System Performance for DB2 User Guide

Supporting products

Version 11.2.00 of System Performance for DB2

May 2015
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<tbody>
<tr>
<td>BMC SOFTWARE INC</td>
<td>1 713 918 8800</td>
<td>1 713 918 8000</td>
</tr>
<tr>
<td>2101 CITYWEST BLVD</td>
<td>or</td>
<td></td>
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<tr>
<td>HOUSTON TX 77042-2827 USA</td>
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<td>1 800 841 2031</td>
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- Search a database for problems similar to yours and possible solutions
- Order or download product documentation
- Download products and maintenance
- Report a problem or ask a question
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Have the following information available so that Customer Support can begin working on your issue immediately:

- Product information
  - Product name
  - Product version (release number)
  - License number and password (trial or permanent)
- Operating system and environment information
  - Machine type
  - Operating system type, version, and service pack or other maintenance level such as PUT or PTF
  - System hardware configuration
  - Serial numbers
  - Related software (database, application, and communication) including type, version, and service pack or maintenance level
- Sequence of events leading to the problem
- Commands and options that you used
- Messages received (and the time and date that you received them)
  - Product error messages
  - Messages from the operating system
  - Messages from related software
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- Send an e-mail message to customer_support@bmc.com. (In the Subject line, enter SupID:yourSupportContractID, such as SupID:12345.)
- In the United States and Canada, call 1 800 537 1813. Outside the United States and Canada, contact your local support center for assistance.
# Contents

## About this book
- Related publications ................................................................. 11
- Conventions ........................................................................... 12
- Syntax statements ................................................................ 13
- Summary of changes ............................................................. 13

## Chapter 1  Overview of BMC System Performance for DB2
- Introduction ........................................................................... 15
  - MainView for DB2 component ........................................... 16
  - OPERTUNE for DB2 component ....................................... 16
  - Pool Advisor component .................................................. 17
- BMC System Performance architecture .................................. 17
  - Data Collector .................................................................. 18
  - Report Manager ............................................................... 19
  - Sysplex support ............................................................... 19
  - Advisors .......................................................................... 20
- Features of BMC System Performance ................................... 23
  - BMC System Performance report set ............................... 23
  - Command interfaces ....................................................... 25
  - Session Status ................................................................ 25
  - User Options .................................................................. 25
- Configuration analysis ........................................................... 26
- BMC System Performance administration ............................ 26
  - User Profiles .................................................................. 26
  - DOMPLEX option sets ................................................... 27
- BMC System Performance security ......................................... 27
- Reporting problems ............................................................... 28

## Chapter 2  Getting started with BMC System Performance
- Logging on ............................................................................ 31
- Navigation ............................................................................ 32
- Panel layout .......................................................................... 33
- Report layout ....................................................................... 36
- BMC System Performance main menu ................................. 38
- Online assistance ............................................................... 39
- Online Help .......................................................................... 39
# Expert advice

---

## Chapter 3 Using advisors

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>41</td>
</tr>
<tr>
<td>Report advice</td>
<td>41</td>
</tr>
<tr>
<td>Background advisors</td>
<td>44</td>
</tr>
<tr>
<td>The ADVISOR button</td>
<td>47</td>
</tr>
<tr>
<td>Example of an alert</td>
<td>47</td>
</tr>
<tr>
<td>Storage management mode</td>
<td>51</td>
</tr>
<tr>
<td>Pending Action List</td>
<td>53</td>
</tr>
<tr>
<td>Displaying a rule</td>
<td>54</td>
</tr>
<tr>
<td>Executing a rule</td>
<td>55</td>
</tr>
<tr>
<td>Acknowledgement of a recommendation</td>
<td>56</td>
</tr>
<tr>
<td>Changing the status of rules</td>
<td>57</td>
</tr>
</tbody>
</table>

## Chapter 4 BMC System Performance for DB2 reports

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC System Performance report set</td>
<td>61</td>
</tr>
<tr>
<td>Pool Advisor report set</td>
<td>62</td>
</tr>
<tr>
<td>Supplemental report set</td>
<td>63</td>
</tr>
<tr>
<td>Hyperlinks</td>
<td>64</td>
</tr>
<tr>
<td>Action codes</td>
<td>65</td>
</tr>
<tr>
<td>Interval</td>
<td>65</td>
</tr>
<tr>
<td>Viewing BMC System Performance reports</td>
<td>66</td>
</tr>
<tr>
<td>Sysplex DB2 Monitor</td>
<td>66</td>
</tr>
<tr>
<td>DB2 Subsystem Analysis report</td>
<td>70</td>
</tr>
<tr>
<td>Viewing Pool Advisor reports</td>
<td>75</td>
</tr>
<tr>
<td>DB2 Pools Status Monitor</td>
<td>75</td>
</tr>
<tr>
<td>Virtual Storage Status Monitor</td>
<td>77</td>
</tr>
<tr>
<td>Buffer Pool reports</td>
<td>79</td>
</tr>
<tr>
<td>Dynamic Statement Cache</td>
<td>83</td>
</tr>
<tr>
<td>EDM Pool Status Monitor</td>
<td>84</td>
</tr>
<tr>
<td>RID Pool Status Monitor</td>
<td>85</td>
</tr>
<tr>
<td>Sort Pool Status Monitor</td>
<td>86</td>
</tr>
<tr>
<td>Group Buffer Pool Status Monitor</td>
<td>87</td>
</tr>
<tr>
<td>History reports</td>
<td>89</td>
</tr>
<tr>
<td>Command Log</td>
<td>91</td>
</tr>
</tbody>
</table>

## Chapter 5 Configuring buffer pools

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation</td>
<td>93</td>
</tr>
<tr>
<td>Need for analysis</td>
<td>94</td>
</tr>
<tr>
<td>Configuration advisor</td>
<td>96</td>
</tr>
</tbody>
</table>
Buffer pool  compatibility profile ................................................................. 97
  Page set type .......................................................................................... 98
  Priority ................................................................................................. 98
  Access method .................................................................................... 98
  Activity level ..................................................................................... 99
  Update rate ......................................................................................... 100
  Page set size ...................................................................................... 100
  Data sharing ....................................................................................... 101
Configuration analysis ............................................................................. 101
  Storage limits ..................................................................................... 103
  Number of pools ................................................................................ 103
  Weighting factors for buffer pool attributes .................................. 104
  Limit on page set moves .................................................................. 104
  Additional controls ........................................................................... 105
Recommended changes ............................................................................ 105
Implementing the changes .................................................................... 109
Data quality .......................................................................................... 112
Where to begin ....................................................................................... 113
Data sharing considerations .................................................................. 113

Appendix A  Using multiple System and SQL Performance products 115
Product description ................................................................................ 115
Integration ............................................................................................. 116

Appendix B  BMC System Performance commands 119
Displaying the available Commands panel ............................................. 119
Commands ............................................................................................. 121
  ABOUT ............................................................................................... 121
  ADDDB2 ........................................................................................... 121
  ADDPROD ......................................................................................... 122
  ADMIN ............................................................................................. 123
  BEEP ............................................................................................... 124
  CANCEL ........................................................................................... 124
  CAPS ............................................................................................... 126
  CHANGES .......................................................................................... 126
  CLEAR ............................................................................................... 127
  CMD ................................................................................................. 128
  CMDBOT .......................................................................................... 128
  CMDDB2 .......................................................................................... 129
  CMDDC ............................................................................................ 129
  CMDMENU ....................................................................................... 130
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRIEVE</td>
<td>165</td>
</tr>
<tr>
<td>RETURN</td>
<td>166</td>
</tr>
<tr>
<td>RFIND</td>
<td>166</td>
</tr>
<tr>
<td>RIGHT</td>
<td>167</td>
</tr>
<tr>
<td>RLOG</td>
<td>168</td>
</tr>
<tr>
<td>SHOWCMDs</td>
<td>168</td>
</tr>
<tr>
<td>SHUTDOWN</td>
<td>169</td>
</tr>
<tr>
<td>SORT</td>
<td>170</td>
</tr>
<tr>
<td>SPFOFF</td>
<td>171</td>
</tr>
<tr>
<td>SPFON</td>
<td>171</td>
</tr>
<tr>
<td>STATUS</td>
<td>172</td>
</tr>
<tr>
<td>STATUSR</td>
<td>175</td>
</tr>
<tr>
<td>STATUSSS</td>
<td>176</td>
</tr>
<tr>
<td>STOP</td>
<td>176</td>
</tr>
<tr>
<td>STORAGE</td>
<td>177</td>
</tr>
<tr>
<td>SWITCH</td>
<td>179</td>
</tr>
<tr>
<td>SYSPLEX</td>
<td>180</td>
</tr>
<tr>
<td>TERSE</td>
<td>182</td>
</tr>
<tr>
<td>TOP</td>
<td>183</td>
</tr>
<tr>
<td>UP</td>
<td>184</td>
</tr>
<tr>
<td>USERS</td>
<td>185</td>
</tr>
<tr>
<td>ZOOM</td>
<td>186</td>
</tr>
</tbody>
</table>

### Appendix C Parameter variables and rules

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>189</td>
</tr>
<tr>
<td>Variable repository</td>
<td>190</td>
</tr>
<tr>
<td>Listing parameter values</td>
<td>192</td>
</tr>
<tr>
<td>Setting parameter values</td>
<td>193</td>
</tr>
<tr>
<td>Initialization parameters</td>
<td>195</td>
</tr>
<tr>
<td>BMC System Performance rules</td>
<td>209</td>
</tr>
</tbody>
</table>
About this book

This book describes the functions of the BMC System Performance for DB2 solution (including detailed information about the Pool Advisor for DB2 component) from BMC Software and provides guidelines for using the solution. This book is intended for DB2 systems programmers, database administrators, DB2 performance analysts, and operators.

BMC System Performance for DB2 integrates the features and functions of Pool Advisor for DB2, OPERTUNE for DB2, MainView for DB2, and CATALOG MANAGER for DB2 (Browse only) into a single product interface. The BMC System Performance for DB2 solution lets you optimize and manage current DB2 performance while planning for future growth and capacity.

The OPERTUNE for DB2 and MainView for DB2 components have separate documentation sets that describe the functions of those components in detail. The Pool Advisor component and the solution-specific features are described in this book.

Like most BMC documentation, this book is available in printed and online formats. To request printed books or to view online books and notices (such as release notes and technical bulletins), see the support website at http://www.bmc.com/support.

**Note**

Online books are formatted as PDF or HTML files. To view, print, or copy PDF books, use the free Adobe Reader from Adobe Systems. If your product installation does not install the reader, you can obtain the reader at http://www.adobe.com.

The software also offers online Help. To access Help, press F1 within any product or click the Help button in graphical user interfaces (GUls).

Related publications

From the BMC Support Central website, you can use the following methods to access related publications that support your product or solution:

View Quick Course videos (short overviews of selected product concepts, tasks, or features), which are available from the following locations:

— Documentation Center (primary center and secured center)

— Support Central (at http://www.bmc.com/support/mainframe-demonstrations)

— BMC Mainframe YouTube channel (https://www.youtube.com/user/BMCSoftwareMainframe)


You can order hardcopy documentation from your BMC sales representative or from the support site. You can also subscribe to proactive alerts to receive e-mail messages when notices are issued.

Tip
You can access the BMC Support Central site at http://www.bmc.com/support.

Conventions

This document uses the following special conventions:

■ All syntax, operating system terms, and literal examples are presented in this typeface.

■ Variable text in path names, system messages, or syntax is displayed in italic text: testsys/instance/fileName

■ Menu sequences use a symbol to convey the sequence. For example, Actions => Create Test instructs you to choose the Create Test command from the Actions menu.
Syntax statements

This topic explains conventions for showing syntax statements.

A sample statement follows:

```
COMMAND KEYWORD1 [KEYWORD2 | KEYWORD3] KEYWORD4={YES | NO} fileName...
```

The following table explains conventions for syntax statements and provides examples:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Example</th>
</tr>
</thead>
</table>
| Items in italic type represent variables that you must replace with a name or value. If a variable is represented by two or more words, initial capitals distinguish the second and subsequent words. | alias  
databaseDirectory  
serverHostName          |
| Brackets indicate optional items. Do not type the brackets when you enter the option. A comma means that you can choose one or more of the listed options. You must use a comma to separate the options if you choose more than one option. | [tableName, columnName, field]  
[-full, -incremental, -level] |
| Braces indicate that at least one of the enclosed items is required. Do not type the braces when you enter the item. | {DBDName | tableName}  
UNLOAD device={(disk | tape. fileName | deviceName)}  
{-a | -c}          |
| A vertical bar means that you can choose only one of the listed items. In the example, you would choose either commit or cancel. | {commit | cancel} |
| An ellipsis indicates that you can repeat the previous item or items as many times as necessary. | columnName... |

Summary of changes

The summary of changes for the current release is available in the release notes.

The latest version of the release notes is available on the web at http://www.bmc.com/support.
Overview of BMC System Performance for DB2

This section introduces you to the BMC System Performance for DB2.

Introduction

The BMC System Performance for DB2 solution combines the features and functionality of a number of components to help you increase staff productivity and maintain performance consistency by tuning your DB2 system dynamically and automatically as workloads change.

The BMC System Performance for DB2 solution provides the following benefits:

- Improves application performance by providing intelligent real-time management and tuning of DB2 system resources and parameters that can adversely affect performance
- Reduces end-user response time
- Minimizes costs associated with DB2
- Optimizes the use of DB2 storage
- Increases staff productivity by providing advisor technology
- Avoids system problems and downtime by automatically detecting and correcting system problems
- Maintains performance consistency with constantly adjusting application workloads

BMC System Performance for DB2 includes the following components:

- MainView for DB2 (including CATALOG MANAGER for DB2 (Browse only))
Pool Advisor for DB2

OPERTUNE for DB2

The solution comes with a comprehensive set of reports that lets you monitor all aspects of DB2 from one central report. You can quickly hyperlink from that report to other reports about specific data if an anomalous value is highlighted.

The BMC System Performance report set combines the reporting abilities of the MainView for DB2 and Pool Advisor components with a supplemental set of comprehensive reports on all aspects of DB2.

You can access all BMC System Performance components through a common interface, and you don’t need to know which component to use to solve a problem. When it detects a problem, the solution guides you to the information you need to solve that problem, using the appropriate components to gather the information and make the needed changes.

**MainView for DB2 component**

The MainView for DB2 component is built to meet growing demands and continuous availability challenges.

It enables you to consolidate legacy and new technologies, turning information into the knowledge needed to manage business. It delivers new functionality to satisfy the needs of growing business demands for volume and availability. MainView for DB2 provides a variety of features including full data-sharing support, tuning wizards, customizable displays, multiple displays on one screen, and extended I/O analysis.

MainView for DB2 provides the most comprehensive, user-friendly set of monitoring and management tools that are available for DB2.

**OPERTUNE for DB2 component**

The OPERTUNE component allows you to modify DB2 subsystems to resolve performance tuning or operations management problems.

Using the simple OPERTUNE command syntax, you can change a DB2 ZPARM value dynamically. You can issue the commands by using the OPERTUNE ISPF interface, from a batch job step, or from the console. You can also define a set of ZPARM values to support a specific processing environment and then schedule the set to be issued to DB2 automatically. The schedule can be issued based on time of day and day of the week or on demand.
OPERTUNE performs these changes without bringing the DB2 subsystem down or logging users off the system. A RESET command can restore individual DB2 parameters to their original value or return all DB2 parameters that have been modified by OPERTUNE to their original values.

**Pool Advisor component**

Pool Advisor provides a fast, accurate means of monitoring DB2 storage resources to help you identify and resolve problems as they occur.

Pool Advisor enables you to monitor the performance of DB2 activities in real time and to display data about the performance of the system in a readable, usable format.

Pool Advisor uses an advisor-driven system for retrieving pool-related data from DB2, reporting that data, detecting potential performance-related problems, and recommending actions to prevent those problems. Pool Advisor can operate under native TSO and ISPF.

**BMC System Performance architecture**

BMC System Performance has the following elements at its core:

- Data Collector
- Report Manager
- Advisors

The Data Collector gathers information from DB2 for use by the BMC System Performance and Pool Advisor reports and for MainView *for DB2* thread history. It also sends requests for system parameter modifications to OPERTUNE. The Report Manager is the display mechanism for BMC System Performance and Pool Advisor reports. OPERTUNE and MainView *for DB2* can be accessed directly from the Report Manager. Advisor technology is used by BMC System Performance and Pool Advisor to detect problems and to recommend corrective actions.

Figure 1 on page 17 illustrates the interaction between major BMC System Performance components.
The OPERTUNE and MainView for DB2 components operate in separate environments. See the *OPERTUNE for DB2 Reference Manual* for more information about the OPERTUNE environment and the *MainView User Guide* for more information about the MainView for DB2 environment.

**Data Collector**

The Data Collector provides common access to DB2 performance data for all BMC System Performance for DB2 users.

Each Data Collector can monitor all DB2 subsystems on the same z/OS image and can support up to 999 concurrent users. In a sysplex environment, Data Collectors can communicate across the sysplex and users can access data from any DB2 being monitored by those Data Collectors. In addition, the Data Collector:
- Retrieves data from DB2 control blocks
- Issues DB2, z/OS, and OPERTUNE commands that are received from BMC System Performance for DB2 users

When the Data Collector is initialized, parameter messages are issued to the SYSTSPRT DD of the DOMPROC. Parameters are used to modify resources when the advisors recommend changes.

**Report Manager**

The Report Manager is your interface to BMC System Performance for DB2.

Foreground advisors are a Report Manager mechanism for displaying a text-based explanation of the values found on these reports.

The Report Manager also provides direct links to the OPERTUNE for DB2 and MainView for DB2 components of BMC System Performance for DB2.

**Sysplex support**

BMC System Performance is designed to run in a sysplex environment.

One Data Collector from each z/OS image in the sysplex can be defined in a DOMPLEX group. Each Data Collector can monitor all DB2s on its same z/OS image and all Data Collectors in the DOMPLEX can communicate with each other. As a result, all data from all DB2s across the DOMPLEX is available to all DOMPLEX users. All users can view online reports that contain data from any or all DB2s in the DOMPLEX and commands can be issued to any DB2 in the DOMPLEX.
Figure 2 on page 20 illustrates Sysplex communication in a BMC System Performance DOMPLEX.

Figure 2: Sysplex communication

See the System and SQL Performance for DB2 Administrator Guide for a complete explanation of DOMPLEX option sets.

Advisors

BMC System Performance monitors the resources on your system, and spots potential problems and recommends changes before those potential problems become actual problems.

Advisors are the components that serve this purpose.

Note
The advisor technology is associated with the common BMC System Performance reports and Pool Advisor reports, but is not used by MainView for DB2 views.
Background advisors

Background advisors are the sentinels that watch over resources and let you know when there is a problem.

Individual component advisors monitor each type of resource at all times. If a problem is detected that can be corrected by a change in some parameter, a recommendation is sent to the system advisor.

System advisor

The system advisor coordinates all recommendations that are received and approves or rejects them, based on its analysis of all requirements and available resources.

If the system advisor decides that a recommendation should be honored, it is added to an Action List, from where you can implement it.

Note

Whenever an action is executed, a message is written to the SYSTSPRT DD of the DOMPROC.

Report expert advice

In the foreground, each report has expert advice that you can access easily by using hyperlinks or action codes:

The expert advice helps you to interpret the data on the report. Any recommendations that are issued by the system advisor are listed prominently, along with the key values that are used to determine alerts. Links in the expert advice provide more detailed information about conditions in the current interval and general information about the topic of the report.

View related information about how to use Pool Advisor advisors.

Related Information

- “Using advisors” on page 41

Variable Repository

The variable repository stores the values for parameter variables. These values are used to modify storage resources when the advisors recommend changes. Initially, BMC System Performance uses default values when changes are recommended, but
if you find that the recommended changes based on these default values are no longer appropriate, you can use the variable repository to modify the values. The variable repository consists of a series of easy-to-use panels that list the variables and provide fields for you to type new values from a range of acceptable values. You can access the variable repository by linking on the CONFIG button on Pool Advisor and BMC System Performance reports.

**Shared infrastructure components**

SQL Performance also uses the infrastructure components described in the following table.

**Table 1: Shared infrastructure components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 Component Services (DBC)</td>
<td>DBC provides a persistent z/OS subsystem address space into which BMC products can dynamically initialize their own product services. Other shared infrastructure components, such as the Data Collector, NGL, BPM, and RTCS require the DBC subsystem.</td>
</tr>
<tr>
<td>Next Generation Logger (NGL)</td>
<td>NGL is a logging facility that logs and retrieves data based on application-defined keys and a time span. NGL runs as a service within the DBC subsystem and relies on the Runtime Component System (RTCS) for registry services. APPTUNE requires NGL for archiving trace data sets.</td>
</tr>
<tr>
<td>Runtime Component System (RTCS)</td>
<td>RTCS runs as a started task and provides programming services to various BMC mainframe products. RTCS is designed for continuous operation and seldom, if ever, needs to be stopped.</td>
</tr>
<tr>
<td>BMC Product Management (BPM)</td>
<td>The BPM technology separates product (or solution) installation from configuration. Through its online interface, BPM simplifies configuration and deployment by setting default option values for you. (You can change the values, if needed.) BPM panels simplify navigation by allowing you to expand or contract sections as needed. Also, you can link to BPM from within your product or solution, thus maintaining a consistent look and feel, and retaining your changes from version to version.</td>
</tr>
</tbody>
</table>
Features of BMC System Performance

BMC System Performance has a number of features to assist you in monitoring DB2 system performance.

BMC System Performance report set

The BMC System Performance report set combines the reporting abilities of the MainView for DB2 and Pool Advisor components with a supplemental set of comprehensive reports on all aspects of DB2.

The primary report displays key values in real time about each active DB2 in the Sysplex, plus an overall status. From the primary report, you can branch out to other reports, gathering data from all System Performance components.

The Pool Advisor report set consists of one main report and one or more history reports for each of the following storage resources:

- Overall status monitor
- Buffer pools
- EDM pool
- Dynamic statement cache
- RID pool
- Sort pool
- Group buffer pools
- Total DBM1 virtual storage

The primary reports display key values about storage use in real time for the corresponding topic. History reports display data from previous intervals.

There are also reports to examine all page sets in a selected buffer pool and all objects in a selected page set.

Command log

The Pool Advisor Command Log report lists all commands that have been issued as a result of recommendations approved by the system advisor.
The command log is a feature of the Pool Advisor component of BMC System Performance for DB2.

Commands are listed in chronological order, with the most recent command listed first.

You can expand the report to display the command response and to see details of the recommendation and the rule that triggered the recommendation.

**Interval**

For most common BMC System Performance and Pool Advisor reports, the data that is reported is collected every minute and accumulates over a 15-minute interval. At the end of 15 minutes, the data for the first five minutes is dropped and the new interval contains data from the previous 10 minutes. Data is added each minute for the next five minutes until the interval again represents data for a 15-minute period. Then the data for the oldest five minutes is dropped again.

The first interval begins when the Data Collector is started or when a DB2 subsystem is subsequently started. The cycle continues to repeat until the DB2 subsystem is cycled or the Data Collector is stopped.

**Note**

MainView for DB2 views use a 15-minute interval, synchronized to the hour.

**Sorting**

Using the SORT command, you can rearrange the sequence of data in common reports and in lists displayed on common panels.

You can specify any columns on selected scrollable panels as primary and secondary sort keys.

To view Online Help about the SORT command, type HELP SORT on the Command line.

**Related Information**

- "SORT" on page 170
Command interfaces

The Command Interface panels enable you to issue commands to the Data Collector, DB2, z/OS system, and OPERTUNE from within Pool Advisor, and to receive feedback from those commands.

Session Status

Session Status reports data about your session’s storage use and information about the BMC System Performance reports that are active under your user ID.

For more information, see BMC System Performance report set on page 61.

User Options

User Options are used to tailor your BMC System Performance session to your specific needs:

- You can set options that affect various session characteristics:
  - Display of panel ID
  - Command line placement
  - Cursor placement
  - Display of confirmation panels
  - Display of function keys
  - Screen format (80/132 columns)
  - Default scroll amount

- You can set your own defaults for function keys.

For more information about user options, see online Help (type HELP TOPTIONS on the Command line of any common report or panel, and press Enter).

Note

The User Options values that you set affect your session only when the common BMC System Performance or Pool Advisor panels and reports are displayed.
Configuration analysis

Configuration analysis is a major feature of the Pool Advisor component of BMC System Performance. Pool Advisor’s primary purpose is to measure the access of your objects and evaluate the performance of the buffer pools in real time.

While Pool Advisor attempts to alert you to problems and recommends pool attribute changes in order to adapt to mismatches, it is usually better to configure the buffer pools more accurately from the start. The configuration advisor is intended to help you do exactly that.

The configuration advisor calculates a compatibility score that represents the overall fitness of the current configuration for the measured attributes of the page sets. You can then submit an analysis request that will evaluate the mix of pools and objects and recommend changes to the assignment of objects to pools and the attributes of the pools, such as size, type, and operating steal and write thresholds. You have the option to accept and implement those changes or modify and resubmit the analysis request.

Using this iterative and interactive approach, you can reach a configuration that meets the needs of your objects, while fitting within acceptable limits of complexity and resource use.

BMC System Performance administration

Profiles are the BMC System Performance tool used to control access to BMC System Performance and (through BMC System Performance) to DB2. They are also used to set default values for subsystem-wide activities. Administrative functions are available only to users with administration authority (granted in the User Profile).

User Profiles

Each System Performance user is identified by a User Profile.

The user profile restricts access to BMC System Performance functions and access for monitoring DB2. In addition, the User Profile is used to set defaults for display characteristics and function keys.

Individual profiles can be created and tailored to individual needs, or profile characteristics can be shared by many users by creating a Master Profile. The System Performance administrator can grant users the ability to change their own profiles or restrict their access to portions of the profile.
DOMPLEX option sets

In SQL Performance, the collection of data, the summarization of data, and the filtering of data are specific to DB2.

Each DB2 subsystem that can be monitored is defined in a DOMPLEX option set. It also defines the DB2 subsystems to be monitored and the LOGFILEs used by the DOMPLEX. The collection, summarization, and filtering options set in the DOMPLEX option set apply to all programs and plans that are run on the DB2 subsystem.

DOMPLEX parameters also include a set of values that determine how Pool Advisor is configured. You can modify these values to suit the needs of your site. These options allow you to specify the following operating characteristics:

- Whether users are allowed to issue commands to DB2 and MVS from Pool Advisor
- Whether Pool Advisor uses the DB2 user authorization table (SYSUSERAUTH) to enforce security for DB2 commands and traces
- Whether hiperspace is used to stage records during the report-viewing process
- Whether Pool Advisor panels will be displayed using both upper- and lowercase characters or using uppercase characters only
- The style of date displayed on panels where the date occurs
- The symbol used to the left of the fractional portion of a number with decimal places

For a complete explanation of all common administrative functions, see the System and SQL Performance for DB2 Administrator Guide.

BMC System Performance security

Because many BMC System Performance functions can affect DB2 performance, a number of security mechanisms are provided to the BMC System Performance administrator to control access to these functions.

Access to BMC System Performance is controlled via RACF (or another z/OS security system that uses the RACF interface).

Authority to issue DB2 commands is controlled by:
Options in the User Profile

- The DB2 catalog tables, if the value for the Enforce security via DB2 authorization table global option is Y (Yes)
- A BMC System Performance exit that allows you to specify a DB2 primary authorization ID that differs from the BMC System Performance user ID
- The DB2 DSN3@ATH secondary authorization exit

Other authorizations are controlled by options in the User Profile:

- Access to DB2 for monitoring
- Access to Data Collectors
- Data Collector, z/OS, DB2, and OPERTUNE, command authority

For more information about security, see the *Installation System Reference Manual*.

**Reporting problems**

At times you might encounter problems using BMC System Performance that require you to contact BMC Customer Support for assistance.

Before calling your BMC Customer Support representatives, you can gather information that will help them to diagnose and resolve your problem as quickly as possible.

**Completing Customer Support Checklist**

The following checklist of information is useful in problem determination. Not all items will apply in every situation, but if you check this list before calling and provide as much information as you can when you call, your representative will be able to help you more effectively.

1. What was the sequence of events that resulted in this error?
2. Have you had the same problem before? How often?
3. Which messages were issued to the terminal?
4. Make a copy of the system log containing messages, registers, module names, and so on, at the time of the problem.
5. What version and maintenance levels are you using of the following:
- SQL Performance for DB2
- BMC System Performance for DB2
- APPTUNE for DB2
- Pool Advisor for DB2
- SQL Explorer for DB2
- MainView for DB2
- MainView for DB2 - Data Collector
- DB2
- MVS-OS/390-z/OS
- DFP/DFSMS
- CICS
- Security package

6 Save the batch job output from any job that fails.

7 Save the dump if there is one.

8 Make a copy of the Maintenance panel (DOMEZAPT), which lists any PTFs that have been applied (option 3 on the Administration menu).
Reporting problems
Getting started with BMC System Performance

This section provides general information about panel layouts, navigation, and logging on.

Logging on

The BMC System Performance installation process creates a logon mechanism.

Before you begin

Contact your product administrator for the correct procedure to use at your site.

To log on

1. Perform the applicable procedure for your installation:
   - Select the ISPF menu option
   - Execute the CLIST to log on to BMC System Performance.

When you log on, the BMC System Performance logo panel (Figure 3 on page 32) is displayed briefly while the product initializes, followed by the BMC System Performance main menu (See Figure 6 on page 38).
Figure 3: BMC System Performance logo panel

Note
If you are using multiple System and SQL Performance for DB2 products, a common main menu is displayed. See related information for more details.

Related Information

- “Using multiple System and SQL Performance products” on page 115

Navigation

The BMC System Performance interface has been designed for quick and easy navigation through the solution’s panels and reports.

After you familiarize yourself with BMC System Performance, you should be able to navigate through the product with little or no supporting documentation.

Navigation through BMC System Performance reports and advisors resembles navigation in a web browser. Text and values that are hyperlinks are underscored. If your mouse button can be programmed to the function of the Enter key, you can navigate by clicking on hyperlinks. Otherwise, you need to move the cursor to a hyperlink and press Enter.

Action codes are also used to navigate between reports and advice. Action codes are listed in each common report header. To use an action code, type the one-letter code on the plus sign (+) at the left of a line of data, and press Enter. Another report or expert advice containing related data is displayed.
You can use the SHOWCMDS command at any time from any panel or report to display all commands (including navigational commands) that can be issued from that panel or report. See the online Help for more information about SHOWCMDS (type HELP SHOWCMDS on the Command line and press Enter).

**Note**
As you navigate in BMC System Performance, you cross over to Pool Advisor panels and reports, OPERTUNE, or MainView for DB2 views. Navigation in Pool Advisor is identical to navigation in BMC System Performance common panels and reports. Navigation in the OPERTUNE and MainView for DB2 components, is governed by those components. See the component documentation for navigation conventions.

**Panel layout**

The following figure shows the attributes shared by common BMC System Performance and Pool Advisor panels.

See the *MainView User Guide* for a description of MainView for DB2 panels

**Figure 4: BMC System Performance panels**

The following elements comprise the panel layout:
**panel ID**

The panel ID is displayed in the upper left corner of each panel. Display of the panel ID is optional. The default value (ON or OFF) is set in the User Profile or in User Options. You can use the PANELID command to suspend the default temporarily.

**environment identifier**

The environment identifier is displayed to the right of the panel ID, separated from it by a slash (/). Possible values are:

- **I** (when operating under ISPF)
- **P** (when operating under native TSO)

**panel description**

A description is displayed in the center of the top line of each common panel.

**time or line count indicator**

On non-scrollable panels, the time is displayed in the upper right corner in the format *hh:mm:ss*, where

- **hh** is hours in the range 00-23
- **mm** is minutes in the range 00-59
- **ss** is seconds in the range 00-59

On scrollable panels, the current line number and the total number of lines is displayed in the format **LINE nnn OF nnn**.

If the panel is scrollable, the scroll amount (in the format **Scroll ===>__**) is also displayed at the end of the Command line. Each time you begin a Pool Advisor session, the default scroll amount is retrieved from your User Profile and displayed here. You can change the scroll amount at any time, and the new value will remain in effect until you either change it again or end your session. Valid values are as follows.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGE</td>
<td>Data is scrolled one full page at a time. A full page varies in size, depending on the number of scrollable lines on the panel or report. For example, if there are 10 scrollable lines on the panel, data is scrolled 10 lines at a time.</td>
</tr>
<tr>
<td>HALF</td>
<td>Data is scrolled a half page at a time. A half page varies in size, depending on the number of scrollable lines on the panel or report. For example, if there are 12 scrollable lines on the panel, data is scrolled 6 lines at a time.</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>CSR</td>
<td>The position of the cursor determines the number of lines that are scrolled. When scrolling down, position the cursor on the line to be displayed at the top of the scrollable area and press F8. When scrolling up, place the cursor on the line to be displayed at the bottom of the scrollable area and press F7. If CSR is specified and the scrolling keys are used when the cursor is not positioned on a scrollable portion of the panel, scrolling defaults to PAGE.</td>
</tr>
<tr>
<td>GRP</td>
<td>Data is scrolled one repeating group at a time. The first line of the next repeating group is displayed on the first line of the scrollable area. This value is valid only when viewing reports with repeating groups. If this value is specified, and there are no repeating groups on the panel, scrolling defaults to PAGE.</td>
</tr>
<tr>
<td>nnnn</td>
<td>Data is scrolled nnnn lines at a time, where nnnn is any number in the range 1 to 9999.</td>
</tr>
</tbody>
</table>

**Command line**

The Command line can be displayed directly beneath the panel ID and description or at the bottom of the panel directly above the function keys. The default value for the position of the Command line is set in the User Profile.

**Function keys**

The function keys are displayed on the bottom two lines of the panel. Display of function keys is controlled by a parameter in the User Profile. The default values for each key can also be modified in the User Profile. The following defaults are shipped with BMC System Performance:

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Help</td>
<td>F13</td>
<td>Home</td>
</tr>
<tr>
<td>F2</td>
<td>Split</td>
<td>F14</td>
<td>Keys</td>
</tr>
<tr>
<td>F3</td>
<td>End</td>
<td>F15</td>
<td>End</td>
</tr>
<tr>
<td>F4</td>
<td>Sort A (ascending)</td>
<td>F16</td>
<td>Terse</td>
</tr>
<tr>
<td>F5</td>
<td>Sort D (descending)</td>
<td>F17</td>
<td>Rfind</td>
</tr>
<tr>
<td>F6</td>
<td>Showcmds</td>
<td>F18</td>
<td>Filter</td>
</tr>
<tr>
<td>F7</td>
<td>Up</td>
<td>F19</td>
<td>Up</td>
</tr>
<tr>
<td>F8</td>
<td>Down</td>
<td>F20</td>
<td>Down</td>
</tr>
<tr>
<td>F9</td>
<td>Swap</td>
<td>F21</td>
<td>Expand All</td>
</tr>
<tr>
<td>F10</td>
<td>Left</td>
<td>F22</td>
<td>Left</td>
</tr>
<tr>
<td>F11</td>
<td>Right</td>
<td>F23</td>
<td>Right</td>
</tr>
<tr>
<td>F12</td>
<td>Cancel</td>
<td>F24</td>
<td>Retrieve</td>
</tr>
</tbody>
</table>
BMC System Performance commands

You can find descriptions of all BMC System Performance commands in online Help:

- Type `HELP commandName` on the Command line of any panel or report, and press Enter for help for a specific command.

- Type `HELP COMMANDS` on the Command line of any panel or report, and press Enter for a selection list of commands.

messages

BMC System Performance messages are displayed directly below the Command line when the Command line is displayed at the top of the panel and directly above the Command line when the Command line is displayed at the bottom of the panel.

Report layout

The figure below shows the common elements that are shared by BMC System Performance reports.

See the `MainView User Guide` for a description of MainView for DB2 views.

Figure 5: Common report elements
The following elements comprise the report layout:

**report name**

The name (report ID) of the report.

**report description**

A description of the report.

**date**

The current date in either the USA/ISO format (mm/dd) or European format (dd/mm), where mm is month in the range 01 to 12 and dd is day in the range 01 to 31.

**time**

The current time in the format *hh:mm:ss*, where

- *hh* is hours in the range 00-23
- *mm* is minutes in the range 00-59
- *ss* is seconds in the range 00-59

**buttons**

Navigational aids for quick access to the following features:

- HELP--displays online Help for the current report
- ADVISOR/NOTES/WARNING/ALERT--takes you to the background advisors
- CONFIG--displays the configuration dialog where you can set thresholds for problem determination or refresh object names from the DB2 catalog

Move the cursor to the button, and press **Enter**.

**actions**

Action codes that are used to expand the data on the report to display additional details or to navigate to other reports. Type the corresponding action code over the plus sign (+) beside the relevant object, and press **Enter**.
BMC System Performance main menu

The BMC System Performance for DB2 main menu provides access to the major functions of BMC System Performance.

**Figure 6: BMC System Performance main menu (SPDESEL1)**

<table>
<thead>
<tr>
<th>Command</th>
<th>System Performance for DB2</th>
<th>13:50:09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Data Collector</td>
<td>C520</td>
<td>Status : ACTIVE</td>
</tr>
</tbody>
</table>

Select one of the following options. Then press Enter.

- **D. System Performance** - DB2 subsystem and storage pool analysis
- **1. DOMPLEXes** - Select/change DOMPLEX/Data Collector connection
- **2. User Options** - View/modify user options
- **3. Administration** - Manage user and data collector profiles

**H. Help**
**X. Exit**
**Z. About System Performance for DB2**

The main menu contains the following options:

**D**

Use **System Performance** to access the DB2 Pools Status Monitor report—the starting point for all System Performance reporting.

**1**

Use **DOMPLEXes** to select a DOMPLEX for monitoring DB2 or to change from one active DOMPLEX to another.

**2**

Use **User Options** to view and modify the options used to tailor your session to your needs.

**3**

Use **Administration** to view and modify profiles and global parameters.

Note: This option is displayed on your menu only if you have administration authority.

**H**

Use **Help** to learn about the online Help facility, to see an overview of System Performance, and to explore online Help topics.
Online assistance

Wherever you go in BMC System Performance, online assistance is only a hyperlink or keystroke away. Every BMC System Performance panel, report, and field has traditional, context-sensitive online Help that is available by pressing F1 (Help). But BMC System Performance goes a step further by providing online tuning assistance that is based on the current status of your system (by hyperlinking to advice).

Online Help

Online Help works differently in each BMC System Performance component.

See the following books for information about using online Help in the BMC System Performance components:

- MainView User Guide
- OPERTUNE for DB2 Reference Manual
The common BMC System Performance and Pool Advisor panels and reports use the same online Help system.

*Online Help* for reports and panels provides a basic explanation of the report or panel, the hyperlinks and action codes that can be used, and static descriptions of the values in the report or panel fields.

You can access online Help from the BMC System Performance main menu to get either an explanation of how to use online Help or an overview of the solution.

The overview also includes lists of the following major help topics:

- Commands
- Messages
- Reports
- Panels
- Tutorial topics

Each major topic branches to additional items that provide more detail.

BMC System Performance online Help is context-sensitive. Move the cursor to a text, input, or output area of any panel or report and press **F1** for help that is specific to that field, panel or report.

You can also use the HELP command from any panel or report to get help on any topic you specify. For a complete explanation of the HELP command, see *BMC System Performance commands on page 119*.

**Expert advice**

Expert advice is available from solution-specific and Pool Advisor reports.

Expert advice explains the values on the report in the context of current storage constraints and, based on current conditions, recommendations for changes in your configuration are listed, when necessary.

Hyperlinks and action codes are available on all Pool Advisor reports for access to advice.
Using advisors

This section describes the types of advisors that provide tuning advice from BMC System Performance. It also describes the background operation of advisors.

Introduction

Advisors are at the center of BMC System Performance. In the background, they constantly monitor your system resources, calculating the optimum configuration for each resource, and recommending changes when necessary to ensure the best possible performance of your applications.

In the foreground, advisors are never more than a click or a keystroke away. From any common BMC System Performance or Pool Advisor report, you can display an explanation of the current statistics on the report—an explanation that is tailored to the conditions at the current time. If a problem exists on any DB2 subsystem being monitored, you are notified instantly and, within a few keystrokes, you can see the action that is recommended to correct the problem.

Note

Advisor technology is used only by the common BMC System Performance and Pool Advisor reports. The information in this chapter does not apply while you are examining MainView for DB2 views.

Report advice

Report advice helps you to understand the data that is on reports and alerts you to problems that are related to that data.

Each Pool Advisor and most BMC System Performance reports have expert advice that can be reached from the report by means of hyperlinks or action codes.
The advice displayed depends on the conditions that exist at the time it is displayed. Any outstanding recommendations are displayed prominently along with the key values that determine the need for action. Links are provided to additional information about conditions in the current interval and to general information about the topic of the report.

Figure 7 on page 42 shows a number of possible paragraphs. The paragraph (if any) that is displayed depends on the severity of the condition that triggers the paragraph.

Figure 7: Variable advisor text

| The current foreground thread utilization is nn% and the value for IDFORE is nnn, which is within the specified limits, but the utilization is greater than 80%, which is too high. |
| The current foreground thread utilization is nn% and the value for IDFORE is nnn, which is within the limits specified, and the utilization is less than 80%, which is good. |
| The current foreground thread utilization is nn% and the value for IDFORE is nnn, which is within the specified limits, but the utilization is greater than 80%, which is too high. However, increasing the number of concurrent active foreground threads allowed will result in the maximum value specified for the IDFORE_MAX parameter to be exceeded. |
| The current foreground thread utilization is nn% and the value for IDFORE is nnn, which is more than the total number of active concurrent threads allowed (foreground and background). |
| The current foreground thread utilization is nn% and the value for IDFORE is nnn, which is less than the minimum value specified in the CTHREAD_MIN parameter. |
| The current foreground thread utilization is nn% and the value for IDFORE is nnn, which is greater than the maximum value specified in the CTHREAD_MAX parameter. |

Figure 8 on page 43 is an example of the expert advice for the Buffer Pools status Monitor report. Values that are underscored are hyperlinks to more related information. Values that are bold indicate variables that will change as conditions change.
Figure 8: Example of expert advice

Alert Advice for Buffer Pool BP49

DB2 subsystem ID . : DHY2 V9.1
Interval start . . : 2008-06-19-14.05.00
Current duration . : 10.15 minutes

Recommendations:
- Increase buffer pool size by 49 pages
- Decrease the VPSEQT threshold to 10%
- No change to the deferred write threshold (DWQT)

Key Buffer Pool Values:
- The virtual pool size is 1600 pages (6.2 MB).
- The efficiency rating for this buffer pool is 75%. For most busy DB2 systems, this number should be quite high. The efficiency for this interval was poor.
- The getpage rate is 2399.2 pages per second.
- The synchronous read I/O rate is 28.1 I/Os per second.
- The hit ratio for the virtual pool is 0.2%.
- The minimum page residency time in the virtual pool is 1 seconds.
- No adverse performance events were detected.

The Buffer Pool Advisor controls for this pool are as follows:
- minimum pool size allowed . . . . . : 149 pages
- maximum pool size allowed . . . . . : 50049 pages
- adjustment size for pool increases . . : 49 pages
- adjustment size for pool decreases . . : 199 pages

Additional Information:

For details about this buffer pool in the current interval, click here.
For general information about buffer pools, click here.
The advice in Figure 9 on page 44 recommends an increase in the size of the buffer pool. If you link on the recommendation, a complete explanation of the recommendation is displayed.

**Figure 9: Example of recommendation text**

<table>
<thead>
<tr>
<th>Advisor Response</th>
<th>Command</th>
<th>Scroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADVISOR:PM2ZBP1</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Increase Buffer Pool Size

The buffer pool advisor has determined that you should increase the size of this buffer pool because access is predominantly random, there has been significant read I/O, and both the residency time and the system hit ratio are less than optimal.

A recommendation to increase the size of the buffer pool has been sent to the System Advisor. The System Advisor might have rejected the recommendation based on its analysis of storage requirements for all pools.

If the request was accepted, an action item was created and added to the action list, from where you can view it or execute it.

To see the list of action items, click here.

---

**Note:**

System Performance for DB2 uses parameters to set upper and lower limits on the size of the buffer pools (SIZE_BP49_MAX and SIZE_BP49_MIN), and to make recommendations for increasing or decreasing their sizes (SIZE_BP49_INC and SIZE_BP49_DEC). The initial values for these parameters are calculated defaults, but you can use the variable repository to modify the values to suit conditions at your site. Click on the CONFIG button on any product report to display the Configuration Menu; then select option 1 (View and edit product variables).

See the Pool Advisor User Guide or the System Performance User Guide for a description of buffer pool parameters.

---

For more information about overall storage use in the DBM1 address space click here.

---

**Background advisors**

Background advisors are the sentinels that watch over resources in DB2 and let you know when there is a problem.

The following individual component advisors monitor the main BMC System Performance data groups:

- Thread Environment Advisor
- DDF Environment Advisor
- Log Environment
Maximum Data Sets Advisor

The following Pool Advisor individual component advisors monitor storage resources:

- Buffer Pool Advisor (one for each buffer pool)
- Group Buffer Pool Advisor (one for each group buffer pool)
- EDM Pool Advisor
- RID Pool Advisor
- Sort Pool Advisor
- Dynamic Statement Cache Advisor
- Virtual Storage Constraint Advisor

The background component advisors monitor the storage resources constantly and compare the statistics that they gather against a set of rules that define conditions that warrant attention. When a condition that is identified by a rule is detected, the individual advisor that detected the condition checks the parameter values for the resource and sends a recommendation to the system advisor.

When BMC System Performance determines that changes should be made to the size of storage pools or what the maximum and minimum thresholds should be, the following values are used by default:

- Increase resource by 10% of ZPARM value
- Decrease resource by 10% of ZPARM value
- Maximum total increase of 25% of ZPARM value
- Maximum total decrease of 25% of ZPARM value

If the default values are not suitable to your environment, you can use parameters to modify the values. Parameters allow you to define the incremental amounts that storage resources can be increased or decreased and the minimum and maximum limitations.

For example, an EDM pool rule identifies a condition when the efficiency rating for the pool drops below 90%. The EDM Pool Advisor recognizes the condition and sends a recommendation to increase the size of the EDM pool by 10% to the system advisor.

The system advisor evaluates all information that is received from the component advisors and determines (with the data from the virtual storage advisor) whether the
recommendations received can be carried out without an adverse effect on other resources.

In the case of the EDM pool recommendation, the system advisor looks at overall storage constraint and evaluate the effect of an increase in the size of the EDM pool on other storage resources. The system advisor also checks the EDM pool parameters to see if the maximum size parameter would be exceeded by the recommended action.

If the system advisor decides to honor a recommendation, it is added to the Action List.

Figure 10 on page 46 shows the relationship between the advisors, DB2, and reports.

**Figure 10: Advisor relationships**
If you find that the recommended changes based on these default values are no longer appropriate (for example, because of changes to ZPARM values), you can modify the default values.

The variable repository provides a method for editing parameter variables through a series of panels. The panels outline all of the variables, giving you the opportunity to edit any or all of the values.

See related information about parameter variables and rules for instructions about changing parameter values.

---

**Related Information**

- "Parameter variables and rules" on page 189

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## The ADVISOR button

The ADVISOR button on common BMC System Performance and Pool Advisor reports is your window on the background advisors.

Throughout these reports, the ADVISOR button is always displayed and warns you if any problem exists across the sysplex.

The ADVISOR button can have the following values:

- **ADVISOR** (turquoise) indicates that no problems have been detected and no recommendations have been made.

- **NOTES** (green) indicates that at least one recommendation has been made, but not necessarily added to the Action List.

- **WARNING** (yellow) indicates that a problem exists that requires attention.

- **ALERT** (red) indicates a serious problem that requires immediate attention.

You can use the ADVISOR button to drill down to the specific resource that is experiencing problems.

### Example of an alert

The following figure shows an example of the Sysplex DB2 Monitor report.
There are two obvious indications that a problem exists:

- The value (POOR) for Log Status is red.
- The red ALERT button is displayed.

**Figure 11: Sysplex DB2 Monitor report**

<table>
<thead>
<tr>
<th>SPDEQRPN/P</th>
<th>System Performance for DB2</th>
<th>Command =&gt;</th>
<th>Scroll =&gt; CSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCSftwr.SPDMAIN</td>
<td>SYSPLEX DB2 MONITOR</td>
<td>10/10 17:06:26</td>
<td></td>
</tr>
<tr>
<td>---&lt; HELP &gt;---&lt; <em>ALERT</em> &gt;----------------------&lt; CONFIG ---&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actions: S- Details Z- ZPARMS M- MainView O- Opertune P- Pool Advisor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DB2</th>
<th>Rel</th>
<th>DS-Group</th>
<th>CPU%</th>
<th>Strg</th>
<th>PgRt</th>
<th>Rate</th>
<th>Thds</th>
<th>Thrd</th>
<th>Strg</th>
<th>Log</th>
<th>Dist</th>
<th>Othr</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ DBBP 8.1 N/A</td>
<td>SYSM 4</td>
<td>139M</td>
<td>0</td>
<td>1522</td>
<td>1</td>
<td>GOOD</td>
<td>FAIR</td>
<td>GOOD</td>
<td>GOOD</td>
<td>GOOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ DBI1 9.1 DSNDBI</td>
<td>SYSM 1</td>
<td>91M</td>
<td>0</td>
<td>996</td>
<td>1</td>
<td>GOOD</td>
<td>POOR</td>
<td>GOOD</td>
<td>GOOD</td>
<td>GOOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ DBI2 9.1 DSNDBI</td>
<td>SYSI 2</td>
<td>102M</td>
<td>0</td>
<td>1145</td>
<td>0</td>
<td>GOOD</td>
<td>POOR</td>
<td>GOOD</td>
<td>GOOD</td>
<td>GOOD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When the ALERT button is displayed, the problematic condition is not necessarily associated with the data on the current report. If an alert condition exists *anywhere* on the sysplex, the ALERT button is displayed on *all* reports.

When you click on the ALERT button, the Background Advisor DB2 Selection List (Figure 12 on page 48) is displayed.

The Background Advisor DB2 Selection List panel lists all active DB2 subsystems on the sysplex.

**Figure 12: Background Advisor DB2 Selection List panel**

<table>
<thead>
<tr>
<th>PMDEROUT/I</th>
<th>Background Advisor DB2 Selection List</th>
<th>Command =&gt;</th>
<th>Scroll =&gt; CSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCSftwr.PMDROUT</td>
<td>-------------------------------------</td>
<td>06/19 14:20:12</td>
<td></td>
</tr>
</tbody>
</table>

The overall status of the background advisors for each monitored DB2 subsystem is shown below. Click on the value for "Current status" to display the individual advisors for that DB2 subsystem.

DB2 subsystem: DHB2 (8.1)  Current status: *ALERT*
DB2 subsystem: DHB1 (9.1)  Current status: NORMAL
DB2 subsystem: DHY2 (9.1)  Current status: *ALERT*

The Current status field indicates the highest severity condition that exists on the DB2 subsystem. The values for Current status correspond to the possible values for the ADVISOR button and are coded with the same colors:

- NORMAL corresponds to ADVISOR (turquoise)
- NOTES (green)
- **WARNING** (yellow)
- **ALERT** (red)

Click on the Current status value to display the individual advisors associated with a DB2 subsystem.

**Figure 13 on page 50** lists the individual component advisors for the selected DB2 and the Current Status for each. The values represent the highest severity condition associated with the corresponding resource. Click on the value for Current status to display the analysis advisor for the resource.
If recommendations are pending, the Action List hyperlink is displayed. Click on the hyperlink to display the Pending Action List.

If recommendations are pending, the Action List hyperlink is displayed. Click on the hyperlink to display the Pending Action List.
The current storage management mode is also displayed. Click on the mode value for an explanation of the storage management modes. Storage management mode relates only to the Virtual Storage component of Pool Advisor.

**Storage management mode**

The Advisor Selection List indicates the storage management mode under which Pool Advisor is operating. The virtual storage advisor determines this mode based on the available storage in the DBM1 address space and the MVS paging rate.

Ideally, when a component pool advisor sends a recommendation to the system advisor, the recommendation is added to the Action List, from where it can be executed. However, the ability to carry out recommendations depends on the availability of storage resources. The virtual storage advisor monitors available resources and sets the storage management mode that suits the storage constraint conditions in effect. If those conditions change, the operating mode is changed to match the new conditions.

**Storage management mode values**

The storage management mode can take the following values:

- **NORMAL** mode takes effect when the following conditions are all true:
  
  - The DBM1 region size is more than 5 MB below the VSCMAX value
  
  - The remaining free storage in the portion of the DBM1 region that is below the 2-GB bar exceeds the VSCAVAIL_NOTE threshold
  
  - The system page steal rate for DBM1 is less than the default value of the page steal rate NOTICE threshold in the VSCPSR_NOTE initialization parameter

  **Note**
  
  The default NOTICE value for Pool Advisor is 10. You can modify this value.

- **BALANCE** mode indicates that an equal trade-off must be made between increase and decrease recommendations. To increase one value, an equal decrease in another value is necessary. If an increase or decrease recommendation is made, the virtual storage advisor will determine if and where a balancing recommendation can be made. **BALANCE** mode takes effect when any of the following conditions is true:

  - The DBM1 region size is within plus or minus 5 MB of the VSCMAX value
The available virtual storage in the DBM1 region below the 2-GB bar is less than the default value of the available storage NOTICE threshold in the VSCAVAIL_NOTE initialization parameter, but more than the WARNING threshold in the VSCAVAIL_WARN initialization parameter.

The system page steal rate for DBM1 is more than the default value of the page steal rate NOTICE threshold in the VSCPSR_NOTE initialization parameter, but less than the WARNING threshold in the VSCPSR_WARN initialization parameter.

**Note**
The default WARNING value for Pool Advisor is 20. You can modify this value.

**DECREASE** mode indicates that virtual storage constraint exists to the extent that only decrease recommendations will be honored. **DECREASE** mode takes effect when **any** of the following conditions is true:

— The DBM1 region size is from 5 MB to 99 MB above the VSCMAX value

— The available virtual storage in the DBM1 region below the 2-GB bar is less than the WARNING threshold in the VSCAVAIL_WARN initialization parameter, but more than the ALERT threshold in the VSCAVAIL_ALERT initialization parameter

— The system page steal rate for DBM1 is more than the default value of the page steal rate WARNING threshold in the VSCPSR_WARN initialization parameter, but less than the ALERT threshold in the VSCPSR_ALERT initialization parameter

**Note**
The default ALERT value for Pool Advisor is 50. You can modify this value.

**FORCE** mode indicates that virtual storage constraint is serious and an attempt will be made to reduce storage use for non-critical components. **FORCE** mode takes effect when any of the following conditions is true:

— The DBM1 region size is more than 99 MB above the VSCMAX value

— Available storage in the DBM1 region below the 2-GB bar is less than the ALERT threshold in the VSCAVAIL_ALERT initialization parameter

— The system page steal rate for DBM1 is equal to or greater than the default value of the page steal rate ALERT threshold in the VSCPSR_ALERT initialization parameter
**Note**  
The default ALERT value shipped with Pool Advisor is 50. You can modify this value.

The default values for initialization parameters can be found in the variable repository. See additional information relating to parameter variables and rules.

**Note**  
A virtual storage shortage below the 2-GB bar is unlikely since all major consumers of virtual storage have been moved above the bar. For this reason, reducing any pool sizes would have limited effect. Reducing the DB2 workload would be the only effective action.

---

**Pending Action List**

The Pending Action List displays all recommendations that have been accepted by the system advisor.

**Figure 14 on page 53** is an example of a Pending Action List with three recommendations:

- Decrease the value for LOGLOAD by 5000
- Issue a DB2 checkpoint
- Increase DSMAX by 2220

**Figure 14: Pending Action List panel**

<table>
<thead>
<tr>
<th>Command</th>
<th>Advisor Response</th>
<th>Scroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOMEADVO/P</td>
<td>Advisor Response</td>
<td>CSR_</td>
</tr>
</tbody>
</table>

Following is a list of all the pending action items for the following DB2 and interval, with the highest priority items listed first:

- **DB2 subsystem ID:** DEA1
- **Storage Mode:** BALANCE
- **Interval start:** 2008-10-10 18.30.01
- **Current duration:** 15 minutes
- **VS available . . .:** 13538 KB

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action:</strong> RULE EXEC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action:</strong> RULE EXEC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From the Action List, you can display the rule that triggered the recommendation (click on **RULE**), you can execute the recommended command (click on **EXEC**), or you can acknowledge a rule for which no action can be taken (click on **ACKN**).

**Displaying a rule**

A rule describes a condition in DB2, and when that condition is met BMC System Performance triggers a recommendation.

When you click on **RULE** on the Pending Action List panel, the Rule Details panel displays the rule associated with the selected recommendation.

**To display a rule**

1. Click **RULE** on the Pending Action List panel.

   The Rule Details panel displays the rule associated with the selected recommendation.

   **Figure 15: Rule Details panel**

<table>
<thead>
<tr>
<th>Rule Identifier: BR3</th>
<th>Rule Version: 5.3</th>
<th>DB2: DHY2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOMEADVO/I</td>
<td></td>
<td>LINE 1 OF 29</td>
</tr>
</tbody>
</table>
   | Advisor Response    |                   | Command ====> | Scroll ===> CSR_
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Advisor Response    |                   | Advisor Response |
   | RULE                |                   | RULE |
   | Command              |                   | Command |
   | ====>                |                   | ====> |
   | startspace           |                   | startspace |
   | _____________________|                   | _____________________ |
   | Rule Details         |                   | Rule Details |
   | Rule Identifier: BR3 | Rule Version: 5.3 | DB2: DHY2 |
   | To control by individual buffer pool: Click here |
   | Rule Description: | A significant I/O rate, sequential access is medium, virtual pool residency time is less than 30 seconds, and the system hit ratio is less than 70%.
   | The action taken by this rule increases the size of the buffer pool by 10% (default), to a maximum of 125% (default) of the original buffer pool size. These default increment and maximum values can be overridden by modifying the SIZE_bpid_INC and SIZE_bpid_MAX values in the variable repository.
   | Execution Mode: Manual Click here to set automatic mode. |
   | Rule Ignored: No Click here to ignore this rule. |
   | Times Triggered: 1 Click here to reset this counter. |

2. From the Rule Details panel, perform one of the following actions:
   - If you want to apply the rule to individual buffer pools, you can click next to the **To control by individual buffer pool** field. This displays the Apply rules by buffer pool panel.
- If you feel comfortable letting BMC System Performance automatically issue the command that is associated with this rule whenever the rule is triggered, you can change the execution mode to **Automatic** on this panel.

- If you do not want a recommendation to be triggered when the condition that is associated with this rule exists, you can choose to ignore the rule whenever the condition that is associated with the rule is detected.

- If you want to be notified whenever the condition exists, leave the execution mode set to **Manual** and do not choose to ignore the rule.

You can also use this panel to see how many times the rule has been triggered and how many times the command associated with the rule has been issued.

**Figure 16: Apply rules by buffer pool panel**

<table>
<thead>
<tr>
<th>Buffer ID</th>
<th>Aut</th>
<th>Ign</th>
<th>Ack</th>
<th>Times Trig</th>
<th>Times Exec</th>
<th>Buffer ID</th>
<th>Aut</th>
<th>Ign</th>
<th>Ack</th>
<th>Times Trig</th>
<th>Times Exec</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP0</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP1</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP2</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP3</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP4</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP5</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP6</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP7</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP8</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP9</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP10</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP11</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP12</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP13</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BP14</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
<td>BP15</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Executing a rule**

If BMC System Performance is able to issue a command to implement a recommendation, then you can immediately execute it.

The OPERTUNE for **DB2** component is used to issue commands to modify ZPARM values.

**To execute the command**

1. Click **EXEC** on the Pending action list.

For an example, see **Pending Action List on page 53**.
Note

If a command cannot be executed by BMC System Performance, the word EXEC is not underscored.

Figure 17 on page 56 is displayed when a command is executed.

Figure 17: Command Interface panel

DOMEADVO/I Advisor Response
Command ===> Scroll ===> CSR_

ADVISOR:MDZCMD1

Command Text . . : OPT DHY2 IN(DHY2) SET BP49(+49) NORESET

Time Submitted . : 14:26:31
Time Completed . : 14:26:32

Command Response :

______________________________________________________________________________

IN(DHY2) SET BP49(+49) NORESET

BMC31164I DDTL IN(DHY2@DDTL) SET BP49(+49) NORESET

BMC31164I DDTL DHY2 -ALTER BPOOL(BP49) VPSIZE(1649)

DSNB522I *DHY2 VPSIZE FOR BP49 HAS BEEN SET TO 1649

The Command Interface panel displays the text of the command that was executed and any messages that were issued in response to the command. In addition, a message is issued to the SYSTSPRT DD of the DOMPROC whenever BMC System Performance issues a command.

Acknowledgement of a recommendation

At times, BMC System Performance detects a condition that triggers a rule, but the recommendation cannot be carried out because to do so would cause a limit to be breached.

For example, when the EDM pool efficiency drops below 70%, a rule is usually triggered to increase the size of the EDM pool. But if the EDM pool is already at the maximum size specified in the EDMSIZE_MAX parameter, that recommendation cannot be implemented.

In such cases, a WARNING will be issued to let you know that this condition exists, even though BMC System Performance cannot take an action to correct the condition. And an entry will be added to the Pending Action List. The entry will remain on the Pending Action List until you acknowledge it by clicking on ACKV.
When you acknowledge the item, the status changes to Done. The item remains on the list until the next collection cycle.

**Figure 18: Pending Action List panel with acknowledgement pending**

<table>
<thead>
<tr>
<th>ADvsr: PM2ZSYSA</th>
<th>----------------------</th>
<th>06/19/08 14:31:01</th>
</tr>
</thead>
</table>
**Pending Action List**

Following is a list of all pending action items for the following DB2 and interval, with the highest priority items listed first:

- **DB2 subsystem ID** : DHY2
- **Storage Mode** : BALANCE
- **Interval start** : 2008-06-19-14.15.00
- **Current duration** : 15 minutes
- **VS available** : 22191 KB

---

**Status:** Pending  **Priority:** M  **Advsr:** BPM  **Recmd:** INCREASE BP49 by 49 PGS
**Action:** RULE  **ACKN**  **Mode:** Manual

When a recommendation has been acknowledged, but the condition that caused the recommendation remains, the status of the corresponding advisor is changed to NOTICE until the condition is resolved, at which time the status returns to NORMAL.

### Changing the status of rules

BMC System Performance keeps track of all rules for which the execution mode has been set to Automatic and all rules that are being ignored.

You can change these settings at any time from the Advisor Rules and Attributes panel and you can view the definition of a rule from the Rule Details panel.

#### To change the status of rules

1. Click on the **ADVISOR** button from any report.

**Figure 19: Background Advisor DB2 Selection List panel**

<table>
<thead>
<tr>
<th>PMDEROUT/I</th>
<th>Background Advisor DB2 Selection List</th>
<th>LINE 1 OF 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command ====&gt;</td>
<td>-------------------------------------</td>
<td>Scroll ====&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BMCSftwr.PMDROUT</th>
<th>---------------------</th>
<th>06/19 14:34:38</th>
</tr>
</thead>
</table>

The overall status of the background advisors for each monitored DB2 subsystem is shown below. Click on the value for "Current status" to display the individual advisors for that DB2 subsystem.

- **DB2 subsystem:** DHB2 (8.1)  **Current status:** *ALERT*
- **DB2 subsystem:** DHY1 (9.1)  **Current status:** NORMAL
- **DB2 subsystem:** DHY2 (9.1)  **Current status:** *ALERT*
2 Click on the value for **Current status**.

**Figure 20: Advisor Selection List panel**

---

**Advisor Selection List**

The current storage management mode is BALANCE.

Action items are recommended to the System Advisor by the individual component advisors. Click on the "Action List" hyperlink to view a list of recommended actions. The hyperlink flags are color coded to reflect the highest priority among the pending actions currently on the list: green = low, yellow = medium, red = high, blue = all actions executed.

### Action List

Click here to change rule settings.

The current status of individual component advisors for the selected DB2 subsystem is shown below. Click on the value for "Current status" to display the expert advice for a specific component.

- **Advisor: BUFFER POOL**  Current status: WARNING
- **Advisor: DYNA STMT CACHE**  Current status: NORMAL
- **Advisor: EDM POOL**  Current status: NORMAL
- **Advisor: RID POOL**  Current status: WARNING
- **Advisor: SORT POOL**  Current status: NORMAL
- **Advisor: VIRTUAL STORAGE**  Current status: NORMAL
- **Advisor: GROUP BUFFER POOL**  Current status: ALERT
- **Advisor: THREAD ENVIRONMENT**  Current status: NORMAL
- **Advisor: DDF ENVIRONMENT**  Current status: NORMAL
- **Advisor: LOG ENVIRONMENT**  Current status: NORMAL
- **Advisor: MAXIMUM DATA SETS**  Current status: NORMAL
The Advisor Rules and Attributes panel lists all rules with their current settings (including rules that are specific to BMC System Performance). The first time this panel is displayed, the execution mode for all rules will be manual and none will be ignored (the default settings).

The following information is displayed at the top of the panel:

- Subsystem ID of the DB2 subsystem to which the rules apply
- Number of rules that apply to that DB2
- Last product version in which changes or additions to the rule set were made

The following information is listed for each rule:

- Rule ID
- Advisor to which the rule applies
- Last product version in which changes or additions to the rule were made
- Execution mode (Y = auto, N = manual)
- Ignore status (Y = rule is ignored, N = rule is not ignored)
- Acknowledgement status (Y = rule has been acknowledged, N = rule has not been acknowledged, P = acknowledgement pending)
- Description of the condition that triggers the rule

You can change the execution mode or ignore the status of an individual rule by clicking on the **Aut** or **Ign** value for that rule. These values toggle between **Y** and **N** each time you click on them.

You can change the status of all rules simultaneously in the following ways:

- Click **AUTOMATIC** to change the execution mode of all rules to Automatic. In Automatic mode, the commands associated with the rules are executed whenever a recommendation is triggered. No intervention is necessary.

- Click **MANUAL** to change the execution mode of all rules to Manual. In Manual mode, no commands are executed automatically. You must execute the command from the Pending Action List (see Pending Action List on page 53) when a warning or alert is issued.

- Click **IGNORE** if you want to ignore all rules. No warnings or alerts are displayed and no actions is taken.

- Click **REINSTATE** to reinstate all ignored rules. Warnings and alerts are displayed in the normal manner.
BMC System Performance *for DB2* reports

This section describes the BMC System Performance *for DB2* reports.

**BMC System Performance report set**

BMC System Performance *for DB2* includes a set of reports that monitor all aspects of DB2 from one central report.

You can quickly hyperlink from that report to reports about specific data if an anomalous value is highlighted.

The BMC System Performance report set combines the reporting abilities of the MainView *for DB2* and Pool Advisor components with a supplemental set of comprehensive reports on all aspects of DB2.

The primary report displays key values in real time about each active DB2 subsystem in the sysplex, plus an overall status. From the primary report you can branch out to other reports, gathering data from all BMC System Performance components.

Reporting in BMC System Performance is function oriented. You don’t need to know the names of reports. You only need to know the type of information that you want to examine. Hyperlinks are provided on values in reports. A hyperlink takes you to another report with more information related to the value that you selected.

The color of the values on reports alerts you to any potential problems. A yellow value indicates a potential problem that needs investigation. A red value indicates a serious problem that requires immediate attention.

*Note*

The Pool Advisor reports and the supplemental report set are described in this book. MainView *for DB2* reports are described in the *MainView for DB2 User Guide*.
Pool Advisor report set

Pool Advisor comes with a compact, but comprehensive, set of reports that lets you monitor all storage resources from one central report. You can quickly hyperlink from that report to reports about specific storage pools if an anomalous value is highlighted.

The Pool Advisor report set consists of one primary report and one or more history reports for each of the following storage resources:

- Overall status monitor
- Total DBM1 virtual storage
- Buffer pools
- Dynamic statement cache
- EDM pool
- RID pool
- Sort pool
- Group buffer pool

The primary reports display key values about storage use in real time for the corresponding topic. Some history reports display similar data from previous intervals and others display a daily history.

There are also reports to examine all page sets in a selected buffer pool and all objects in a selected page set.

An additional report lists all of the commands issued on behalf of advisor recommendations, including details about the recommendation, the rule that triggered it, and the command response.

The color of the values on reports alerts you to any potential problems. A yellow value indicates a potential problem that needs investigation. A red value indicates a serious problem that requires immediate attention.
Figure 22 on page 63 shows the Pool Advisor report set, including all history reports.

**Figure 22: Pool Advisor report set**

---

**Supplemental report set**

The following diagram illustrates the entire BMC System Performance report set.
The common BMC System Performance and Pool Advisor reports are shown in white. MainView for DB2 views are shown in black, and OPERTUNE links are shown in black italic.

**Figure 23: BMC System Performance report set**

Hyperlinks

Navigation through Pool Advisor reports and advisors resembles navigation in a Web browser.

Text and values that are hyperlinks are underscored (see underscored fields in DB2 Pools Status Monitor report in DB2 Pools Status Monitor on page 75). If your mouse button can be programmed to the function of the Enter key, you can navigate
by clicking on hyperlinks. Otherwise, you need only move the cursor to a hyperlink and press **Enter**.

**Action codes**

Action codes are also used to navigate from reports to other reports and advisors.

Action codes are listed in the report header (see highlighted portion of DB2 Pools Status Monitor report in *DB2 Pools Status Monitor on page 75*). To use an action code, type the code over the plus sign (+) on the left margin of the report, and press **Enter**. The following action codes are common to all primary reports:

- **A**--takes you to the expert advice for problem analysis
- **H**--takes you to a historical report displaying recent intervals

*Figure 24 on page 65* illustrates navigation through the Pool Advisor report set by using hyperlinks (field names) and action codes (in circles).

**Figure 24: Navigating the Pool Advisor reports**

BMC System Performance data is collected every minute and accumulates over a 15-minute interval. At the end of 15 minutes, the data for the first five minutes is dropped and the new interval contains data from the previous 10 minutes. Data is added each minute for the next five minutes until the interval again represents data for a 15-minute period. Then the data for the oldest five minutes is dropped again.
The first interval begins when the Data Collector is started or when a DB2 subsystem is subsequently started. The cycle continues to repeat until the DB2 subsystem is cycled or the Data Collector is stopped.

**Figure 25: BMC System Performance intervals**

These interval rules apply to the common BMC System Performance reports and the Pool Advisor reports. MainView for DB2 views use a 15-minute interval, synchronized to the hour.

**Viewing BMC System Performance reports**

The BMC System Performance session begins at the BMC System Performance for DB2 main menu.

From the menu, select option D (System Performance) to display the Sysplex DB2 Monitor report.

For an example of the BMC System Performance for DB2 main menu, see Figure 6 on page 38.

**Sysplex DB2 Monitor**

The Sysplex DB2 Monitor report is the starting point for reporting.
A row of data is displayed for each active DB2 in the sysplex. By displaying this report, you can tell immediately if problems exist anywhere across all DB2 subsystems.

The color of the value alerts you to any potential problems. A yellow value indicates a problem that needs attention. A red value indicates a serious problem that requires immediate attention.

Values that are underscored represent hyperlinks and hyperexpands.

A hyperlink zooms to another report, an advisor, or a BMC System Performance component. A hyperexpand causes additional information about a topic to be displayed in the report.

Hyperlinks on the Actions line take you directly to the corresponding BMC System Performance component:

- **MainView** links to the DB2 SSI Easy Menu
- **OPERTUNE** links to the OPERTUNE Main Selection Menu
- **Pool Advisor** links to the DB2 Pools Status Monitor report

If you use the action code that is associated with a component against a specific DB2 subsystem, you will go to the corresponding component in the context of the selected DB2 subsystem:

- **M** links to the DB2 SSI Easy Menu for the selected DB2 subsystem
- **O** links to the OPERTUNE Main Selection Menu for the selected DB2 subsystem
- **P** links to the DB2 Pools Status Monitor report for the selected DB2 subsystem

Hyperlinks on the following fields take you to the specified report:
<table>
<thead>
<tr>
<th>Field</th>
<th>Hyperlinks to</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 System Summary report</td>
</tr>
<tr>
<td>DB2 CPU%</td>
<td>DB2 Address Spaces Statistics report</td>
</tr>
<tr>
<td>DBM1 Strg</td>
<td>Virtual Storage Status Monitor report</td>
</tr>
</tbody>
</table>

An overall rating is displayed for the following data categories for each DB2 subsystem:

- Thread
- Storage
- Logging
- Distributed
- Other

You can expand each of these data categories to display key values and to provide access to other reports and advisors. Move the cursor to the value for a Component Status, and press Enter.
Figure 27 on page 69 is an example of the Sysplex DB2 Monitor report with all areas expanded for one DB2 subsystem.

**Figure 27: Expanded Sysplex DB2 Monitor (SPDMAIN)**

SPDQRPnP/ System Performance for DB2

--- Commands: ---

--- Scroll ---

--- Actions: ---

--- DB2 - DBM1 DBM1 GetPg Curr ---

--- Component Status ---

<p>| | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>+ DEAP 9.1 N/A SYSP</td>
<td>0</td>
<td>68M</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>GOOD</td>
<td>GOOD</td>
<td>GOOD</td>
</tr>
<tr>
<td>+ DEAP 8.1 N/A SYSP</td>
<td>0</td>
<td>69M</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>GOOD</td>
<td>GOOD</td>
<td>GOOD</td>
</tr>
</tbody>
</table>

--- Current Thread Activity Summary ---

Lock Wait : 0  Rollback : 0  Swapped : 0  Remote : 0
I/O Wait : 0  In Doubt : 0  Queued : 0

--- Storage Summary ---

Buffer pool efficiency : 100  Dyn stmt cache efficiency : 100
EDM pool efficiency : 100  RID pool efficiency : 100
Sort pool efficiency : 100  Grp buffer pool efficiency : N/A

--- Log Activity ---

Average DB2 Chkpt freq : 4.09  Log write requests : 297
Time since last chkpt : 130.98  Waits for output buffers : 0
Current chkpt freq (est) : 288.00

--- Distributed Access Activity ---

Max active remote threads : 0  Connect resynchs attempted : 0
Max active remote connections : 0  Connect resynch successes : 0
Remote thread requests queued due to the max DBAT limit : 0
Conversations deallocated due to the remote connection limit : 0

--- Other Statistics ---

Current open datasets count : 55  Deadlocks : 0
Max concurrently open datasets : 55  Deadlock wait time : 0
Max unused DS on Def Close Queue : 46  Lock timeouts : 0
Limit for open datasets : 3000  Lock timeout wait time : 60
Datasets closed due to limit : 0  Lock escalations : 0
Datasets reused from the DCQ : 27  Lock conflict suspends : 0

You can hyperlink on any underscored value. Hyperlink on ADVICE to see the corresponding expert advice. Hyperlink on DETAIL to display an in-depth report that is associated with the data category.

Use the Z action code to zoom to the MainView for DB2 EZDZPARM view, which lists values for the DB2 installation parameters that are in effect for the selected DB2 subsystem.

Use the S action code to zoom to the DB2 Subsystem Analysis report. The DB2 Subsystem Analysis report is a gateway to detailed DB2 information from all BMC System Performance components. You do not need to know which component to use.
to get the data you want. Just choose the topic and the appropriate report or view is displayed.

**DB2 Subsystem Analysis report**

The DB2 Subsystem Analysis report provides access to DB2 performance data across all components of BMC System Performance.

**Figure 28: DB2 Subsystem Analysis report (SPDACT2)**

<table>
<thead>
<tr>
<th>Hyperlink</th>
<th>Navigates to</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Threads</td>
<td>THDACTV view—detailed information about all active threads on the selected DB2 subsystem</td>
<td>MainView</td>
</tr>
</tbody>
</table>

Each topic on this report is a hyperlink to a report or view containing DB2 data or to an OPERTUNE function.

**Table 2 on page 70** lists the hyperlinks on the DB2 Subsystem Analysis report and the report or function to which they navigate.
<table>
<thead>
<tr>
<th>Hyperlink</th>
<th>Navigates to</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Summary</td>
<td>THDPLANZ view-- a summary of current thread activity by plan name Use this view to see an overview of current activity by application. In SSI mode, the total workload is shown in the defined context. This information can be especially valuable in a data sharing environment.</td>
<td>MainView</td>
</tr>
<tr>
<td>Lock Summary</td>
<td>SPDLOCK (Lock Summary by Thread) report-- a summary of the locks held for currently executing threads You can select a thread and zoom to the Current Locking Activity by Thread (SPDLOCKD) report to see detailed information.</td>
<td>BMC System Performance</td>
</tr>
<tr>
<td>Thread History</td>
<td>HTLOGS view-- information about all available sources of thread accounting history This data includes each trace log data set (TLDS), as well as data from the MainView for DB2 - Data Collector active logs, selected by date. Use this view to review the sources of thread history data and select one for workload summary analysis by hour, interval, or connection type, or drill down to detail thread accounting data.</td>
<td>MainView</td>
</tr>
<tr>
<td>Cancel Threads</td>
<td>Thread/Connection List-- to dynamically cancel threads or connections</td>
<td>OPERTUNE</td>
</tr>
<tr>
<td>Logs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Log Information</td>
<td>STLOG view-- logging statistics in the current interval Use this view to analyze activity on the active and archive logs and the BSDS. Problems such as unavailable buffers for logging, or reads from archive logs for backouts can be detected.</td>
<td>MainView</td>
</tr>
<tr>
<td>Hyperlink</td>
<td>Navigates to</td>
<td>Component</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Active Log Manipulation</td>
<td>Add/Remove Active Logs--to add, remove, or create active logs dynamically in an active DB2 subsystem Log maintenance is accomplished by removing the data sets, repairing the data sets offline, and adding the data sets back.</td>
<td>OPERTUNE</td>
</tr>
<tr>
<td>Archive Log BSDS Entries</td>
<td>Archive Log BSDS Entry List--to list all archive log data sets registered in the BSDS data set From this panel, you can select a log to edit the unit name, volume serial number, and the cataloged status of the log.</td>
<td>OPERTUNE</td>
</tr>
<tr>
<td>Archive Log Allocations</td>
<td>DARCWA view--plots the number of archive logs allocated as a result of an active log data set being archived during the interval</td>
<td>MainView</td>
</tr>
<tr>
<td>Archive Log Definitions</td>
<td>ZPARCDFD view-- the installation parameter settings for archive log read parameters and archive log definitions</td>
<td>MainView</td>
</tr>
</tbody>
</table>

### Data Sharing

<table>
<thead>
<tr>
<th>Hyperlink</th>
<th>Navigates to</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Buffer Pool Status</td>
<td>GBPGSTZ view-- statistics about the status of the group buffer pools Use this view to analyze the status of all active group buffer pools from a global coupling facility viewpoint. It also shows how many DB2 members are currently connected to each pool.</td>
<td>MainView</td>
</tr>
<tr>
<td>Group Buffer Pool Activity</td>
<td>GBPGACZ view-- statistics about group buffer pool activity Use this view to analyze the activity in all group buffer pools from a global coupling facility viewpoint.</td>
<td>MainView</td>
</tr>
<tr>
<td>Hyperlink</td>
<td>Navigates to</td>
<td>Component</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Group Buffer Pool Parameters</td>
<td>Group Buffer Pool List-- to perform I/O balancing among the DB2 subsystems in a data sharing group by changing the castout owner of a data set. The castout operations provide a way for you to force DB2 to write data to disk so that external applications can read the data sets directly. You can change the castout owner of a data set, cast out a group buffer pool, cast out a table space, and cast out a data set.</td>
<td>OPERTUNE</td>
</tr>
<tr>
<td>Global Locks</td>
<td>STGBLLK view-- statistics about global locking activity and global contention during the current interval. You can use this view to analyze global locking activity and the level of global contention.</td>
<td>MainView</td>
</tr>
<tr>
<td>Global Lockouts</td>
<td>LKEVSSI view-- lists lockout events within a data sharing group.</td>
<td>MainView</td>
</tr>
<tr>
<td>D BM1 Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual Storage</td>
<td>PMDSTRG1 (Virtual Storage Status Monitor) report-- information about virtual storage constraint in the selected DB2.</td>
<td>Pool Advisor</td>
</tr>
<tr>
<td>EDM Pool</td>
<td>STEDMP view-- statistics about the EDM pool during the current interval. Use this view to analyze EDM pool use and performance.</td>
<td>MainView</td>
</tr>
<tr>
<td>Buffer Pools</td>
<td>STBFRLPL view-- statistics about all of the buffer pools defined to the selected DB2.</td>
<td>MainView</td>
</tr>
<tr>
<td>Buffer Pool Analysis</td>
<td>PMDBPM1 or PMDBPM2 (Buffer Pools Status Monitor) report-- detailed statistics of buffer pool activity for the selected subsystem. From this report, you can access details of all page sets in the buffer pools.</td>
<td>Pool Advisor</td>
</tr>
</tbody>
</table>

**Page Sets & I/O**
<table>
<thead>
<tr>
<th>Hyperlink</th>
<th>Navigates to</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page Set Menu</td>
<td>DB2 Page Set Menu-- access to numerous views associated with page sets</td>
<td>MainView</td>
</tr>
</tbody>
</table>
| Table Spaces in Use       | In Use Table Space List-- list of table spaces being accessed or used on the target DB2 system. From the list, you can perform the following actions:  
  ■ cancel all users currently accessing a table space  
  ■ stop a table space  
  ■ obtain a list of the current users of a table space  
  ■ obtain a list of table space partitions that are in use | OPERTUNE    |
| Volume I/O Summary        | PSVOLSZ view-- summary of I/O activity by volume and DB2  
  Use this view to analyze workload and I/O response time. | MainView    |
| Volume I/O                | PSVOLSSI view-- summary of I/O activity by volume across multiple DB2 targets in SSI mode  
  This data is especially valuable for a data sharing group to analyze total I/O. | MainView    |
| **Miscellaneous**         |                                                                             |             |
| DB2 Status Overview       | THDDDB2Z view-- summary of current thread activity for the selected DB2     | MainView    |
| View Exceptions           | STEXC view-- overview of exception conditions  
  Use this view to see the types of exceptions that are outstanding in more detail. Hyperlinks lead to more detail for each kind of exception. | MainView    |
<p>| Initiate Checkpoint       | Command Confirmation-- offers a choice to issue the CHKPT command, cancel the command or create a batch job stream | OPERTUNE    |</p>
<table>
<thead>
<tr>
<th>Hyperlink</th>
<th>Navigates to</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locking Information</td>
<td>STLOCK view-- summary of statistics about locks and lock contention during the current interval</td>
<td>MainView</td>
</tr>
<tr>
<td>DDF Parameters</td>
<td>ZPDDFD view-- the installation parameter settings for</td>
<td>MainView</td>
</tr>
<tr>
<td></td>
<td>■ DDF--Distributed Data Facility Definitions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ DBAT Thread Controls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ DDF-Related Authorization</td>
<td></td>
</tr>
<tr>
<td>ZPARM Information</td>
<td>DB2 ZPARM Menu-- access to multiple ZPARM-related views</td>
<td>MainView</td>
</tr>
<tr>
<td>ZPARM Manipulation</td>
<td>Element Selection-- to build and execute an element command.</td>
<td>OPERTUNE</td>
</tr>
<tr>
<td></td>
<td>Each element on the Element Selection panel corresponds to one or more changeable items in a DB2 subsystem.</td>
<td></td>
</tr>
</tbody>
</table>

**Viewing Pool Advisor reports**

You can access and view Pool Advisor reports.

**To view Pool Advisor reports**

1. On the Actions line of the Sysplex DB2 Monitor report, click the link **Pool Advisor**.

**DB2 Pools Status Monitor**

The DB2 Pools Status Monitor report is the starting point for Pool Advisor reporting.
A row of data is displayed for each active DB2 in the sysplex. By displaying this report, you can tell immediately if problems exist in any storage resource across all DB2s.

An overall Health rating is displayed for each DB2 and an efficiency rating is displayed for each type of storage pool in each DB2. The color of the value alerts you to any potential problems. A yellow value, or the word Fair, indicates a problem that needs attention. A red value, or the word Poor, indicates a serious problem that requires immediate attention.

Use the C action code if you want the Configuration Advisor to analyze the current configuration of your buffer pools, identify incompatibilities, and recommend changes that will make your buffer pools operate more efficiently.

Use the L action code if you want to display a list of commands that have been issued to DB2 as a result of recommendations from the system advisor. For more information, see Command Log on page 91.

The DB2 Pools Status Monitor report is the gateway (via hyperlinks) to all other Pool Advisor reports.

<table>
<thead>
<tr>
<th>Field</th>
<th>Hyperlinks to</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>Expert Advice for the DB2 Pools Status Monitor report</td>
</tr>
<tr>
<td>Region</td>
<td>Virtual Storage Status Monitor report</td>
</tr>
<tr>
<td>BP Efficiency</td>
<td>Buffer Pools Status Monitor report</td>
</tr>
<tr>
<td>DSC Efficiency</td>
<td>Dynamic Statement Cache report</td>
</tr>
<tr>
<td>EDM Efficiency</td>
<td>EDM Pool Status Monitor report</td>
</tr>
<tr>
<td>RID Efficiency</td>
<td>RID Pool Status Monitor report</td>
</tr>
</tbody>
</table>
Virtual Storage Status Monitor

The Virtual Storage Status Monitor reports provide information about virtual storage constraint in DB2.

With the introduction of 64-bit address spaces in current DB2 versions, virtual storage constraint has become less likely. Since all virtual buffer pools are allocated in storage above the 2-GB bar in current DB2 versions, the system advisor needs to pay special attention to the overall system and DBM1 address space paging rates and evaluate the effect of an increase in the size of the buffer pools on the operating system’s paging subsystem and, to a lesser extent, storage resources.
**Figure 30 on page 78** is an example of the Virtual Storage Status Monitor report.

**Figure 30: Virtual Storage Status Monitor report (PMDSTRG1)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PMDEQRPN/I</td>
<td></td>
<td></td>
<td>+</td>
<td>DB2: DHY2 9.1</td>
<td>Start time: 2008-06-17-12.20.06</td>
<td>Status: ACTIVE</td>
<td>Current data interval start: 2008-06-19-14.25.01 Duration: 00:14:48</td>
</tr>
</tbody>
</table>

**DBM1 virtual storage allocation summary**

<table>
<thead>
<tr>
<th>Pages/sec to MVS page data sets</th>
<th>35</th>
<th>Pages/sec steal rate</th>
<th>34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum virtual storage below 2GB</td>
<td>1651.98 MB (system limit)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total allocated below 2GB</td>
<td>135.53 MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserved for MVS functions</td>
<td>0.04 MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserved for critical work</td>
<td>25.06 MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional reserved</td>
<td>25.06 MB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Virt storage available below 2GB | 1466.29 MB |
| Warning cushion for strg contract | 82.30 MB |

**Virtual storage allocation details: (ABOVE 2GB)**

| Total virtual storage allocated | 5441.00 MB |
| Combined buffer pools           | 279.37 MB  |
| Dynamic statement cache         | 9.77 MB    |
| DBD pool                        | 4.88 MB    |
| RID pool (RID lists)            | 0.14 MB    |
| Compression dictionaries        | 0.00 MB    |
| Internal trace table            | 0.00 MB    |
| Castout buffers                 | 0.88 MB    |
| Virtual pool control blocks     | 8.13 MB    |

| Total attributed storage        | 292.74 MB  |

**Virtual storage allocation details: (BELOW 2GB)**

| Total virtual storage allocated | 135.53 MB  |
| EDM pool                        | 4.88 MB    |
| RID pool (RID maps)             | 0.05 MB    |
| RDS operations storage          | 0.00 MB    |
| Total agent local               | 39.27 MB   |
| Total agent system              | 15.54 MB   |
| Local statement cache cntl blks | 0.99 MB    |
| Local thread statement cache    | 1.32 MB    |
| Pipe manager                    | 0.00 MB    |
| Total stack                     | 11.89 MB   |
| Storage allocated by MVS        | 11.66 MB   |

| Total attributed storage        | 85.60 MB   |

| Unattributed storage            | 49.93 MB   |
Buffer Pool reports

Pool Advisor provides the following reports to display buffer pool data:

- Buffer Pools Status Monitor on page 79
- Buffer Pool Page Sets reports on page 80
- Buffer Pool Page Set Objects report on page 81

**Buffer Pools Status Monitor**

The Buffer Pools Status Monitor report, shown below, presents a concise assessment of buffer pool performance for the selected DB2 subsystem.

In one row of statistics per pool, you can quickly see most of the relevant data that indicates if performance is good, bad, or somewhere in between.

Figure 31: Buffer Pools Status Monitor report (PMDBPM2)

Use the S action code to expand the Buffer Pools Status Monitor report to include additional statistics for each buffer pool.

Figure 32 on page 79 is an example of an expanded report.

Figure 32: Expanded Buffer Pools Status Monitor report
The expanded area presents data in an easier-to-read format. Some of the statistics are the same as those in the main part of the report. The data in the expanded area is grouped by related functions.

From the Buffer Pools Status Monitor report, you can select a buffer pool and hyperlink to one of the Buffer Pools Page Sets reports. See Buffer Pool Page Sets reports on page 80.

**Buffer Pool Page Sets reports**

The Buffer Pool Active Page Sets report, shown below, provides detailed statistics about the active page sets in the selected buffer pool.

**Figure 33: Buffer Pool Active Page Sets report (PMDBPPS)**

The Figure 34 on page 80 provides detailed statistics about all page sets in the selected buffer pool.

**Figure 34: Buffer Pool All Page Sets report (PMDBPPSA)**
The buffer pool performance profile values are displayed above the characteristics for each page set so you can compare the values and easily identify the page sets that should be moved to a buffer pool with more compatible characteristics.

From the Buffer Pool Page Sets reports, you can select a page set and hyperlink to the Buffer Pool Page Set Objects report. See Buffer Pool Page Set Objects report on page 81.

**Buffer Pool Page Set Objects report**

The Buffer Pool Page Set Objects report, shown below, provides detailed statistics about all of the objects in the selected page set.

![Figure 35: Buffer Pool Page Set Objects report (PMDBPOBJ)](image)

**Displaying long names**

If an object name is longer than the space provided on the report, the last two character spaces will contain the greater-than symbol (>).

See the example in Buffer Pool Page Set Objects report on page 81.

![Figure 36: Long name display](image)

**To display long names**

1. Move the cursor to the truncated value and press F6.
   
   The long name is displayed, as in Figure 36 on page 81.

2. Press F3 (End) to return to the report.
Refreshing object names

When the Data Collector is initialized, the names of all tables and indexes are retrieved from the DB2 catalog.

If the Data Collector has been active for a long time and new objects have been created since Data Collector initialization, Pool Advisor will report the new objects, but will not be able to determine their names. When an object name cannot be resolved, a question mark (?) is displayed in the **Object name** field on object reports.

You can use an option on the Pool Advisor Configuration Menu to issue a command that will refresh the names of all objects that have been created since Data Collector startup.

**To refresh object names**

1. Click the **CONFIG** button on any Pool Advisor report to display the Configuration Menu.

   **Figure 37: Configuration Menu**

   PMDECNFG/I  Configuration Menu  14:02:52
   Command ===> ________________________________________________________________

   Select one of the following options. Then press Enter.

   _ 1. View and edit product variables
   2. Refresh object names from DB2 catalog
   3. Reset initialization parameters to default values

2. Select option 2.

   **Figure 38: Data Collector Command Interface panel**

   DOMECMP1/P  Data Collector Command Interface  LINE 1 OF 10
   Command ===>                                                 Scroll ===> CSR_

   Substitute the appropriate values for any variables (enclosed by <> symbols) in the command text below. Press Enter with no updates to issue the command.

   **NOTE:** Commands submitted through this interface are only executed on the local MVS system. Commands intended for remote DB2 subsystems must be submitted on the remote MVS system.

   A Command text (Line editing action codes:  I Insert   D Delete   R Repeat)
   - OBSCAN <DB2ID>
The OBSCAN command is displayed in the **Command text** field. Substitute the subsystem ID of the DB2 subsystem for which objects are to be refreshed for `<DB2ID>` in the command text (OBSCAN DB2A, for example).

3 Press **Enter** twice. The command is issued and the Command Interface output panel is displayed with a message indicating the outcome of the command.

**Figure 39: Command Interface output panel**

```
DOMECMD/O I Command Interface
Command ===> ___________________________ Scroll ===> CSR_
BMC24237 Press Enter to reissue the last command
BMC23511 PMQ Object ID scan for DB2 DHY2 completed. RC=00
```

4 Exit back to the **Figure 37 on page 82**.

**Note**

Issuing the OBSCAN command incurs some overhead. Use caution if there are large numbers of tables and indexes associated with a DB2 subsystem. The overhead increases as the number of objects in the catalog increases.

---

**Dynamic Statement Cache**

The Dynamic Statement Cache report, shown below, provides statistics about using the dynamic SQL statement PREPARE cache on the selected DB2 subsystem.
Pool Advisor measures CPU usage and elapsed time used for each SQL statement PREPARE and shows you how many statements were misses but could have been hits if the pool had been larger. This allows you to determine if you can improve performance by increasing the size of the buffer.

The Dynamic Statement Cache report also shows you the cost, savings, and potential savings involved with dynamic statement caching.

**EDM Pool Status Monitor**

The EDM Pool Status Monitor report provides a summary of EDM pool activity for the selected DB2 subsystem.

The goal of Pool Advisor is to make the EDM pool big enough to contain all frequently used objects in addition to the largest infrequently referenced objects without the need for I/O.

If the EDM pool is sized correctly, there should be:

- Fewer SQL statement failures
- More concurrently active threads
- Better overall system performance
- Fewer wasted resources due to over allocation
- Fewer unnecessary delays resulting from physical I/Os to load objects from disk

Pool Advisor accomplishes this by constantly monitoring use of the EDM pool and making recommendations for size changes when increases in activity necessitate, thereby keeping the pool operating at optimum levels. If the OPERTUNE for DB2 is also installed, you can increase the size of the EDM pool dynamically.

**Figure 41: EDM Pool Status Monitor report (PMDEDMP1)**

```
PMDEQRPN/I  Pool Advisor Report Viewer  LINE 1 OF 21
Command ===> ___________________________ Scroll ===> CSR_
BMCSftwr.PMDEDMP1 -- EDM POOL STATUS MONITOR -- 06/19 15:09:58
--- < HELP >---------------------------< *ALERT* >----------------------< CONFIG >---
Actions: (+) A - ADVICE H - History

DB2: DHY2 9.1  Interval start: 2008-06-19-14.55.01  Duration: 00:14:57
+ EDM Pool storage ATB (pages): 2502

<table>
<thead>
<tr>
<th>Pool Name</th>
<th>Efficiency</th>
<th>Size(pages)</th>
<th>Full Failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDM</td>
<td>100%</td>
<td>1250</td>
<td>0</td>
</tr>
<tr>
<td>DBD</td>
<td>99%</td>
<td>1250</td>
<td>0</td>
</tr>
<tr>
<td>SKELETON</td>
<td>100%</td>
<td>1280</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structure Type</th>
<th>Pages Allocated</th>
<th>Requests</th>
<th>Loads</th>
<th>Hit Ratio</th>
<th>Rqmts Per Min</th>
<th>Loads Per Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBD</td>
<td>374</td>
<td>88821</td>
<td>1005</td>
<td>99%</td>
<td>5940</td>
<td>67</td>
</tr>
<tr>
<td>CT</td>
<td>14</td>
<td>93</td>
<td>0</td>
<td>100%</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>PT</td>
<td>15</td>
<td>14187</td>
<td>0</td>
<td>100%</td>
<td>949</td>
<td>0</td>
</tr>
<tr>
<td>SKCT</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SKPT</td>
<td>134</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**RID Pool Status Monitor**

The RID Pool Status Monitor report, shown below, provides detailed statistics of RID pool activity for the selected DB2 subsystem.

**Figure 42: RID Pool Status Monitor report (PMDRIDP1)**

```
PMDEQRPN/I  Pool Advisor Report Viewer  LINE 1 OF 11
Command ===> ___________________________ Scroll ===> CSR_
BMCSftwr.PMRIDP1 -- RID POOL STATUS MONITOR -- 06/19 15:14:24
--- < HELP >---------------------------< *ALERT* >----------------------< CONFIG >---
Actions: (+) A - ADVICE H - History

DB2: DHY2 9.1  Interval start: 2008-06-19-15.00.01  Duration: 00:14:00

<table>
<thead>
<tr>
<th>RID Pool Size (Blks)</th>
<th>RID Pool HWM (Blks)</th>
<th>Use Count</th>
<th>Fail Count</th>
<th>Aborts - No Storage</th>
<th>Aborts - Int. Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>95</td>
<td>12</td>
<td>12</td>
<td>35</td>
</tr>
</tbody>
</table>
```

Chapter 4  BMC System Performance for DB2 reports  85
Sort Pool Status Monitor

The Sort Pool Status Monitor report, displayed below, provides statistics of sort pool activity for the selected DB2 subsystem.

**Figure 43: Sort Pool Status Monitor report (PMDSRTP1)**

<table>
<thead>
<tr>
<th><strong>PMDEQRPN/I</strong></th>
<th><strong>Pool Advisor Report Viewer</strong></th>
<th><strong>LINE 1 OF 21</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Command======&gt;____________________________________________<em>Scroll=====&gt;CSR</em></strong></td>
<td><strong>PMDEQRPN/I</strong></td>
<td><strong>Pool Advisor Report Viewer</strong></td>
</tr>
<tr>
<td><strong>More: +</strong></td>
<td><strong>BMCSftwr.PMDSRTP1</strong></td>
<td><strong>SORT POOL STATUS MONITOR</strong></td>
</tr>
<tr>
<td><strong>---&lt; HELP &gt;----------------&lt; <em>ALERT</em> &gt;----------------------&lt; CONFIG &gt;---</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Actions: ( + ) A - ADVICE H - History</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DB2: DHY2 9.1 Interval start: 2008-06-19-15.05.01 Duration: 00:13:54</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>+ Sort pool merge/pass efficiency</strong></td>
<td><strong>94%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sort work file database name</strong></td>
<td><strong>DHY2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum sort pool size (per thread)</strong></td>
<td><strong>260 K</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Number of sort merge passes</strong></td>
<td><strong>6</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Number of workfiles requested for merge passes</strong></td>
<td><strong>32</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Average number of workfiles requested per merge pass</strong></td>
<td><strong>5</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Number of inefficient sort merge passes</strong></td>
<td><strong>0</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Number of workfiles denied for merge passes</strong></td>
<td><strong>0</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Average number of workfiles denied per merge pass</strong></td>
<td><strong>N/P</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum number of workfiles concurrently allocated</strong></td>
<td><strong>115</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Number of times the work buffer pool did not have enough buffers to support the allocated workfiles at runtime</strong></td>
<td><strong>0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Because there is no way to determine the number of successful sorts performed by DB2 from DB2 statistics, sort performance is primarily restricted to analysis of sorts that spill over to work-file processing. The sort pool size is a limit of the amount of private DBM1 storage that each thread can allocate to perform an internal quick sort. These are the most efficient sorts, and it is preferable that the majority of minor query sorting be performed in this manner. Unfortunately, it is difficult to determine the ideal size. A very large limit can threaten DBM1 stability, because a sudden spike in concurrent large sort requests could cause a virtual storage shortage and a subsequent crash. The only way to approximate sort pool performance without running performance traces is to monitor the number of sorts that are overflowing to work file merge-pass processing. If an increase in the size of the sort pool significantly decreases the number of merge-pass runs, the increase is worthwhile. But you need to consider the impact of the potential maximum concurrent requests, and keep the size of the sort pool small enough to contain it.

Although sorts that execute within the sort pool are the most efficient, large sorts that spill over to work files can be very efficient if the work buffer pool is large enough to support the number of work files requested without significant I/O. Because work file processing is highly sequential, DB2 calculates the number of work files allowed by dividing the number of prefetch pages (pool size multiplied by the sequential steal threshold) by 16. As work files are used by concurrent processes, DB2 reduces the number that are available by subtracting double the number that are used (in an effort to prevent sort failures due to insufficient buffers).

The primary tuning opportunity for large spillover sorts is to define the work buffer pool with a high (100%) sequential steal limit and enough pages to handle the
maximum concurrent work file demand without significant I/O. Similarly, you can set the write thresholds very high in an attempt to avoid ever writing data to DASD. However, if you have sorts that are so large that they cannot be contained in the work buffer pool, it is better to set the write thresholds low enough to optimize write engine efficiency with a steady flow of write I/O operations. Clearly, the data on this report must be interpreted in conjunction with the associated work buffer pool.

**Group Buffer Pool Status Monitor**

The Group Buffer Pool Status Monitor report, shown below, provides a high-level overview of the status of the group buffer pools associated with the selected DB2 subsystem.

**Figure 44: Group Buffer Pool Status report (PMDGBPS)**

```
PMDEORPN/I             Pool Advisor Report Viewer   LINE 1 OF 4
Command =========== Scroll ========= CSR_
BMCSftwr.PMDGBPS -- GROUP BUFFER POOL STATUS -- 06/19 15:42:22
---< HELP >----------------< *ALERT* >----------------------< CONFIG >---
Actions: (+) A - ADVICE  S - Global GBP Statistics  H - History
(+) P - Page Sets with IDRW
Data Sharing Group: DSNDHY    Interval Start:  15:31:01
Member Name : DHY1            Duration :  00:11:22
GBP ID  Eff   sets /Sec  /Sec  /Sec  /Sec   Rclm/Sec TRdHR XRdHR Rd/Wrt C/O
------- ---- ----- ----- ----- ----- ------ -------- ----- ----- ------ ----
+   GP0  46%   248     0     0     0      0       72    52    80   3.91    0
+   GP25 26%  4794     0     0     0      0        1    17    30   0.08    1
+   GP49  1%   288     1     1     6      0        9     0     0   0.00  101
+   GP8K0 100%    12     0     0     0      0        0 100   100   0.00    0
```

Data sharing can greatly enhance the performance, flexibility, and availability of any high volume data management and processing system. However, whenever data is shared, data integrity is extremely important and must be assured at all times. DB2 uses group buffer pools and special locking mechanisms to ensure data integrity when data is shared by different DB2 subsystems.

The Group Buffer Pool Status Monitor report provides information about the operational status and configuration of the DB2 group buffer pools being used and shared by different members of a data sharing group in a parallel sysplex environment.
Use the S action code to display the Group Buffer Pool Details report (see Figure 45 on page 88), which shows statistics associated with the group buffer pool.

**Figure 45: Group Buffer Pool Details report (PMDGBPT)**

<table>
<thead>
<tr>
<th>DS GROUP: DSNDHY</th>
<th>INTERVAL BEGIN: 15:31:01</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBPOOL : GBP25</td>
<td>DURATION : 00:11:52</td>
</tr>
<tr>
<td>GBPOOL SIZE: 512 PAGES</td>
<td>GBPCACHE: Y</td>
</tr>
<tr>
<td>DIR ENTRIES: 816</td>
<td>IN USE : 55</td>
</tr>
<tr>
<td>DATA PAGES : 163</td>
<td>IN USE : 17</td>
</tr>
<tr>
<td>CHANGED: 17</td>
<td></td>
</tr>
<tr>
<td>PAGE READ REQS : 21.01 /SEC</td>
<td>FAILURES: 0.00 % (IN DIR CREATE)</td>
</tr>
<tr>
<td>PG RD HIRATIO : 0.25 %</td>
<td>READ/WRT: 0.00</td>
</tr>
<tr>
<td>PAGE WRITES : 19.11 /SEC</td>
<td>FAILURES: 0.00 %</td>
</tr>
<tr>
<td>PAGE WRT RE-UPDATS : 0.52 /SEC</td>
<td>RATIO : 0.03 %</td>
</tr>
<tr>
<td>DIR RECLAIMS W/XI : 0.89 /SEC</td>
<td></td>
</tr>
<tr>
<td>DIR RECLAIMS-TOTAL: 0.97 /SEC</td>
<td>MIN DIR RESIDENCY : 844 SECONDS</td>
</tr>
<tr>
<td>DATA PG RECLAIMS : 18.13 /SEC</td>
<td>MIN PAGE RESIDENCY: 9 SECONDS</td>
</tr>
<tr>
<td>CASTOUT PAGE RATE : 0.01 /SEC</td>
<td></td>
</tr>
<tr>
<td>CLASS CASTOUTS : 0</td>
<td>CLASS CASTOUT THR : 10 %</td>
</tr>
<tr>
<td>GROUP CASTOUTS : 1</td>
<td>GROUP CASTOUT THR : 10 %</td>
</tr>
<tr>
<td>CHECKPOINTS : 10</td>
<td>CKPTINTERVAL : 1 MINUTES</td>
</tr>
</tbody>
</table>

The statistics reported relate to the entire group buffer pool. The values will be identical, regardless of the DB2 subsystem selected from the Figure 31 on page 79.

Statistics for each DB2 subsystem in the data sharing group are listed at the bottom of the report. Use the S action code to expand the report (see Figure 46 on page 89) to show EFFICIENCY CALCULATIONS more detailed statistics for each DB2 subsystem.
History reports

There are two types of Pool Advisor history reports--Recent Trends and Daily History.

Recent Trends reports

The Pool Advisor Recent Trends history reports contain data from recent intervals (up to 48 hours) so you can compare values over recent time.

There is one line of statistics for each interval.

Figure 47 on page 89 is an example of the Buffer Pools Recent Trends history report.

Figure 47: Buffer Pools Recent Trends (PMDBPM2H)

The following intervals are reported:
- **CURRENT**—the same interval that was selected from the primary report
- **15 MIN AGO**—the previous 15-minute period that began and ended on a 15-minute boundary (00, 15, 30, 45)
- **30 MIN AGO**—the 15-minute period prior to the one displayed above
- **45 MIN AGO**—the 15-minute period prior to the one displayed above
- **1 HR AGO**—the most recent one-hour period that began on an hour boundary (00:00, 01:00, 02:00, and so on)
- **2 HRS AGO**—the one-hour period prior to the one displayed above
- **TODAY**—an accumulation of the current 24-hour period that started at midnight (or when the Data Collector was started subsequent to midnight)
- **YESTERDAY**—an accumulation of the 24-hour period prior to TODAY

Use the **I** action code to expand any interval on the report to include the interval start time and duration.

**Note**

From the Buffer Pools Recent Trends report, you can hyperlink to the BP Active Page Sets/History report to see statistics about all page sets that were active during the selected interval, and then hyperlink to the BP Page Set Objects/History report to see details of all objects in the selected page set.

The Recent Trends reports provide access to the Daily History reports. Type **H** over the asterisk (*) to the left of the DB2 subsystem ID, and press **Enter**. The corresponding Daily History report is displayed.

### Daily History reports

The Pool Advisor Daily History reports provide a summary of all data in the trace data set, divided into 24-hour intervals.

There is one line of data for each interval.

**Figure 48 on page 90** is an example of the Buffer Pools Daily History report.
The reports are sorted by interval with the interval for the current day listed first.

**Note**

From the Buffer Pools Daily History report, you can hyperlink to the BP Active Page Sets--Long History report to see statistics about all page sets that were active during the selected interval, and then hyperlink to the BP Page Set Objects--Long History report to see details of all objects in the selected page set.

There are no Daily History reports for the Dynamic Statement Cache reports.

---

**Command Log**

The Command Log displays a list of commands that have been issued to DB2 as a result of recommendations from the system advisor.

To display the Command Log use the L action code against a DB2 subsystem.

**Figure 49: Command Log report (PMDCMLOG)**

<table>
<thead>
<tr>
<th>Date-hour</th>
<th>cnt</th>
<th>type</th>
<th>(pps)</th>
<th>sets</th>
<th>Eff</th>
<th>Res</th>
<th>/Sec</th>
<th>/Sec</th>
<th>Evnt</th>
<th>HitR</th>
<th>HitR dlyd</th>
<th>dlyd</th>
<th>/Sec</th>
<th>/Wrt</th>
<th>/Wrt Cmpt</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 2008-06-19 14</td>
<td>1</td>
<td>HR</td>
<td>1649</td>
<td>415</td>
<td>83%</td>
<td>1</td>
<td>1424</td>
<td>1408</td>
<td>0</td>
<td>99%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>15%</td>
<td>0</td>
</tr>
<tr>
<td>+ 2008-06-19 13</td>
<td>0</td>
<td>HR</td>
<td>1600</td>
<td>387</td>
<td>74%</td>
<td>2</td>
<td>776</td>
<td>768</td>
<td>0</td>
<td>99%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>17%</td>
<td>0</td>
</tr>
<tr>
<td>+ 2008-06-19 12</td>
<td>0</td>
<td>HR</td>
<td>1600</td>
<td>307</td>
<td>68%</td>
<td>18</td>
<td>93</td>
<td>89</td>
<td>0</td>
<td>97%</td>
<td>4%</td>
<td>3%</td>
<td>0%</td>
<td>18%</td>
<td>0</td>
</tr>
<tr>
<td>+ 2008-06-19 11</td>
<td>0</td>
<td>HR</td>
<td>600</td>
<td>41</td>
<td>86%</td>
<td>35</td>
<td>20</td>
<td>17</td>
<td>0</td>
<td>94%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>12%</td>
<td>0</td>
</tr>
</tbody>
</table>

**Note**

Although the Command Log is a part of the Pool Advisor report set, commands issued on behalf of BMC System Performance are also listed on the report.
Use the **S** (Details) action code to expand the report to show details of the rule that triggered the recommendation. Use the **R** action code to see the command response. Figure 50 on page 92 is an example of the Command Log report expanded to show details and command responses for all commands.

**Figure 50: Expanded Command Log report (PMDCMLOG)**

<table>
<thead>
<tr>
<th>Date-time</th>
<th>Command issued</th>
<th>Trigger rule</th>
<th>Change amount</th>
<th>Recommendation</th>
<th>Rule Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-06-19 15:55:09</td>
<td>DB2 DHY2 -ALTER BUFFERPOOL(BP16K9) VPSIZE(497)</td>
<td>BR8</td>
<td>1152</td>
<td>DECREASE</td>
<td>Buffer pool size greater than MAX</td>
</tr>
<tr>
<td>2008-06-19 15:55:09</td>
<td>DB2 DHY2 -ALTER BUFFERPOOL(BP16K0) VPSEQT(10)</td>
<td>TS2</td>
<td>10</td>
<td>SET</td>
<td>VPSEQ threshold set too high</td>
</tr>
</tbody>
</table>

Response: DSNB522I *DHY2 VPSIZE FOR BP16K9 HAS BEEN SET TO 573 DSN9022I *DHY2 DSNB1CMD ’-ALTER BUFFERPOOL’

<table>
<thead>
<tr>
<th>Date-time</th>
<th>Command issued</th>
<th>Trigger rule</th>
<th>Change amount</th>
<th>Recommendation</th>
<th>Rule Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-06-19 15:55:09</td>
<td>DB2 DHY2 -ALTER BUFFERPOOL(BP8K9) VPSIZE(573)</td>
<td>TS2</td>
<td>10</td>
<td>SET</td>
<td>VPSEQ threshold set too high</td>
</tr>
</tbody>
</table>

Response: DSNB522I *DHY2 VPSIZE FOR BP8K9 HAS BEEN SET TO 573 DSN9022I *DHY2 DSNB1CMD ’-ALTER BUFFERPOOL’
Configuring buffer pools

This section describes the configuration analysis feature of Pool Advisor.

Navigation

You can navigate between configuration analysis panels.
This figure illustrates the flow of configuration analysis panels.

**Figure 51: Configuration analysis navigation**

---

Need for analysis

Pool Advisor’s primary purpose is to measure the access of your objects and evaluate the performance of the buffer pools in supporting that access.

Although Pool Advisor attempts to alert you to problems and recommends pool attribute changes to adapt to mismatches, a more effective strategy is to configure the buffer pools more accurately from the start.

Some DB2 systems are configured to place all of their data objects into one big buffer pool. However, these different data objects have varied and distinct access characteristics. These different characteristics tend to conflict with each other, often resulting in poor performance and inefficient resource use. Different data objects (with widely varying access characteristics) in the same pool can suffer complex interactions, resulting in some types being forced out of the pool excessively and driving down overall buffer pool efficiency.
The generally accepted approach to deal with this problem is to classify the data objects and combine those with the same characteristics into their own pools. Since buffer pool configurations can be changed while operations are in progress but page sets cannot be moved from one pool to another while they are in use, it is common to adjust the configuration of the pool to match the measured attributes of its objects while operations are in progress.

Figure 52 on page 95 illustrates a typical buffer pool configuration:

- Few buffer pools
- Approximate object separation
- Unlike objects sharing the same pool

Figure 52: Typical buffer pool configuration

When making configuration assignment decisions, it is more appropriate to decide on the attributes for which the pool will be optimized and then assign page sets that have the desired characteristics to the pools.
Figure 53 on page 96 illustrates a better configuration with more buffer pools and more segregation of data into similar performance classes.

**Figure 53: Efficient buffer pool configuration**

By grouping objects with similar access and priority characteristics into multiple buffer pools, data pages are shared more equitably in each pool and overall hit ratios are improved. In addition, the size and thresholds for each pool can then be varied individually to achieve caching targets by object group according to priority and workload demand.

**Configuration advisor**

The configuration advisor is primarily an organizational tool that helps you to group your DB2 page sets into buffer pools so that all page sets in a given pool are as alike in terms of their performance attributes as possible.

The configuration advisor reviews your configuration and calculates a compatibility score that represents the overall fitness of the current configuration to the measured attributes of the page sets. You can submit a request to Pool Advisor to analyze your current environment. The configuration advisor evaluates the mix of pools and objects and recommends changes to improve overall performance. These changes include the assignment of objects to pools and the attributes of the pools, such as size, type, operating steal thresholds, and write thresholds. You can then either accept and implement those changes or make manual changes and re-launch the analysis.

In this way, using an iterative and interactive approach, you can reach a buffer pool configuration that does a better job of meeting the needs of your objects while also fitting within acceptable limits of complexity and resource use.
Buffer pool compatibility profile

Pool Advisor simplifies the task of data separation by using a compatibility profile to classify large lists of buffer pools and data objects.

You can use the profile to easily see which objects in your buffer pools should be moved to more compatible buffer pools.

The lifetime performance statistics for each page set (which are retained for the life of the page set or since monitoring with Pool Advisor began) are used to generate average performance attributes, which are then used for grouping page sets into pools.

The following attributes are used by the configuration advisor to evaluate compatibility:

- Page set type
- Priority
- Access method
- Activity level
- Update rate
- Page set size
- Data sharing

By default, all of these attributes are used in the grouping process. However, you can specify values that you want the configuration advisor to begin with during analysis. For more information, see Configuration analysis on page 101.

Related Information

- “Configuration analysis” on page 101
Page set type

The following page set types are reported:

- System page set (DSNDB01, DSNDB06, for example)
- Work page set (DSNDB07, for example)
- Application table space
- Application index space
- Large object (LOB)

System and workfile objects should be segregated into their own dedicated buffer pools. User tables and user indexes should not usually be mixed in the same buffer pool because they have substantially different performance characteristics.

Priority

Priority is a user-defined attribute.

You can rank page sets by importance and this ranking will be taken into consideration when page sets are assigned to pools. Additional storage resources can be assigned to buffer pools containing high-priority page sets.

You can assign one of the following priorities to each page set:

- High
- Medium (the default)
- Low

The configuration advisor does not recommend changes to priority. If you do not assign a priority to a page set, a priority of medium is assumed.

Access method

The access method (sequential or random) is used to segregate objects into different buffer pools that can then be optimized to support one access strategy or the other.

Sequential access is rated on the following default scale:
■ High (70% or more of the getpage activity for the page set uses sequential access)

■ Medium (between 30-69% of the getpage activity for the page set uses sequential access)

■ Low (less than 30% of the getpage activity for the page set uses sequential access)

*Note*
You can change the default scale values in the variable repository. For more details, see related information about parameter variables and rules.

**Related Information**

■ “Parameter variables and rules” on page 189

---

**Activity level**

Activity level is used to segregate objects into different pools based on how busy they are. When objects with low and high access rates share a pool, the objects with a low access rate (although equally important) will always have to perform I/O to access their pages because the objects with a high access rate will monopolize the available storage.

Activity level is rated on the following default scale:

■ High (1000 or more getpages per second)

■ Medium (in the range 100-999 getpages per second)

■ Low (fewer than 100 getpages per second)

*Note*
You can change the default scale values in the variable repository. For more details, see information relating to parameter variables and rules.

**Related Information**

■ “Parameter variables and rules” on page 189
Update rate

Update rate is used to segregate objects into different pools based on how heavily they are updated. Buffer pools can then be optimized to support either heavy update access or primarily read access. The buffer pool requirements are very different for each.

Update activity is rated on the following default scale:

- High (100 or more updates per second)
- Medium (between 10-99 updates per second)
- Low (fewer than 10 updates per second)

Note
You can change the default scale values in the variable repository. For more details, see information relating to parameter variables and rules.

Page set size

Page set size is used to segregate objects into different pools based roughly on their size in terms of physical page counts. You can place small, heavily-accessed objects in pools where most (if not all) of the objects can be cached most of the time. The benefit to these objects can be large while the resultant loss of storage might be minimal.

Page set size is rated on the following default scale:

- Small (fewer than 1,000 pages)
- Medium (in the range 1,000-99,999 pages)
- Large (100,000 pages or more)

Note
You can change the default scale values in the variable repository. For more details, see information relating to parameter variables and rules.
Data sharing

For buffer pools, the data sharing attribute indicates whether Pool Advisor has observed that the buffer pool has a group buffer pool assigned.

Usually it is better to assign page sets that are never shared to buffer pools without group buffer pools.

The following values are reported for buffer pool data sharing:

- Y (member of a data-sharing group)
- N (not a member of a data-sharing group)

Configuration analysis

If you select a DB2 subsystem for configuration analysis that is part of a data-sharing group, you must decide whether to analyze the configuration profile of the selected DB2 subsystem by itself or to merge the profile data from all the data-sharing members in order to produce a single configuration to be used by all members.

The merged analysis option should only be used if there is a reasonable expectation of similar resources and performance requirements on all members, see Figure 54 on page 101. Asymmetric data sharing configurations generally should not use this option.

Figure 54: Configuration Menu (PMDEBPCH)

PMDEBPCH/I          Configuration Menu                      10:52:46
Command >>>>>>>>>>>>______________________________________________________________

DB2: DHB1 Data sharing group: DSNOHB

The selected DB2 is a member of a data sharing group. You can choose to analyze the configuration profile of this DB2 by itself, or you can choose to merge the profile data from all the data sharing members for analysis in order to generate a single configuration to be used by all members.

The merged analysis option should only be used if there is a reasonable expectation of similar resources and performance requirements on all members. Asymmetric data sharing configurations generally should not use this option.

Select one of the following options. Then press Enter.

   1. Analyze the selected DB2 configuration only
   2. Analyze merged configuration profiles from all data sharing members

The DB2 subsystem that you select for analysis must reside on the current MVS system. For merged analysis of data-sharing members, any of the DB2 subsystems can reside on other MVS systems. However, the DB2 subsystem that you select for the configuration option must reside on the current MVS system.
The configuration advisor begins its analysis by examining the current buffer pool configuration. **Figure 55 on page 102 displays a summary of the buffer pools for a selected DB2 subsystem.**

**Figure 55: Buffer Pool Configuration Summary panel (PMDEBPCA)**

<table>
<thead>
<tr>
<th>PoolID</th>
<th>T</th>
<th>P</th>
<th>S</th>
<th>A</th>
<th>U</th>
<th>Z</th>
<th>D</th>
<th>PgSets</th>
<th>Cmp</th>
<th>(pages)</th>
<th>fix</th>
<th>stl</th>
<th>Seq</th>
<th>DWT</th>
<th>VDW</th>
<th>Chg</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP0</td>
<td>S</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>Y</td>
<td>336</td>
<td>54</td>
<td>2000</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>60</td>
<td>12</td>
<td>Y</td>
</tr>
<tr>
<td>BP1</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>51</td>
<td>72</td>
<td>480</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>75</td>
<td>25</td>
<td>Y</td>
</tr>
<tr>
<td>BP2</td>
<td>T</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>5</td>
<td>77</td>
<td>30</td>
<td>N</td>
<td>LRU</td>
<td>10</td>
<td>50</td>
<td>23</td>
<td>Y</td>
</tr>
<tr>
<td>BP7</td>
<td>W</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>11</td>
<td>76</td>
<td>50</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>75</td>
<td>24</td>
<td>Y</td>
</tr>
<tr>
<td>BP25</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>Y</td>
<td>62</td>
<td>86</td>
<td>370</td>
<td>N</td>
<td>LRU</td>
<td>0</td>
<td>75</td>
<td>24</td>
<td>Y</td>
</tr>
<tr>
<td>BP31</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>1494</td>
<td>74</td>
<td>5770</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>20</td>
<td>4</td>
<td>Y</td>
</tr>
<tr>
<td>BP32</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>1495</td>
<td>81</td>
<td>5840</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>20</td>
<td>4</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>BP33</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>1546</td>
<td>80</td>
<td>5960</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>20</td>
<td>4</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>BP34</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>1529</td>
<td>72</td>
<td>5960</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>20</td>
<td>4</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>BP35</td>
<td>T</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>N</td>
<td>585</td>
<td>83</td>
<td>2260</td>
<td>N</td>
<td>LRU</td>
<td>50</td>
<td>55</td>
<td>11</td>
<td>Y</td>
</tr>
<tr>
<td>BP49</td>
<td>I</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>Y</td>
<td>54</td>
<td>79</td>
<td>1060</td>
<td>N</td>
<td>LRU</td>
<td>0</td>
<td>75</td>
<td>24</td>
<td>Y</td>
</tr>
</tbody>
</table>

The compatibility rating is used to determine if analysis is advisable. This rating is a scoring system that measures how much alike the page set attributes are within a given pool. If the compatibility rating is low, you can begin the analysis process by clicking on the **ANALYZE** button.

**Figure 56 on page 102 allows you to see the values that the configuration advisor will use for the analysis and to specify your own values to be used, instead of the default values, as a starting point for analysis.**

**Figure 56: Buffer Pool Configuration Options panel (PMDEBPCO)**

```
PMDEBPCO/I Buffer Pool Configuration Options  16:01:58
Command ====> ________________________________________________________________
MVS: SYSM Type: z/OS Rel: 01.08.00
DB2: DHB1 Rel: 8.1 Data sharing: Yes, Merged=Yes Configuration: 0

Specify the following options to set analysis controls.
To continue the configuration analysis click here: < CONTINUE >

<table>
<thead>
<tr>
<th>Total BP storage to use</th>
<th>Sum of Pagesets</th>
<th>Weights for attribute</th>
<th>Target</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>scoring analysis (0=none)</td>
<td>3205 MB</td>
<td>3000 MB</td>
<td>3500 MB</td>
</tr>
<tr>
<td>avg WSS: 4219 MB</td>
<td>avg WSD: 2763 MB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of pools</th>
<th>Min</th>
<th>Max</th>
<th>Access type</th>
<th>Activity lvl</th>
<th>Update rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 KB buffer pools</td>
<td>11</td>
<td>11</td>
<td>1 (1-50)</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>8 KB buffer pools</td>
<td>1</td>
<td>1</td>
<td>0 (0-10)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>16 KB buffer pools</td>
<td>2</td>
<td>2</td>
<td>0 (0-10)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>32 KB buffer pools</td>
<td>3</td>
<td>3</td>
<td>0 (0-10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Limit for the number of pageset moves considered: 0 (0=no limit)
The Buffer Pool Configuration Options panel initially displays default values for the following configuration controls:

- Amount of storage to be used by buffer pools
- Number of pools
- Weighting factors for buffer pool attributes
- Limit on page set moves

Storage limits

After analyzing the grouping of page sets, the configuration advisor determines starting pool sizes for each of the buffer pools.

Factors that are considered include the average working set size and average working set demand page counts, which are now displayed for your reference. These page counts (based on lifetime history) are used to generate the initial size estimates. Working set size page counts for highly sequential objects tend to remain close to the prefetch requirements in busy pools, while the working set size page counts for highly random objects depend on the data, the applications, and competition for available pool space. In all cases, the numbers can vary with workloads, but long-term averages are useful for initial estimates.

The actual sizes that are generated for the pools depend on the target storage values you provide on the Buffer Pool Configuration Options panel. The aggregate working set sizes of the page sets in each pool (weighted by the user-defined priority) determine the proportion of storage allocated to the pool.

Number of pools

When analysis is invoked, the configuration advisor considers the number of pools first.

The advisor determines an optimal grouping of page sets within the number of pools allowed. Separate consideration is given to 4-KB, 8-KB, 16-KB, and 32-KB pools.

By default, the minimum and maximum number of pools to be used are both set equal to the number of pools in the current buffer pool configuration. The configuration advisor does not attempt to delete any pools or create new ones. It attempts to reassign page sets within existing pools to achieve a better overall compatibility rating.
If you change the values for either or both the minimum and maximum number of pools, the configuration advisor determines the number and kind of pools within the stated range that gives the best overall compatibility rating with the fewest possible number of pools.

**Note**
Be careful when changing these values. The resulting analysis can generate a large number of page set reassignments. You can limit these reassignments by specifying a value other than 0 in the **Limit for the number of page set moves considered** field. For more information, see Limit on page set moves on page 104.

### Weighting factors for buffer pool attributes

The attributes that make up the compatibility profile are listed with a default weighting factor for each attribute.

The weighting factor is a number from 0 to 9. A value of 0 indicates that the attribute will not be used at all in compatibility calculations. A value of 9 indicates that the attribute will have a very heavy influence on the compatibility score.

You can choose which attributes you want the configuration advisor to consider during analysis and how much influence each attribute will have on the compatibility score.

### Limit on page set moves

You can specify an upper limit to the number of page sets that can be reassigned to different buffer pools.

A value of 0 (default) indicates that there is no limit to the number of page set reassignments that can be generated. By allowing as many reassignments as needed, the configuration advisor can produce a recommendation that provides the best compatibility between page sets and buffer pools.

However, in some cases this could result in many thousands of page set reassignments, which could take a long time for the resulting ALTER commands to be executed by DB2 when implementing the changes.

By specifying a limit to the number of page set reassignments, the analysis process may produce a lesser total compatibility score but will generate a more easily implemented set of alterations. If \( N \) is the designated limit, then only the top \( N \) reassignments are generated, meaning the page sets are reassigned that result in the best overall compatibility improvement. When more than one page set
reassignments have the same level of improvement, and there is not enough room within the limit to reassign them all, the first ones encountered are reassigned. This means that on different analysis runs under slightly different conditions, the list of N reassignments can be slightly different.

When a limit is specified, that limit applies to each buffer pool class (4-KB, 8-KB, 16-KB, and 32-KB). So if you limit page set moves to 10, the total number of moves is limited to 10 for each buffer pool class, or 40 moves.

In addition, because the number of reassignments is limited, there is no practical value in doing subsequent interactive re-analysis. So when the limit feature is used, the Reanalyze hyperlink is unavailable on the Buffer Pool Configuration Analysis panel. For more information, see Recommended changes on page 105.

**Additional controls**

The configuration advisor also makes initial recommendations for sequential steal thresholds (Page stl), deferred write thresholds (DWT), and vertical deferred write thresholds (VDW).

The value for Page stl is based on the pool’s predominant access type (sequential vs. random), with higher thresholds for mostly sequential pools and lower thresholds for mostly random pools. The values for DWT and VDW are based on the pool’s predominant update rate and activity level, with emphasis on write engine optimization and trickle-write performance objectives.

**Note**

Trickle-write refers to the performance concept for scheduling write operations as soon as there are enough updated pages to allow efficient use of the write engine (as opposed to allowing so many updated pages to accumulate that there are major delays when checkpoints occur).

**Recommended changes**

When analysis is complete, a list of the changes recommended by the configuration advisor is displayed.
When only a few changes are recommended, the recommendations are fairly easy to understand. However, if the change list is extensive, you might find it difficult to see the big picture represented by the new configuration.

If you see undesirable changes in the results, you can discard the results and try again with different options. But if you are not sure, you can accept the results and continue to Figure 58 on page 107 to see how the changes are represented in the configuration. This panel makes it easier to see and explore the new configuration.
The Buffer Pool Configuration Analysis panel is identical to Figure 59 on page 108 with the following exceptions:

- The **Configuration** field is incremented each time analysis is performed.
- The button options have changed.

If you decide to discard the recommended changes and start over, click the **UNDO** button.

If you want to adjust the new configuration by changing the control options, click **REANALYZE** and modify values until you reach a satisfactory arrangement. The difference between various starting points in the analysis process is that there is a built-in bias towards the current setting. Changes are not recommended unless they appear to produce a better compatibility rating, even though there might be many arrangements that produce similar compatibility ratings.

You can exert more influence over the configuration process by setting and locking values for the buffer pools and the page sets.

You can manually set values for buffer pools on Figure 59 on page 108 and Figure 60 on page 108.

From the Buffer Pool Configuration Summary panel, you can choose to lock one or more buffer pools. When you lock a buffer pool, the configuration advisor will not change its size or parameters, but page sets might be moved to or from the buffer pool. In the example below, by placing an **L** next to BP0, you indicate that the configuration advisor should retain these settings for this buffer pool, and after pressing **Enter**, the value in the **Chg** field changes to **N**.
Select a buffer pool with the S action code to display the Figure 60 on page 108.

From the Buffer Pool Attributes panel, you can manually specify the performance attributes that you want the pool to support, as well as the various sizes and thresholds. By so doing, you define a different starting point for the analysis, which the configuration advisor will not change unless it calculates a better arrangement.

You can also lock your settings into place by specifying N in the Can these attributes be changed during analysis? field. And you can prevent page sets from being moved into the buffer pool by specifying N in the Can additional page sets be moved into this pool? field. The configuration advisor will search for the best configuration within the defined constraints.
You can manually set values for page sets, see Figure 59 on page 108 and the Figure 61 on page 109.

From the Buffer Pool Configuration Summary panel, you can lock all of the page sets in a buffer pool. The configuration advisor will not recommend moving any of the page sets in the buffer pool but is free to recommend changes to the size or parameters of the pool.

**Figure 61: Page Set Attributes panel (PMDEBPP2)**

<table>
<thead>
<tr>
<th>Attributes</th>
<th>(measured)</th>
<th>(configured)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object type</td>
<td>SYS</td>
<td>SYS</td>
</tr>
<tr>
<td>Priority</td>
<td>MED</td>
<td>HI</td>
</tr>
<tr>
<td>Sequential access</td>
<td>HI</td>
<td>MED</td>
</tr>
<tr>
<td>Activity level</td>
<td>LOW</td>
<td>HI</td>
</tr>
<tr>
<td>Update rate</td>
<td>LOW, HI</td>
<td>HI</td>
</tr>
<tr>
<td>Object size</td>
<td>LOW, LRG</td>
<td>LRG</td>
</tr>
<tr>
<td>Data Sharing</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

Set the priority for page set LOW, MED, HI
Move page set to buffer pool (Pool name, ex: BP8, BP32K2)
Can the pool for this page set be changed during analysis? Y (Y, N)

If a buffer pool is defined with zero pages, the buffer pool and all its page sets are treated as "dead" objects, and the configuration advisor ignores them even if they are not locked. If you want page sets to be eligible for configuration changes, they must reside in a buffer pool defined with a size greater than zero.

---

**Implementing the changes**

After you achieve a configuration that you want to implement, click the GENERATE JCL button to begin the process that tailors a batch job to implement the changes.

This batch job should be run during a maintenance period when it is acceptable to stop databases. It will include DB2 utility steps to stop, alter, and start the affected
page sets, change the pool sizes and thresholds, change the Pool Advisor run-time control parameters, and, if necessary, change the Pool Advisor configuration history file where priorities and lifetime profile attributes are retained.

**Note**
Implementing the changes is a serious undertaking. All of the intended changes should be reviewed carefully before submitting the job.

To implement the changes

1. Click **GENERATE JCL**, Figure 62 on page 110) is displayed.

   **Figure 62: Buffer Pool Configuration JCL Generation panel (PMDEJCL0)**

   Default values are displayed.

   ```plaintext
   PMDEJCL0/I          Buffer Pool Configuration JCL Generation           17:26:05
   Command ===> ________________________________________________________________
   DB2: DHB1 Rel: 8.1   Data sharing: Yes, Merged=Yes       Configuration: 1
   Specify the following JCL generation options. Then press Enter.
   Default values are displayed.
   Type over values to change them. Delete values to restore defaults.
   Skeleton INPUT JCL:
   DATA SET NAME:   PMDQA.V6R2M00.BBPARM________________________
   MEMBER NAME:   PMDCFJCL
   Generated OUTPUT JCL (PDS must be preallocated):
   DATA SET NAME:   PMDQA.V6R2M00.BBPARM.JCL____________________
   MEMBER NAME:   DHB1DO__
   UNDO MEMBER NAME:   DHB1UNDO      (Blank if no UNDO needed)
   Create Single Job:   Y             (Y/N)
   Stop By Database:   Y             (Y/N)
   Max TS per Step:   10000         (1-99999, valid if stop DB=N)
   Program name and parameters to execute DML:
   RUN_PROGRAM(DSNTIAD)________________________________________________ 
   ```

   Default values are displayed for the input and output JCL data set and member names. You can type over these default values with the data set and member names of your choice. Be sure that the PDS for the output JCL is preallocated.

   You can also specify a valid UNDO JCL member name if you want the option to revert to the configuration that existed before the configuration JCL was submitted.

2. In the **Create Single Job** field, specify **Y** to create one batch job (one JCL deck) with multiple steps, or specify **N** to create a separate batch job for each step (one JCL deck per step).

3. In the **Stop By Database** field, specify **Y** to issue DB2 STOP and START statements for affected page sets at the database level rather than at the page set level. Specifying STOP and START statements at the database level significantly speeds up processing.

4. In the **Max TS per Step** field, specify the maximum number of page sets to be altered (moved to another buffer pool) per step in the output JCL. This value is only used when the **Stop By Database** field is set to **N**.
5 When you have specified the values on this panel, press Enter. An ISPF EDIT session is displayed, see Figure 64 on page 112 which shows the generated JCL to implement the configuration changes. You can verify the JCL, make any necessary changes, and submit the job. Or you can save it for execution at another time.

6 Pay close attention to your JCL review, especially if you are creating a merged configuration. Some changes may affect DB2 subsystems located on different MVS systems than the one you are running the configuration advisor from. Ensure that the JCL is appropriate for the target system. You can edit the JCL and place JCL which targets other DB2 subsystems or other MVS systems into different JCL members.

Figure 63: ISPF EDIT session

```
****  *************************************************** Top of Data ***************************************************
000001 //PMDCFJOB JOB (4110), 'DBADM', MSGCLASS=X, CLASS=Q, REGION=0M
000002 //*********************************************************************
000003 //*                                                                   *
000004 //*        CONFIGURATION ADVISOR SKELETON JCL                        *
000005 //*                                                                   *
000006 //*        NOTE: INSERT A VALID JOBCARD AND STEPLIB CONCATENATION.    *
000007 //*        PERMANENT CHANGES CAN BE MADE TO THE "PMDCFJCL"              *
000008 //*        MEMBER RESIDING IN THE PARMLIB.                             *
000009 //*                                                                   *
000010 //*********************************************************************
000011 //*                                                                   *
000012 //*        SUBMIT THIS JOB TO RUN ON THE SAME MVS SYSTEM AS THE       *
000013 //*        PMDQ DATA COLLECTOR AND THE DHB1 DB2 SUBSYSTEM.              *
000014 //*                                                                   *
000015 //*********************************************************************
000016 //*                                                                   *
000017 //*        IMPLEMENT CHANGES GENERATED ON 2008.269 AT 14:44:09          *
000018 //*                                                                   *
000019 //JOBLIB DD DISP=SHR, DSN=PMDOA.V6R2M00.BBLINK
000020 //                                                                 *
000021 // DD DISP=SHR, DSN=PMDOA.AUTH.LOAD
000022 //STEP01 EXEC PGM=IKJEFT01, DYNAMNBR=20, TIME=1800
000023 //STEPLIB DD DISP=SHR, DSN=SYS3.DHB.DSNEXIT
000024 // DD DISP=SHR, DSN=CSGI.DB2V81M.DSNLOAD
000025 //SYSUDUMP DD SYSPUT=*
000026 //SYSTSPRT DD SYSPUT=*
000027 //SYSPRINT DD SYSPUT=*
000028 //SYSUTIN DD *
000029 DSN SYSTEM(DHB1)
000030 -ALTER BUFFERPOOL(BP0) VPSIZE(8070) PGFIX(NO)
000031 VSEQT(50) DWQTO(15) VDWQTO(3,0)
000032 PGSTEAL(LRU)
000033 -ALTER BUFFERPOOL(BP1) VPSIZE(49590) PGFIX(NO)
000034 VSEQT(50) DWQTO(256)
000035 PGSTEAL(LRU)
000036 -ALTER BUFFERPOOL(BP2) VPSIZE(63000) PGFIX(NO)
000037 VSEQT(50) DWQTO(256)
000038 PGSTEAL(LRU)
000039 -ALTER BUFFERPOOL(BP7) VPSIZE(540) PGFIX(NO)
000040 VSEQT(50) DWQTO(75) VDWQTO(25,0)
000041 PGSTEAL(LRU)
```

Implementing the changes

Chapter 5 Configuring buffer pools 111
Figure 64 on page 112 is an example of the skeleton input JCL that can be found in the PMDCFJCL member of the PARMLIB.

Figure 64: Skeleton input JCL

```plaintext
//PMDCFJOB JOB (),'DBADM',MSGCLASS=X,CLASS=Q,REGION=0M
*********************************************************************
/*/                                                                   *
/*/        CONFIGURATION ADVISOR SKELETON JCL                         *
/*/                                                                   *
/*/        NOTE: INSERT A VALID JOBCARD AND STEPLIB CONCATENATION.     *
/*/        PERMANENT CHANGES CAN BE MADE TO THE "PMDCFJCL"            *
/*/        MEMBER RESIDING IN THE PARMLIB.                            *
/*/                                                                   *
*********************************************************************
//JOBLIB   DD DISP=SHR,DSN=$JOBLIB$
//$ENDJOB
//STEP01   EXEC PGM=IKJEFT01,DYNAMNBR=20,TIME=1800
//STEPLIB  DD DISP=SHR,DSN=$STEPLIB$
//SYSUDUMP DD SYSOUT=*                                              
//SYSTSPRT DD SYSOUT=*                                             
//SYSPRINT DD SYSOUT=*                                             
//SYSTSIN  DD *                                                    
```

7 You need to tailor the skeleton input JCL by providing a valid job card. You can also concatenate an optional user JOBLIB and/or STEPLIB to existing DD statements.

---

**Note**

Do not delete the DD statements containing the `$JOBLIB$` and `$STEPLIB$` symbolics.

---

**Data quality**

For the configuration process to work effectively, you must have an accurate profile of the performance attributes of your objects.

It is not necessary to run expensive performance traces because this data is collected automatically while Pool Advisor is active, and the lifetime object statistics are updated every night with the daily statistics cycle. The more days of data collection you have, the more reliable the decision making.

Page sets that are rarely used can be problematic. If there is no significant access to a page set while Pool Advisor is collecting data, the configuration advisor cannot adequately understand the page set. The page set type can be ascertained, but the other attributes are either ignored or scored as medium, which is a crude compromise.
Note
The recommendations is only as good as the data upon which they are based. Pay close attention to the data collection metrics and to the recommended changes. If they don’t seem to make sense, examine the page sets in more detail. This is especially true for objects that are accessed infrequently, such as at month-end or year-end.

Where to begin
Initially when you try the configuration process, use the default control options.

Using the default control options will result in recommendations within your existing buffer pools and your existing total storage allocation, typically the reassignment of some page sets, the reallocation of storage, and the resetting of some thresholds.

Then experiment with different controls, or manually specify changes until a desirable configuration is achieved. No changes are actually implemented until you run a generated reconfigure job, so you can safely experiment with the configuration advisor dialog.

Data sharing considerations
When analyzing the configurations of individual members of a DB2 data-sharing sysplex, there are a number of special issues that the current version of Pool Advisor may not automatically consider.

- All shared page sets are assigned to the same pool in each member of the sysplex via the shared catalogs. However, Pool Advisor analyzes only one DB2 subsystem at a time when you do not select the merged analysis option. You will, therefore, need to run the analysis on each member separately and resolve any significant differences prior to implementing the changes. Although the object statistics collected by each member should be similar, any asymmetrical workloads could generate differences that should be manually reviewed, even though the background advisors will compensate for minor differences at run-time.

- Pool Advisor does not currently manage group buffer pool definitions in the coupling facility, so the configuration advisor may recommend the movement of objects from one buffer pool to another without regard to the coupling facility definitions, especially when the weighting factor for the data-sharing attribute is set to a low value. If there are some pools that are shared and some that are not, you will need to use the lock controls to prevent page set reassignment to
inappropriate pools or monitor any mixing that takes place to ensure that it remains acceptable.

- You might need to reconfigure the group buffer pool resource allocations in the coupling facility to match the page set movements and resized buffer pools when you implement a new configuration.
Using multiple System and SQL Performance products

This section describes the possibilities of integrating several System and SQL Performance for DB2 products.

Product description

The System and SQL Performance for DB2 products from BMC are a family of tightly integrated performance monitoring and management tools for DB2.

Most of the products share the same dialog architecture, enabling data sharing and exceptional ease of use across products. The following products can share the same started task and can be accessed through a common dialog box:

- **APPTUNE for DB2** -- A tool for tuning SQL statements and troubleshooting DB2 application performance.

- **Pool Advisor for DB2** -- A tool for monitoring DB2 pools, identifying inefficient use, and suggesting and implementing modifications to gain maximum benefit from storage resources.

- **SQL Explorer for DB2** -- A tool for analyzing SQL statements and database structures to optimize application performance.

- **MainView for DB2 - Data Collector** -- A selectable component of the MainView for DB2 product that allows MainView users to share some functions of the Performance Activity products Data Collector.
  
  This component provides access to DB2 performance data that supplements the data already available via MainView for DB2.

- **BMC System Performance for DB2** -- A solution that combines the features and functions of MainView for DB2, OPERTUNE, and Pool Advisor with a supplemental set of comprehensive reports on all aspects of DB2.
SQL Performance for DB2 -- A solution that combines the features and functions of the APPTUNE for DB2 and SQL Explorer for DB2 components with a comprehensive index reporting function that is available only with the solution.

Performance Advisor Database -- The SQL Performance Solution for DB2 includes a set of features that are collectively called the Performance Advisor Database. These advisors improve the efficiency of the SQL statements, they include:

— Workload Access Path Compare -- compares static and dynamic statement access paths over time, across subsystems, application versions, and DB2 releases and identifies the impact.

— Workload Index Advisor -- improves SQL performance of a workload by recommending which indexes need to be created, kept, or dropped.

— Reorg Advisor -- provides reorg recommendations based on physical characteristics plus performance characteristics of objects. Ideally you only want to REORG objects that are disorganized and show degraded performance since last REORG. you do not want to reorg objects that cannot benefit from it.

— Exception Advisor -- examines the data accompanying the triggered exception and compares that data to past execution statistics for the same statement in baseline or aggregated tables.

Integration

When a single product is enabled, the main menu for that product is displayed.

When multiple products or solutions are enabled, the main menu that is displayed reflects the active product mix. Figure 65 on page 117 is an example of the main
When multiple products share a product session, functions that are shared by all products are shown on the initial main menu. Select a product from the main menu to display the main menu for that product. Functions that are specific to each product are accessed through the product’s main menu.

All products share the same Data Collector and the same LOGFILES. If you select a different Data Collector in any product, the Data Collector is changed for all products.

**Note**

Filters set in APPTUNE have no effect on Pool Advisor or System Performance reports, because those products do not support filtering.
BMC System Performance commands

This section describes all product commands, including parameter descriptions and syntax diagrams.

This section also describes the Available Commands panel, which lists all commands that can be issued from any given panel or report.

Displaying the available Commands panel

The Available Commands panel, can be displayed from any System and SQL Performance product panel or report.

It lists all commands that can be issued from the panel from which it was invoked.

To display the Available Commands panel

1. Perform one of the following actions:
   - Type `SHOWCMDS` on the Command line and press Enter
   - Type a question mark (?) on the Command line and press Enter
   - Press F6
SHOWCMD is the default value for **F6** except under the following circumstances:

- The ZOOM command is the default value assigned to **F6** when a report is displayed.

- The Explain ZOOM command is the default value assigned to **F4** or **F6** when the Explain Object Selection List (PSSPE100) or the Explain Results panel (PSSPE200) is displayed.

- The IEDIT command is the default value assigned to **F6** when a Command Interface panel is displayed.

---

### Figure 66: Available Commands panel (DOMECOME)

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOGOP</strong></td>
<td>Access Log Operations</td>
</tr>
<tr>
<td><strong>CMD</strong></td>
<td>Access Command Interface Menu</td>
</tr>
<tr>
<td><strong>XPL</strong></td>
<td>Access Explain Interface</td>
</tr>
<tr>
<td><strong>ADMIN</strong></td>
<td>Access Product Administration</td>
</tr>
<tr>
<td><strong>OPTIONS</strong></td>
<td>Access User Options Menu</td>
</tr>
<tr>
<td><strong>PFKEYS</strong></td>
<td>Access User Function Key Definitions</td>
</tr>
<tr>
<td><strong>RLOG</strong></td>
<td>Access Log Options</td>
</tr>
<tr>
<td><strong>HELP</strong></td>
<td>Access Help</td>
</tr>
<tr>
<td><strong>ABOUT</strong></td>
<td>About the Product</td>
</tr>
<tr>
<td><strong>CHANGES</strong></td>
<td>Display Changes to Product</td>
</tr>
</tbody>
</table>

2. Select a command from the list with an **S** to issue the command.

---

Some commands cannot be issued from the Available Commands list because they require parameters. Type these commands on the Command line of the panel or report.

3. Press **F1** (Help) anywhere on the line where a command is listed to display a complete explanation of the command as it relates to the panel or report from which it is being issued.
Commands

This section contains descriptions of all product commands including syntax diagrams and parameter definitions.

You can also use the Online Help to view information about specific commands. Type HELP commandName on the Command line of any panel, and press Enter.

For a selection list of commands, type HELP COMMANDS.

ABOUT

ABOUT is a basic panel command that can be issued from any product panel. It causes copyright and trademark information about the product to be displayed.

Figure 67: Syntax of the ABOUT command

![ABOUT Syntax Diagram]

Type ABOUT on the Command line, and press Enter.

ADDBDB2

ADDBDB2 is a Data Collector command. You can issue the ADDBDB2 command only from the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

Use ADDBDB2 to temporarily access a DB2 subsystem that is not defined in the DOMPLEX option set. The DB2 subsystem is added to the list of DB2s that can be monitored by the specified Data Collector.

The default parameters from the DOMPLEX option set are used, but the DB2 subsystem is not added to the list of DB2 subsystems in the DOMPLEX option set. It
remains available for use until it is deleted using the DELDB2 command or until the Data Collector is cycled.

**Figure 68: Syntax of the ADDDB2 command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>The subsystem ID of the Data Collector to which the DB2 subsystem is being added. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td>DB2ssid</td>
<td><em>(required)</em> The subsystem ID of the DB2 subsystem being added.</td>
</tr>
<tr>
<td>planName</td>
<td>APPTUNE and SQL Performance <em>(optional)</em> The name of the plan used by this DB2 for Dynamic Explain. This must match the plan name specified in the $740INST job that was run against this DB2. Job $740INST must be run on every DB2 on which you intend to use the dynamic Explain function.</td>
</tr>
</tbody>
</table>

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type **HELP DOMECMDA**).

### ADDPROD

ADDPROD is a Data Collector command that can be issued from only the system operator console.

ADDPROD is used to dynamically activate a System and SQL Performance product that was previously deactivated by using the DELPROD command.
Note

The product must have been activated when the Data Collector was started and then subsequently deactivated by using the DELPROD command. ADDPROD cannot activate a product under any other circumstances.

Figure 69: Syntax of the ADDPROD command

```
DCssid  ADDPROD  productCode
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>(required)  The subsystem ID of the Data Collector to which the product is being added.</td>
</tr>
<tr>
<td>productCode</td>
<td>(required) The product code of the product being added. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>■ ASQ—APPTUNE</td>
</tr>
<tr>
<td></td>
<td>■ PMD—Pool Advisor</td>
</tr>
<tr>
<td></td>
<td>■ PSS—SQL Explorer</td>
</tr>
<tr>
<td></td>
<td>■ AFD—SQL Performance</td>
</tr>
<tr>
<td></td>
<td>■ SPD—BMC System Performance</td>
</tr>
<tr>
<td></td>
<td>■ BDS—MainView for DB2</td>
</tr>
</tbody>
</table>

**ADMIN**

ADMIN is a basic panel command that can be issued from any product panel.

ADMIN causes the Administration menu (DOMEADM1) to be displayed. The Administration menu is the starting point for creating or modifying profiles, viewing or modifying DOMPLEX parameters, and viewing maintenance.
The ADMIN command works only if you have administration authority.

**Figure 70: Syntax of the ADMIN command**

![ADMIN syntax diagram]

Type **ADMIN** on the **Command** line, and press **Enter**.

**BEEP**

BEEP is a basic panel command that can be issued from any product panel. It is a toggle command that alternately disables and enables the terminal "bell" feature. The beep sounds whenever a message is displayed and when an exception condition defined in a report is displayed.

When you use this product under TSO/ISPF, the product determines if beeping is supported by the terminal and defaults to either using beeps or not using beeps based on that information. Under native TSO, the product cannot make this determination and defaults to not using beeps. If you know that the terminal supports beeping, you can use this command to enable this feature.

You can also use this command at any time to disable beeping in situations where frequent messages or exceptions make the noise undesirable.

The setting does not remain in effect across user sessions.

**Figure 71: Syntax of the BEEP command**

![BEEP syntax diagram]

Type **BEEP** on the **Command** line, and press **Enter**.

**CANCEL**

There are two versions of the CANCEL command:
**User session**

CANCEL is a basic panel navigational command that can be issued from any product panel. It causes an exit from the current panel to the previous panel. Any data entry on the current panel is discarded as part of the cancel process.

CANCEL is the default value assigned to the F12 key.

*Figure 72: Syntax of the CANCEL command (user session)*

```
Press F12 or type CANCEL (or an appropriate abbreviation) on the Command line, and press Enter.
```

**Data Collector**

CANCEL is a Data Collector command that can be issued from only the system operator console or the command text area of the Data Collector Command Interface panel (DOMECMDA).

CANCEL cancels a user session (in order to stop traces or loops originated by the user, for example). The user ID is not canceled; only the session for the user is canceled.

*Figure 73: Syntax of the CANCEL command (Data Collector)*

```
DCssid CANCEL userID
```
### Parameter Description

**DCssid**  The ID of the canceled user's Data Collector. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.

**user-id**  *(required)* The logon ID from TSO for the user to be canceled.

---

**Note**
You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

---

### CAPS

CAPS is a basic panel command that can be issued from any product panel. It is a toggle command that alternately changes the text displayed on all panels to uppercase or mixed case.

It can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you perform one of the following actions:

- Change it (using another CAPS command)
- Modify your User Profile
- End your user session

**Figure 74: Syntax of the CAPS command**

![CAPS Command Syntax](image)

Type **CAPS** on the **Command** line, and press **Enter**.

---

### CHANGES

CHANGES is a basic panel command that can be issued from any product panel. It displays the current Summary of Changes for the active products.
**Note**
Summaries of Changes for prior releases can be accessed from the current Summary of Changes.

**Figure 75: Syntax of the CHANGES command**

Type `CHANGES` on the **Command** line, and press **Enter**.

**CLEAR**

CLEAR is a panel-specific command issued from only the following panels:

- Data Collector Command Interface panel (DOMECMDA)
- DB2 Command Interface panel (DOMECMDD)
- z/OS Command Interface panel (DOMECMDV)
- OPERTUNE Command Interface panel (DOMECMDP)

When issued from the Command Interface panels, it clears the contents of the **command text** area of the panel.

If there is command text initially displayed when you access one of these panels and you use the CLEAR command to erase the text, you can subsequently issue the **RESET** command to retrieve the initial contents of the text area.

When issued from the Function Key Values panels, it removes all current function key settings.

**Figure 76: Syntax of the CLEAR command**
Type **CLEAR** on the **Command** line, and press **Enter**.

**CMD**

CMD is a basic panel command that can be issued from any product panel. It displays the Command Interface Menu (DOMECDMDM).

From the Command Interface Menu, you can choose which type of command to issue. The following types of commands are available:

- Data Collector
- z/OS
- DB2
- OPERTUNE

This command is synonymous with the CMDMENU command.

**Figure 77: Syntax of the CMD command**

Type **CMD** on the **Command** line, and press **Enter**.

**CMDBOT**

CMDBOT is a basic panel command that can be issued from any product panel. It causes the **Command** line to be displayed at the bottom of all product panels.

CMDBOT can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you perform one of the following actions:

- Change it using the CMDTOP command
- Modify your User Profile
End your user session

**Figure 78: Syntax of the CMDBOT command**

Type `CMDBOT` (or an appropriate abbreviation) on the *Command* line, and press Enter.

---

**CMDB2**

CMDB2 is a basic panel command that can be issued from any product panel.

CMDB2 displays the DB2 Command Interface panel (DOMECMDD).

Only DB2 commands can be issued from the DB2 Command Interface panel.

**Figure 79: Syntax of the CMDB2 command**

Type `CMDB2` on the *Command* line, and press Enter.

For more information about issuing DB2 commands, see online Help for the DB2 Command Interface panel (type `HELP DOMECMDD`).

---

**CMDDC**

CMDDC is a basic panel command that can be issued from any product panel.

CMDDC displays the Data Collector Command Interface panel (DOMECMDA).
Only Data Collector commands can be issued from the Data Collector Command Interface panel.

**Figure 80: Syntax of the CMDDC command**

Type **CMDDC** on the **Command** line, and press **Enter**.

For more information about issuing Data Collector commands, see online Help for the Data Collector Command Interface panel (type **HELP DOMECMDA**).

**CMDMENU**

CMDMENU is a basic panel command that can be issued from any product panel. It displays the Command Interface Menu (DOMECMDM).

From the Command Interface Menu, you can choose which type of command to issue. The following types of commands are available:

- Data Collector
- z/OS
- DB2
- OPERTUNE for DB2

This command is synonymous with the CMD command.

**Figure 81: Syntax of the CMDMENU command**

Type **CMDMENU** on the **Command** line, and press **Enter**.
CMDOPT

CMDOPT is a basic panel command that can be issued from any product panel.

CMDOPT displays the OPERTUNEOPERTUNE Command Interface panel (DOMECMDP).

Only OPERTUNE commands can be issued from the OPERTUNE Command Interface panel. OPERTUNE commands can be issued only if the BMC Software OPERTUNE product is installed and active.

Figure 82: Syntax of the CMDOPT command

Type CMDOPT on the Command line, and press Enter.

For more information about issuing OPERTUNE commands, see online Help for the OPERTUNE Command Interface panel (type HELP DOMECMDP).

CMDTOP

CMDTOP is a basic panel command that can be issued from any product panel.

CMDTOP causes the Command line to be displayed at the top of all product panels, just below the panel ID and description. It can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you, perform one of the following actions:

- Change it using the CMDBOT command
- Modify your User Profile
End your user session

Figure 83: Syntax of the CMDTOP command

![CMDTOP Syntax Diagram]

Type CMDTOP (or an appropriate abbreviation) on the Command line, and press Enter.

COLOR

COLOR is a basic panel command that can be issued from any product panel.

COLOR builds the product panels in color when you are using native TSO without ISPF. It is a toggle command that alternately enables and disables the color feature.

When you use this product under TSO/ISPF, the product determines if color is supported by the terminal and defaults to either using color or not using color based on that information. Under native TSO, the product cannot make this determination and defaults to not using color. If you know that the terminal supports color, you can use this command to display the panels in color.

The setting has no effect across user sessions.

Figure 84: Syntax of the COLOR command

![COLOR Syntax Diagram]

Type COLOR (or an appropriate abbreviation) on the Command line, and press Enter.

DBCS

DBCS is a basic panel command that can be issued from any product panel.
DBCS is a toggle command that alternately disables and enables DBCS support when you are using native TSO without ISPF.

When you use this product under TSO/ISPF, the product determines if DBCS is supported by the terminal and defaults to either using DBCS or not using DBCS based on that information. Under native TSO, the product cannot make this determination and defaults to not using DBCS. If you know that the terminal supports DBCS, you can use this command to enable this feature.

The setting remains in effect until you perform one of the following actions:

- Change it with another DBCS command
- Modify your User Profile
- End your product session

**Figure 85: Syntax of the DBCS command**

Type **DBCS** on the **Command** line, and press **Enter**.

---

**DEBUG**

DEBUG is a Data Collector command that can be issued from only the system operator console or the **command text** area of the Data Collector Command Interface panel (DOMECMDA).

DEBUG is used to enable or disable various diagnostic functions useful in problem determination.
WARNING
Do not use this command unless instructed by BMC Customer Support. Incorrect use can cause the Data Collector to terminate.

Figure 86: Syntax of the DEBUG command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector for which the debugging function is being enabled or disabled. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td>none</td>
<td>If no parameters are specified, the current settings for all parameters are displayed.</td>
</tr>
<tr>
<td>ON</td>
<td>(optional) Enables the DEBUG function for the specified type. Used without additional parameters, the default type (MSG) is enabled.</td>
</tr>
<tr>
<td>OFF</td>
<td>(optional) Disables the DEBUG function for the specified type. Used without additional parameters, the default type (MSG) is disabled.</td>
</tr>
<tr>
<td>MSG</td>
<td>(optional) When enabled, general diagnostic messages are issued, when appropriate. This is the default.</td>
</tr>
<tr>
<td>DB2</td>
<td>(optional) When enabled, DB2 interface messages are issued, when appropriate.</td>
</tr>
<tr>
<td>FRR</td>
<td>(optional) When enabled, ABEND messages are issued, when appropriate. Error recovery is bypassed.</td>
</tr>
<tr>
<td>I/O</td>
<td>(optional) When enabled, I/O messages are issued, when appropriate.</td>
</tr>
<tr>
<td>SEC</td>
<td>(optional) When enabled, security messages are issued, when appropriate.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>CMD</td>
<td>(optional) When enabled, the command timeout feature is disabled.</td>
</tr>
<tr>
<td>XIT</td>
<td>(optional) When enabled, DOMEXIT3 processes trace records.</td>
</tr>
<tr>
<td>PLEX</td>
<td>(optional) When enabled, diagnostic sysplex messages are issued, when appropriate.</td>
</tr>
<tr>
<td>FLTR</td>
<td>(optional) When enabled, the normal report manager IFCID filtering is performed at the point where the IFCID is to be added to the MRU.</td>
</tr>
</tbody>
</table>

All messages issued as a result of this command are written to the system operator console. WTO records are generated and are written to the trace data set.

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

**DELDB2**

DELDB2 is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

DELDB2 dynamically deletes a DB2 subsystem from the list of DB2 subsystems that can be monitored by a Data Collector.

This command can be used to delete DB2 subsystems previously added using the ADDDB2 command or to suspend use of DB2 subsystems defined in the DOMPLEX option set (without deleting the definition from the DOMPLEX option set).

**Figure 87: Syntax of the DELDB2 command**

```
DELDB2 DCssid DB2ssid
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>The subsystem ID of the Data Collector from which the DB2 subsystem is being deleted. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td>DB2ssid</td>
<td>(required) The subsystem ID of the DB2 subsystem being deleted.</td>
</tr>
</tbody>
</table>

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).
DELPROD

DELPROD is a Data Collector command that can be issued from only the system operator console.

DELPROD dynamically deactivates an active System and SQL Performance product.

Figure 88: Syntax of the DELPROD command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>(required) The subsystem ID of the Data Collector from which the product is being deactivated.</td>
</tr>
<tr>
<td>productCode</td>
<td>(required) The product code of the product being deactivated. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>■ ASQ--APPTUNE</td>
</tr>
<tr>
<td></td>
<td>■ PMD--Pool Advisor</td>
</tr>
<tr>
<td></td>
<td>■ PSS--SQL Explorer</td>
</tr>
<tr>
<td></td>
<td>■ AFD--SQL Performance</td>
</tr>
<tr>
<td></td>
<td>■ SPD--System Performance</td>
</tr>
<tr>
<td></td>
<td>■ BDS--MainView for DB2</td>
</tr>
</tbody>
</table>

DOWN

DOWN is a basic panel command that can be issued from any product panel that contains a scrollable list.

DOWN causes the display to scroll down toward the bottom of the list. The value you specify remains in effect until you perform one of the following actions:

- change it by using the UP command
- modify your User Profile
end your product session

DOWN is the default value assigned to the F8 key.

Figure 89: Syntax of the DOWN command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>If no parameter is specified, the amount scrolled is determined by the scroll amount displayed in the upper right corner of the panel. The default for this value is specified on the Session Options panel of User Options or the User Profile.</td>
</tr>
<tr>
<td>nnnn</td>
<td>(optional) Determines the number of lines scrolled in the range 1-9999.</td>
</tr>
<tr>
<td>MAX</td>
<td>(optional) The bottom of the list is displayed.</td>
</tr>
<tr>
<td>PAGE</td>
<td>(optional) Data is scrolled one full page at a time. The length of a full page varies depending on the number of scrollable lines displayed on the panel.</td>
</tr>
<tr>
<td>HALF</td>
<td>(optional) Data is scrolled a half-page at a time (half the scrollable lines displayed on the panel).</td>
</tr>
<tr>
<td>CSR</td>
<td>(optional) The cursor position determines the number of lines scrolled. The line at the cursor position is displayed at the top of the scrollable area.</td>
</tr>
<tr>
<td>GRP</td>
<td>(optional) Data is scrolled one repeating group at a time. This value is valid only when viewing reports with repeating groups.</td>
</tr>
</tbody>
</table>

To issue the DOWN command, follow one of these steps:

- Press F8 to use the default scrolling amount.
- Type a parameter on the Command line and press F8.
- Type DO (with or without a parameter) on the Command line and press Enter.
DUMP

DUMP is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

DUMP enables or disables the diagnostic dump that occurs at abend retry or takes a diagnostic dump of a specified job.

The output from this command goes to the system DUMP data set. You can verify that system DUMP data sets are available by issuing the following z/OS command from either the z/OS Command Interface panel or the system operator console:

**DISPLAY DUMP,T.**

*Figure 90: Syntax of the DUMP command*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector for which dumps are being enabled or disabled. Use this parameter only when issuing the command from the console. When the command is issued from the Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td>none</td>
<td>If no parameter is specified, the current dump status (ON or OFF) is displayed.</td>
</tr>
<tr>
<td>ON</td>
<td>(optional) To enable error recovery dumps.</td>
</tr>
<tr>
<td>OFF</td>
<td>(optional) To disable dumps.</td>
</tr>
<tr>
<td><strong>jobName</strong></td>
<td>(optional) The name of the job to dump.</td>
</tr>
<tr>
<td><strong>DC</strong></td>
<td>(optional) To dump the Data Collector associated with the specified job. Dump-oriented messages are sent to the Data Collector's syslog.</td>
</tr>
</tbody>
</table>

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type **HELP DOMECMDA**).
**END**

END is a basic panel command that can be issued from any product panel.

END causes a return to the previous panel displayed. Any data entry to the panel is saved or committed as a result of the command. If the User Profile specifies the display of confirmation panels, a confirmation panel is displayed before the data is committed.

END is the default value assigned to the F3 key.

**Figure 91: Syntax of the END command**

```
END
```

Press F3 or type END on the Command line and press Enter.

**ENQS**

ENQS is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

ENQS is used to display enqueue conflicts or all enqueues held or waited for by a specific job or by a specific DB2 subsystem.

**Figure 92: Syntax of the ENQS command**

```
DCssid ENQS jobName DB2ssid ALL *
```
### Parameters and Description

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector to be examined for enqueues. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td><strong>jobName</strong></td>
<td>The name of the job to examine for enqueues.</td>
</tr>
<tr>
<td><strong>DB2ssid</strong></td>
<td>The subsystem ID of the DB2 subsystem to examine for enqueues. The enqueues for each DB2 address space are listed.</td>
</tr>
<tr>
<td><strong>ALL</strong></td>
<td>(optional) Indicates that all enqueues held or waited for by the specified job or DB2 subsystem are displayed (synonymous with *).</td>
</tr>
<tr>
<td>*****</td>
<td>(optional) Indicates that all enqueues held or waited for by the specified job or DB2 subsystem are displayed (synonymous with ALL).</td>
</tr>
<tr>
<td><strong>default</strong></td>
<td>If no parameter is specified after the job name or DB2 subsystem ID, only enqueue conflicts are displayed.</td>
</tr>
</tbody>
</table>

### Figure 93: Sample output from the ENQS command

<table>
<thead>
<tr>
<th>ENQ:Job</th>
<th>Own</th>
<th>Wait</th>
<th>Type</th>
<th>MAJOR</th>
<th>MINOR</th>
<th>..</th>
<th>DBY1MSTR 001 000</th>
<th>SHR</th>
<th>SYSVSAM</th>
<th>DSNDBY.DBY1.BSDS01.DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.BSDS01.INDEX</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY2.DS01.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY1.DS01.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY2.DS0X.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY1.DS01.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY2.DS0X.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY1.DS01.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY2.DS01.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY1.DS02.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY2.DS01.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY2.DS04.DATA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DBY1MSTR 001 000</td>
<td>SHR</td>
<td>SYSVSAM</td>
<td>DSNDBY.DBY1.LOGCOPY1.DS01.DATA</td>
</tr>
</tbody>
</table>

F1=Help    F2=Split    F3=Exit    F4=Sort A    F5=Sort D    F6=IEdit    F7=Backward    F8=Forward    F9=Swap    F10=Left    F11=Right    F12=Cancel

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

### ERASE

ERASE is a panel-specific command that can be issued from either the Log Options panel (DOMEUOP5) or the Log Operations panel (DOMERLOG).
It erases the contents of the report log. The Log Erase menu (DOMELER1) is displayed for confirmation of the erase request.

**Figure 94: Syntax of the ERASE command**

```
ERASE
```

Type `ERASE` on the **Command** line, and press **Enter**.

You can find information about report logging in online Help (type **HELP RPTLOG**).

**EXPAND**

EXPAND is a report-specific command that can be issued only from reports.

EXPAND is used to access detailed information on selected topics, which isn't automatically displayed when a report is activated.

Many reports contain multiple levels of detail. Only the highest (least detailed) is displayed when the report is initially activated. The EXPAND command causes one or more suppressed levels to be displayed.

EXPAND ALL is the default value assigned to the **F21** key.

**Figure 95: Syntax of the EXPAND command**

```
EXPAND [ALL | OFF | codes]
```
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>If this command is issued without a parameter, the data at the position of the cursor is expanded. If multiple EXPAND options are available at that cursor position, a selection list is displayed from which you can select one or more options.</td>
</tr>
<tr>
<td>ALL</td>
<td>(optional) Expands all expandable areas of the report.</td>
</tr>
<tr>
<td>OFF</td>
<td>(optional) Contracts all areas previously expanded by EXPAND commands.</td>
</tr>
<tr>
<td>codes</td>
<td>(optional) One to four single character expand codes; when specified, all areas identified by the specified codes are expanded across the entire report. Any other expandable areas are contracted, unless expanded on initial view.</td>
</tr>
</tbody>
</table>

To issue the EXPAND command, follow one of these steps:

- Type an action code in the selection field beside the group to be expanded, and press Enter.
- Type EXPAND on the Command line, move the cursor to the group to be expanded, and press Enter.
- Type EXPAND on the Command line with parameters and press Enter.
- Move the cursor to a group to be expanded, and press F21 (all groups will be expanded).

**EXPORT**

EXPORT is a report-specific command that can be issued only from reports.

EXPORT copies the source record file for the current report (all IFCIDs used by the report) to an external DASD data set.

The EXPORT Source Record File panel (DOMEQPRD) is displayed and prompts you for the data set name. The data set must be allocated and cataloged with the following attributes before you issue the EXPORT command:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECFM</td>
<td>V, VB, or VBS</td>
</tr>
<tr>
<td>DSORG</td>
<td>PS</td>
</tr>
</tbody>
</table>
| LRECL     | if RECFM is V: Ignored  
if RECFM is VB: Size of the largest record (up to 32 KB)  
if RECFM is VBS: Size of the largest record (up to 32KB) |
### Attribute Table

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
</table>
| BLKSIZE   | if RECFM is V: Size of the largest record (up to 32KB)  
            | if RECFM is VB: LRECL plus 4  
            | if RECFM is VBS: Optional |

If you are unsure of the size of your largest record, use the following attributes:

- RECFM: VB
- LRECL: 32756
- BLKSIZE: 32760

When the EXPORT completes successfully, message BMC24248 is issued to tell you the number of records that were written to the data set. You can later view this exported data by activating the same report and using the data set as the source.

**Figure 96: Syntax of the EXPORT command**

```
EXPORT
```

Type **EXPORT** (or an appropriate abbreviation) on the **Command** line, and press **Enter**.

### FIND

**FIND** is a basic panel command that can be issued from any panel containing free-form text (for example, reports and Help panels). It is used to find a specified string of text and move the cursor to the text.
Figure 97: Syntax of the FIND command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| string    | The text to be found. This text can consist of one or more words. When a string consists of more than one word, it must be enclosed in apostrophes (') or quotation marks (").
| *         | Indicates that the FIND command should search for the same string as the previous FIND command. |
| none      | When no optional parameter is specified after the string, the search begins at the current cursor position and searches forward toward the bottom of the data. |
| FIRST     | Indicates that the search should begin at the top of the data and find the first occurrence of the string. |
| LAST      | Indicates that the search should begin at the bottom of the data and find the last occurrence of the string. |
| PREV      | Indicates that the search should begin at the current cursor position and search back toward the top of the data. |

**FKA**

FKA (function key area) is a basic panel command that can be issued from any product panel.

FKA changes the display of function keys, alternating between the primary keys, alternate keys, and no display. It can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you perform one of the following actions:

- Change it using PFSHOW, FKA, or KEYS
- Modify your User Profile
- End your product session
**Note**
The alternate keys are displayed only if 24 function keys are specified in ISPF.

This command is synonymous with PFSHOW and KEYS. The FKA/PFSHOW/KEYS function is the default value assigned to the F14 key.

**Figure 98: Syntax of the FKA command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Each time the command is issued the display of function keys alternates between the primary keys, alternate keys, and no display.</td>
</tr>
<tr>
<td>ON</td>
<td>(optional) The primary function keys are displayed.</td>
</tr>
<tr>
<td>OFF</td>
<td>(optional) Display of function keys is turned off.</td>
</tr>
</tbody>
</table>

Press F14, or type FKA (with or without a parameter) on the Command line and press Enter.

**FKEYS**

FKEYS is a basic panel command that can be issued from any product panel outside of User Options.

FKEYS displays the User Function Key Values panel (DOMEUOP4). The User Function Key Values panel is used to change the default values for function keys.

This command is synonymous with PFKEYS and PFKS.

**Figure 99: Syntax of the FKEYS command**

FKEYS is a basic panel command that can be issued from any product panel outside of User Options.

FKEYS displays the User Function Key Values panel (DOMEUOP4). The User Function Key Values panel is used to change the default values for function keys.

This command is synonymous with PFKEYS and PFKS.
Type **FKEYS** (or an appropriate abbreviation) on the **Command** line, and press **Enter**.

**HELP**

HELP is a basic panel command that can be issued from any product panel.

HELP causes informational text to be displayed. The topic of the text depends on the parameter specified in the command, the point at which the command is issued, or the position of the cursor.

**Figure 100: Syntax of the HELP command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>If no parameter is specified, the following rules are applied in the following order to determine the nature of the Help text displayed:</td>
</tr>
<tr>
<td></td>
<td>1 If there is a message displayed on the panel, Help for that message is displayed.</td>
</tr>
<tr>
<td></td>
<td>2 If the cursor is on a report data field, Help for that report field is displayed.</td>
</tr>
<tr>
<td></td>
<td>3 If a report is displayed, Help for that report is displayed.</td>
</tr>
<tr>
<td></td>
<td>4 Help for the current panel is displayed.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>nonspecificObject</td>
<td>(optional) If an object is specified without an object type, all types are searched for an object with the specified name. The Help text for the first object that matches is displayed. If no object is found with the specified name, an error message is displayed.</td>
</tr>
<tr>
<td>commandName</td>
<td>(optional) Help is available for all System and SQL Performance product commands. Command names cannot be abbreviated when used with the HELP command. Type HELP COMMANDS for a selection list of all commands.</td>
</tr>
<tr>
<td>panellID</td>
<td>(optional) Help is available for all product panels. Specify the 8-character panel identifier. Type HELP PANELS for a selection list of all panels.</td>
</tr>
<tr>
<td>messageID</td>
<td>(optional) Help is available for all product messages. Specify the message identifier in the format BMC nnnnn. Type HELP TUT(MESSAGES) for a selection list of all messages. Help is also available for all OPERTUNE messages. Note: OPERTUNE is a BMC Software product that is used to change DSNZPARM values dynamically.</td>
</tr>
<tr>
<td>tutorialName</td>
<td>(optional) Help is available for a number of general topics not associated with specific objects. Specify the tutorial name. Type HELP TUTORIAL for a selection list of tutorial topics.</td>
</tr>
<tr>
<td>reportName</td>
<td>(optional) Help is available for all product reports. Specify the 8-character report name. Type HELP REPORTS for a selection list of all reports.</td>
</tr>
</tbody>
</table>

Type HELP (with or without a parameter) on the Command line, and press Enter.

**HILITE**

HILITE is a basic panel command that can be issued from any product panel. It enables highlighting support when you are using native TSO without ISPF.

Highlighting includes the ability to display text using the following special attributes:

- **Bold**
- **Reverse video**
- **Underscoring**
- **Blinking**

HILITE is a toggle command that alternately enables and disables the highlighting feature.
When you use this product under TSO/ISPF, the product determines if highlighting is supported by the terminal and defaults to either using highlighting or not using highlighting based on that information. Under native TSO, the product cannot make this determination and defaults to not using highlighting. If you know that the terminal supports highlighting, you can use this command to enable the feature.

The setting remains in effect until you either change it or end your product session. It does not remain in effect across user sessions.

**Figure 101: Syntax of the HILITE command**

```
HILITE
```

Type HILITE on the Command line, and press Enter.

**HOME**

HOME is a basic panel command that can be issued from any product panel. It moves the cursor to the Command line. If your Command line is displayed at the bottom of the screen, you can assign this command to a function key for quick access to the Command line without tabbing through all input fields.

**Figure 102: Syntax of the HOME command**

```
HOME
```

**IEDIT**

IEDIT is a panel-specific command that can be issued from only the following panels:

- Data Collector Command Interface panel (DOMECMDA)
Use this command to export the command text from any of these panels to an ISPF edit session. When you are finished editing, you can End or Cancel:

- **End** to return to the panel from which the command was issued. The edited text is displayed in the command text area.

- **Cancel** to return to the panel from which the command was issued. The edited text is discarded. The text in the command text area remains as it was before the IEDIT command was issued.

**Figure 103: Syntax of the IEDIT command**

Type IEDIT on the Command line and press Enter.

**IFCIDS**

IFCIDS is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

IFCIDS displays the current trace activity for a Data Collector by IFCID.

**Figure 104: Syntax of the IFCIDS command**
### Parameter Descriptions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector from which the request originates. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td><strong>DB2ssid</strong></td>
<td>The subsystem ID of the DB2 subsystem being checked for trace activity.</td>
</tr>
<tr>
<td><strong>ALL</strong></td>
<td>Indicates that trace activity will be checked for all active DB2 subsystems being monitored by the specified Data Collector. ALL is the default.</td>
</tr>
</tbody>
</table>

#### Figure 105: Sample output from the IFCIDS command

```
DOMECMDO/P Command Interface  LINE 1 OF 37
Command ===> ____________________________________ Scroll ===> CSR__
BMC24237 Press Enter to reissue the last command
More: + >
BMC24325 DOMX DBAD Received Filtered Buffered Written --Status--
BMC24324 DOMX DB2  1 95 95 95 AUTO ACT
BMC24324 DOMX DB2  2 95 95 95 AUTO ACT
BMC24324 DOMX DB2  3 35 35 35 AUTO ACT
BMC24324 DOMX DB2  31 AUTO ACT
BMC24324 DOMX DB2  54 AUTO ACT
BMC24324 DOMX DB2  102 AUTO ACT
BMC24324 DOMX DB2  103 AUTO ACT
BMC24324 DOMX DB2  104 1 1 1 AUTO ACT
BMC24324 DOMX DB2  105 95 95 95 AUTO ACT
BMC24324 DOMX DB2  106 1 1 1 AUTO ACT
BMC24324 DOMX DB2  107 69 69 69 AUTO ACT
BMC24324 DOMX DB2  172 AUTO ACT
BMC24324 DOMX DB2  196 AUTO ACT
BMC24324 DOMX DB2  202 95 95 95 AUTO ACT
BMC24324 DOMX DB2  203 AUTO ACT
BMC24324 DOMX DB2  204 AUTO ACT
BMC24324 DOMX Command completed RC=0000 "IFCIDS"
F1=Help      F2=Split     F3=Exit      F4=Sort A    F5=Sort D    F6=IEdit
F7=Backward  F8=Forward   F9=Swap     F10=Left     F11=Right    F12=Cancel
```

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA ).

### KEYS

**KEYS** is a basic panel command that can be issued from any product panel.

**KEYS** changes the display of function keys, alternating between the primary keys, alternate keys, and no display. It can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you

- Change it using PF$HOW, FKA, or KEYS, or
- Modify your User Profile, or
- End your product session
The alternate keys are displayed only if 24 function keys are specified in ISPF.

This command is synonymous with PFSHOW and FKA. KEYS/PFSHOW/FKA is the default value assigned to the F14 key.

Figure 106: Syntax of the KEYS command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Each time the command is issued the display of function keys alternates between the primary keys, alternate keys, and no display.</td>
</tr>
<tr>
<td>ON</td>
<td>(optional) The primary function keys are displayed.</td>
</tr>
<tr>
<td>OFF</td>
<td>(optional) Display of function keys is turned off.</td>
</tr>
</tbody>
</table>

Press F14, or type KEYS (with or without a parameter) on the Command line and press Enter.

LEFT

LEFT is a basic panel command that can be issued from any product panel containing a wide-mode table (132 columns) when the current screen width is 80 columns.

LEFT shifts the data in the table to the left, displaying the previously hidden data. The number of columns shifted depends on the position of the table and the position of the cursor at the time the command is issued.
LEFT is the default function assigned to the F10 key.

**Figure 107: Syntax of the LEFT command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Data is shifted the maximum number of columns possible.</td>
</tr>
<tr>
<td>nnn</td>
<td>(optional) Data is shifted the indicated number of columns, up to the maximum possible.</td>
</tr>
</tbody>
</table>

Issue the LEFT command in one of the following ways:

- Press F10.
- Type a parameter on the **Command** line and press F10.
- Type LEFT (with or without a parameter) on the **Command** line, and press **Enter**.

**LOCATE**

LOCATE is a basic panel command that can be issued from any product panel containing a keyed scrollable table (the list of User Profiles, for example).

LOCATE finds a specific string of text and moves the row containing that text to the top of the display area. Only the text in the column that is the key is searched. If a SORT command is used to change the key, subsequent LOCATE commands search on the new key field.

**Figure 108: Syntax of the LOCATE command**
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>string</td>
<td>(required) The text to be found. This text can consist of one or more words. When a string consists of more than one word, it must be enclosed in apostrophes (') or quotation marks (&quot;).</td>
</tr>
</tbody>
</table>

Type **LOCATE** (or an appropriate abbreviation) on the **Command** line and press **Enter**.

**LOG**

LOG is a basic panel command that can be issued from any product panel or report.

LOG copies the contents of the current panel or report to your report log data set for later viewing or printing.

**Figure 109: Syntax of the LOG command**

```
LOG
  REMARKS(text)
  SCREEN
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>If the command is issued from a report, the entire contents of the report output buffer is copied to the report log data set and the report name and description are copied as Remarks. If a report is larger than the size of the report output buffer, separate LOG commands must be issued for each portion of the report to log the entire report. If the command is issued from a panel, the screen image of the panel is copied to the report log data set and the panel description is copied as Remarks.</td>
</tr>
<tr>
<td>text</td>
<td>(optional) Type any text (up to 40 characters) to describe the logged panel or report. This description is displayed under Remarks on the Log Operations panel list of report log entries. If no Remarks text is specified, the report name and description are used for reports and the panel description is used for panels.</td>
</tr>
</tbody>
</table>
**Parameter** | **Description**
--- | ---
SCREEN | (optional) Causes only the current screen image to be copied. This value is implicit for panels, even those with scrollable tables. To copy the contents of an entire table when it extends beyond one screen image, separate LOG commands must be issued for each portion of the table. The default for reports is to copy the entire contents of the report output buffer to the report log. Use the SCREEN option to limit the logged image to the currently displayed portion of the report.

Type **LOG** (with or without a parameter) on the **Command** line of any panel or report, and press **Enter**.

For more information about report logging, see online Help (type **HELP RPTLOG**).

**LOGOP**

LOGOP is a basic panel command that can be issued from any product panel.

LOGOP displays the Log Operations panel (DOMERLOG). The Log Operations panel is used to view or print the contents of a report log.

*Figure 110: Syntax of the LOGOP command*

```
LOGOP
```

Type **LOGOP** on the **Command** line and press **Enter**.

For more information about report logging, see online Help (type **HELP RPTLOG**).

**MENU**

MENU is a basic panel command that can be issued from any product panel. It displays the Available Commands panel (DOMECOME) containing a list of commands that can be issued from the current panel or report.

Some of the commands listed are selectable. Type **S** in the selection field and press **Enter** to issue the command. Other commands cannot be selected because they
require parameters. You must return to the panel or report from which MENU was issued and type the command on the Command line if a parameter is required.

Help is available for all commands in the list. Move the cursor to the line that describes the command, and press F1 (Help).

This command is synonymous with SHOWCMDS. SHOWCMDS/MENU is the default value assigned to the F6 key except when you are viewing reports or the following Explain panels.

- Explain Object Selection List (PSSPE100)
- Explain Results panel (PSSPE200)

You can also issue MENU by typing a question mark (?) on the Command line and pressing Enter.

**Figure 111: Syntax of the MENU command**

```
MENU
```

Type MENU or ? on the Command line and press Enter.

**MODIFY**

MODIFY is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

MODIFY is used to display or modify:

- The timeout limit for the execution of commands from the Command Interface panels
- The APPTUNE collection interval

**Figure 112: Syntax of the MODIFY command**

![Syntax Diagram]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>The subsystem ID of the Data Collector for which values are to be modified or displayed. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface input panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td>TIMEOUT</td>
<td>If TIMEOUT is specified without minutes, the current time-out limit for the execution of commands from the Command Interface panels for the specified Data Collector is displayed.</td>
</tr>
<tr>
<td>minutes</td>
<td>(optional) Specify a number of minutes in the range 1-60 to modify the time-out limit for the execution of commands from the Command Interface panels for the specified Data Collector.</td>
</tr>
<tr>
<td>APPCYCLE</td>
<td>If APPCYCLE is specified with only DB2ssid, the current APPTUNE collection interval for this DB2 subsystem is displayed. If APPCYCLE is specified with both DB2ssid and minutes, the APPTUNE collection interval for the specified DB2 subsystem is modified to the new value. Valid values are any number in the range 0-9999. Example: The current interval begins at 10:00 and is set to 60. At 10:15, the interval is modified to 11 minutes. The next interval sample occurs at approximately 10:26, followed by another at 10:37, followed by another at 10:48, and so on. Note: If you specify a value greater than 1440, the collection interval will be longer than 24 hours. If you specify 0, the current value will remain unchanged.</td>
</tr>
</tbody>
</table>

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

**Figure 113: Sample output from the MODIFY command**

```
DOMECMOO/I Command Interface LINE 1 OF 2
Command ===> __________________________________________ Scroll ===> PAGE
BMC24237 Press Enter to reissue the last command More: >
BMC24925 SXSO MODIFY issued: TIMEOUT set to 1
BMC24321 SXSO Command complete RC=0000 "MODIFY TIMEOUT"
```
NEXT

NEXT is a command that applies only to reports when more data has been collected than can fit in the report output buffer.

When the report generation process cannot display all of the collected report data, a message is issued and the last displayed line indicates that more data is available. The data can be viewed only in segments the size of the report output buffer. Use the NEXT command to retrieve and display each segment of data. Use the TOP command to redisplay the first segment.

Figure 114: Syntax of the NEXT command

Type NEXT on the Command line and press Enter.

For more information about segmented viewing of reports, see online Help (type HELP SEGMENT).

OBJSUM

OBJSUM is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.

OBJSUM dynamically updates the object name and identifier table for a specific DB2 subsystem. The object name and identifier table contains the names of tables and indexes and their creators.

The product automatically creates and populates one table for each DB2 subsystem at system startup time. If new tables or indexes are created after system startup, there are no entries for them in the table and they will be identified as type U (Unknown) on APPTUNE/SQL Performance reports. Use the OBJSUM command to
dynamically update the table to identify all objects created since system startup (or the last OBJSUM command).

**Figure 115: Syntax of the OBJSUM command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2ssid</td>
<td>(required) The subsystem ID of the DB2 subsystem for which the object and identifier table is to be updated.</td>
</tr>
</tbody>
</table>

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

**OPTIONS**

OPTIONS is a basic panel command that can be issued from any product panel outside of User Options.

OPTIONS displays the User Options Menu (DOMEUOP0). The User Options Menu offers a selection of panels used to modify the User Profile.

**Figure 116: Syntax of the OPTIONS command**

Type OPTIONS (or an appropriate abbreviation) on the Command line and press Enter.

For more information about User Options, see online Help (type HELP TOPTIONS).
OUTLIM

OUTLIM is a report manipulation command that can be issued only while viewing a report.

OUTLIM applies only to reports containing repeating groups of data. OUTLIM changes the number of repetitions of data that are displayed and is most useful when used in combination with the SORT command.

You could use OUTLIM 10 with the Batch Statement Analysis report sorted by CPU time usage to display only the top 10 statements using the largest percentage of CPU time.

Figure 117: Syntax of the OUTLIM command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>There is no limit to the number of repeating groups reported. Use this parameter to cancel a previously set output limit.</td>
</tr>
<tr>
<td>nnnn</td>
<td>The number of repeating groups to be displayed. Valid values are any number in the range 1-9999.</td>
</tr>
</tbody>
</table>

Type OUTLIM (with an appropriate parameter) on the Command line of any report, and press Enter.

PANELID

PANELID is a basic panel command that can be issued from any product panel. It is a toggle command that causes the panel ID to be either displayed in the upper left corner of all product panels or suppressed.

PANELID can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you perform one of the following tasks:

- Change it using the PANELID command
- Modify your User Profile
- End your product session

**Figure 118: Syntax of the PANELID command**

```
PANELID
```

Type **PANELID** on the **Command** line and press **Enter**.

**PFKEYS**

PFKEYS is a basic panel command that can be issued from any product panel outside of User Options. It displays the User Function Key Values panel (DOMEUOP4). The User Function Key Values panel is used to change the default values for function keys.

This command is synonymous with FKEYS and PFKS.

**Figure 119: Syntax of the PFKEYS command**

```
PFKEYS
```

Type **PFKEYS** (or an appropriate abbreviation) on the **Command** line and press **Enter**.

**PFKS**

PFKS is a basic panel command that can be issued from any product panel outside of User Options. It displays the User Function Key Values panel (DOMEUOP4). The User Function Key Values panel is used to change the default values for function keys.
This command is synonymous with FKEYS and PFKEYS.

**Figure 120: Syntax of the PFKS command**

![PFKS Syntax](image)

Type **PFKS** on the **Command** line and press **Enter**.

## PFSHOW

PFSHOW is a basic panel command that can be issued from any product panel. It changes the display of function keys, alternating between the primary keys, alternate keys, and no display. It can be used to temporarily override the value specified in the User Profile, but it does not change that value. The new value remains in effect until you

- Change it using PFSHOW, FKA, or KEYS, or
- Modify your User Profile, or
- End your product session

**Note**
The alternate keys are displayed only if 24 function keys are specified in ISPF.

This command is synonymous with KEYS and FKA. The PFSHOW/FKA/KEYS command is the default value assigned to the **F14** key.

**Figure 121: Syntax of the PFSHOW command**

![PFSHOW Syntax](image)
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Each time the command is issued, the display of function keys alternates between the primary keys, alternate keys, and no display.</td>
</tr>
<tr>
<td>ON</td>
<td>The primary function keys are displayed.</td>
</tr>
<tr>
<td>OFF</td>
<td>Display of function keys is turned off.</td>
</tr>
</tbody>
</table>

Press F14, or type PFSHOW (with or without a parameter) on the Command line and press Enter.

**PRODUCTS**

PRODUCTS is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or the system operator console.

PRODUCTS displays a list of all currently active BMC System and SQL Performance products for DB2, which includes the following products:

- SQL Performance (SQLPerf)
- System Performance (SysPerf)
- APPTUNE
- Pool Advisor (Pool Adv)
- OPERTUNE
- SQL Explorer (SQL Exp)
- MainView for DB2 (MV/DB2)
- MainView for DB2 - Data Collector (MV/DB2DC)

**Figure 122: Syntax of the PRODUCTS command**
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>The subsystem ID of the Data Collector. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
</tbody>
</table>

**Figure 123: Sample output from the PRODUCTS command**

```
OMECMD0/P                     Command Interface                  LINE 1 OF 15
Command ===> _______________________________________________ Scroll ===> CSR_
BMC24237 Press Enter to reissue the last command
BMC24333  Product active count: 014
BMC24334  Product           Jobname   ASID  Start Time
BMC24335  OPERTUNE  4.3.00  DOMPH01  00F1  09/13/04  13:42:31
BMC24335  SQLPerf   5.3.00  DOMPH01  00FD  09/13/04  14:00:03
BMC24335  SysPerf   5.3.00  DOMPH01  00FD  09/13/04  14:00:03
BMC24335  Pool Adv  5.3.00  DOMDC02  011D  09/13/04  15:55:00
BMC24335  SQLPerf   5.3.00  DOMZ420M 00AC  09/13/04  17:32:53
BMC24335  SysPerf   5.3.00  DOMZ420M 00AC  09/13/04  17:32:53
BMC24335  SQLPerf   5.1.02  AFDQA    009E  09/13/04  19:04:53
BMC24335  SysPerf   5.3.00  DOMO      0132  09/14/04  07:48:19
BMC24335  SQLPerf   5.3.00  DOMCLCC1 018B  09/14/04  08:36:48
BMC24335  SysPerf   5.3.00  DOMCLCC1 018B  09/14/04  08:36:48
BMC24321 LCC1 Command completed RC=0000  "PRODUCTS"
```

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

**QUIT**

QUIT is a basic panel command that can be issued from any product panel. It causes a quick complete exit from the product in a manner equivalent to repeated executions of the CANCEL command followed by selection of option X on the Main Menu. Data that is being changed at the time the QUIT command is issued is not saved.

**Figure 124: Syntax of the QUIT command**

```
QUIT
```

Type QUIT on the Command line and press Enter.

**REFRESH**

REFRESH is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or the system operator console.
REFRESH is used to rebuild:

- The product user authorization tables from the DB2 catalog
- The trace data set indexes from all trace data sets of some or all output groups

**Figure 125: Syntax of the REFRESH command**

![Syntax of the REFRESH command]

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector that owns the user authorization tables to be rebuilt, or the trace data set indexes to be rebuilt. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td><strong>AUTH</strong></td>
<td>The user authorization tables for the specified (or currently selected) Data Collector are rebuilt from the DB2 catalog. This is done using direct I/O (not SQL). It is needed after a GRANT for user trace/command authority when DB2 security is being used by this product (and ignored if product security is being used). To ensure correct results, invoke the DB2 QUIESCE utility for the SYSUSER table space before issuing the REFRESH command</td>
</tr>
<tr>
<td><strong>DB2ssid</strong></td>
<td>The subsystem ID of the DB2 subsystem that owns the authorization tables to be rebuilt.</td>
</tr>
<tr>
<td><strong>ALL</strong></td>
<td>Indicates that the authorization tables for all DB2 subsystems being monitored by the specified Data Collector are to be rebuilt.</td>
</tr>
</tbody>
</table>

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

**RESET**

RESET is a command issued from several panels.

The function of RESET depends on the panel from which it is issued.

See:

- “Function keys” on page 165
Function keys

RESET is used from the following panels to reset the default values for function keys to the values originally shipped with the product:

- User Function Key Values (DOMEUOP4) in User Options
- User Profile Function Key Values (DOMEUPR7) in the User Profile

Command interfaces

RESET is used from the following panels to reset the contents of the command text area to its initial value:

- Data Collector Command Interface panel (DOMECMDA)
- DB2 Command Interface panel (DOMECMDD)
- z/OS Command Interface panel (DOMECMDV)
- OPERTUNE Command Interface panel (DOMECMDP)

Figure 126: Syntax of the RESET command

![Syntax of the RESET command]

Type **RESET** on the **Command** line and press **Enter**.

RETRIEVE

RETRIEVE is a basic panel command that can be issued from any product panel. It redisplays the last command issued on the **Command** line (excluding navigation and scrolling commands like EXIT and DOWN). Repeated invocations of the command cause retrieval of successive commands from a stack 18 levels deep.
RETRIEVE is the default value assigned to the F24 key.

**Figure 127: Syntax of the RETRIEVE command**

Press F24 or type RETRIEVE (or an appropriate abbreviation) on the Command line and press Enter.

**RETURN**

RETURN is a basic panel command that can be issued from any product panel. It causes a series of END commands to be issued automatically until you back up to the product’s main menu.

Data that is being changed at the time the RETURN command is issued is saved. A confirmation panel is displayed if you have requested confirmations (via the Session Options panel of either the User Profile or User Options).

**Figure 128: Syntax of the RETURN command**

Type RETURN on the Command line and press Enter.

**RFIND**

RFIND is a basic panel command that can be issued from the same product panels as the FIND command (panels containing free-form text). It reissues the previous FIND command (including the direction).
RFIND is the default value assigned to the F17 key.

Figure 129: Syntax of the RFIND command

Press F17 or type RFIND on the Command line and press Enter.

RIGHT

RIGHT is a basic panel command that can be issued from any product panel containing a wide-mode table (132 columns) when the current screen width is 80 columns.

RIGHT shifts the data in the table to the right, displaying previously hidden data. The number of columns shifted depends on the position of the table and the position of the cursor at the time the command is issued.

RIGHT is the default value assigned to the F11 key.

Figure 130: Syntax of the RIGHT command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>Data is shifted the maximum number of columns possible.</td>
</tr>
<tr>
<td>nnn</td>
<td>Data is shifted the indicated number of columns, up to the maximum possible.</td>
</tr>
</tbody>
</table>

To issue the RIGHT command:

- Press F11.
- Type a parameter on the Command line and press F11.
- Type **RIGHT** (with or without a parameter) on the **Command** line, and press **Enter**.

**RLOG**

RLOG is a basic panel command that can be issued from any product panel.

RLOG displays the Log Options panel (DOMEUOP5). The Log Options panel is used to specify whether automatic report logging takes place and to specify the report log and print log data sets.

**Figure 131: Syntax of the RLOG command**

Type **RLOG** on the **Command** line and press **Enter**.

For more information about report logging, see online Help (type **HELP RPTLOG**).

**SHOWCMDS**

SHOWCMDS is a basic panel command that can be issued from any product panel.

SHOWCMDS displays the Available Commands panel containing a list of commands that can be issued from the current panel or report.

Some of the commands listed are selectable. Type **S** in the selection field and press **Enter** to issue the command.

Other commands cannot be selected because they require parameters. You must return to the panel or report from which SHOWCMDS was issued and type these commands on the **Command** line.

Help is available for all commands in the list. Move the cursor to the line that describes the command, and press **F1** (Help).

This command is synonymous with MENU. SHOWCMDS/MENU is the default value assigned to the **F6** key except when you are viewing reports or the following Explain panels.
- Explain Object Selection List (PSSPE100)
- Explain Results panel (PSSPE200)

You can also issue SHOWCMDS by typing a question mark (?) on the **Command** line and pressing **Enter**.

**Figure 132: Syntax of the SHOWCMDS command**

```
SHOWCMDS
```

Type **SHOWCMDS** or ? on the **Command** line and press **Enter**.

## SHUTDOWN

SHUTDOWN is a Data Collector command that can be issued from only the system operator console.

SHUTDOWN stops a Data Collector subsystem, either in a normal manner or without saving trace data.

### Note

The SHUTDOWN IMMEDIATE and STOP commands are mutually exclusive. If you issue both of these commands, only the command issued first will be recognized.

**Figure 133: Syntax of the SHUTDOWN command**

```
DCssid  SHUTDOWN  IMMEDIATE
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>(required) The subsystem ID of the Data Collector to be stopped.</td>
</tr>
</tbody>
</table>
### Parameter Description

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMMEDIATE</td>
<td>(optional) Stops the Data Collector quickly without saving data that has been collected, but not written to the trace data sets. If you submit the SHUTDOWN command without the IMMEDIATE parameter, the Data Collector shuts down in a normal manner. Note: If you issue a SHUTDOWN IMMEDIATE, the subsequent start of the Data Collector will take longer than usual because the index for the trace data sets will have to be rebuilt. This parameter should be used only under emergency conditions.</td>
</tr>
</tbody>
</table>

## SORT

SORT is a basic panel command that can be issued from any product panel containing a keyed scrollable table and in reports containing repeating groups of data.

SORT is used to change the order of data displayed:

- On keyed scrollable panels, the SORT command changes the column used as the sort key.

- On reports containing repeating groups, the groups are rearranged using the indicated field as the sort key within the boundaries of the group level. Both a primary and secondary sort key can be specified.

SORT A (ascending) is the default value assigned to the **F4** key and SORT D (descending) is the default value assigned to the **F5** key.

*Figure 134: Syntax of the SORT command*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Applies to reports only. Used to specify the primary sort key. 1 is the default.</td>
</tr>
<tr>
<td>2</td>
<td>Applies to reports only. Used to specify the secondary sort key.</td>
</tr>
<tr>
<td>ASCENDING</td>
<td>Data is sorted in alphabetical or numerical order with the lowest value listed first. ASCENDING is the default.</td>
</tr>
</tbody>
</table>
To issue the SORT command, perform one of the following actions:

- Type **SORT** (with or without parameters) on the **Command** line, move the cursor to the column to be used as the sort key, and press **Enter**

- Move the cursor to the column to be the new sort key, and press **F4** or **F5**

**SPFOFF**

SPFOFF is a basic panel command that can be issued from any product panel.

SPFOFF disables the use of ISPF as the dialog display mechanism. This value remains in effect until you either change it or end your product session.

This command is ignored if it is issued from a session running under native TSO.

**Note**

If you issue an ISPF command (SPLIT or SWAP, for example) while ISPF is off, the product turns ISPF on while the command is being executed and off again when the command is no longer in effect.

**Figure 135: Syntax of the SPFOFF command**

```
+-----------+
| SPFOFF    |
+-----------+
```

Type **SPFOFF** on the **Command** line and press **Enter**.

**SPFON**

SPFON is a basic panel command that can be issued from any product panel. It enables the use of ISPF as the dialog display mechanism when it has been temporarily disabled using the SPFOFF command. This value remains in effect until you either change it or end your product session.
This command is ignored if it is issued from a session running under native TSO.

Figure 136: Syntax of the SPFON command

Type SPFON on the Command line and press Enter.

STATUS

The STATUS command can be used to display three types of status information:

- “User session” on page 172 information (the Session Status panel) when issued from a panel

- “Report information” on page 173 (the Report Status panel) when issued from a report

- The status of the “Data Collector” on page 174 when issued from the command text area of the Data Collector Command Interface panel (DOMECMDA), or the system operator console

User session

When issued from a non report panel, the STATUS command displays the Session Status panel (DOMEGSTA).

The Session Status panel contains a summary of information about your current user session, including a list of your currently active reports. In this instance, the STATUS command is the same as the STATUSS command (see STATUSS on page 176).

Figure 137: Syntax of the STATUS command (user session)
Type `STATUS` on the Command line and press `Enter`.

**Figure 138: Sample output from the STATUS command (user session)**

<table>
<thead>
<tr>
<th>Report</th>
<th>Status</th>
<th>Type</th>
<th>Description</th>
<th>Src</th>
<th>Strg Wkfl</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDMAIN</td>
<td>VIEWING</td>
<td>PRIME SYSPLEX</td>
<td>DB2 MONITOR</td>
<td>DC</td>
<td>325K</td>
</tr>
</tbody>
</table>

These Reports are in ACTIVE status.

**Report information**

When issued from a report, the STATUS command displays the Report Status panel (DOMERSTA).

The Report Status panel contains a summary of information about the report being viewed and a number of selection fields providing access to more detailed information.

**Note**

While you can issue the STATUSS command from a report and display session information, you cannot issue the STATUSR command from a panel and display report information. The report must already be active and displayed for the STATUSR command to return any information.

When issued from a report, the STATUS command is the same as the STATUSR command (see STATUSR on page 175).

**Figure 139: Syntax of the STATUS command (report information)**

```
STATUS
```
Type STATUS on the Command line and press Enter.

**Figure 140: Sample output from the STATUS command (report information)**

<table>
<thead>
<tr>
<th>DOMERSTA/I</th>
<th>Report</th>
<th>Status</th>
<th>16:17:56</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command ====&gt; ________________________________________________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report: SQMCACTS</td>
<td>Type: PRIME</td>
<td>Zoom level:</td>
<td>0</td>
</tr>
<tr>
<td>Owner : SYSTEM</td>
<td>Activate time: 12/01/04 16:16:40</td>
<td>Total RUs :</td>
<td>1</td>
</tr>
<tr>
<td>Last retrieve: 12/01/04 16:16:40</td>
<td>L/R RU cnt:</td>
<td>1</td>
<td>L/R elapsed :</td>
</tr>
<tr>
<td>For more information, select any of the following. Then press Enter.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Data source . . . . : AM SSID=JG42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Interval filter . . : 12/01/04 12:52:43</td>
<td>-</td>
<td>UNLIMITED</td>
<td></td>
</tr>
<tr>
<td>_ Qualifier filters : YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Item value filters : NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Select file size . . : 1 K bytes</td>
<td>Record count . . :</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>_ Normalized file size:</td>
<td>0 K bytes</td>
<td>Process elapsed time:</td>
<td>00:00:00.006</td>
</tr>
<tr>
<td>_ Group file size . . : 1 K bytes</td>
<td>Record count . . :</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>_ Output buffer size :</td>
<td>0 K bytes</td>
<td>Process elapsed time:</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>_ Limit:</td>
<td>256</td>
<td>Line cnt:</td>
<td>1</td>
</tr>
</tbody>
</table>

**Data Collector**

STATUS is a Data Collector command that can be issued from only the command text area of the Data Collector Command Interface panel (DOMECMDA) or the system operator console.

STATUS displays status information about the trace data sets used by the Data Collector and its associated DB2 subsystems.

**Figure 141: Syntax of the STATUS command (Data Collector**

```
DCssid STATUS
```
### Parameter Description

**DCssid**

The subsystem ID of the Data Collector. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.

---

**Figure 142: Sample output from the STATUS command (Data Collector)**

```
BMC24956 N01O Data Collector version 10.01.00 (2011/04) N01000CE (16E74000)
BMC24524 N01O Outgrp 035 trk 338 of 420 in DATASPACE
BMC24557 N01O Data from 03/23/11 13:40:43 to 03/24/11 00:12:37
BMC24524 N01O Outgrp 031 trk 142 of 420 in DATASPACE
BMC24557 N01O Data from 03/23/11 23:55:59 to 03/24/11 00:09:59
BMC24524 N01O Outgrp 032 trk 3 of 420 in DATASPACE
BMC24557 N01O Data from 03/23/11 13:35:17 to 03/24/11 00:10:41
BMC24524 N01O Outgrp 033 trk 1 of 420 in DATASPACE
BMC24557 N01O Data from 00:00:00 to 00:00:00
BMC24524 N01O Outgrp 034 trk 109 of 420 in DATASPACE
BMC24557 N01O Data from 03/23/11 23:55:59 to 03/24/11 00:09:59
BMC24951 N01O DB2=DHZ5 Rel=0910 Char=*DHZ5 Status=UP Plan=DAA101QA
BMC24951 N01O DB2=DIY5 Rel=1010 NFM Char=*DIY5 Status=UP Plan=DAA101QA
BMC24321 N01O Command completed RC=0000 "STATUS"
```

**Note**

You can find information about issuing commands from the Data Collector Command Interface panel in online Help (type HELP DOMECMDA).

---

### STATUSR

STATUSR is a report-specific command that can be issued from any report.

It displays the Report Status panel (DOMERSTA). The Report Status panel contains a summary of information about the report being viewed and a number of selection fields providing access to more detailed information.

**Note**

You cannot use the STATUSR command on a nonreport panel to obtain report information. The report must already be active and displayed for the STATUSR command to return any information.

---

**Figure 143: Syntax of the STATUSR command**

```
STATUSR
```

Type **STATUSR** on the Command line and press **Enter**.
For more information about Report Status, see online Help (type HELP DOMERSTA).

**STATUSS**

STATUSS displays the Session Status panel (DOMEGSTA) when issued from either a panel or report.

The Session Status panel contains a summary of information about your current user session, including a list of your currently active reports.

**Tip**

You can use the STATUSS command on a report panel to obtain information about your user session.

**Figure 144: Syntax of the STATUSS command**

```
STATUSS
```

Type **STATUSS** on the **Command** line and press **Enter**.

For more information about Session Status, see online Help (type HELP DOMEGSTA).

**STOP**

There are two versions of the STOP command.

See:

- “User session” on page 176
- “Data Collector” on page 177

**User session**

STOP is a basic panel command that can be issued from any product panel.
STOP cancels auto mode (under which values on the current panel are automatically updated and redisplayed at the specified interval).

**Figure 145: Syntax of the STOP command (user session)**

Type STOP (or an appropriate abbreviation) on the Command line and press Enter.

**Data Collector**

STOP is a Data Collector command that can be issued from only the system operator console.

STOP stops the Data Collector subsystem in a normal manner.

**Figure 146: Syntax of the STOP command (Data Collector)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td><em>(required)</em> The subsystem ID of the Data Collector to be stopped.</td>
</tr>
</tbody>
</table>

**STORAGE**

STORAGE is a Data Collector command that can be issued from only the **command text** area of the Data Collector Command Interface panel (DOMECMDA) or from the system operator console.
STORAGE displays details of storage usage for a specific Data Collector, job, or task on the system.

**Figure 147: Syntax of the STORAGE command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
<tr>
<td><strong>none</strong></td>
<td>When issued without a parameter, the STORAGE command produces a summary map listing of storage for the Data Collector.</td>
</tr>
</tbody>
</table>
### Parameter Description

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>jobName</td>
<td>(optional) The name of an active job or task (running on the same z/OS system as the Data Collector) for which storage details are to be displayed (in the VSMLIST format).</td>
</tr>
</tbody>
</table>

**Figure 148: Sample output from the STORAGE command**

```plaintext
DOMECDOD/P                     Command Interface                 LINE 1 OF 909
Command ===> _______________________________________________ Scroll ===> CSR_
More:     +
BMC24499 PH01  __________ DATA COLLECTOR STORAGE MAP __________
BMC24499 PH01 SMF LIMIT BTL:     6M ( 6120K)
BMC24499 PH01 USER ALLOC BTL:    1M ( 1092K)
BMC24499 PH01 AUTH ALLOC BTL:    0M ( 268K)
BMC24499 PH01 SMF LIMIT ATL:    1516M (1552384K)
BMC24499 PH01 USER ALLOC ATL:    3M ( 2708K)
BMC24499 PH01 AUTH ALLOC ATL:    18M ( 17980K)
BMC24499 PH01 STRG ALLOC ATB:    0M
BMC24499 PH01 STRG HWM ATB:     0M
BMC24499 PH01 STRG OBJS ATB:    0M
BMC24499 PH01 MEMLIMIT ATB:     0M
BMC24499 PH01 ASM ACT FRAMES:   10M
BMC24499 PH01 ASM NVIO SLOTS:   0M
BMC24499 PH01 ASM VIO SLOTS:    0M
BMC24499 PH01 ASM TOTAL PAGES:  10M
BMC24499 PH01 ELAPSED TIME:    0000 08:05:55.918711
BMC24499 PH01 TCB CPU TIME:    0000 00:00:04.820823
BMC24499 PH01 ------- END OF STORAGE MAP -------
```

**Figure 149: Sample output from the STORAGE DCssid command**

```plaintext
DOMECDOD/I                     COMMAND INTERFACE                  LINE 1 OF 19
COMMAND ===> _______________________________________________ SCROLL ===> CSR_
BMC24499 FM01  __________ DATA COLLECTOR STORAGE MAP __________
BMC24499 FM01 SMF LIMIT BTL:     9M ( 9192K)
BMC24499 FM01 USER ALLOC BTL:    2M ( 2296K)
BMC24499 FM01 AUTH ALLOC BTL:    1M ( 860K)
BMC24499 FM01 SMF LIMIT ATL:    1386M (1419264K)
BMC24499 FM01 USER ALLOC ATL:    93M ( 95204K)
BMC24499 FM01 AUTH ALLOC ATL:    24M ( 24556K)
BMC24499 FM01 STRG ALLOC ATB:   1097M
BMC24499 FM01 STRG HWM ATB:     74M
BMC24499 FM01 STRG OBJS ATB:    13
BMC24499 FM01 MEMLIMIT ATB:    16777215M
BMC24499 FM01 ASM ACT FRAMES:  35M
BMC24499 FM01 ASM NVIO SLOTS:   85M
BMC24499 FM01 ASM VIO SLOTS:    0M
BMC24499 FM01 ASM TOTAL PAGES: 121M
BMC24499 FM01 ELAPSED TIME:    0001 00:34:40.918711
BMC24499 FM01 TCB CPU TIME:    0000 00:00:04.820823
BMC24499 FM01 ------- END OF STORAGE MAP -------
```

For information about issuing commands from the Data Collector Command Interface panel, see online Help (type HELP DOMECDODA).

**SWITCH**

SWITCH is a Data Collector command that can be issued from only the system operator console.
SWITCH generates an archive from the currently active log file for the specified output group(s). Writing continues in the log file, and any subsequent archive requests for that archive will copy records from the point at which SWITCH was issued.

**Note**

If archiving is not enabled for the logset, the command has no effect.

**Figure 150: Syntax of the SWITCH command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>(required) The subsystem ID of the Data Collector that owns the output group(s) to be switched.</td>
</tr>
<tr>
<td>nnn</td>
<td>Specifies the number of the output group for which the archive is to be performed, where nnn is the number of the output group in the range 001-128.</td>
</tr>
<tr>
<td>ALL</td>
<td>Specifies that the command is applicable to all output groups owned by the specified Data Collector.</td>
</tr>
</tbody>
</table>

**SYSPLEX**

SYSPLEX is a Data Collector command that can be issued from only the **command text** area of the Data Collector Command Interface panel or the system operator console.
SYSPLEX establishes or terminates sysplex communication between the local Data Collector and other members of its DOMPLEX, or displays information about the status of the DOMPLEX and the DB2 subsystems it monitors.

**Figure 151: Syntax of the SYSPLEX command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DCssid</strong></td>
<td>The subsystem ID of the Data Collector to which the command is directed. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
</tbody>
</table>
| **STATUS** | Displays a series of messages containing the following information:  
  - The DOMPLEX name  
  - The number of DOMPLEX members that are active  
  - The member names that identify the Data Collectors to the coupling facility  
  - The status of the Data Collectors  
  - The time of the last data transmission from the DOMPLEX member |
| **DB2** | Displays a series of messages containing the following information:  
  - The DOMPLEX name  
  - The DB2 subsystem IDs  
  - The number of active DB2 subsystems currently connected to the DOMPLEX  
  - The member names that identify the Data Collectors to the coupling facility  
  - The subsystem IDs of the Data Collectors monitoring the DB2 subsystems  
  - The status of the DB2 subsystems |
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Establishes sysplex communication between the current Data Collector and the other active Data Collectors in the DOMPLEX.</td>
</tr>
<tr>
<td>OFF</td>
<td>Terminates sysplex communication between the current Data Collector and the other active Data Collectors in the DOMPLEX.</td>
</tr>
</tbody>
</table>

### Figure 152: Sample output from the SYSPLEX STATUS command

```
DOMECMDO/I COMMAND INTERFACE LINE 1 OF 4
COMMAND ===> _______________________________________________ SCROLL ===> CSR_
BMC24237 Press Enter to reissue the last command
BMC24840 PXKD 002 active Data Collectors in DOMPLEX DOMPXK5
BMC24841 PXKD DOMPLEX name Member name Sysplex Time of last data
BMC24842 PXKD DOMPXK5 DOMOPXKDSYSM01 ON 16:07:27
BMC24842 PXKD DOMPXK5 DOMOPXKESYSI02 ON 16:07:27
BMC24321 PXKD Command completed RC=0000 "SYSPLEX STATUS"
```

### Figure 153: Sample output from the SYSPLEX DB2 command

```
DOMECMDO/P Command Interface LINE 1 OF 8
Command ===> __________________________________________Scroll ===> CSR_
BMC24237 Press Enter to reissue the last command
BMC24844 PXKD 005 active DB2s in DOMPLEX DOMPXK5
BMC24845 PXKD DB2 SSID DOMPLEX member SSID Status
BMC24846 PXKD DBE2 DOMOPXKESYSI02 PXKE ACTIVE
BMC24846 PXKD DBE1 DOMOPXKDSYSM01 PXKD ACTIVE
BMC24846 PXKD DFB1 DOMOPXKDSYSM01 PXKD ACTIVE
BMC24846 PXKD DBI1 DOMOPXKDSYSM01 PXKD ACTIVE
BMC24846 PXKD DB2A DOMOPXKDSYSM01 PXKD ACTIVE
BMC24321 PXKD Command completed RC=0000 "SYSPLEX DB2"
```

For information about issuing commands from the Data Collector Command Interface panel, see online Help (type HELP DOMECMDA).

### TERSE

TERSE is a basic panel command that can be issued from any product panel.

TERSE is a toggle command that enables or disables Terse mode. Terse mode is used to suppress portions of the screen display. Its main purpose is to increase the space available for displaying report output data.

When you begin your product session, Terse mode is off. When you issue the TERSE command

- The display of function keys is suppressed.
- Less status information and fewer header lines are displayed on reports.

This command remains active until you perform one of the following actions:
- Change it by issuing another TERSE command
- Modify your User Profile
- End your product session

TERSE is the default value assigned to the F16 key.

**Figure 154: Syntax of the TERSE command**

Press F16 or type TERSE (or an appropriate abbreviation) on the **Command** line and press **Enter**.

**TOP**

TOP is a command that applies only to reports when more data has been collected than can fit in the report output buffer.

When the report generation process cannot display all of the collected report data, a message is issued and the last displayed line indicates that more data is available. The data can be viewed only in segments the size of the report output buffer. Use the NEXT command to retrieve and display each subsequent segment of data. Use the TOP command after one or more NEXT commands have been issued to redisplay the first segment of the report.

**Figure 155: Syntax of the TOP command (user session)**

Type TOP on the **Command** line and press **Enter**.
UP

UP is a basic panel command that can be issued from any product panel that contains a scrollable list.

UP scrolls the display in the direction of the top of the list. The value you specify remains in effect until you perform one of the following actions:

- Change it using the UP command
- Modify your User Profile
- End your product session

UP is the default value assigned to the F7 key.

Figure 156: Syntax of the UP command

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>If no parameter is specified, the amount scrolled is determined by the scroll amount displayed in the upper right corner of the panel. The default for this value is specified on the Session Options panel of User Options or the User Profile.</td>
</tr>
<tr>
<td>nnnn</td>
<td>Determines the number of lines scrolled in the range 1-9999.</td>
</tr>
<tr>
<td>MAX</td>
<td>The top of the list is displayed.</td>
</tr>
<tr>
<td>PAGE</td>
<td>Data is scrolled one full page at a time. The length of a full page varies depending on the number of scrollable lines displayed on the panel.</td>
</tr>
<tr>
<td>HALF</td>
<td>Data is scrolled one half page at a time (half the scrollable lines displayed on the panel).</td>
</tr>
<tr>
<td>CSR</td>
<td>The cursor position determines the number of lines scrolled. The line at the cursor position is displayed at the bottom of the scrollable area.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>GRP</td>
<td>Data is scrolled one repeating group at a time. This value is valid only when viewing reports with repeating groups.</td>
</tr>
</tbody>
</table>

To issue the UP command, follow one of these steps:

- Press F7 to use the default scrolling amount
- Type a parameter on the **Command** line, and press F7
- Type **UP** (with or without a parameter) on the **Command** line, and press **Enter**

**USER**

**USERS** is a Data Collector command that can be issued from only the **command text** area of the Data Collector Command Interface panel (DOMECMDA) or the system operator console.

**USERS** displays a list of users in session with the specified Data Collector.

**Figure 157: Syntax of the USERS command**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCssid</td>
<td>The subsystem ID of the Data Collector. Use this parameter only when issuing the command from the console. When the command is issued from the Data Collector Command Interface panel, it applies automatically to the currently selected Data Collector.</td>
</tr>
</tbody>
</table>

**Figure 158: Sample output from the USERS command**

```
   Command Interface                      Scroll ====> PAGE
  Command ===> _______________________________________________ Scroll ===> PAGE
BMC24237 Press Enter to reissue the last command

BMC24320 PH01 Current online users: 002   Maximum online users: 099
BMC24320 PH01 Current batch users: 000   Maximum batch users: 001
BMC24319 PH01 USERID   ASID  Type     Status
BMC24319 PH01 RDHPSH  00F8  online   HOME
BMC24319 PH01 RDHDXJ4 01AE  online   XMEM,SUSP
BMC24318 PH01 PH01  00FD  DC      PH01
BMC24321 SXSO Command complete RC=0000 "USERS"
```
When *NO ID!* is displayed for a user, no security system user ID was found for that user (ASXBUSER was zero). Contact your security administrator if this value is unacceptable.

For information about issuing commands from the Data Collector Command Interface panel, see online Help (type HELP DOMECMDA ).

**ZOOM**

ZOOM is a command that applies only to reports and to specific Explain panels.

For more details:

- How to apply Zoom to reports, see “Reports” on page 186
- How to apply Zoom to Explain panels, see “Explain Panels” on page 187

**Reports**

Some reports containing summary data are related to other reports containing more detailed information.

All of these reports can be viewed separately, but the ZOOM command provides a means of moving directly from summary data on one report to detailed information about the same data on other reports.

When the ZOOM command is issued while the cursor is positioned on the Command line, the command causes the values on the report to be refreshed.

ZOOM is the default value assigned to F6 on reports.

**Figure 159: Syntax of the ZOOM command**

```
  ZOOM
```

To issue the ZOOM command:
Move the cursor to the **Command** line and press **F6**. The values on the report are refreshed.

Move the cursor to the selection field beside the data to be examined, type the desired zoom code, and press **Enter**. The available zoom codes are listed at the top of each report.

**Explain Panels**

The Explain ZOOM applies to the following panels:

- Explain Object Selection List (PSSPE100)
- Explain Results panel (PSSPE200)

If a value in a field on these panels is truncated, move the cursor to the value and press **F4** or **F6** to display the entire contents of the truncated field in a pop-up window.
Parameter variables and rules

This section lists and describes the BMC System Performance parameters that you use to modify storage resources when the advisors recommend changes. The section also describes the rules that trigger recommendations.

Overview

When the BMC System Performance Data Collector contacts a DB2 subsystem for the first time, it reads the DB2 ZPARM values and uses them to create the default values for product parameters.

The parameters based on the ZPARM values are stored in a repository. These computed values are stored in the repository only once. If the DB2 value changes (either temporarily or permanently), BMC System Performance will not be aware of the change and will continue to apply thresholds to the values in the repository.

When BMC System Performance determines that changes should be made to the size of resources or what the maximum and minimum thresholds should be, it uses the following values by default:

- Increase resource by 10% of ZPARM value
- Decrease resource by 10% of ZPARM value
- Increase resource by a maximum of 25% of ZPARM value
- Decrease resource by a maximum of 25% of ZPARM value

If you find that the recommended changes based on these default values are no longer appropriate (for example, because of changes to ZPARM values), you can modify the default values.
Modifications are made in the variable repository. You can access the variable repository by hyperlinking on the CONFIG button on Pool Advisor and BMC System Performance reports. Figure 160 on page 190 is displayed.

**Figure 160: Configuration Menu (PMDECNFG)**

<table>
<thead>
<tr>
<th>PMDECNFG/I</th>
<th>Configuration Menu</th>
<th>10:15:05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command====&gt;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following options. Then press Enter.

1. View and edit product variables
2. Refresh object names from DB2 catalog
3. Reset initialization parameters to default values

Use the Configuration menu to perform the following tasks:

- **View and edit product variables** Select this option to display and edit the values for the thresholds upon which Pool Advisor acts to recommend corrective actions.

- **Refresh object names from DB2 catalog** Select this option to issue a command that refreshes the names of all objects that have been created since Data Collector startup. For a complete explanation, see the *Pool Advisor for DB2 User Guide*.

- **Reset initialization parameters to default values** Use this option to cancel any changes that you made to the parameter values for a DB2 subsystem. The parameters revert to the default values shipped with the product.

Selecting this option displays the Advisor Interface. The PMDZDROP command is inserted in the Advisor text field. Use the following syntax to revert to default values: `PMDZDROP DB2 ssid`

**Variable repository**

The variable repository provides a method for editing parameter variables through a series of panels.

The panels outline all of the variables, giving you the opportunity to edit any or all of the values.

One variable repository is created for each Data Collector. Use the variable repository for a Data Collector to set values for parameter variables for all DB2 subsystems that have been monitored by that Data Collector (whether or not they are currently being monitored).
Select option 1 (View and edit product variables) from the Configuration Menu to access variable repository functions. Figure 161 on page 191 is displayed.

**Figure 161: Variable Repository SSID Selection panel (PMDEVDSR)**

![Variable Repository SSID Selection panel](image)

This panel lists all of the DB2 subsystems that are associated with the Data Collector. The panel also includes an option (#ALL) for assigning the same variable values to all DB2 subsystems in the list.

**Note**

If you specify a global value for a parameter (using #ALL) and you specify a different value for the same parameter for a specific DB2 subsystem, the DB2 subsystem value overrides the global value.

If you change a global value for a parameter using #ALL, you must recycle the Data Collector for changes to take effect for all DB2 subsystems that do not have a DB2-specific parameter specified. If you have previously specified a DB2-specific parameter and would like the #ALL variable to take effect after a Data Collector recycle, you must delete the parameter coded for the DB2 SSID.

If you are no longer using the current Data Collector to monitor a DB2 subsystem that is included in the list, you can use the D action code to delete the subsystem from the list. All of the specifications for that DB2 subsystem are removed from the repository for the Data Collector.

If you delete the variables from the repository, you should also delete the DB2 subsystem from the list of DB2 subsystems being monitored by this Data Collector in the DOMPLEX option set. If you do not remove it from the monitor list, you must recycle the Data Collector to reestablish the default values.

If you decide to monitor the DB2 again with the same Data Collector, default values will be computed for all variables until you set new values in the repository. You can delete the entries that are associated with #ALL, but you cannot delete the #ALL record.
Listing parameter values

You can view all the parameter values in the repository for the selected DB2 subsystem or for all DB2 subsystems.

To view all parameter values

1. Perform one of the following actions:
   - Use the L (List) action code
   - Use #ALL.

The Figure 162 on page 192 is displayed.

**Figure 162: Variable Repository Variable List panel (PMDEVOVL)**

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDMSIZE_DEC</td>
<td>5000</td>
</tr>
<tr>
<td>EDMSIZE_INC</td>
<td>5000</td>
</tr>
<tr>
<td>EDMSIZE_MAX</td>
<td>10240</td>
</tr>
<tr>
<td>EDMSIZE_MIN</td>
<td>6144</td>
</tr>
<tr>
<td>RIDSIZE_DEC</td>
<td>16</td>
</tr>
<tr>
<td>RIDSIZE_INC</td>
<td>16</td>
</tr>
<tr>
<td>RIDSIZE_MAX</td>
<td>80</td>
</tr>
<tr>
<td>RIDSIZE_MIN</td>
<td>48</td>
</tr>
<tr>
<td>SIZE_BP0_DEC</td>
<td>1200</td>
</tr>
<tr>
<td>SIZE_BP0_INC</td>
<td>1200</td>
</tr>
<tr>
<td>SIZE_BP0_MAX</td>
<td>15000</td>
</tr>
<tr>
<td>SIZE_BP0_MIN</td>
<td>9000</td>
</tr>
<tr>
<td>SIZE_BP1_DEC</td>
<td>20</td>
</tr>
<tr>
<td>SIZE_BP1_INC</td>
<td>20</td>
</tr>
<tr>
<td>SIZE_BP1_MAX</td>
<td>250</td>
</tr>
<tr>
<td>SIZE_BP16K0_DEC</td>
<td>7</td>
</tr>
<tr>
<td>SIZE_BP16K0_INC</td>
<td>7</td>
</tr>
<tr>
<td>SIZE_BP16K0_MAX</td>
<td>87</td>
</tr>
<tr>
<td>SIZE_BP16K0_MIN</td>
<td>52</td>
</tr>
<tr>
<td>SIZE_BP16K9_DEC</td>
<td>62</td>
</tr>
<tr>
<td>SIZE_BP16K9_INC</td>
<td>62</td>
</tr>
<tr>
<td>SIZE_BP16K9_MAX</td>
<td>781</td>
</tr>
<tr>
<td>SIZE_BP16K9_MIN</td>
<td>468</td>
</tr>
<tr>
<td>SIZE_BP2_DEC</td>
<td>10</td>
</tr>
<tr>
<td>SIZE_BP2_INC</td>
<td>10</td>
</tr>
<tr>
<td>SIZE_BP2_MAX</td>
<td>127</td>
</tr>
<tr>
<td>SIZE_BP2_MIN</td>
<td>76</td>
</tr>
<tr>
<td>SIZE_BP25_DEC</td>
<td>1000</td>
</tr>
<tr>
<td>SIZE_BP25_INC</td>
<td>1000</td>
</tr>
</tbody>
</table>

The Variable Repository Variable List displays the values of all parameter variables that are currently in the repository for:

- The selected DB2 subsystem
- All DB2 subsystems (if #ALL is selected)
Setting parameter values

This section details how to set, update and delete parameter values.

To set the parameter values.

1 Use the S (Select/Modify) action code from the Variable Repository SSID Selection panel to set or change repository values.

Figure 163: Variable Repository Category Selection panel (PMDEVDCR)

PMDEVDCR/I Variable Repository Category Selection LINE 1 OF 12
Command ====> _______________________________________________ Scroll ====> CSR_
DB2: DBI2
Select one or more of the following categories. Then press Enter.
  S - Select/Modify Category

Category
  ---------------------------------------
  - GENERAL
  - VIRTUAL STORAGE
  - EDM POOL
  - PERFORMANCE PROFILE VARIABLES
  - RID POOL
  - SORT POOL
  - BUFFER POOLS
  - GROUP BUFFER POOLS
  - LOGGING
  - THREADS
  - DDF
  - OPEN DATASETS

This panel lists the categories into which the variables are grouped.

2 Use the S (Select/Modify Category) action code to display a list of variables that are associated with the selected category.

- If you select a category that represents a single entity (RID pool, for example), Figure 165 on page 194 is displayed.
If you select a category that represents multiple entities (buffer pools, for example), Figure 164 on page 194 is displayed.

Figure 164: Repository Subcategory Selection panel (PMDEVSC)

PMDEVSC/I Repository Subcategory Selection LINE 1 OF 81
Command ===> Scroll ===> CSR_

DB2: DBI2
Current Category: BUFFER POOLS

Select one or more items from the following list. Then press Enter.
S - Select/Modify Category

Subcategory
---------------------------------------
  BPGLOBAL
  BP0
  BP1
  BP2
  BP3
  BP4
  BP5
  BP6
  BP7
  BP8
  BP9
  BP10
  BP11

3 Use the S (Select/Modify Category) action code to select one or more entries to be updated.

When you select a category or a subcategory, Figure 165 on page 194 is displayed.

Figure 165: Variable Repository Variables panel (PMDEVDVE)

PMDEVDVE/I Variable Repository Variables LINE 1 OF 8
Command ===> Scroll ===> CSR_

SSID DB2: DBI2
Current Category: RID POOL
Current Subcategory: N/A

Type a new value in the <New Value> field. Then press Enter to validate. Type F3 to exit and update or F12 to cancel.

Use the D action code to remove a value from the repository. Press Enter.

D - Delete

<table>
<thead>
<tr>
<th>A Variable name</th>
<th>Current/</th>
<th>Units</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIDSIZE_DEC</td>
<td>&lt;16</td>
<td>KB</td>
<td>0-25000000</td>
</tr>
<tr>
<td>RIDSIZE_INC</td>
<td>&lt;16</td>
<td>KB</td>
<td>0-25000000</td>
</tr>
<tr>
<td>RIDSIZE_MIN</td>
<td>&lt;48</td>
<td>KB</td>
<td>0-10000000</td>
</tr>
<tr>
<td>RIDSIZE_MAX</td>
<td>&lt;80</td>
<td>KB</td>
<td>0-10000000</td>
</tr>
</tbody>
</table>

4 Use this panel to set new values for the variables listed on the panel or to change existing values.
If no value has been previously set in the repository for a variable, no Current value is listed. If a value has been previously set in the repository, that value is displayed as the Current value.

**To change the value or to set a new value**

1. Type the new value in the New Value field.
   
   Be sure that the new value falls within the range specified on the panel.

2. Press **Enter**.
   
   The new value is validated.

3. Press **F3** to update the value.
   
   Message BMC24253 confirms that the update is successful.

**To delete a value**

1. Use the D action code to mark an entry to be deleted from the repository. The Current value is removed from the panel when you press **Enter**, but the value is not deleted until you exit from the panel.

2. Press **F12** to cancel any changes or deletions that you made.

---

**Initialization parameters**

The following table lists and describes the parameter values that you can modify.

You can set each of these variables for a specific DB2 subsystem or for all DB2 subsystems (when you select #ALL). If you specify different values for the same variable for a specific DB2 subsystem and for #ALL, the value you set for a specific DB2 subsystem takes precedence.

---

**Note**

If you change a global value for a parameter using #ALL, you must recycle the Data Collector for changes to take effect for all DB2 subsystems that do not have a DB2-specific parameter specified. If you have previously specified a DB2-specific parameter and would like the #ALL variable to take effect after a Data Collect recycle, you must delete the parameter coded for the DB2 SSID.
Table 3: BMC System Performance parameter variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General parameter variables</strong></td>
<td></td>
</tr>
<tr>
<td>GETPAGE_SAMPLING</td>
<td>Determines whether all getpage operations are counted or a statistical sampling function is used to reduce CPU usage. Valid values are ON and OFF:</td>
</tr>
<tr>
<td></td>
<td>■ ON--The sampling function is used to reduce CPU usage.</td>
</tr>
<tr>
<td></td>
<td>■ OFF--All getpage operations are counted.</td>
</tr>
<tr>
<td></td>
<td>The default is OFF.</td>
</tr>
<tr>
<td>STATS_CYCLE</td>
<td>Determines the following settings for statistics object collection:</td>
</tr>
<tr>
<td></td>
<td>■ Period--how frequently statistics are collected and updated (in minutes)</td>
</tr>
<tr>
<td></td>
<td>■ Interval--over what period of time statistics are aggregated (in minutes)</td>
</tr>
<tr>
<td></td>
<td>■ Analysis--how frequently the background analysis advisors check for problems (in minutes)</td>
</tr>
<tr>
<td></td>
<td>Valid values are HI, MED and LOW.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The following table outlines the frequency for each setting:</td>
</tr>
<tr>
<td><strong>SETTING</strong></td>
<td><strong>PERIOD</strong></td>
</tr>
<tr>
<td>HI</td>
<td>5</td>
</tr>
<tr>
<td>MED</td>
<td>5</td>
</tr>
<tr>
<td>LOW</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> The same statistics cycle is set for all monitored DB2 subsystems. Individual DB2 subsystems cannot have different statistics cycles.</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| NEAR_HISTORY          | Specifies whether all near-history data is collected and reported (Recent Trends reports). Valid values are **Y** (Yes) and **N** (No) a:  
  ■ **Y**--Near-history data is collected and reported.  
  ■ **N**--Only the data for the CURRENT and TODAY intervals is collected and reported.  
  The default is **Y**.  
  Long-term history is not affected (Daily History reports).  
  **Note:** The Data Collector must be recycled after changing this parameter. |
| OBJECT_TRACKING       | Specifies whether page set object data is collected. Valid values are **Y** (Yes) and **N** (No):  
  ■ **Y**--All object data is collected.  
  ■ **N**--No object data is collected. Object reports will contain no data.  
  The default is **Y**.  
  **Note:** If the value for DAILY_PAGESET_HISTORY or DAILY_OBJECT_HISTORY is set to **N**, long-term object data will not be collected and reported, even if this parameter is set to **Y**.  
  **Note:** The Data Collector must be recycled after changing this parameter. |
| DAILY_OBJECT_HISTORY  | Specifies whether long-term object history data is collected and reported (Daily History reports). Valid values are **Y** (Yes) and **N** (No):  
  ■ **Y**--Long-term object history data is collected and reported.  
  ■ **N**--Long-term object history data is not collected or reported.  
  The default is **Y**.  
  Near-history is not affected (Recent Trends reports).  
  **Note:** If the value for OBJECT_TRACKING or DAILY_PAGESET_HISTORY is set to **N**, long-term object data will not be collected and reported, even if this parameter is set to **Y**.  
  **Note:** The Data Collector must be recycled after changing this parameter. |
### Variable Description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
</table>
| DAILY_PAGESET_HISTORY         | Specifies whether long-term page set history data is collected and reported (Daily History reports). Valid values are Y (Yes) and N (No):  
  - Y -- Long-term page set history is collected and reported.  
  - N -- Long-term page set history is not collected and reported.  
  The default is Y.  
  Near-history is not affected (Recent Trends reports).  
  **Note:** If this value is set to N, long-term object data will not be collected and reported, even if the DAILY_OBJECT_HISTORY parameter is set to Y.  
  **Note:** The Data Collector must be recycled after changing this parameter |
| DAILY_SYSTEM_HISTORY          | Specifies whether long-term system history data is collected and reported (Daily History reports). Valid values are Y (Yes) and N (No):  
  - Y -- Long-term system history data is collected and reported.  
  - N -- Long-term system history data is not collected and reported.  
  The default is Y.  
  The following reports are affected:  
  - DB2 Pools Daily History (PMDMAINL)  
  - Virtual Storage Daily History (PMDSTRGL)  
  - Buffer Pools Daily History (PMDBPML)  
  - EDM Pool Daily History (PMDEDMPL)  
  - RID Pool Daily History (PMDRIDPL)  
  - Sort Pool Daily History (PMDSRTPL)  
  - Group BPool Daily History (PMDGBPL)  
  Near-history is not affected (Recent Trends reports).  
  **Note:** The Data Collector must be recycled after changing this parameter |
### Variable | Description
--- | ---
HOURLY_PAGESET_HISTOR | Specifies whether long-term page set history data is collected and reported at an hourly level (Long Term History reports) in addition to a daily level. Valid values are Y (Yes) and N (No):
- **Y**—Long-term page set history is collected and reported at an hourly level.
- **N**—Long-term page set history is not collected and reported at an hourly level.

The default is N.
You must recycle the Data Collector after you change this parameter.
**Note:** If this value is set to Y, the NEAR_HISTORY parameter must be set to Y.
**Note:** The Data Collector must be recycled after changing this parameter.

HOURLY_SYSTEM_HISTOR | Specifies whether long-term system history data is collected and reported at an hourly level (Long Term History reports) in addition to a daily level. Valid values are Y (Yes) and N (No):
- **Y**—Long-term system history data is collected and reported at an hourly level.
- **N**—Long-term system history data is not collected and reported at an hourly level.

The default is N.
You must recycle the Data Collector after you change this parameter.
**Note:** If this value is set to Y, the NEAR_HISTORY parameter must be set to Y.
**Note:** The Data Collector must be recycled after changing this parameter.

SHOW_ACTION | Specifies whether actions taken on behalf of recommendations will be written to the SYSTSPRT SYSOUT log at every cycle of the background advisors. Valid values are Y (Yes) and N (No).
The default is N (No).

SHOW_RECOMMEND | Specifies whether currently issued recommendations will be written to the SYSTSPRT SYSOUT log at every cycle of the background advisors. Valid values are Y (Yes) and N (No).
The default is N (No).

SHOW_WTO | Specifies whether WTO messages will be written to the SYSTSPRT SYSOUT log when actions are executed. Valid values are Y (Yes) and N (No).
The default is Y.

**Virtual storage parameter variables**
<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSCMAX</td>
<td>Maximum amount of the DBM1 region (in megabytes) that the specified DB2 is allowed to use. The default is 1000.</td>
</tr>
<tr>
<td>VSCAVAIL_ALERT</td>
<td>Level of available storage (in megabytes) at which an ALERT will be triggered. The default is 100. Note: If this value is set for a specific DB2 subsystem, the values for VSCAVAIL_WARN, and VSCAVAIL_NOTE must also be set for that DB2 subsystem.</td>
</tr>
<tr>
<td>VSCAVAIL_WARN</td>
<td>Level of available storage (in megabytes) at which a WARNING will be triggered. The default is 200. Note: If this value is set for a specific DB2 subsystem, the values for VSCAVAIL_NOTE, and VSCAVAIL_ALERT must also be set for that DB2 subsystem.</td>
</tr>
<tr>
<td>VSCAVAIL_NOTE</td>
<td>Level of available storage (in megabytes) at which a NOTE will be triggered. The default is 500. Note: If this value is set for a specific DB2 subsystem, the values for VSCAVAIL_WARN, and VSCAVAIL_ALERT must also be set for that DB2 subsystem.</td>
</tr>
<tr>
<td>VSCPSR_ALERT</td>
<td>Page steal rate at which an ALERT will be triggered. The default is 50 (pages per second). Note: If this value is set for a specific DB2 subsystem, the values for VSCPSR_NOTE and VSCPSR_WARN must also be set for that DB2 subsystem.</td>
</tr>
<tr>
<td>VSCPSR_WARN</td>
<td>Page steal rate at which a WARNING will be triggered. The default is 20 (pages per second). Note: If this value is set for a specific DB2 subsystem, the values for VSCPSR_NOTE and VSCPSR_ALERT must also be set for that DB2 subsystem.</td>
</tr>
<tr>
<td>VSCPSR_NOTE</td>
<td>Page steal rate at which a NOTE will be triggered. The default is 10 (pages per second). Note: If this value is set for a specific DB2 subsystem, the values for VSCPSR_WARN and VSCPSR_ALERT must also be set for that DB2 subsystem.</td>
</tr>
<tr>
<td>EDM pool parameter variables</td>
<td></td>
</tr>
<tr>
<td>EDMSIZE_DEC</td>
<td>Number of kilobytes by which to decrease the size of the EDM pool when a recommendation is made to decrease the size. Note: All specifications should be in 5000 KB increments and cannot be lower than the original setting.</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EDMSIZE_INC</td>
<td>Number of kilobytes by which to increase the size of the EDM pool when a</td>
</tr>
<tr>
<td></td>
<td>recommendation is made to increase the size.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> All specifications should be in 5000 KB increments.</td>
</tr>
<tr>
<td>EDMSIZE_MIN</td>
<td>Size (in kilobytes) below which the EDM pool should not be decreased on</td>
</tr>
<tr>
<td></td>
<td>behalf of a recommendation.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> All specifications should be in 5000 KB increments.</td>
</tr>
<tr>
<td>EDMSIZE_MAX</td>
<td>Size (in kilobytes) above which the EDM pool should not be increased on</td>
</tr>
<tr>
<td></td>
<td>behalf of a recommendation.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> All specifications should be in 5000 KB increments.</td>
</tr>
</tbody>
</table>

**Performance profile variable parameter variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPGSACT_LOW</td>
<td>Lower boundary for the activity level of a buffer pool in getpages per</td>
</tr>
<tr>
<td></td>
<td>second.</td>
</tr>
<tr>
<td></td>
<td>The default is &lt; 100 getpages per second.</td>
</tr>
<tr>
<td>GPGSACT_HI</td>
<td>Upper boundary for the activity level of a buffer pool in getpages per</td>
</tr>
<tr>
<td></td>
<td>second.</td>
</tr>
<tr>
<td></td>
<td>The default is &gt; 999 getpages per second.</td>
</tr>
<tr>
<td>UPDATE_LOW</td>
<td>Lower boundary for the update rate of a buffer pool in updates per second.</td>
</tr>
<tr>
<td></td>
<td>The default is &lt; 10 updates per second.</td>
</tr>
<tr>
<td>UPDATE_HI</td>
<td>Upper boundary for the update rate of a buffer pool in updates per second.</td>
</tr>
<tr>
<td></td>
<td>The default is &gt; 99 updates per second.</td>
</tr>
<tr>
<td>SEQUENTIAL_LOW</td>
<td>Lower boundary for the sequential access rate of a buffer pool.</td>
</tr>
<tr>
<td></td>
<td>The default is &lt; 30% getpage activity uses sequential access.</td>
</tr>
<tr>
<td>SEQUENTIAL_HI</td>
<td>Upper boundary for the sequential access rate of a buffer pool.</td>
</tr>
<tr>
<td></td>
<td>The default is &gt; 69% getpage activity uses sequential access.</td>
</tr>
<tr>
<td>SIZE_LOW</td>
<td>Lower boundary for the page set size in pages.</td>
</tr>
<tr>
<td></td>
<td>The default is &lt; 1000 pages.</td>
</tr>
<tr>
<td>SIZE_HI</td>
<td>Upper boundary for the page set size in pages.</td>
</tr>
<tr>
<td></td>
<td>The default is &gt; 99,999 pages.</td>
</tr>
</tbody>
</table>

**DBD cache parameter variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBDSIZE_DEC</td>
<td>Number of kilobytes by which to decrease the size of the DBD cache when a</td>
</tr>
<tr>
<td></td>
<td>recommendation is made to decrease the size.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> All specifications must be in 5000 KB increments and cannot be</td>
</tr>
<tr>
<td></td>
<td>lower than the original setting.</td>
</tr>
<tr>
<td>DBDSIZE_INC</td>
<td>Number of kilobytes by which to increase the size of the DBD cache when a</td>
</tr>
<tr>
<td></td>
<td>recommendation is made to increase the size.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> All specifications must be in 5000 KB increments.</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DBDSIZE_MIN</td>
<td>Size (in kilobytes) below which the DBD cache should not be decreased on behalf of a recommendation.</td>
</tr>
<tr>
<td><strong>Note</strong>:</td>
<td>All specifications must be in 5000 KB increments.</td>
</tr>
<tr>
<td>DBDSIZE_MAX</td>
<td>Size (in kilobytes) above which the DBD cache should not be increased on behalf of a recommendation.</td>
</tr>
<tr>
<td><strong>Note</strong>:</td>
<td>All specifications must be in 5000 KB increments.</td>
</tr>
</tbody>
</table>

**RID pool parameter variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIDSIZE_DEC</td>
<td>Number of kilobytes by which to decrease the size of the RID pool when a recommendation is made to decrease the size.</td>
</tr>
<tr>
<td>RIDSIZE_INC</td>
<td>Number of kilobytes by which to increase the size of the RID pool when a recommendation is made to increase the size.</td>
</tr>
<tr>
<td>RIDSIZE_MIN</td>
<td>Size (in kilobytes) below which the RID pool should not be decreased on behalf of a recommendation.</td>
</tr>
<tr>
<td>RIDSIZE_MAX</td>
<td>Size (in kilobytes) above which the RID pool should not be increased on behalf of a recommendation.</td>
</tr>
</tbody>
</table>

**Sort pool parameter variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SORTSIZE_DEC</td>
<td>Number of kilobytes by which to decrease the size of the sort pool when a recommendation is made to decrease the size.</td>
</tr>
<tr>
<td>SORTSIZE_INC</td>
<td>Number of kilobytes by which to increase the size of the sort pool when a recommendation is made to increase the size.</td>
</tr>
<tr>
<td>SORTSIZE_MIN</td>
<td>Size (in kilobytes) below which the sort pool should not be decreased on behalf of a recommendation.</td>
</tr>
<tr>
<td>SORTSIZE_MAX</td>
<td>Size (in kilobytes) above which the sort pool should not be increased on behalf of a recommendation.</td>
</tr>
</tbody>
</table>

**Global buffer pool parameter variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPREDUCE</td>
<td>Determines whether the size of buffer pools can be decreased when the storage management mode is NORMAL and getpage activity is low. Valid values are <strong>Y</strong> (Yes) and <strong>N</strong> (No).</td>
</tr>
<tr>
<td></td>
<td><strong>Y</strong> --Buffer pool decreases are allowed during NORMAL mode when getpage activity is low. The size of the buffer pool will decrease by the amount specified in SIZE_ bpid_DEC.</td>
</tr>
<tr>
<td></td>
<td><strong>N</strong> --Buffer pool decreases are not allowed in NORMAL mode.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>N</strong> (No).</td>
</tr>
<tr>
<td></td>
<td>When specified for a DB2 subsystem, this variable applies to all buffer pools on the DB2 subsystem. When specified for <strong>#ALL</strong>, it applies to all buffer pools on all DB2 subsystems that are listed on the Variable Repository SSID Selection panel.</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>BP#ALL_DPMax</strong></td>
<td>Maximum number of dirty pages allowed for all buffer pools combined. The default is <strong>10000</strong>.</td>
</tr>
<tr>
<td></td>
<td>Note: If DPMAX = 0, the deferred write and vertical deferred write thresholds are recalculated.</td>
</tr>
<tr>
<td></td>
<td>When specified for a DB2 subsystem, this variable applies to all buffer pools on the DB2 subsystem. When specified for <strong>#ALL</strong>, it applies to all buffer pools on all DB2 subsystems that are listed on the Variable Repository SSID Selection panel.</td>
</tr>
<tr>
<td><strong>VPSEQT_STICK</strong></td>
<td>Number of times increments to the sequential steal threshold (VPSEQT) are allowed in a 24-hour period. Valid values are:</td>
</tr>
<tr>
<td></td>
<td>- 0 -- an unlimited number of increments are allowed</td>
</tr>
<tr>
<td></td>
<td>- 1 - <strong>255</strong> -- the specified number of increments are allowed</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>3</strong>.</td>
</tr>
<tr>
<td></td>
<td>Note: Each 24-hour period begins at midnight. When the specified number of increments is reached, the VPSEQT is changed to 50% to accommodate varying workloads, and no additional changes are allowed until a new cycle begins at midnight.</td>
</tr>
<tr>
<td></td>
<td>When specified for a DB2 subsystem, this variable applies to all buffer pools on the DB2 subsystem. When specified for <strong>#ALL</strong>, it applies to all buffer pools on all DB2 subsystems that are listed on the Variable Repository SSID Selection panel.</td>
</tr>
<tr>
<td><strong>Buffer pool parameter variables</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SIZE_bpid_DEC</strong></td>
<td>Number of pages by which to decrease the size of the specified buffer pool when a recommendation is made to decrease the size.</td>
</tr>
<tr>
<td><strong>SIZE_bpid_INC</strong></td>
<td>Number of pages by which to increase the size of the specified buffer pool when a recommendation is made to increase the size.</td>
</tr>
<tr>
<td><strong>SIZE_bpid_MIN</strong></td>
<td>Size (in pages) below which the specified buffer pool should not be decreased on behalf of a recommendation.</td>
</tr>
<tr>
<td><strong>SIZE_bpid_MAX</strong></td>
<td>Size (in pages) above which the specified buffer pool should not be increased on behalf of a recommendation.</td>
</tr>
<tr>
<td><strong>Group buffer pool parameter variables</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CASTO_ALERT</strong></td>
<td>Number of castouts allowed before an ALERT is triggered. This value must be greater than the WARNING value.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>15</strong>.</td>
</tr>
<tr>
<td></td>
<td>Note: If a value smaller than the WARNING value is specified, this value will be changed to three times the WARNING value.</td>
</tr>
<tr>
<td><strong>CASTO_WARN</strong></td>
<td>Number of castouts allowed before a WARNING is triggered.</td>
</tr>
<tr>
<td></td>
<td>The default is <strong>5</strong>.</td>
</tr>
</tbody>
</table>
### Variable Description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECKP_ALERT</td>
<td>Number of checkpoint operations allowed before an ALERT is triggered. This value must be greater than the WARNING value. The default is 4. Note: If a value smaller than the WARNING value is specified, this value will be changed to twice the WARNING value.</td>
</tr>
<tr>
<td>CHECKP_WARN</td>
<td>Number of checkpoint operations allowed before a WARNING is triggered. The default is 2.</td>
</tr>
</tbody>
</table>

### Logging parameter variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGLOAD_DEC</td>
<td>Number of records by which to decrease the value for LOGLOAD when a recommendation is made to decrease the size. If this value is not specified, the decrement is set to 10% of the ZPARM value for LOGLOAD.</td>
</tr>
<tr>
<td>LOGLOAD_INC</td>
<td>Number of records by which to increase the value for LOGLOAD when a recommendation is made to increase the size. If this value is not specified, the increment is set to 10% of the ZPARM value for LOGLOAD.</td>
</tr>
<tr>
<td>LOGLOAD_MIN</td>
<td>Minimum LOGLOAD value, below which LOGLOAD should not be decreased on behalf of a recommendation. If this value is not specified, the minimum is set to 75% of the ZPARM value for LOGLOAD.</td>
</tr>
<tr>
<td>LOGLOAD_MAX</td>
<td>Maximum LOGLOAD value, above which LOGLOAD should not be increased on behalf of a recommendation. If this value is not specified, the maximum is set to 125% of the ZPARM value for LOGLOAD.</td>
</tr>
<tr>
<td>LOG_SPACE</td>
<td>Percentage of log space available, below which a recommendation to add a new log will be issued. The default is 33%.</td>
</tr>
<tr>
<td>LOG_COPY1_HLQ</td>
<td>High-level qualifier to be used for a new primary log data set when a recommendation is triggered to add a new log data set.</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LOG_COPY2_HLQ</td>
<td>High-level qualifier to be used for a new duplex log data set when a recommendation is triggered to add a new log data set.</td>
</tr>
<tr>
<td>CHKPT_MIN</td>
<td>Minimum number of minutes between checkpoints, below which the value should not be decreased on behalf of a recommendation. The default is 1 minute. This variable is not a DB2 ZPARM, but its value influences the adjustment to the LOGLOAD ZPARM when it falls below the minimum.</td>
</tr>
<tr>
<td>CHKPT_MAX</td>
<td>Maximum number of minutes between checkpoints, above which the value should not be increased on behalf of a recommendation. The default is 1440 minutes. This variable is not a DB2 ZPARM, but its value influences the adjustment to the LOGLOAD ZPARM when it rises above the maximum.</td>
</tr>
<tr>
<td><strong>Thread parameter variables</strong></td>
<td></td>
</tr>
<tr>
<td>CTHREAD_DEC</td>
<td>Number of concurrent users by which the value for CTHREAD should be decreased when a recommendation is made to decrease the value. If this value is not specified, the decrement is set to 10% of the ZPARM value for CTHREAD. <strong>Note:</strong> Number of concurrent users includes connections from batch, CICS, IMS, and TSO tasks.</td>
</tr>
<tr>
<td>CTHREAD_INC</td>
<td>Number of concurrent users by which the value for CTHREAD should be incremented when a recommendation is made to increase the value. If this value is not specified, the increment is set to 10% of the ZPARM value for CTHREAD. <strong>Note:</strong> Number of concurrent users includes connections from batch, CICS, IMS, and TSO tasks.</td>
</tr>
<tr>
<td><strong>CTHREAD_MIN</strong></td>
<td>Minimum value for the number of concurrent users, below which the value should not be decreased on behalf of a recommendation. If this value is not specified, the minimum is set to 75% of the ZPARM value for CTHREAD. <strong>Note:</strong> Number of concurrent users includes connections from batch, CICS, IMS, and TSO tasks.</td>
</tr>
<tr>
<td><strong>CTHREAD_MAX</strong></td>
<td>Maximum value for the number of concurrent users, which should not be exceeded on behalf of a recommendation. If this value is not specified, the maximum is set to 125% of the ZPARM value for CTHREAD. <strong>Note:</strong> Number of concurrent users includes connections from batch, CICS, IMS, and TSO tasks.</td>
</tr>
<tr>
<td><strong>IDBACK_DEC</strong></td>
<td>Number of background connections (batch or TSO) to a single instance of DB2 by which the value for IDBACK should be decreased when a recommendation is made to decrease the value. If this value is not specified, the decrement is set to 10% of the ZPARM value for IDBACK.</td>
</tr>
<tr>
<td><strong>IDBACK_INC</strong></td>
<td>Number of background connections (batch or TSO) to a single instance of DB2 by which the value for IDBACK should be increased when a recommendation is made to increase the value. If this value is not specified, the increment is set to 10% of the ZPARM value for IDBACK.</td>
</tr>
<tr>
<td><strong>IDBACK_MIN</strong></td>
<td>Minimum value for the number of concurrent background connections (batch jobs and utilities) to a single instance of DB2, below which the value should not be decreased on behalf of a recommendation. If this value is not specified, the minimum is set to 75% of the ZPARM value for IDBACK.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IDBACK_MAX</td>
<td>Maximum value for the number of concurrent background connections (batch jobs and utilities) to a single instance of DB2, which should not be exceeded on behalf of a recommendation. If this value is not specified, the maximum is set to 125% of the ZPARM value for IDBACK.</td>
</tr>
<tr>
<td>IDFORE_DEC</td>
<td>Number of TSO foreground connections to a single instance of DB2 by which the value for IDFORE should be decreased when a recommendation is made to decrease the value. If this value is not specified, the decrement is set to 10% of the ZPARM value for IDFORE.</td>
</tr>
<tr>
<td>IDFORE_INC</td>
<td>Number of TSO foreground connections to a single instance of DB2 by which the value for IDFORE should be increased when a recommendation is made to increase the value. If this value is not specified, the increment is set to 10% of the ZPARM value for IDFORE.</td>
</tr>
<tr>
<td>IDFORE_MAX</td>
<td>Maximum value for the number of TSO concurrent foreground connections to a single instance of DB2, which should not be exceeded on behalf of a recommendation. If this value is not specified, the maximum is set to 125% of the ZPARM value for IDFORE.</td>
</tr>
<tr>
<td>IDFORE_MIN</td>
<td>Minimum value for the number of TSO concurrent foreground connections to a single instance of DB2, below which the value should not be decreased on behalf of a recommendation. If this value is not specified, the minimum is set to 75% of the ZPARM value for IDFORE.</td>
</tr>
</tbody>
</table>

**DDF parameter variables**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXDBAT_DEC</td>
<td>Number of DBAT threads by which to decrease the value for MAXDBAT when a recommendation is made to decrease the value. The default is 10% of the ZPARM value for MAXDBAT.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAXDBAT_INC</td>
<td>Number of DBAT threads by which to increase the value for MAXDBAT when a recommendation is made to increase the value. The default is 10% of the ZPARM value for MAXDBAT.</td>
</tr>
<tr>
<td>MAXDBAT_MIN</td>
<td>Minimum number of active DBAT threads, below which the value should not be decreased on behalf of a recommendation. The default is 75% of the ZPARM value for MAXDBAT.</td>
</tr>
<tr>
<td>MAXDBAT_MAX</td>
<td>Maximum number of active DBAT threads, which should not be exceeded on behalf of a recommendation. The default is 125% of the ZPARM value for MAXDBAT.</td>
</tr>
</tbody>
</table>

**Open data sets parameter variables**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSMAX_DEC</td>
<td>Number of data sets by which to decrease the value for DSMAX when a recommendation is made to decrease the value. If this value is not specified, the decrement is set to 10% of the ZPARM value for DSMAX.</td>
</tr>
<tr>
<td>DSMAX_INC</td>
<td>Number of data sets by which to increase the value for DSMAX when a recommendation is made to increase the value. If this value is not specified, the increment is set to 10% of the ZPARM value for DSMAX.</td>
</tr>
<tr>
<td>DSMAX_MIN</td>
<td>Minimum value for the number of data sets that can be open concurrently, below which the value should not be decreased on behalf of a recommendation. If this value is not specified, the minimum is set to 75% of the ZPARM value for DSMAX.</td>
</tr>
<tr>
<td>DSMAX_MAX</td>
<td>Maximum value for the number of data sets that can be open concurrently, which should not be exceeded on behalf of a recommendation. If this value is not specified, the maximum is set to 125% of the ZPARM value for DSMAX.</td>
</tr>
</tbody>
</table>
BMC System Performance rules

The following table details the rules that BMC System Performance uses to trigger recommendations for changes to parameters.

Each rule describes a condition in DB2, the existence of which triggers the recommendation.

**Table 4: BMC System Performance rules**

<table>
<thead>
<tr>
<th>Advisor</th>
<th>Rule is triggered when</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDM pool</td>
<td>The EDM pool efficiency drops below 70%</td>
</tr>
<tr>
<td></td>
<td>The EDM pool efficiency drops below 90%</td>
</tr>
<tr>
<td></td>
<td>The EDM pool has a positive load failure count</td>
</tr>
<tr>
<td></td>
<td>The EDM pool activity is high, but utilization is low</td>
</tr>
<tr>
<td></td>
<td>The EDM pool size is smaller than the minimum</td>
</tr>
<tr>
<td></td>
<td>The EDM pool size is larger than the maximum</td>
</tr>
<tr>
<td>RID pool</td>
<td>The RID pool efficiency drops below 70%</td>
</tr>
<tr>
<td></td>
<td>The RID pool efficiency drops below 90%</td>
</tr>
<tr>
<td></td>
<td>The RID pool experiences storage related failures</td>
</tr>
<tr>
<td></td>
<td>The RID pool activity is high, but utilization is low</td>
</tr>
<tr>
<td></td>
<td>The RID pool size is smaller than the minimum</td>
</tr>
<tr>
<td></td>
<td>The RID pool size is larger than the maximum</td>
</tr>
<tr>
<td>Sort pool</td>
<td>The sort pool efficiency drops below 70%</td>
</tr>
<tr>
<td></td>
<td>The sort pool efficiency drops below 90%</td>
</tr>
<tr>
<td></td>
<td>The sort pool size is smaller than the minimum</td>
</tr>
<tr>
<td></td>
<td>The sort pool size is larger than the maximum.</td>
</tr>
<tr>
<td>Advisor</td>
<td>Rule is triggered when</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Buffer pool</td>
<td>There is positive DM event for this buffer pool</td>
</tr>
<tr>
<td></td>
<td>The I/O rate is significant, sequential access is low, the page residency time is less than 30 seconds, and the system hit ratio is less than 90%</td>
</tr>
<tr>
<td></td>
<td>The I/O rate is significant, sequential access is medium, the page residency time is less than 30 seconds, and the system hit ratio is less than 70%</td>
</tr>
<tr>
<td></td>
<td>The I/O rate is significant, sequential access is high, and the application hit ratio is less than 90%</td>
</tr>
<tr>
<td></td>
<td>The getpage rate is less than 10 pages per second and the virtual pool residency time is greater than 300 seconds</td>
</tr>
<tr>
<td></td>
<td>The virtual pool residency time is very high</td>
</tr>
<tr>
<td></td>
<td>The buffer pool size is smaller than the minimum</td>
</tr>
<tr>
<td></td>
<td>The Buffer pool size is larger than the maximum</td>
</tr>
<tr>
<td>Sequential steal threshold</td>
<td>Buffer pool access is predominantly sequential, but the sequential steal threshold (VPSEQT) is currently set too low</td>
</tr>
<tr>
<td></td>
<td>Buffer pool access is predominantly random, but the sequential steal threshold (VPSEQT) is currently set too high</td>
</tr>
<tr>
<td>Deferred write and vertical</td>
<td>Buffer pool access is predominantly random, the updated-page write I/O rate is above the minimum threshold of 5 pages per second, and the deferred write threshold (DWQT) is at least 20% lower than the recommended value</td>
</tr>
<tr>
<td>deferred write thresholds</td>
<td>Buffer pool access is predominantly sequential or has low update activity, and the deferred write threshold (DWQT) is at least 20% higher than the recommended value</td>
</tr>
<tr>
<td></td>
<td>The maximum number of dirty pages allowed for all buffer pools (DPMAX) = 0 and update activity has increased or the size of the buffer pool has decreased</td>
</tr>
<tr>
<td>Group buffer pool</td>
<td>Prevent group buffer pool from changing system status</td>
</tr>
<tr>
<td>DBD cache</td>
<td>The DBD cache efficiency drops below 70%</td>
</tr>
<tr>
<td></td>
<td>The DBD cache efficiency drops below 90%</td>
</tr>
<tr>
<td></td>
<td>The DBD cache has a positive load failure count</td>
</tr>
<tr>
<td></td>
<td>The DBD cache activity is high, but utilization is low</td>
</tr>
<tr>
<td></td>
<td>The DBD cache size is smaller than the minimum</td>
</tr>
<tr>
<td></td>
<td>The DBD cache size is larger than the maximum</td>
</tr>
<tr>
<td>Threads</td>
<td>Number of threads that are queued is greater than 5% of the maximum CTHREAD value (CTHREAD_MAX)</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Number of foreground threads that are in use is greater than 80% of the maximum number allowed (IDFORE_MAX)</td>
</tr>
<tr>
<td></td>
<td>Number of background threads that are in use is greater than 80% of the maximum number allowed (IDBACK_MAX)</td>
</tr>
<tr>
<td></td>
<td>Maximum number of active threads allowed (CTHREAD_MAX) exceeds the maximum CTHREAD value</td>
</tr>
<tr>
<td></td>
<td>Minimum number of active threads allowed (CTHREAD_MIN) is below the minimum CTHREAD value</td>
</tr>
<tr>
<td></td>
<td>Maximum number of active foreground threads allowed (IDFORE_MAX) exceeds the IDFORE value</td>
</tr>
<tr>
<td></td>
<td>Minimum number of active foreground threads allowed (IDFORE_MIN) is below the IDFORE value</td>
</tr>
<tr>
<td></td>
<td>Maximum number of active background threads allowed (IDBACK_MAX) exceeds the IDBACK value</td>
</tr>
<tr>
<td></td>
<td>Minimum number of active background threads allowed (IDBACK_MIN) is below the IDBACK value</td>
</tr>
<tr>
<td>DDF</td>
<td>The number of remote threads that are queued is greater than 5% of the maximum DBAT value (MAXDBAT_MAX)</td>
</tr>
<tr>
<td></td>
<td>The maximum number of remote threads allowed is lower than the minimum (MAXDBAT_MIN)</td>
</tr>
<tr>
<td></td>
<td>The maximum number of remote threads allowed is higher than the maximum (MAXDBAT_MAX)</td>
</tr>
<tr>
<td><strong>Log</strong></td>
<td>The average number of minutes per checkpoint is less than the value for the minimum number of minutes between checkpoints (CHKPT_MIN)</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>The number of minutes since the last checkpoint exceeds the value for the maximum number of minutes between checkpoints (CHKPT_MAX)</td>
</tr>
<tr>
<td></td>
<td>The number of minutes since the last checkpoint exceeds the specified maximum number of minutes between checkpoints (CHKPT_MAX) and the number of records to the next checkpoint is greater than the specified number by which LOGLOAD should be incremented (LOGLOAD_INC)</td>
</tr>
<tr>
<td></td>
<td>The specified number of records (or minutes) between checkpoints (LOGLOAD) is lower than the minimum</td>
</tr>
<tr>
<td></td>
<td>The specified number of records (or minutes) between checkpoints (LOGLOAD) is higher than the maximum</td>
</tr>
<tr>
<td></td>
<td>The percentage of log space available is lower than the value specified in the LOG_SPACE parameter.</td>
</tr>
<tr>
<td></td>
<td>The log buffering efficiency is low</td>
</tr>
<tr>
<td></td>
<td>The pending archive value is greater than 1</td>
</tr>
<tr>
<td><strong>Data sets</strong></td>
<td>The number of concurrent open data sets is greater than 85% of the maximum value for open data sets (DSMAX_MAX)</td>
</tr>
<tr>
<td></td>
<td>Open data set limit is lower than the minimum (DSMAX_MIN)</td>
</tr>
<tr>
<td></td>
<td>Open data set limit is higher than the maximum (DSMAX_MAX)</td>
</tr>
<tr>
<td></td>
<td>Number of data sets in extents exceeds the ALERT level</td>
</tr>
</tbody>
</table>
Index

A
ABOUT command 121
access method 98
acknowledging a rule 56
action codes 32
Action List 51
activity level 99
ADDB2 command 121
ADDPROD command 122
ADMIN command 123
advisor 47
Advisor Rules and Attributes panel 57
Advisor Selection List 47
advisors
   advisor relationships 44
   background 44
   button 47
   examples 41
   foreground 41
   overview 20
   System 44
alert 47
analyzing the BP configuration 101
attributes (configuration) 104
automatic execution mode 57
Available Commands panel 119

B
Background Advisor DB2 Selection List 47
background advisors 21, 44
BEEP command 124
BMC Product Management technology. See BPM
BP#ALL_DPMAX parameter 195
BPM 22
   overview 22
BPREDUCE parameter 195
Buffer Pool Attributes panel 106
buffer pool compatibility profile 97
buffer pool configuration
   efficient 94
   typical 94
Buffer Pool Configuration Analysis panel 106
Buffer Pool Configuration JCL Generation panel 109
Buffer Pool Configuration Options panel 101
Buffer Pool Configuration Summary panel 101
Buffer Pool Page Set Objects report 81
buffer pool rules 209
buffer pools
   configurations 94
   locking 106
Buffer Pools Active Page Sets report 80
Buffer Pools All Page Sets report 80
Buffer Pools Status Monitor
   DB2 version 8 79
   report 79
   report expanded 79
buttons
   ANALYZE 101
   general description 36
   GENERATE JCL 109
   REANALYZE 106
   UNDO 106

C
CANCEL
   user session 125
CANCEL command 125
   Data Collector 125
CAPS command 126
CASTO_ALERT parameter 195
CASTO_WARN parameter 195
CHANGES command 126
changing the status of rules 54
CHECKP_ALERT parameter 195
CHECKP_WARN parameter 195
CHKPT_MAX parameter 195
CHKPT_MIN parameter 195
CLEAR command 127
CMD command 128
CMDBOT command 128
CMDDBB2 command 129
CMDDC command 129
CMDMENU command 130
CMDOPT command 131
CMDTOP command 131
COLOR command 132
Command Interface output panel
  MODIFY command 155
  ENQS command 139
  IFCIDS command 149
  PRODUCTS command 162
  STORAGE command 177
  SYSPLEX DB2 command 180
  SYSPLEX STATUS command 180
  USERS command 185
Command Interface panel 55
commands
  STATUSR 175
  HILITE 147
  IEDIT (default value for F6) 119
  STATUS 176
  TERSE 182
  UP 184
  USERS 185
  ZOOM 186
  ZOOM (default value for F6) 119
See also command name entries
commands (executing) 55
common report elements 36
communication, sysplex 19
compatability profile 97
configuration analysis
  buffer pool compatibility profile 97
  Configuration Advisor 96
  data quality 112
  data sharing considerations 113
  implementation 109
  navigation 93
  need for 94
  recommended changes 106
  starting methodology 113
  starting point 101
Configuration Analysis Results Summary panel 106
Configuration menu
  refreshing object names 82
Configuration Menu
  modifying parameter variables 189
  modifying parameters 190
Configuration Menu, modifying parameters 189
conventions, documentation 12
current status
  component advisors 47
  DB2 47

D
daily history reports 90
DAILY_OBJECT_HISTORY parameter 195
DAILY_PAGESET_HISTORY parameter 195
DAILY_SYSTEM_HISTORY parameter 195
Data Collector Command Interface panel 82
data quality (configuration) 112
data sharing (configuration) 113
data sharing reports and views 70
DB2 Pools Status Monitor report 76
DB2 virtual storage constraint 77
DBCS command 133
DBD cache rules 209
DBDSIZE_DEC parameter 195
DBDSIZE_INC parameter 195
DBDSIZE_MAX parameter 195
DBDSIZE_MIN parameter 195
DEBUG command 133
default function keys 33
default parameter values 44
deferred write queue threshold 105
deferred write threshold rules 209
DELDB2 command 135
DELPROD command 136
displaying a rule 54
documentation information 11
DOMECMPI 82
DOMEDOME 119
DOMESEL0 116
DOMESELI 116
DOWN command 136
DUMP command 138
Dynamic Statement Cache report 84
  DB2 version 84

E
EDM pool rules 209
EDM Pool Status Monitor report 84
DB2 version 84
EDMSIZE_DEC parameter 195
EDMSIZE_INC parameter 195
EDMSIZE_MAX parameter 195
EDMSIZE_MIN parameter 195
efficient buffer pool configuration 94
electronic documentation 11
END command 139
environment identifier 33
ERASE command 140
examples
ALERT condition 47
an advisor 41
hyperlinks in advisors 41
output from the ENQS command 139
output from the IFCIDS command 149
output from the MODIFY command 155
output from the PRODUCTS command 162
output from the STATUS command
   Data Collector 174
   report information 173
   user session 172
output from the STORAGE command 177
output from the STORAGE VSM command 177
output from the SYSPLEX DB2 command 180
output from the SYSPLEX STATUS command 180
output from the USERS command 185
variable text in advisors 41
executing a rule 55
executing commands 55
execution mode 54
EXPAND command 141
EXPORT command 142
F
FIND command 144
FKA command 144
FKEYS command 145
foreground advisors 41
function keys 33
G
GPGSACT_HI parameter 195
GPGSACT_LOW parameter 195
Group Buffer Poll Details report
group details 87
group buffer pool rule 209
Group Buffer Pool Status Monitor 87
Group Buffer Pool Status Monitor report
   member details 87
H
header (reports) 36
Help
   online 11
HELP command 146
HILITE command 147
history reports
   Daily History 90
History reports 89
HOME command 148
hyperlinks 32
data sharing 70
   DBM1 storage 70
logs 70
miscellaneous 70
   page sets and I/O 70
threads 70
ZPARMs 70
I
IDBACK_DEC parameter 195
IDBACK_INC parameter 195
IDBACK_MAX parameter 195
IDBACK_MIN parameter 195
IDFORE_DEC parameter 195
IDFORE_INC parameter 195
IDFORE_MAX parameter 195
IDFORE_MIN parameter 195
IEDIT (default value for F6) 119
IEDIT command 148
IFCIDS command 149
ignore status 54
   implementing configuration changes 109
   interval 66
   ISPF EDIT session 109
J
JCL
K

keys (defaults) 33
KEYS command 150

L

layout
  panels 33
  reports 36
LEFT command 151
listing parameter values 192
listing parameter values 192
LOCATE command 152
locking page sets 106
LOG command 153
log parameters 195
log reports and views 70
log rules 209
LOG_COPY1_HLQ parameter 195
LOG_COPY2_HLQ parameter 195
LOG_SPACE parameter 195
logging on 31
LOGLOAD_DEC parameter 195
LOGLOAD_INC parameter 195
LOGLOAD_MAX parameter 195
LOGLOAD_MIN parameter 195
LOGOP command 154

M

manual execution mode 57
MAXDBAT_DEC parameter 195
MAXDBAT_INC parameter 195
MAXDBAT_MAX parameter 195
MAXDBAT_MIN parameter 195
MENU command 154
messages
  displaying on reports 33
MODIFY command 155
modifying parameter values 189

N

navigation
  configuration analysis 93
  DB2 performance data 70
general 32
  report set 65
NEAR_HISTORY parameter 195
NEXT command 157
Next Generation Logger (NGL)
  description 22
  notes 47

O

object names (refreshing) 82
OBJECTTRACKING parameter 195
OBJSUM command 157
OBSCAN command 82
online assistance 39
online Help 11, 39
options
  panel command 158
  OPTIONS command 158
OUTLIM command 159

P

page set
  locking 106
  reports 80
type 98
Page Set Attributes panel 106
page set size 100
page set type 98
pageset
  reports 80
panel layout 33
PANELID command 159
PANELID description 33
panels
  System and SQL Performance for DB2 main menu 116
parameters
  log 195
  modifying 80
Pending Action List panel 53
PFKEYS command 160
PFKS command 160
PFSHOW command 161
PMDBPM2 79
PMDBPOBJ 81
PMDBPPS 80
PMDBPPSA 80
PMDDSC1 84
PMDEBPA1 106
PMDEBPC2 106
PMDEBPCA 101
PMDEBPCB 106
PMDEBPCO 101
PMDEBPP2 106
PMDECNFG 189, 190
PMDEDMP1 84
PMDEJCL0 109
PMDEROUT 57
PMDEVDCR 193
PMDEVDSC 193
PMDEVDEV 193
PMDEVOLV 192
PMDBGPI 87
PMDINIT0 192
PMDMAIN 76
PMDRIDP1 85
PMDSTRG1 77
priority attribute 98
problems (reporting) 39
PRODUCTS command 162
publications, related 11

Q
QUIT command 163

R
Recent Trends 89
recent trends history reports 89
recommendations (configuration) 106
REFRESH command 164
refreshing object names 82
reinstating ignored rules 57
related publications 11
report header 36
report layout 36
Report Manager description 19
report set
action codes 65
buffer codes 65
buffer pool compatibility profile 94
Buffer Pool Page Set Objects 81
Buffer Pool Page Sets 80
buffer pool reports 79
Buffer Pools Status Monitor 79
DB2 Pools Status Monitor 76
DB2 Subsystem Analysis 70
Dynamic Statement Cache 84
EDM Pool Status Monitor 84
Group Buffer Pool Status Monitor 87
history reports 89
hyperlinks 64
interval 66
navigation diagram 65
RID Pool Status Monitor 85
Sort Pool Status Monitor 86
Sysplex DB2 Monitor 67
viewing reports 66, 75
Virtual Storage Status Monitor 77
reporting problems 39
Repository Subcategory Selection panel 193
RESET command 164
RETRIEVE command 165
RETURN command 166
RFIND command 166
RID pool rules 209
RID Pool Status Monitor report 85
RIDSIZE_DEC parameter 195
RIDSIZE_INC parameter 195
RIDSIZE_MAX parameter 195
RIDSIZE_MIN parameter 195
RIGHT command 167
RLOG command 168
Rule Attributes panel 57
Rule Details panel 54, 56
rules
acknowledgement 55
changing the status 57
displaying 54
executing 55
execution mode 57
ignore status 57
list of 209
Runtime Component System (RTCS)
description 22

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
S
scrolling 33
sequential steal threshold rules 209
SEQUENTIAL_HI parameter 195
SEQUENTIAL_LOW parameter 195
setting parameter values 193
SHOW_ACTION parameter 195
SHOW_RECOMMEND parameter 195
SHOW_WTO parameter 195
SHOWCMDS command 168
SHUTDOWN command 169
SIZE_bpid_DEC parameter 195
SIZE_bpid_INC parameter 195
SIZE_bpid_MAX parameter 195
SIZE_bpid_MIN parameter 195
SIZE_HI parameter 195
SIZE_LOW parameter 195
SmartDBA System Performance
general navigation 32
logging on 31
SORT command 170
sort pool rules 209
Sort Pool Status Monitor report 86
sorting data on reports 24
SORTSIZE_DEC parameter 195
SORTSIZE_INC parameter 195
SORTSIZE_MAX parameter 195
SORTSIZE_MIN parameter 195
SPDACT2 70
SPDMAIN 67
SPFOFF command 171
SPFON command 172
SQL Performance, using with other products
(common main menu) 116
status
  component advisors 47
  of DB2s 47
STATUS command 172
  Data Collector 174
  report information 173
  user session 172
STATUSR command 175
STATUSS command 176
STOP command 176
STORAGE command 177
storage limits (configuration) 103
storage reports and views 70

SWITCH command 180
syntax diagram. See command name entries
syntax diagrams
  HILITE command 147
  STATUSR command 175
  STATUSS command 176
  STORAGE command 177
  SWITCH command 180
  SYSPLEX command 180
  TERSE command 182
  TOP command 183
  UP command 184
  USERS command 185
  ZOOM command 186
syntax statement conventions 13
SYSPLEX command 180
Sysplex DB2 Monitor report 47, 67
sysplex support 19
System Advisor 21, 44
SYSTSPRT
  at Data Collector initialization 18
  when commands are executed 21, 55

T
TERSE command 182
thread reports and views 70
thread rules 209
thresholds (DB2) 105
TOP command 183
typical BP configuration 94

U
UNDO member 109
update rate 100
UPDATE_HI parameter 195
UPDATE_LOW parameter 195
User Options 25
user-defined priority 98
USERS command 185

V
variable repository 190
category selection 193
listing values 192
setting values 193
SSID selection 190
subcategory selection 193
Variable Repository Category Selection panel 193
Variable Repository SSID Selection panel 190
Variable Repository Variable List panel 192
Variable Repository Variables panel 193
vertical deferred write threshold 105
vertical deferred write threshold rules 209
viewing reports 66, 75
virtual storage constraint 77
Virtual Storage Status Monitor 77
   DB2 version 77
VPSEQT_STICK parameter 195
VSCAVAIL_ALERT parameter 195
VSCAVAIL_NOTE parameter 195
VSCAVAIL_WARN parameter 195
VSCMAX parameter 195
VSCPSR_ALERT parameter 195
VSCPSR_NOTE parameter 195
VSCPSR_WARN parameter 195

W
warning 47

Z
ZOOM command 186
   about 186
default value for F6 119
   using to view more detailed information 186
ZPARM reporting, ISPF interface 70