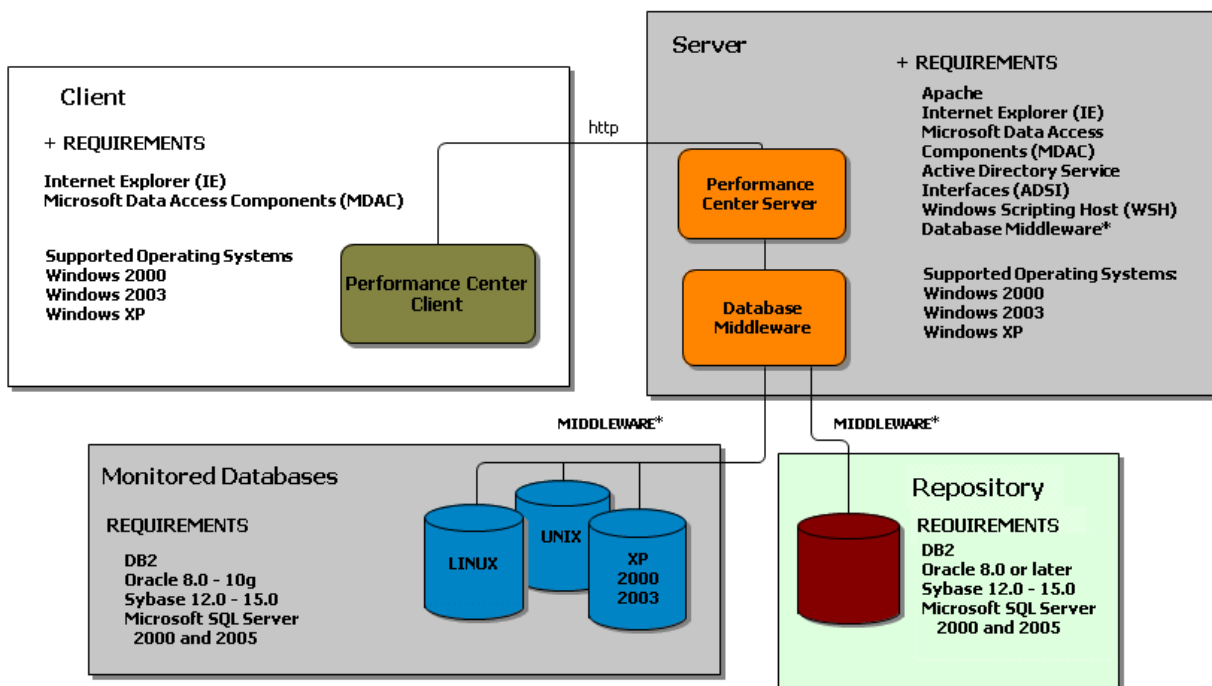
SESSION 1: GETTING STARTED WITH PERFORMANCE CENTER

GETTING THE PRODUCT

You can obtain the latest version of Performance Center by visiting the Embarcadero Web site at <http://www.embarcadero.com/downloads> and filling out the product request form. Upon submission, an Embarcadero representative will contact you with information on receiving an evaluation copy of the product. When you first install an evaluation copy of Performance Center, you can use the tool for 14 days. After that time, a permanent license is needed.

ARCHITECTURAL OVERVIEW

The following graphic illustrates the elements of the Performance Center architecture. If you choose to do so, you can run all components of Performance Center on the same machine, but be advised that doing so results in a substantial load on system resources. Therefore, you will want to ensure that the machine has adequate memory (RAM) and a fast processor.



+ The Performance Center Installation will upgrade or install the following components:

- Apache httpd Server
- Internet Explorer (IE)
- Microsoft Data Access Components (MDAC)
- Active Directory Service Interfaces (ADSI)
- Windows Scripting Host (WSH)

* Required Database Middleware

- For DB2:
- For Oracle Databases: Oracle SQL *Net
- For Sybase ASE Databases: Sybase Open Client
- For Microsoft SQL Server: SQL Server client libraries

INSTALLATION

Due to the distributed nature of Performance Center, taking a few moments to read the installation guide prior to running the setup.exe installer eliminates a lot of potential problems.

As you read through the installation guide the number of prerequisites for Performance Center may seem extensive, but keep in mind two things:

- 1) Most are standard Microsoft Windows™ components, all of which are actually included with Windows 2000™; and
- 2) The installation program does all the work when it comes to the prerequisites.

Should you find yourself in a situation where you do need assistance, simply open a case with our support staff at http://www.embarcadero.com/support/open_case.jsp and they will be glad to assist you with your installation issues.

PRODUCT NAVIGATION

The following graphic represents the navigation basics of the Performance Center client application.

Enterprise view presents all monitored datasources in one, concise window. Using the Health Index, you can quickly determine which databases need attention.

Explorer allows browsing of individual datasources. Color-coded icons quickly show threshold violations

DifferentOutput window shows Status, Notifications and Enterprise Alerts and the date and time on which they were fired.

Tabbed monitoring windows allow for quick navigation between datasources.

Embarcadero Performance Center - [Enterprise View]

Monitor Datasource Maintenance Report View Window Help

EXTOTB017 (SQL Server 2000) Zoom 00m 00s Current

Datasources

- Registered Datasources
 - EXTOTB017 (SQL Server 2000)
 - Home
 - Memory
 - I/O
 - Space
 - Databases
 - Database Count
 - Database Summary
 - Databases Health Index
 - Databases Needing Backup
 - Databases Without Auto-Create ...
 - Databases Without Auto-Growth
 - Databases Without Auto-Update...
 - Errors in Current Error Log
 - File Groups
 - Files
 - Logs Without Auto-Growth
 - Offline Databases
 - Suspect Databases
 - Contention
 - Users
 - Network
 - Alarm
 - Health Index
 - Server Configuration
 - Lock
 - SQL Server Logs
 - Top Sessions
 - Trends
 - Top SQL
 - Profiled SQL

Name	Type	Datasource Up	Listener Up	Health Index (%)	Current Alarms
EXTOTB017	SQL Server 2000	Yes	N/A	N/A	No

0 Servers in Healthy State 0.00% 100%
 0 Servers in Don't Monitor State 0.00% 80%
 0 Servers in Problem Monitoring State 0.00% 60%
 0 Servers in Low State 0.00% 40%
 0 Servers in Warning State 0.00% 20%
 0 Servers in Critical State 0.00% 0%

The datasource is running and connected. The datasource is running and connected, but there is an error. The datasource is running but not connected. The datasource is not being monitored.

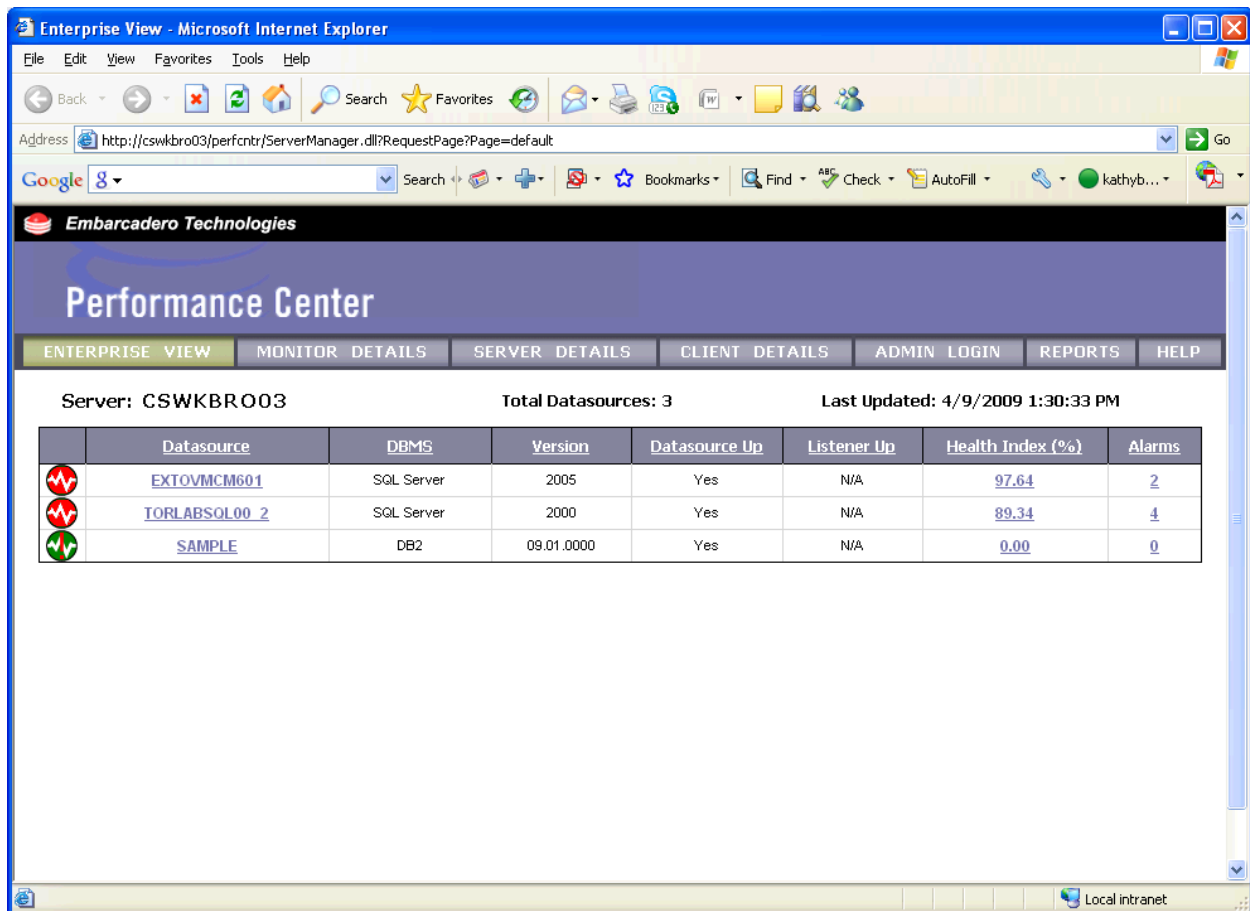
Status

Message	Time
Data Acquisition: Mean fetch size: 35.00 bytes, Mean fetch time: 0.00 secs, Fetch interval:3.00 secs	3/16/2009 6:40:42 AM
Data Acquisition: Mean fetch size: 35.00 bytes, Mean fetch time: 0.00 secs, Fetch interval:3.00 secs	3/16/2009 6:41:42 AM
Data Acquisition: Mean fetch size: 35.00 bytes, Mean fetch time: 0.00 secs, Fetch interval:3.00 secs	3/16/2009 6:42:42 AM
Data Acquisition: Mean fetch size: 35.00 bytes, Mean fetch time: 0.01 secs, Fetch interval:3.00 secs	3/16/2009 6:43:42 AM

Status Notifications Enterprise Alerts

Ready

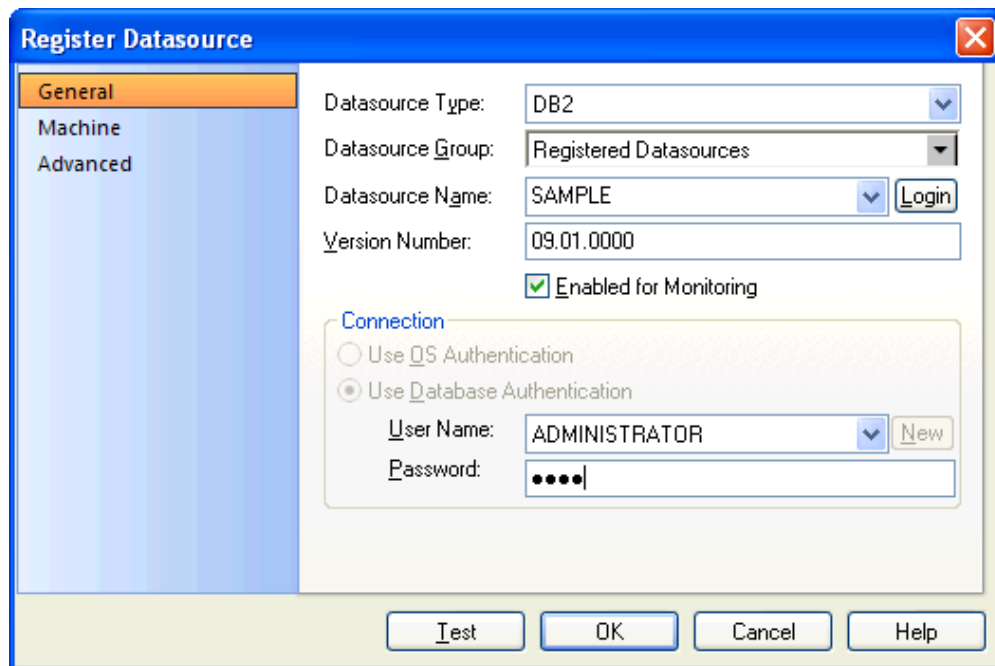
If you want to just monitor the activity of the databases that Performance Center is polling, you can also use your Internet Explorer browser in conjunction with the Performance Center Web Client. For more information on the Web Client go to [Session 9](#).



Note: The URL shown in the graphic above shows a connection to a Performance Center server named "cswkbro03".

SESSION 2: ADDING MONITORED DATASOURCES TO PERFORMANCE CENTER

When you first launch the Performance Center client, it automatically prompts you to register a datasource for monitoring. If you are adding additional datasources to your environment, you can invoke the Register Datasource window by selecting **Datasource > Register**.



DEFINING THE DATASOURCE

The Datasource Name drop-down list is populated with the Oracle, Sybase, etc., datasources (as determined by selecting the Datasource Type) *defined on the Performance Center server*. This means that you must first add all datasources to be monitored to the Performance Center server's database client configuration files.

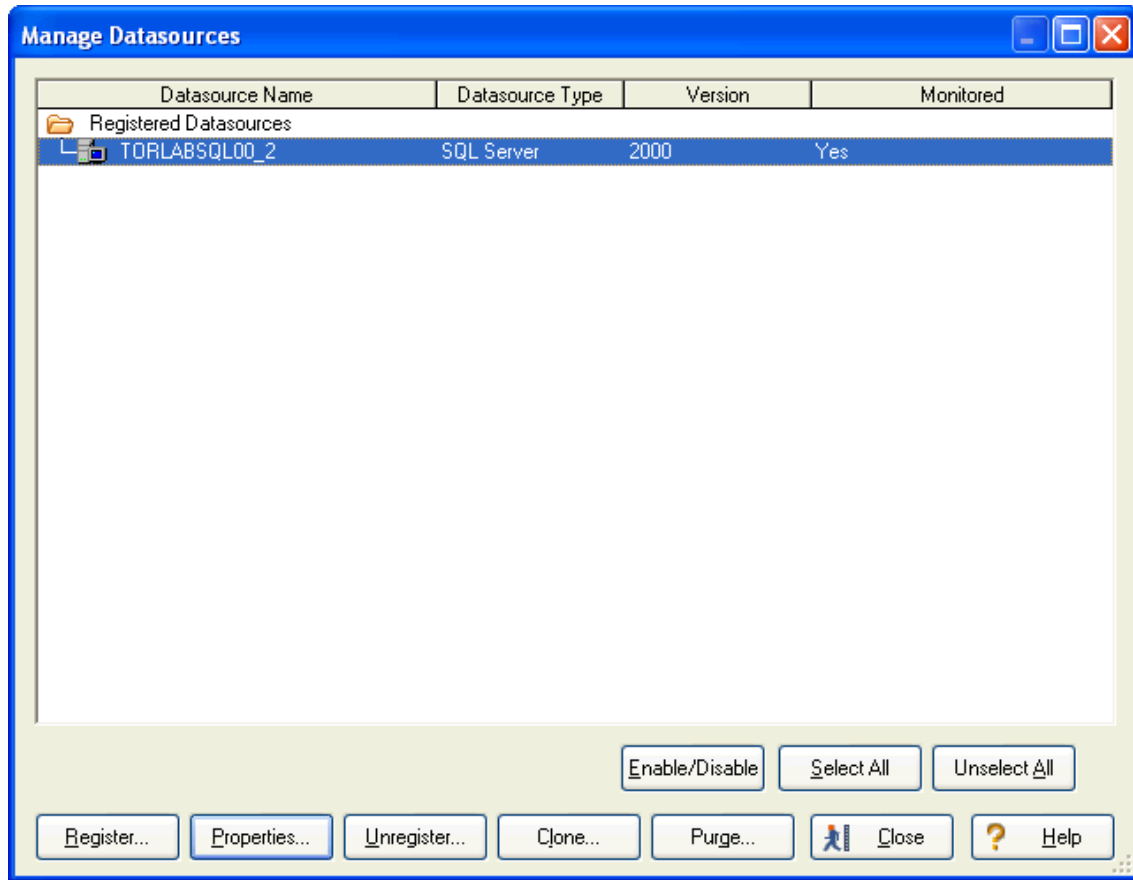
Once you select the datasource for monitoring, you are prompted to enter a database server's DBA account. This is necessary so Performance Center can create the required objects on the monitored datasource, and grant the correct privileges to the monitoring user.

The User ID and Password fields are those of the monitoring user. This is the user interacting with the Performance Center server in the collection of statistics. Any objects created and used by Performance Center are created under this ID.

Note: If you do not already have a user defined that you would like to use for monitoring, clicking the **New** button guides you through a user-creation wizard.

MANAGING DATASOURCES

Once your datasources are added to Performance Center, you have the following options: Register, Properties, Unregister, Clone, or Purge. To do this type of datasource management, select **Datasource > Manage**, highlight the desired datasource, and then click the desired task option:










SESSION 3: MONITORING THE ENTERPRISE

Once you have registered your datasources, you can begin to monitor the performance of your databases. The first place to start is the enterprise screen where you can take advantage of Performance Center's Health Index.

USING THE ENTERPRISE VIEW

Performance Center gives you the ability to pinpoint problem databases throughout your enterprise without the cumbersome task of checking each database individually. To accomplish this, click the Enterprise tab of the main window (if it is not already the active tab.)

Name	Type	Datasource Up	Listener Up	Health Index (%)	Current Alarms
 TORLABSQL00_1	SQL Server 2000	Yes	Yes	91.13	Yes
 TORLABSQL00_2	SQL Server 2000	Yes	N/A	88.67	Yes
 SAMPLE	DB2 09.01.0000	Yes	Yes	N/A	No

	The datasource is running and connected.		The datasource is running and connected, but there is an error.		Performance Center cannot connect to this datasource.		The datasource is not being monitored.
---	--	---	---	---	---	---	--

Enterprise View x TORLABSQL00_2 - HOME

Single-click the “Health Index” column heading to sort the health index values in ascending order. Clicking the heading a second time reverses the sort. By sorting in this fashion, you can see which datasources are performing well and which are not, all from one convenient window. You can also sort by any of the columns on this screen simply by clicking the desired column heading.

The Enterprise view accurately conveys the status of your databases by telling you not only the status of the datasource, but also the status of the listener as well. Without a valid listener, the database may as well be considered down to the users on your network.

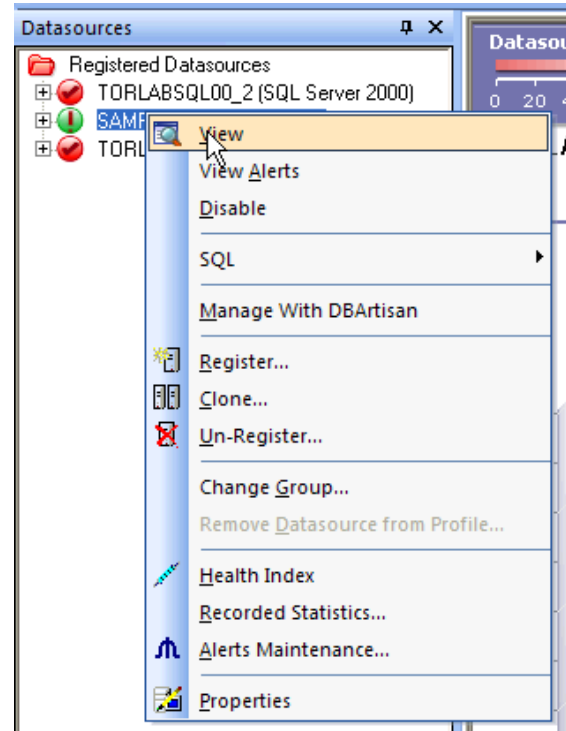
The Current Alarms column indicates whether any alarms have been fired for the given datasource. (More on Alarms in [Session 5](#).)

Finally, the legend at the bottom explains the meaning of the icons shown in the Name column for each datasource.

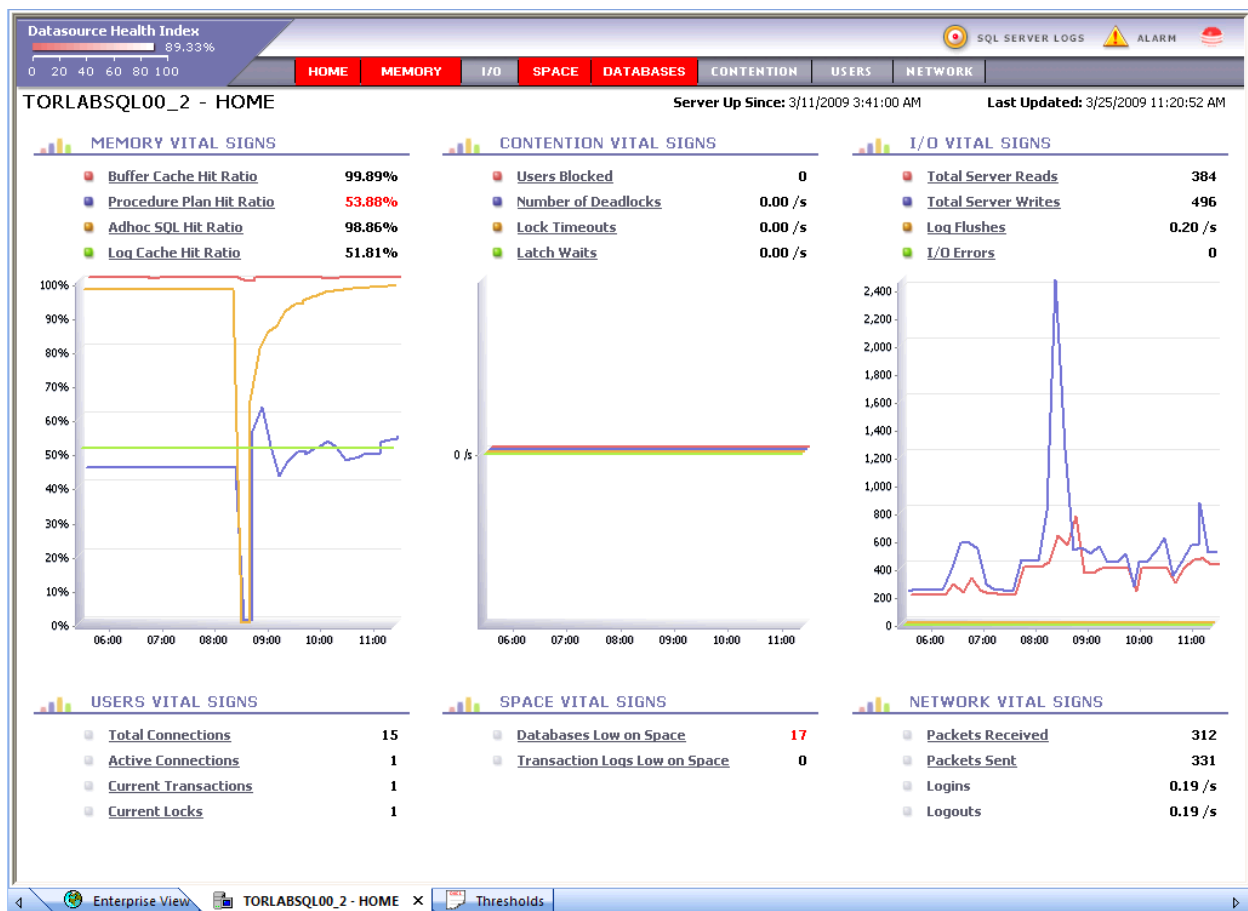
EXAMINING INDIVIDUAL DATASOURCES

There are a couple of ways to narrow your observations to a specific datasource. The first is to double-click one of the datasources in the Enterprise view. The second involves using the Explorer.

To activate the Explorer Tree, select **View > Explorer**. In the Explorer Tree, right-click on a datasource and select **View** from the pop-up menu for the desired datasource.



When an individual datasource is viewed, that page is opened as an additional tab in the main viewing area as shown below (note the tabs on the bottom of the screen).



You can switch between the Enterprise and other datasource views by clicking the desired tab.

When a monitoring window is invoked for a particular datasource, the first view you see is the overview homepage for that datasource. The overview homepage is a composite picture of the most useful statistics from each category used in determining the performance of your database.

In addition to this overview, there are seven homepages that group statistics into the following categories:

- Memory
- I/O
- Space
- Databases
- Contention
- Users
- Network.

You navigate to a particular category by clicking one of the eight categories on the navigation bar.

HOMEPAGE HEADINGS

Each homepage has a heading area that relays information about the given category as well as some general information about the monitored datasource.



The category that is currently active appears in the title after the name of the monitored datasource. For example, in the preceding graphic, the I/O homepage for the TORLABSQL00_2 datasource is displayed.

Where applicable, each homepage displays a Health Index specific to that category. It is the combination of all the categorical Health Indexes that compose the overall Health Index for the datasource. (More on how this works, and how to customize it, in [Session 5](#).)

Looking at the upper-right corner of the heading, you will find the Alarm icon. These operate at the monitored datasource level and can be accessed from any of the homepages. Likewise, the "Server Up Since" and the "Last Updated" statistics just below the category headings apply to the datasource in general and not to a specific category. "Last Updated" indicates the last time that the Performance Center client information was refreshed by the Performance Center server.

Note: If you are running a SQL Server datasource, the SQL Server Logs icon also appears in the upper right corner.

Explore the various homepages to see the different statistics that Performance Center monitors. In Session 6, we explore how to use the drill-down functionality of the Performance Center home pages in order to gather more granular information for each statistic.

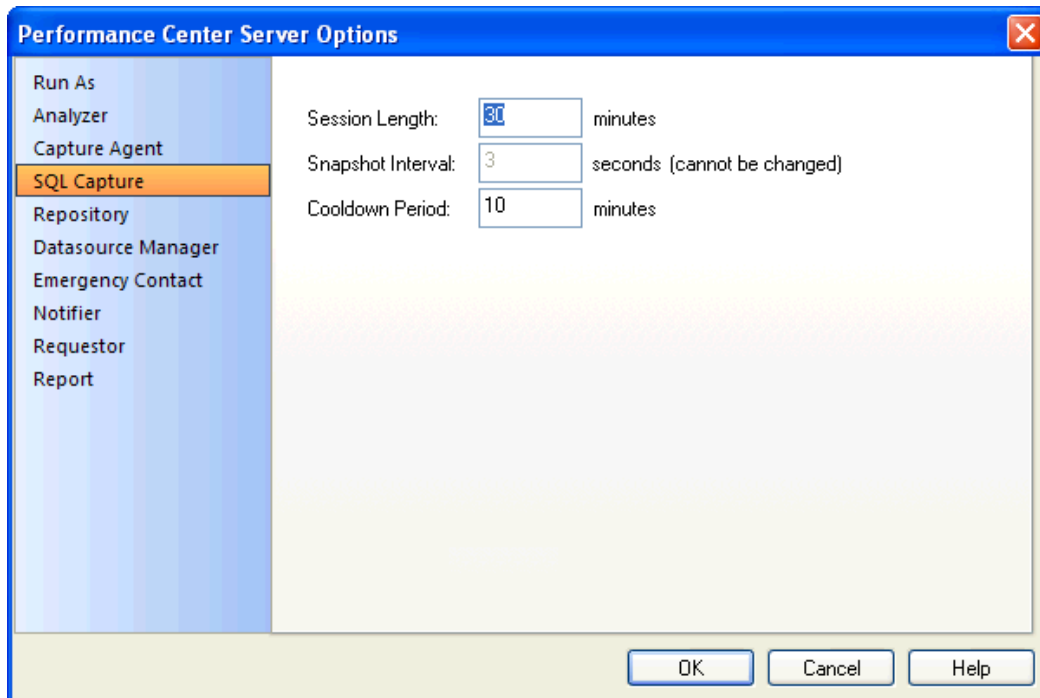
SESSION 4: USING SQL TEXT CAPTURE

SQL Text capture is a pro-active root-cause analysis tool and is now available in a 24/7 environment. It is an alert-based trackable instance of events. The information captured is stored in the repository for future analysis. The SQL Capture is triggered by a threshold violation. When such a violation occurs, a SQL Capture session is triggered and collects performance-related data for the SQL running currently on the datasource that fired the threshold.

You can set up how the notification takes place. As long as an alert is open you will receive notification based on the interval you set up.

TO SET UP THE SESSION LENGTH:

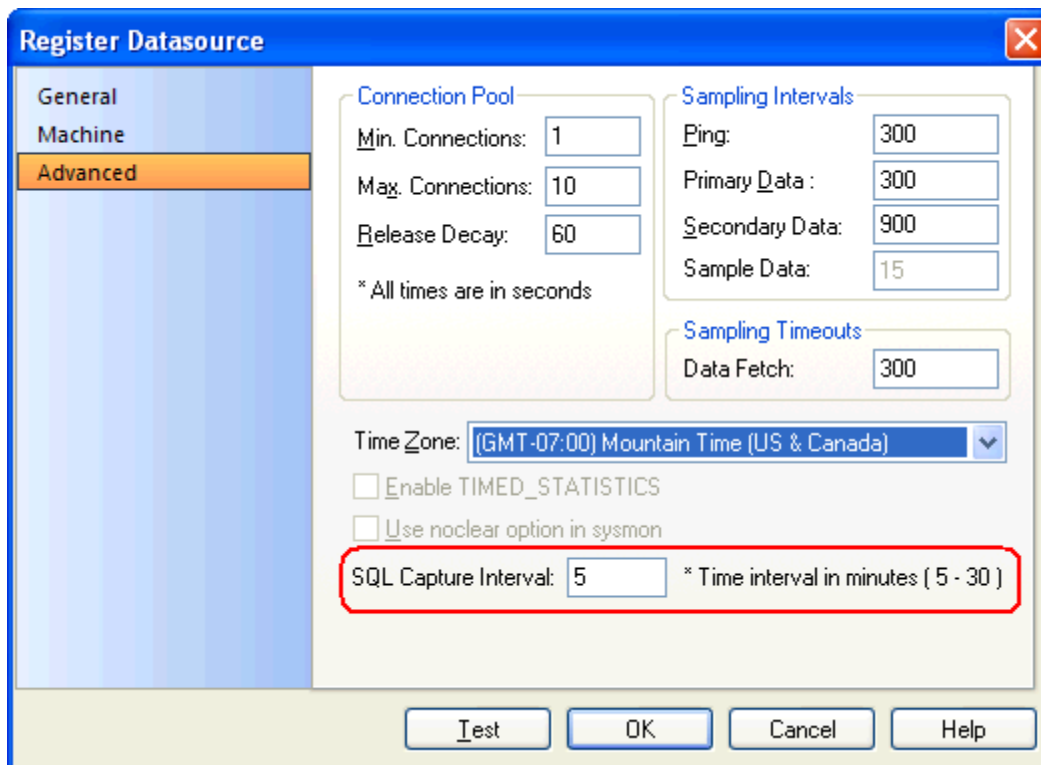
1. Select **Monitor > Server Options**.
2. Click SQL Capture.
3. Set the SQL capture interval. The default is 30 minutes.



4. You can also set the Cooldown period. This setting determines how long to wait between consecutive capture sessions on a given data source. When an alert is triggered, if there is no existing SQL Capture Session on that data source, Performance Center checks to see when the last session ended. A new SQL Capture Session will not be started if the previous session's cool down period is not over.

TO SET UP THE CAPTURE INTERVAL:

1. In the Datasources tree, right-click the registered datasource you want to set the interval for and click **Properties**.
2. In the Register Datasource dialog, click **Advanced**.
3. Set the interval time and click **OK**. The default is 30 minutes.



Register Datasource

General
Machine
Advanced

Connection Pool
 Min. Connections: 1
 Max. Connections: 10
 Release Decay: 60
 * All times are in seconds

Sampling Intervals
 Ping: 300
 Primary Data: 300
 Secondary Data: 900
 Sample Data: 15

Sampling Timeouts
 Data Fetch: 300

Time Zone: (GMT-07:00) Mountain Time (US & Canada) ▼

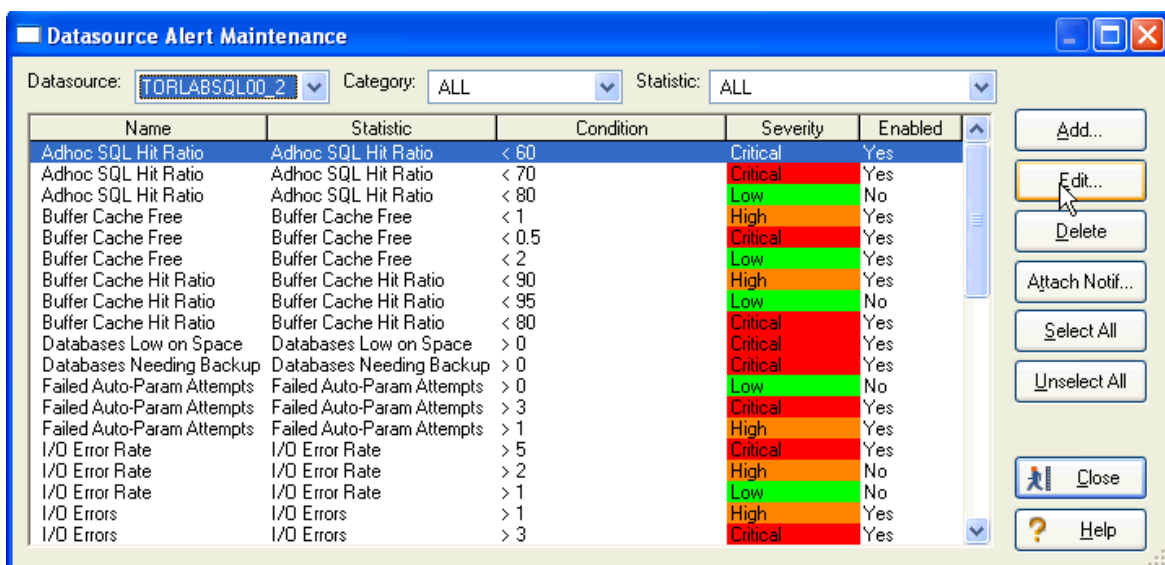
☐ Enable TIMED_STATISTICS
☐ Use noclear option in sysmon

SQL Capture Interval: 5 * Time interval in minutes (5 - 30)

Test OK Cancel Help

TO SET A SQL CAPTURE SESSION ON AN INDIVIDUAL ALERT:

1. Click **Datasource > Alert Maintenance**.
2. In the Datasource Alert Maintenance dialog right-click the statistic you want to monitor and click **Edit**.



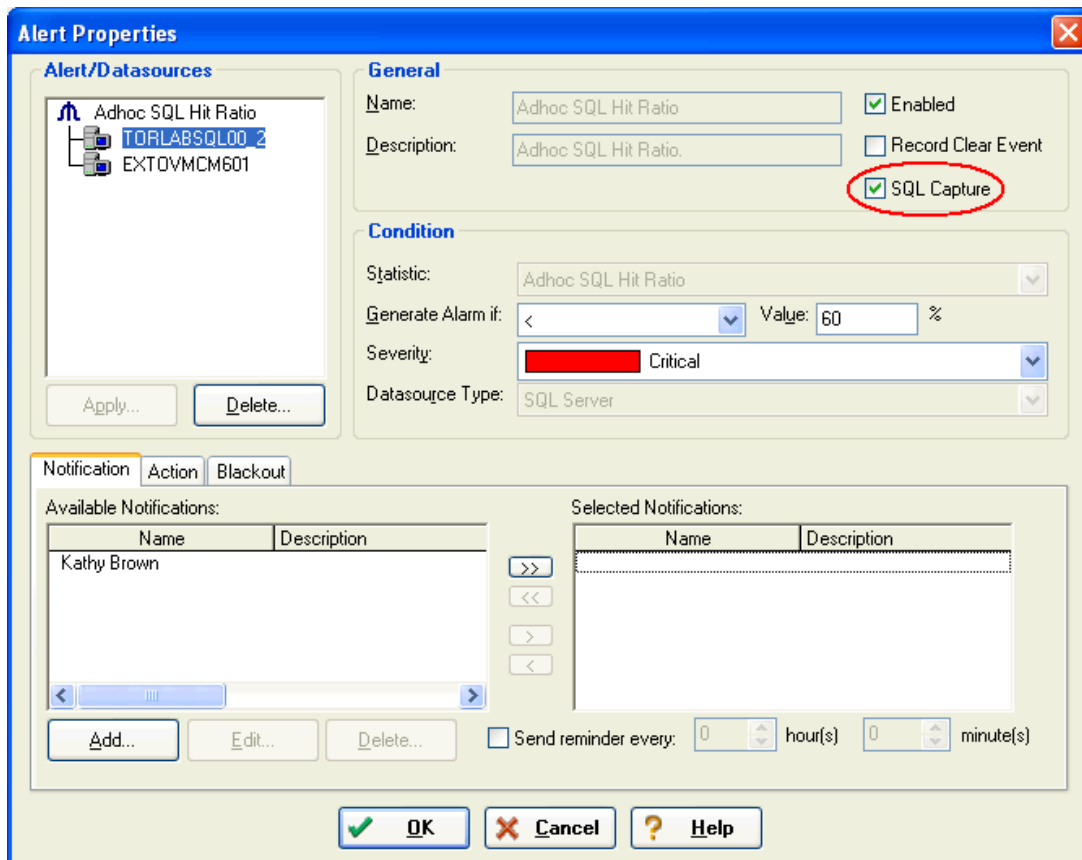
Datasource Alert Maintenance

Datasource: TORLABSQL00_2 Category: ALL Statistic: ALL

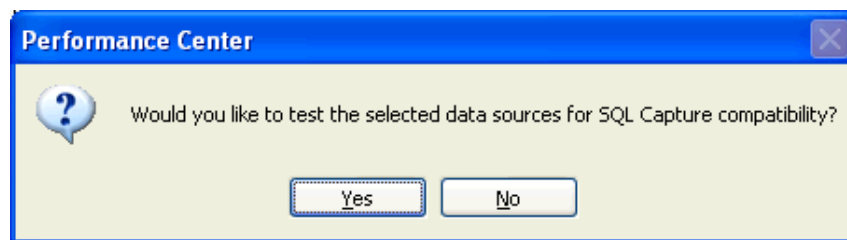
Name	Statistic	Condition	Severity	Enabled
Adhoc SQL Hit Ratio	Adhoc SQL Hit Ratio	< 60	Critical	Yes
Adhoc SQL Hit Ratio	Adhoc SQL Hit Ratio	< 70	Critical	Yes
Adhoc SQL Hit Ratio	Adhoc SQL Hit Ratio	< 80	Low	No
Buffer Cache Free	Buffer Cache Free	< 1	High	Yes
Buffer Cache Free	Buffer Cache Free	< 0.5	Critical	Yes
Buffer Cache Free	Buffer Cache Free	< 2	Low	Yes
Buffer Cache Hit Ratio	Buffer Cache Hit Ratio	< 90	High	Yes
Buffer Cache Hit Ratio	Buffer Cache Hit Ratio	< 95	Low	No
Buffer Cache Hit Ratio	Buffer Cache Hit Ratio	< 80	Critical	Yes
Databases Low on Space	Databases Low on Space	> 0	Critical	Yes
Databases Needing Backup	Databases Needing Backup	> 0	Critical	Yes
Failed Auto-Param Attempts	Failed Auto-Param Attempts	> 0	Low	No
Failed Auto-Param Attempts	Failed Auto-Param Attempts	> 3	Critical	Yes
Failed Auto-Param Attempts	Failed Auto-Param Attempts	> 1	High	Yes
I/O Error Rate	I/O Error Rate	> 5	Critical	Yes
I/O Error Rate	I/O Error Rate	> 2	High	No
I/O Error Rate	I/O Error Rate	> 1	Low	No
I/O Errors	I/O Errors	> 1	High	Yes
I/O Errors	I/O Errors	> 3	Critical	Yes

Add... Edit... Delete Attach Notif... Select All Unselect All Close Help

3. In the Alert Properties dialog select the SQL Capture option and click **OK**.



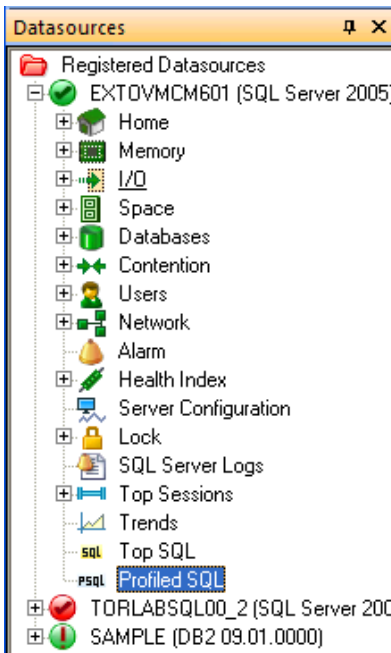
4. When you select the SQL Capture option and click OK, a message appears asking if you want to test the selected data sources.



5. Click **Yes** and after a brief moment the message closes. You will not get a confirmation on the compatibility. You will only get a warning message if it is not compatible.
6. When an alert occurs on your selected statistic, an e-mail is generated.

TO GAIN ACCESS TO THE CAPTURED INFORMATION:

1. In the Datasources tree, double-click **Profiled SQL**.



2. In the SQL Profiling Session that opens for the selected datasource, select an Alert Name from the list box and click **Find**.
Note: You can also use a session ID as a search criteria.
3. Select the result that you want information on and click **View Details**.

TORLABSQL00_2 - SQL Profiling Session - Find Session

Search Criteria

Session ID

Alert Name **Databases Needing Backup** (Critical) (ACTIVE)

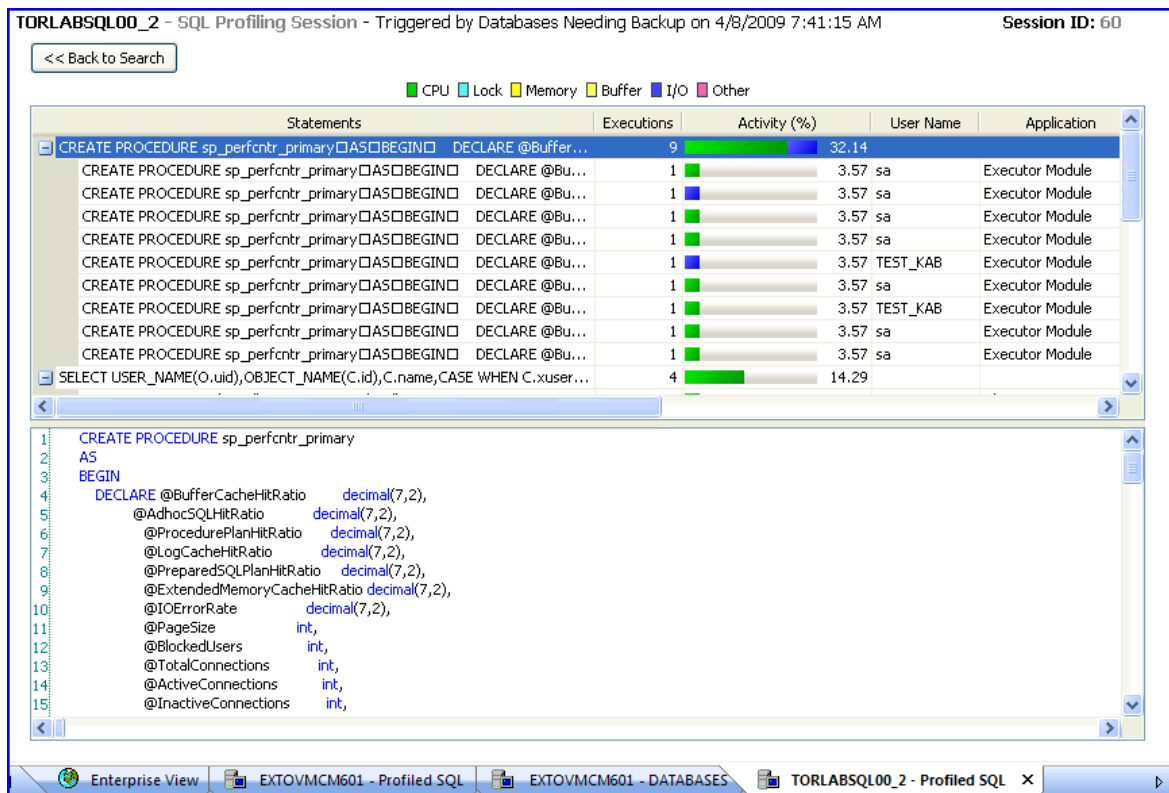
☐ Filter by datetime interval

Begin End

SessionID	Alert Name	Severity	Session Started	Session Ended	Status
60	Databases Needing Backup	Critical	4/8/2009 7:41:15 AM	4/8/2009 8:11:15 AM	
64	Databases Needing Backup	Critical	4/8/2009 8:22:58 AM	4/8/2009 8:52:58 AM	
67	Databases Needing Backup	Critical	4/8/2009 9:04:19 AM	4/8/2009 9:34:19 AM	

Enterprise View EXTVOVMCM601 - Profiled SQL EXTVOVMCM601 - DATABASES TORLABSQL00_2 - Profiled SQL

4. In the Details tab that appears, you can scroll through the session details that have been generated. Note the color-coding of the Activity column allows you to quickly identify the type of activity.



TO ENABLE SYBASE ASE 12.5 FOR SQL CAPTURE:

Sybase ASE 12.5 must enable SQL Capture if you want to use the capture function in Performance Center. Take the following steps to ensure that the SQL Capture feature is activated for Sybase ASE:

1. Enable the following System Configuration settings:
 - Enabling Monitoring
 - Wait Event Timing
 - Max SQL Text Monitored
 - SQL Batch Capture

Examples:

```

sp_configure "enable monitoring", 1
sp_configure "wait event timing", 1
sp_configure "SQL batch capture", 1
sp_configure "max SQL text monitored", 4096* *

```

Note: This is the maximum length for SQL text stored by Sybase, but we suggest 4096 as a good starting point.

2. Grant the user *mon_role*.

3. Install the Sybase MDA tables (Sybase official documentation has directions - these should only be installed by a DBA).
 - If the monProcess table is missing, the user will not be able to see currently connected sessions.
 - If the sysprocesses table is missing, the user will not be able to see information about Adaptive Server processes.
 - If the monWaitEventInfo table is missing, the user will not be able to see information about wait events.
 - If the monProcessSQLText table is missing, the user will not be able to see currently executing SQL statements.

Example:

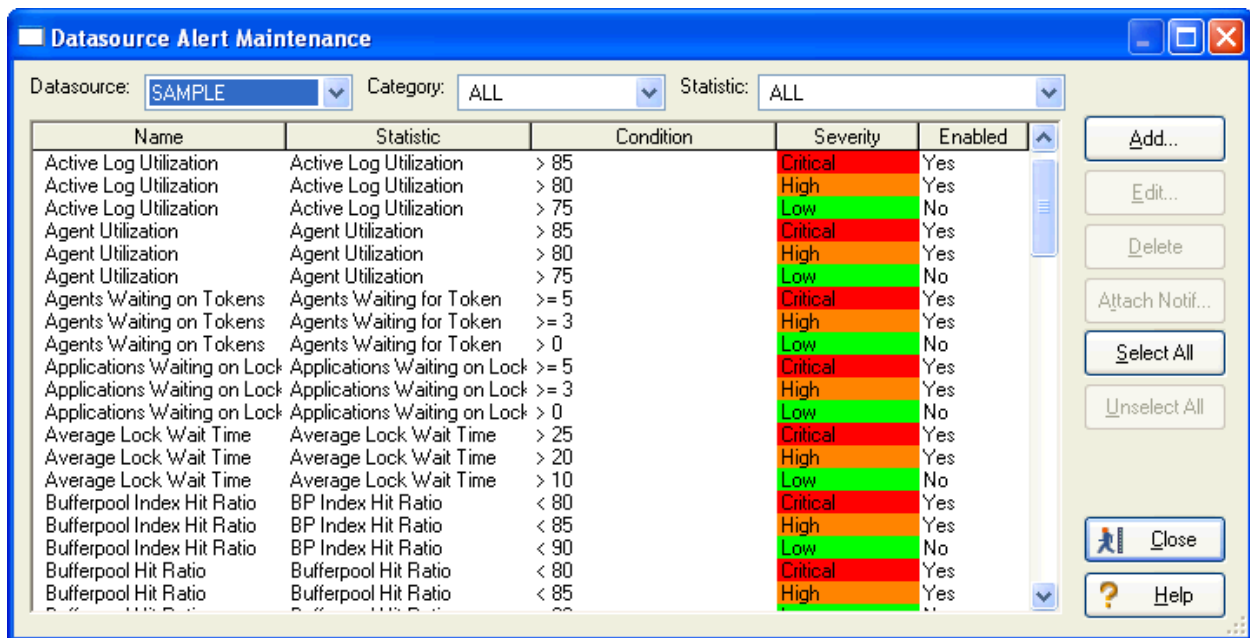
```
isql -U sa -P yourpassword -S YOURSERVER -i  
$SYBASE/$SYBASE_ASE/scripts/installmontables
```

SESSION 5: CONFIGURING AND USING ALERTS

Performance Center provides you with a template of default Alerts for the database platforms you are monitoring upon installation. However, you may need customized Alerts for your particular installations. With Performance Center you can customize your alerts on a per-datasource basis, or apply the same template to a group of datasources, in order to gain maximum flexibility in your monitoring solutions. We will now look at various ways to configure these alerts.

ADMINISTERING ALL DEFAULT ALERTS FOR A DATASOURCE

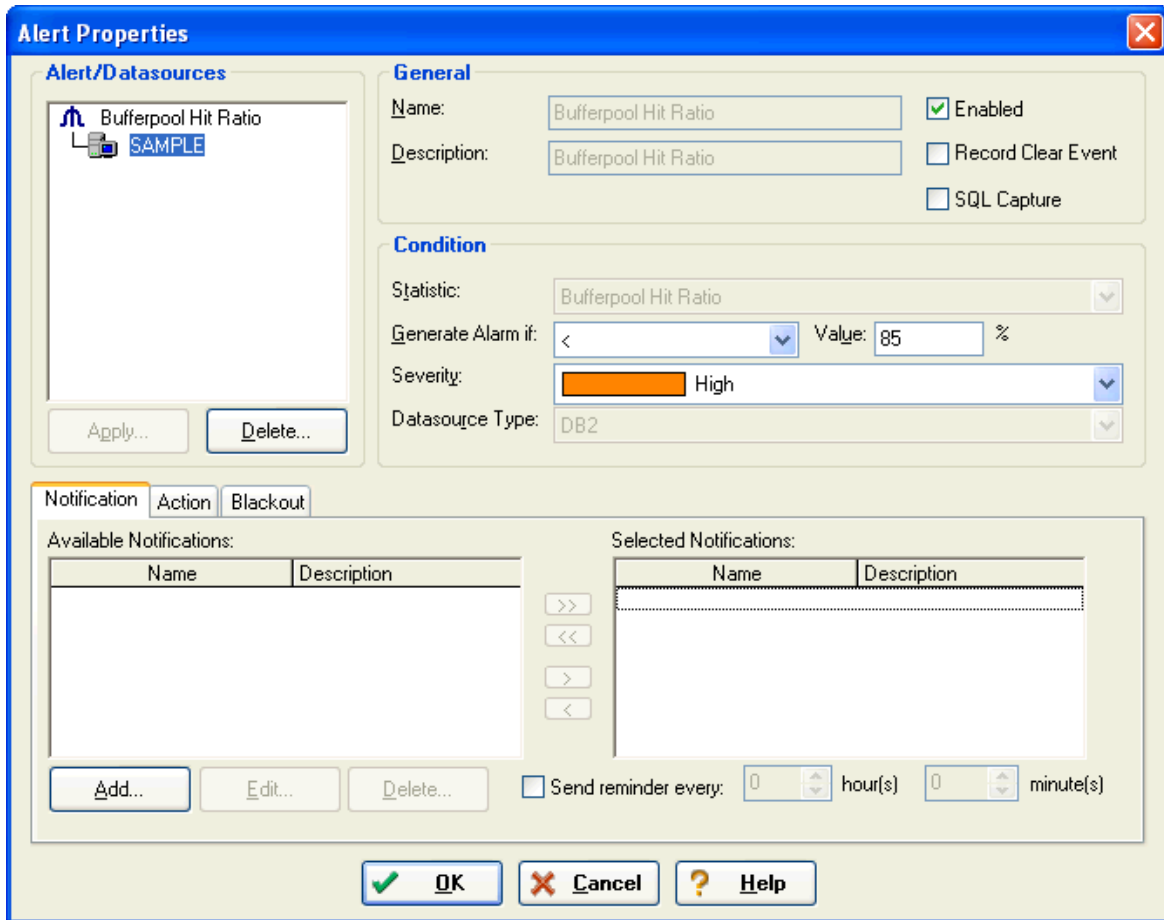
1. Select the desired datasource by either
 - a. Clicking it in the Explorer Tree
 - b. Clicking it in the Enterprise view screen
 - c. Selecting it from the drop-down list just below the main menu.
2. From the main menu select **Datasource > Alerts Maintenance** to open the following screen:



If you want to operate on a different datasource, you can do so from this screen by selecting it from the Datasource drop-down list.

As you can see, you can have several alerts for a single statistic. Looking at the preceding graphic of the default alert template shows how the severity of the violation increases as the statistic strays further away from its optimum value. For example, the Bufferpool Index Hit Ratio is only a Low violation when it is below 90, but it moves to Critical when it drops below 80.

Let's say that you want to edit the alert violation for a Bufferpool Index Hit Ratio less than 90. To do so, you can double-click the alert or single-click it, then click **Edit**. Either method invokes the following screen:



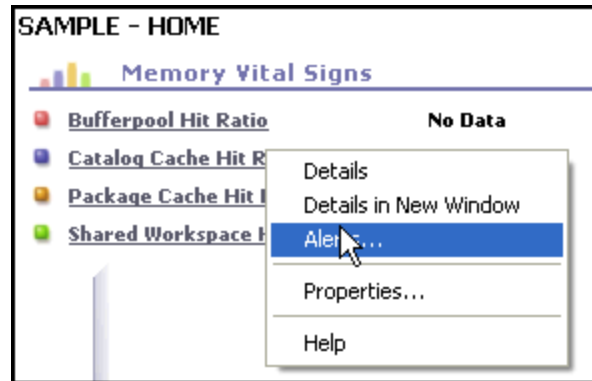
Here you can change any of the conditional settings that compose the alert. The bottom section allows you to tie the alert to a Notification (such as email, pager, or net broadcast) or an Action (such as launching a CMD file to take some corrective steps to solve a problem).

The tree on the left provides a way to easily edit the alert for other datasources to which it is applied. This means that only datasources that have the given alert applied to them appears in the list. To apply the alert to a datasource that does not already have it, select the statistic name at the top of the navigation tree on the left side of the screen (in the above screenshot, it would be "BufferpoolHit Ratio") then click **Apply** for a list of available datasources to which you want to apply this alert.

ADMINISTERING AN ALERT FOR A SINGLE STATISTIC

Browsing through all of the available statistics for a given datasource can become a cumbersome task. There are times when you know specifically the statistic that you want, and you do not want to filter through an entire list to find it. To jump directly to the alerts for a single statistic:

1. Right click the statistic from one of the homepages (or the Explorer Tree).
2. Select **Alerts** from the pop-up menu.



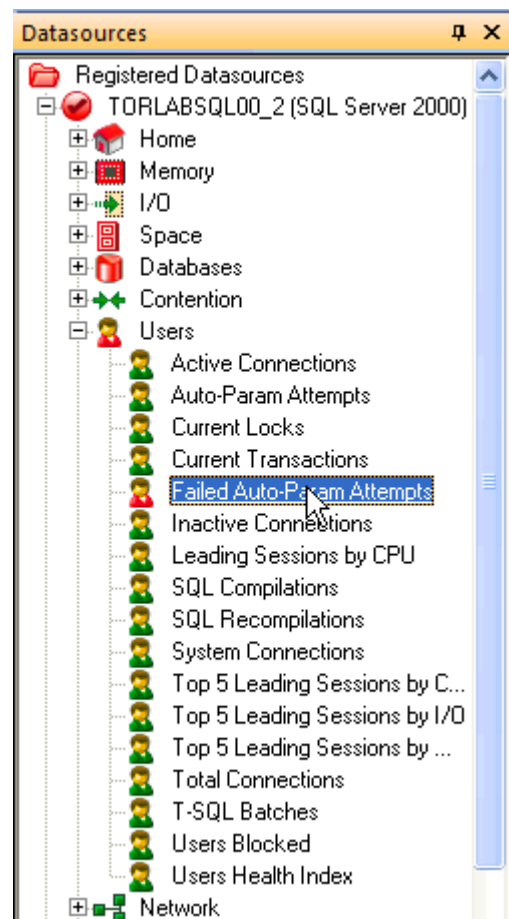
This takes you to the same Alerts Maintenance screen that you were in earlier, however this time the list of alerts has been filtered to your particular statistic.

You could have accomplished this same filtering by using the **Category** and **Statistic** drop-down lists on the top of the screen. Moreover, if you wish to work with any other alert, even on another datasource, there is no need to exit this screen. Simply use the drop-down lists to filter to the desired level.

FINDING REAL-TIME ALERT VIOLATIONS

When an alert is violated, it triggers a Performance Center "Alarm" that is displayed in several different ways.







If you are using the Explorer Tree, then the first thing you notice is that the icons for the categories containing an alarm changes colors indicating the severity of the violation. When you expand the category branch of the Explorer Tree, the specific statistic in violation is also color-coded. From there, simply double-click the statistic to take you to the homepage containing the alarm.



In addition to the Explorer Tree's color-coded icons, the headings for the various homepages also change colors and pulsate when a statistic exceeds its alert values. Clicking the color-coded heading takes you to the homepage containing the alarm.



And finally, on the homepage containing the alarm, the statistic in violation pulsates as well as changes colors according to the violation severity.

Session Activity Summary		
	<u>Total Connections</u>	28
	<u>Active Connections</u>	1
	<u>Inactive Connections</u>	27
	<u>System Connections</u>	27
	<u>Users Blocked</u>	0
	<u>Current Transactions</u>	1

Note: You can turn off the pulsing action by selecting **Monitor > Client Options > Category** and un-checking **Show thresholds as pulses**.

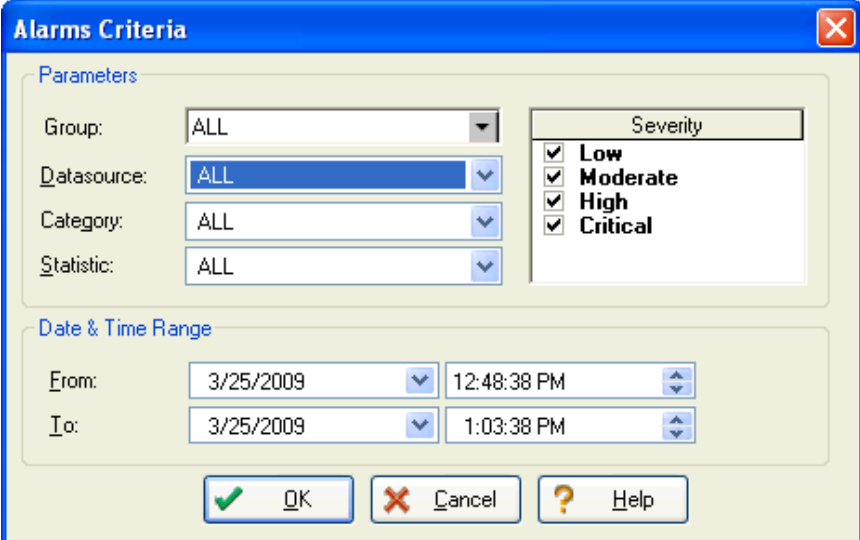
FINDING HISTORICAL THRESHOLD VIOLATIONS

If you have been away from your Performance Center client for a period of time, or simply did not have it activated on your workstation, you can quickly determine the alerts that were violated for any or all monitored datasources using the Alarm homepage.

To access the Alarm homepage, you can either click the Alarm icon in the header of any homepage (shown in graphic on the right), or double click the Alarm node in the Explorer Tree.



From the Alarm homepage, click **Get Alerts** to enter the search criteria. From the Alarms Criteria dialog, you can refine your search as broad or narrow as you desire.



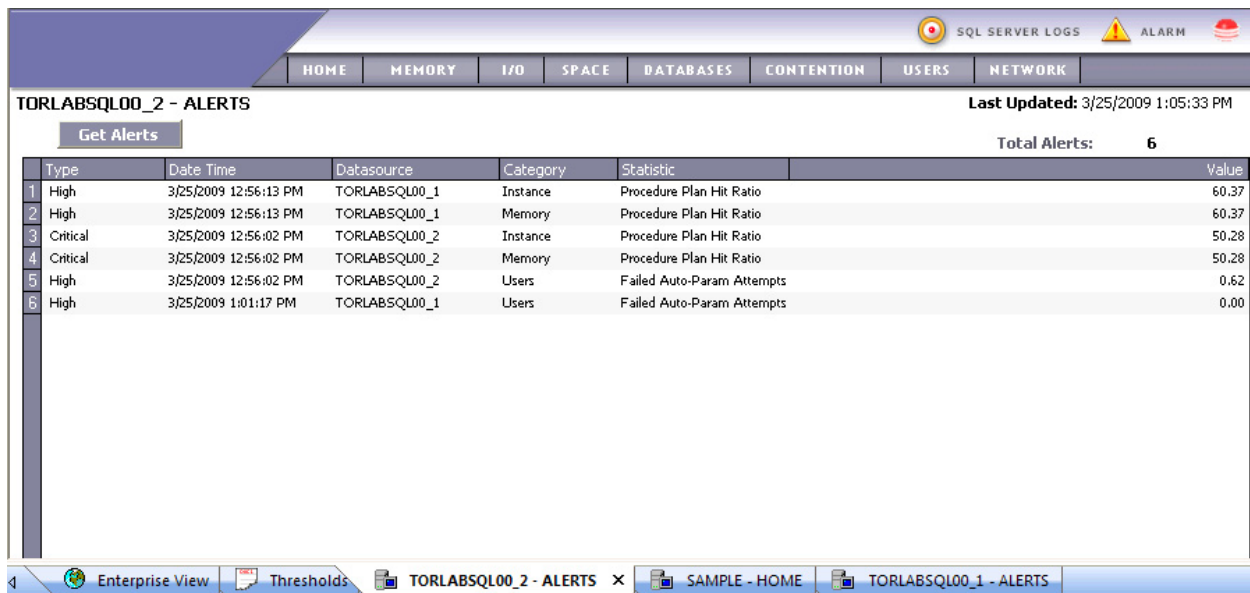
The Alarms Criteria dialog box is shown with the following settings:

- Parameters:**
 - Group: ALL
 - Datasource: ALL
 - Category: ALL
 - Statistic: ALL
- Severity:**
 - ☒ Low
 - ☒ Moderate
 - ☒ High
 - ☒ Critical
- Date & Time Range:**
 - From: 3/25/2009 12:48:38 PM
 - To: 3/25/2009 1:03:38 PM

Buttons at the bottom: OK, Cancel, Help.

Note: The Date & Time Range values default to a 15 minute history from the current time.

Once you click **OK**, the report is then presented in a table format. To sort on any of the columns, double-click the column heading.



The screenshot shows the SQL Server Enterprise View interface. The top navigation bar includes links for HOME, MEMORY, I/O, SPACE, DATABASES, CONTENTION, USERS, and NETWORK. The main window displays the 'TORLABSQL00_2 - ALERTS' report, which was last updated on 3/25/2009 at 1:05:33 PM. The report shows a total of 6 alerts. The table below represents the data shown in the report:

Type	Date Time	Datasource	Category	Statistic	Value
1 High	3/25/2009 12:56:13 PM	TORLABSQL00_1	Instance	Procedure Plan Hit Ratio	60.37
2 High	3/25/2009 12:56:13 PM	TORLABSQL00_1	Memory	Procedure Plan Hit Ratio	60.37
3 Critical	3/25/2009 12:56:02 PM	TORLABSQL00_2	Instance	Procedure Plan Hit Ratio	50.28
4 Critical	3/25/2009 12:56:02 PM	TORLABSQL00_2	Memory	Procedure Plan Hit Ratio	50.28
5 High	3/25/2009 12:56:02 PM	TORLABSQL00_2	Users	Failed Auto-Param Attempts	0.62
6 High	3/25/2009 1:01:17 PM	TORLABSQL00_1	Users	Failed Auto-Param Attempts	0.00

The power behind the Alarm report is that you can determine problems across all of your monitored datasources without having to interrogate each one individually. However, for those times when you do want to focus your results to a more detailed range of parameters, the criteria window allows you to do that as well.

SESSION 6: CONFIGURING AND USING THE HEALTH INDEX

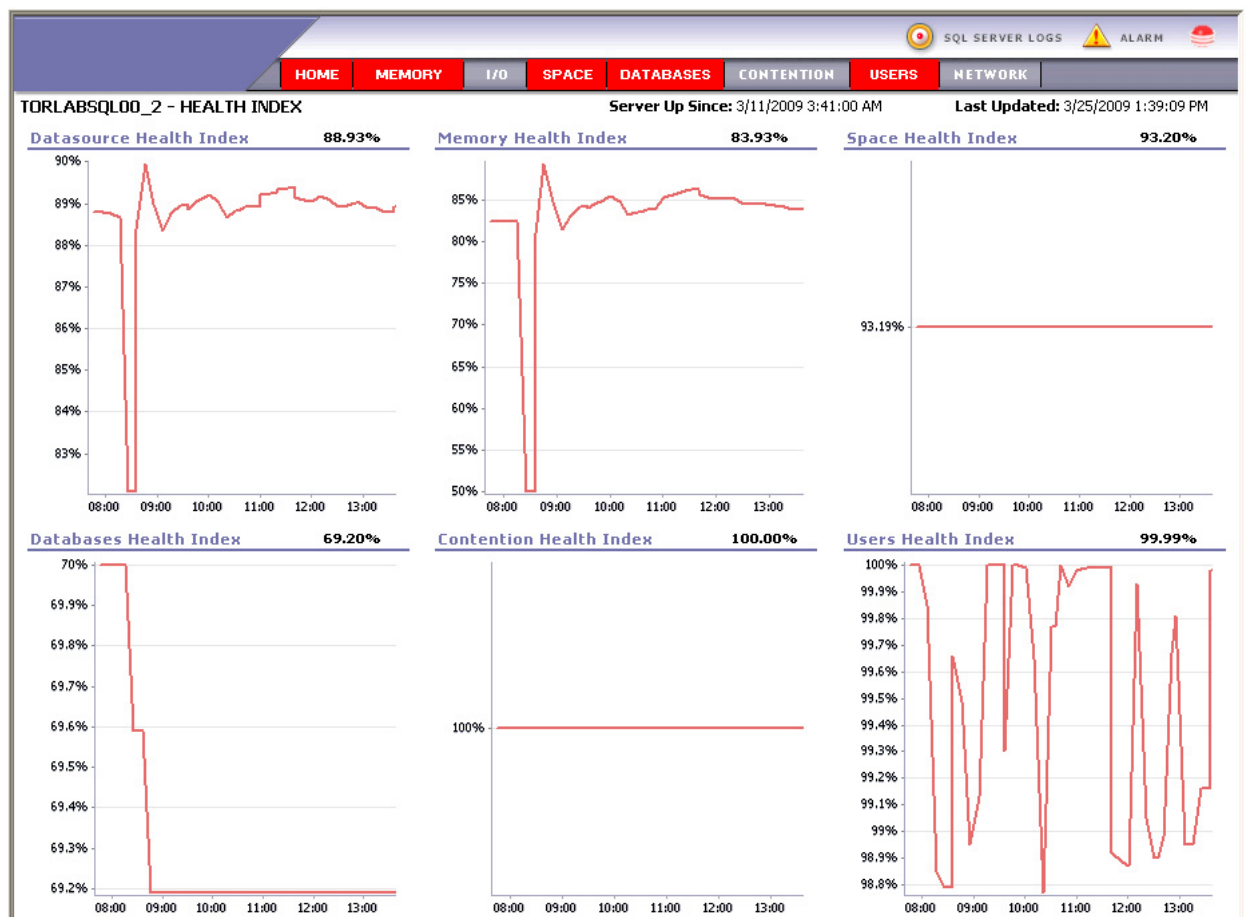
As mentioned earlier, the Health Index is a powerful feature that conveys the overall health of a datasource in one statistic. Out of the box, Performance Center provides you with a default formula for the Health Index based on some general guidelines published by Embarcadero's database experts. However, you are probably going to have a few databases that are specialized in such a way that monitoring their performance requires customization.

VIEWING CATEGORY HEALTH INDEXES

The Health Index for a datasource is a statistic generated from five different Health Indexes. To view all of the health indexes simultaneously, right-click the Health Index node in the Explorer Tree and select **View**.



The Health Index homepage displays a graph for each of the category Health Indexes as well as the main Health Index (upper left) for the datasource.

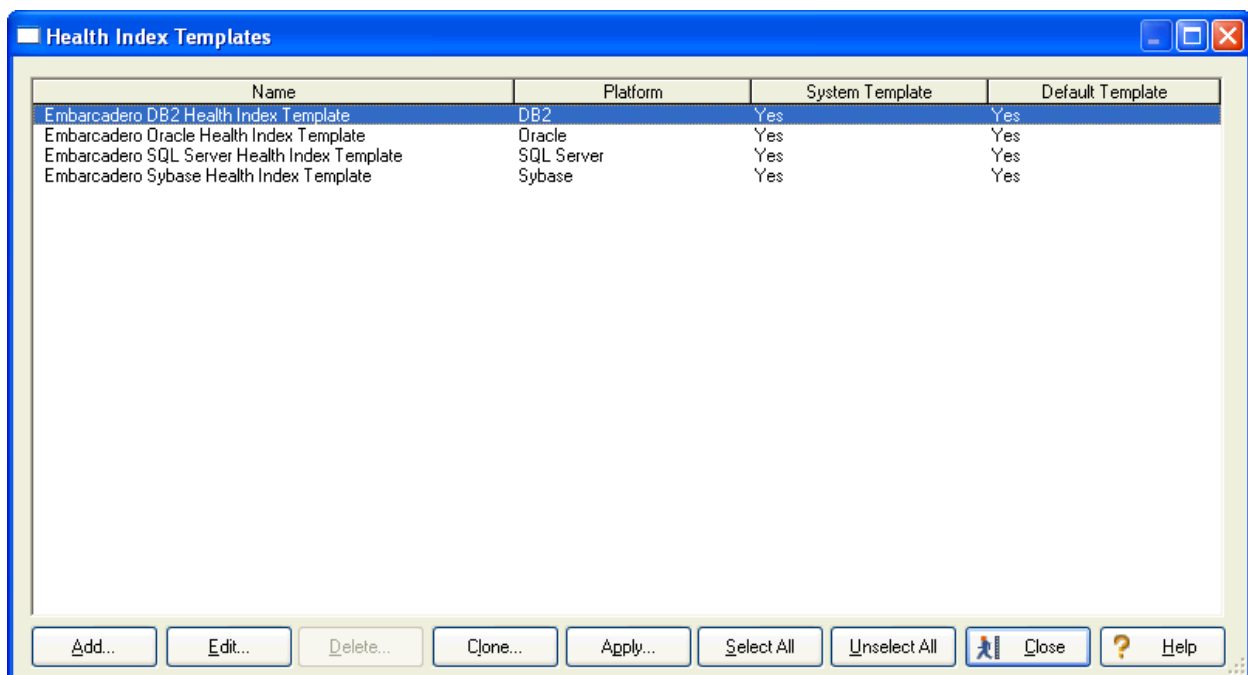


CHANGING THE HEALTH INDEX FORMULA

The Health Index for a datasource is computed by a formula involving the category Health Indexes where a weight is given to each specific category. The first step in customizing the Health Index is to alter these weights to meet your needs.

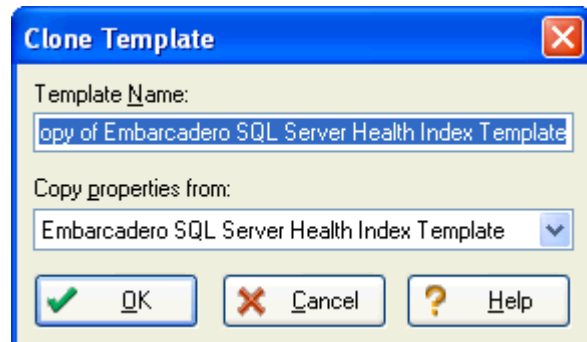
As mentioned earlier, Performance Center provides a default template for all datasources. That default (or system) template is not editable for customization. Therefore, you must first Clone that template and create your own. Cloning a template involves making a copy of it, which is easy to do in Performance Center.

Select **Maintenance > Health Index Templates** to open the following screen:



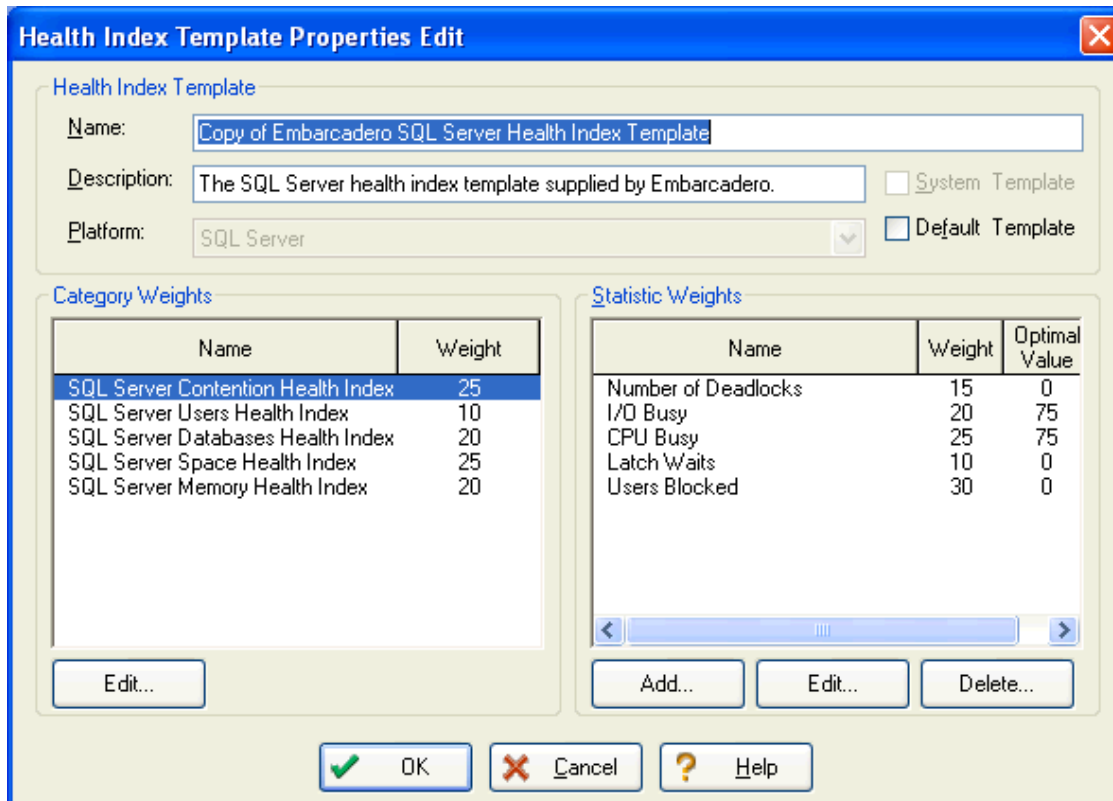
Highlight one of the templates and click **Clone**. For our example, we'll use the Oracle template.

1. Select the Category Weight that you wish to change, and then click **Edit**. The Clone Template dialog appears.
2. Verify the new template name or enter a new name and click **OK**.
3. In the Health Index Templates dialog select the newly created template and



click **Edit**. In this example it is "Copy of Embarcadero SQL Server Health Index Template".

4. In the Health Index Template Properties Edit dialog you can adjust the category weights.



The dialog box is titled "Health Index Template Properties Edit". It contains two main sections: "Health Index Template" and "Category Weights".

Health Index Template

Name: Copy of Embarcadero SQL Server Health Index Template

Description: The SQL Server health index template supplied by Embarcadero.

Platform: SQL Server

☐ System Template

☐ Default Template

Category Weights

Name	Weight
SQL Server Contention Health Index	25
SQL Server Users Health Index	10
SQL Server Databases Health Index	20
SQL Server Space Health Index	25
SQL Server Memory Health Index	20

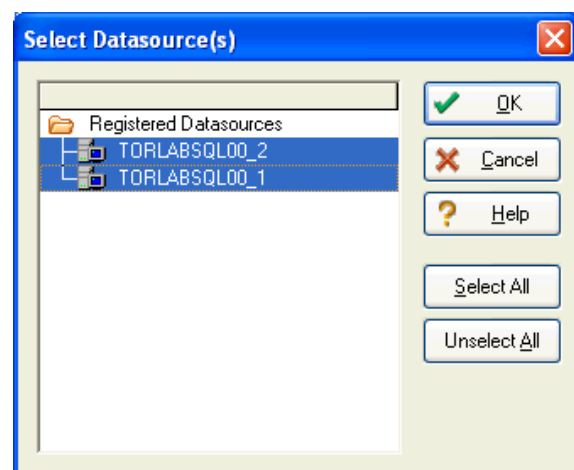
Statistic Weights

Name	Weight	Optimal Value
Number of Deadlocks	15	0
I/O Busy	20	75
CPU Busy	25	75
Latch Waits	10	0
Users Blocked	30	0

Buttons: Edit... (under Category Weights), Add... (under Statistic Weights), Edit... (under Statistic Weights), Delete... (under Statistic Weights), OK, Cancel, Help.

Note that all weights must sum to 100, and at no time during your editing of the values can the sum exceed 100. This means that you must first decrease a value before increasing another value. The same logic applies to the Statistic Weights on the right side of the screen. These are the sub-components that correspond to the highlighted Category Health Index in the left pane. When you have completed altering the weights to your desire click **OK**.

The final step is to apply the new Health Index Template to the desired datasource(s). Highlight the new Health Index Template that you just created, and then click **Apply**. Select the desired datasource(s) (using CTRL+click for multi-select) then click **OK**. The new Health Index Template has now been applied to the datasource(s).



The dialog box is titled "Select Datasource(s)". It contains a list of registered datasources and buttons for selection.

Registered Datasources

- TORLABSQL00_2
- TORLABSQL00_1

Buttons: OK, Cancel, Help, Select All, Unselect All.

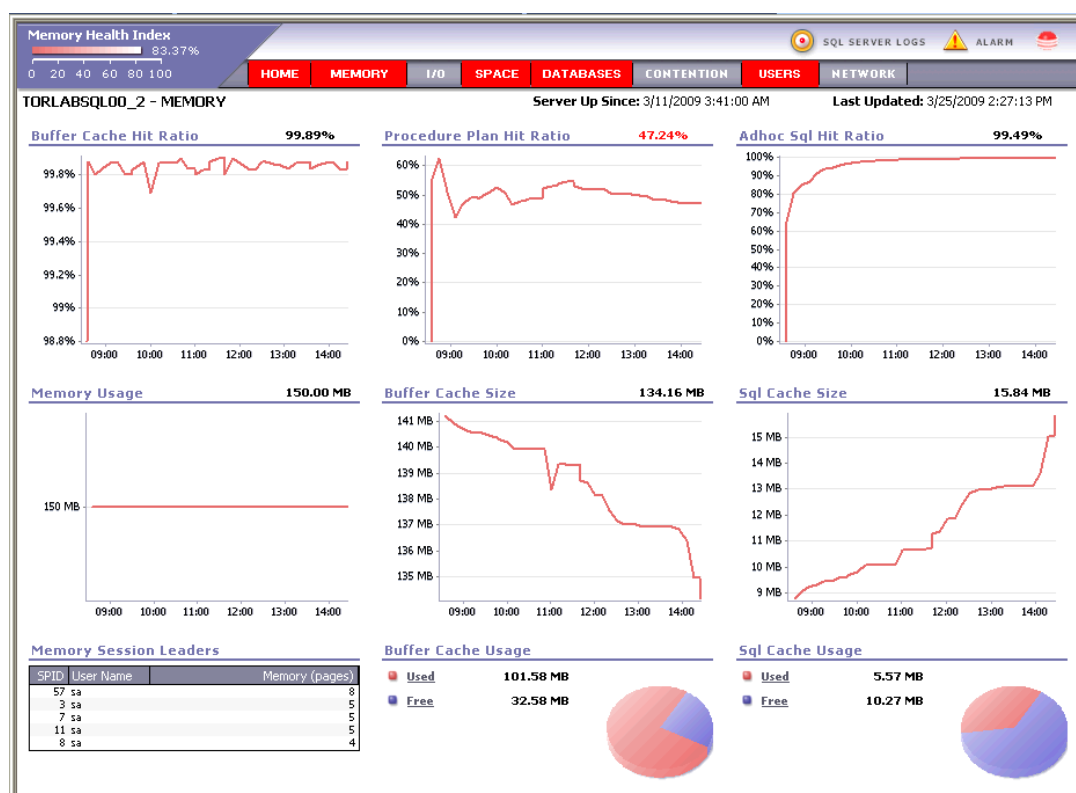
In the future, you may wish to alter the Health Index formula for a specific datasource while leaving the template intact. To do this, select **Datasource > Health Index**. Any changes you make when using this approach only affects the particular datasource with which you are working. In contrast, should you go back and edit the Health Index template (accessed from the Maintenance menu), any changes you make take effect on all datasources to which that template has been applied.

SESSION 7: RESEARCHING PROBLEMS AND DETERMINING COURSES OF ACTION

At this point we have covered Alerts and Health Indexes. Now we will look at some basic things to do once you have determined that one of your databases is not performing well.

In the following graphic, Performance Center is showing that we have a problem with the level of query plan requests generated by stored procedures in the Procedure Plan Hit Ratio.

Note: If you are reading this on a black and white hardcopy, you will not see the color-coding effects that indicate this problem.



DRILL-DOWN DATA

If this were the only information that Performance Center provided, a tremendous amount of manual effort from the DBA would be required to identify exactly what was causing the problem. For this reason, Performance Center provides you with an abundant amount of drill-down information for almost every statistic shown on the home pages. Clicking the Procedure Plan Hit Ratio statistic invokes the following drill-down information.

Note: To access drill-down information for any category, right-click the heading, such as "Memory."

The screenshot displays the SQL Server Performance Center interface. At the top, there is a navigation bar with tabs: HOME, MEMORY (selected), I/O, SPACE, DATABASES, CONTENTION, USERS, and NETWORK. Below the navigation bar, the title is 'TORLABSQL00_2 - MEMORY DETAIL'. To the right of the title, it says 'Server Up Since: 3/11/2009 3:41:00 AM' and 'Last Updated: 3/26/2009 6:57:49 AM'. Below the title, there are sub-tabs: Buffer Cache, SQL Cache (selected), Log Cache, and Leading Sessions. The main content area shows the 'Sql Cache Summary' table, which lists various cache types and their usage. Below this table, there is a section titled 'Sql Cache Details (Top 100 Items)' which shows a detailed list of SQL cache items, including object type, cache type, database, name, user, use count, SQL bytes, size (KB), and SQL text.

Cache Type	Object Count	Cache Used (KB)
1 Misc. Normalized Trees	182	6304.00
2 Execution Contexts	28029	15904.00
3 Cursors	16	240.00
4 Trigger Plans	16	192.00
5 Replication Procedure Plans	0	0.00
6 Adhoc Sql Plans	336	4880.00
7 Prepared Sql Plans	128	1448.00
8 Procedure Plans	27834	17912.00

Object Type	Cache Type	Database	Name	User	Use Count	SQL Bytes	Size (KB)	SQL
1 Proc	Compiled Plan	master	sp_perfctr_primary	dbo	1	38	568	sp_perfctr_primary
2 Proc	Compiled Plan	master	sp_perfctr_ondemand	dbo	76	40	560	sp_perfctr_ondemand
3 Proc	Compiled Plan	TEST_KAB	ASSOCIATEHSSET2DA...	TEST_KAB	1	50	456	ASSOCIATEHSSET2DATASOURCE
4 Proc	Compiled Plan	TEST_KAB	ADDDATASOURCE	TEST_KAB	1	26	368	ADDDATASOURCE
5 Proc	Compiled Plan	master	sp_perfctr_spaceusage	dbo	186	44	200	sp_perfctr_spaceusage
6 Proc	Compiled Plan	master	sp_columns	dbo	1	20	200	sp_columns
7 Proc	Compiled Plan	master	sp_perfctr_secondary	dbo	1	42	192	sp_perfctr_secondary
8 Proc	Executable Plan	TEST_KAB	ASSOCIATEHSSET2DA...	TEST_KAB	2	50	168	ASSOCIATEHSSET2DATASOURCE
9 Proc	Compiled Plan	master	sp_perfctr_sqlcache	dbo	5	40	104	sp_perfctr_sqlcache
10 Proc	Compiled Plan	TEST_KAB	CLONEHEALTHSTATIS...	TEST_KAB	1	46	96	CLONEHEALTHSTATISTICSET
11 Proc	Compiled Plan	master	sp_tables	dbo	1	18	96	sp_tables
12 Adhoc	Compiled Plan	TEST_KAB	NULL	TEST_KAB	1	1598	88	(SELECT DISTINCT psi.PLATFORM_ID, psi.PLA
13 Proc	Compiled Plan	master	sp_droplogin	dbo	2	24	80	sp_droplogin
14 Proc	Compiled Plan	master	sp_addlogin	dbo	1	22	64	sp_addlogin
15 Adhoc	Compiled Plan	TEST_KAB	NULL	TEST_KAB	2	368	64	SELECT HEALTH_STATISTIC_SET_ID, □□HEA
16 Adhoc	Compiled Plan	TEST_KAB	NULL	TEST_KAB	1	368	64	SELECT HEALTH_STATISTIC_SET_ID, □□HEA

Each home page has underlying information that is presented via tabbed grid controls like the one shown above. For any of these grids, double-click a column heading to sort the information based on that column.

Performance Center activates the tab most likely to contain the additional information required to troubleshoot the homepage statistic on which you clicked. Simply click the

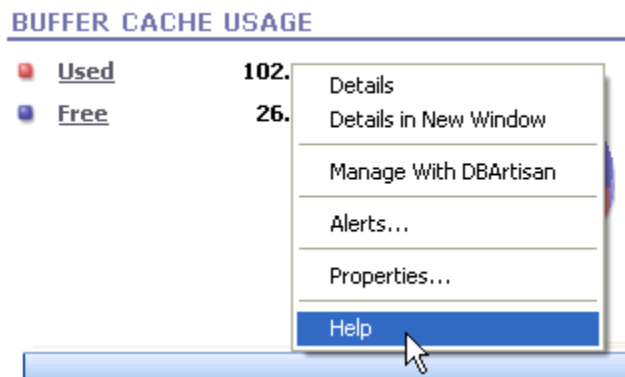
other tabs to view more information pertaining to the general category in question, in this case, Memory.

Note: In some cases; even the tabbed data has additional drill down information. An example of this would be the Memory drill-down for Oracle. Much of the initial drill-down data is presented in terms of Session information (i.e., the Leading Sessions tab). To see additional details regarding a particular session, double-click the desired session and it invokes another tabbed grid of information specific to the given session.

EXPERT HELP

If after viewing the drill down information you are still in doubt as to the course of action, Performance Center provides an Expert Help guide with detailed information on every monitored statistic for the databases you are monitoring. The Expert Help gives you a general description of the statistic, what range of values is considered optimal, and some suggestions on how to fix a problem situation.

To access Help, right-click the statistic (the actual value, not the title) then select **Help**.



SESSION 8: GENERATING HISTORICAL REPORTS

Performance Center uses the historical information stored in its repository to generate a series of reports. The report data is accessible regardless whether the Performance Center client(s) were active or not. As long as the Performance Center Server component was up and running, data was being collected in the repository.

1. Select **Report > Historical** to open the Historical Report Wizard.

The screenshot shows the 'Historical Report Wizard' dialog box. On the left is a tree view of 'Historical Reports' including 'Enterprise Database Performance', 'Database Performance Comparison', 'Worst Databases', 'Enterprise Connection Database Vol', 'Average User Database Volume', 'Enterprise Database Availability', 'Statistical Trend Analysis', 'Database Downtime Detail', 'Multiple Statistic Trend Analysis', 'Multiple Statistic Baseline Analysis', 'SGA Regions and Memory Areas', 'Oracle Load Profile', 'Oracle Load Profile Comparison to B', 'Oracle Instance Efficiency Ratios', 'Oracle Instance Efficiency Ratios Co', 'Oracle Top Wait Events', 'Oracle Top Wait Events Comparison', 'Oracle Buffer Wait Statistics', 'Oracle Buffer Wait Statistics Compa', 'Enterprise Database Availability Det', 'Enterprise Database Availability Cor', and 'Alert Summary'. The 'General' tab is active, showing 'Report Title' as 'Enterprise Database Performance', 'Begin Date' and 'End Date' as '3/26/2009', 'Begin Time' and 'End Time' as '12:00:00 AM' and '7:32:00 AM' respectively, and 'Time Rollup' as 'Day'. The 'Chart Properties' section shows 'Series Type' as 'Line--with markers at data points'. The 'Datasources' section shows 'Available Groups' as 'ALL' and 'Selected Datasources' as 'SAMPLE', 'TORLABSQL00_1', and 'TORLABSQL00_2'. The 'Advanced' section shows 'Available Statistics' and 'Selected Statistics' lists, with 'Top X Worst' set to '0'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

2. Select a report and then select to either run it immediately or schedule it to run in the future.

Note: If you select the schedule option, a modified wizard opens allowing you to set the beginning and ending time and the number of days to gather data from. Once you have set the parameters, click Schedule and a Schedule Properties dialog opens.

3. Complete the required information in the wizard and click **OK**. The report then appears as a tabbed view.

Most of the reports allow you to narrow down your reporting information using the report constraints available in the wizard.

The Time Rollup value allows you to control the granularity of your x-axis value. Therefore, if you are running a report that spans several months, it is probably a good idea to set the Time Rollup value to Month instead of Day.

Note: The fields that appear in the wizard depend on the report selected.

INSERT GRAPHIC OF REPORT

SESSION 9: USING THE WEB CLIENT

The Web Client enables DBAs and operators to review database performance statistics from any Web browser without requiring any additional software. The Web Client is automatically installed on the server machine and can be accessed from any client or from a remote computer when you type in the URL as long as the Performance Center is running.

The statistics you see are all visible in the Web Client with the exception of Oracle's OS page statistics, so you can how many, and where, alarms have been triggered. You can also easily review drill-down details by clicking a target statistic.

To access the Web Client from a Performance Center client or server machine, on the main menu, click **View>Web Client**.




ACCESSING THE WEB CLIENT

To access the Web Client remotely, type the URL, which would look like:

`<http://SERVERMACHINE/webclient>`

OR

`<http://SERVERMACHINE/perfcntr/ServerManager.dll?RequestPage?Page=EnterpriseView>`.

Embarcadero Technologies							
Performance Center							
ENTERPRISE VIEW		MONITOR DETAILS	SERVER DETAILS	CLIENT DETAILS	ADMIN LOGIN	REPORTS	HELP
Server: CSWKBRO03		Total Datasources: 3		Last Updated: 3/26/2009 1:19:59 PM			
	Datasource	DBMS	Version	Datasource Up	Listener Up	Health Index (%)	Alarms
	TORLABSQL00_2	SQL Server	2000	Yes	N/A	89.61	4
	SAMPLE	DB2	09.01.0000	Yes	N/A	0.00	0
	TORLABSQL00_1	SQL Server	2000	Yes	N/A	90.37	5

Click on a datasource to view the home page for the selected datasource. Each homepage has a heading area that relays information about the given category as well as some general information about the monitored datasource. The Web Client provides you with the same type of drill-down information that is available in the Performance Center application.

ADDITIONAL EVALUATION RESOURCES

Embarcadero Technologies provides a variety of resources to help support your evaluation and selection of a performance-monitoring tool for your organization.

Web site

Visit our Web site at www.embarcadero.com for current product and company information, educational materials and supporting information.

Electronic Documentation

Detailed reference documentation is available on the Performance Center Evaluation CD or online at <http://www.embarcadero.com/resources/documentation>.

Online FAQ

Visit the Performance Center online FAQ at http://www.embarcadero.com/products/performance_center/faq for answers to commonly asked questions regarding licensing, installation and other helpful topics.

Email Support

You can contact Performance Center support engineers, consultants and engineers directly by sending inquiries to support@embarcadero.com

Telephone Support

We encourage you to call us anytime you would like help or have questions during your evaluation. Please call 415.834.3131 ext. 2, Monday to Friday, 6:00am - 6:00pm PST, Saturday and Sunday, 8:00am - 5:00 PST.