Examining performance over time

This section includes the following topics:

- About the Activity tab
- How the Activity tab is structured
- About the entities you can examine

About the Activity tab

The Activity tab allows you to analyze performance behavior over time or within a given time period. When investigating a performance issue, the Activity tab is an excellent place to start. You can easily identify the performance profile of your DB2 database partition and determine who is executing which application, what they are waiting for and how many resources they are consuming. This is the critical information you need to identify the top consumers of your DB2 database partition and its major latencies. By focusing on the top consumers and latencies (wait states) you can maximize the tuning impact on your system while minimizing the time it takes to obtain results.

The Activity tab is also very useful for a scale-up exercise. Too frequently companies add CPUs to an existing server in their attempt to improve performance. Although occasionally successful, step one of any scale-up activity should be to identify the major latencies in the DB2 database partition and resolve them. Only once the major wait states are resolved, will a scale-up actually be capable of improving performance. Otherwise, you may be simply wasting money and resources.

The information displayed in the Activity tab is derived from historical data and enables you to access information for different time intervals at varying levels of detail.You can analyze what happened at a specific time, pinpoint problematic time periods, and drill down to analyze a bottleneck that caused a performance problem.

The Activity tab was designed to answer questions such as, "What happened yesterday, as well as a month ago and a year ago?" and "What has been the performance level of my applications over time".

Data in the Activity tab is available up to the last time slice that ended (information on the last minute is available in the Current tab). The Activity tab is usually the place to identify and investigate tuning problems.

When working in the Activity tab, you can choose to work on a specific entity or to view information on all the databases in the application.

> You usually switch to the Activity tab, after focusing on a database partition in the Dashboard tab, or by launching Precise for DB2 from another product (Insight, Alerts, or Report Manager). In these cases, the product automatically focuses on the relevant database partition.

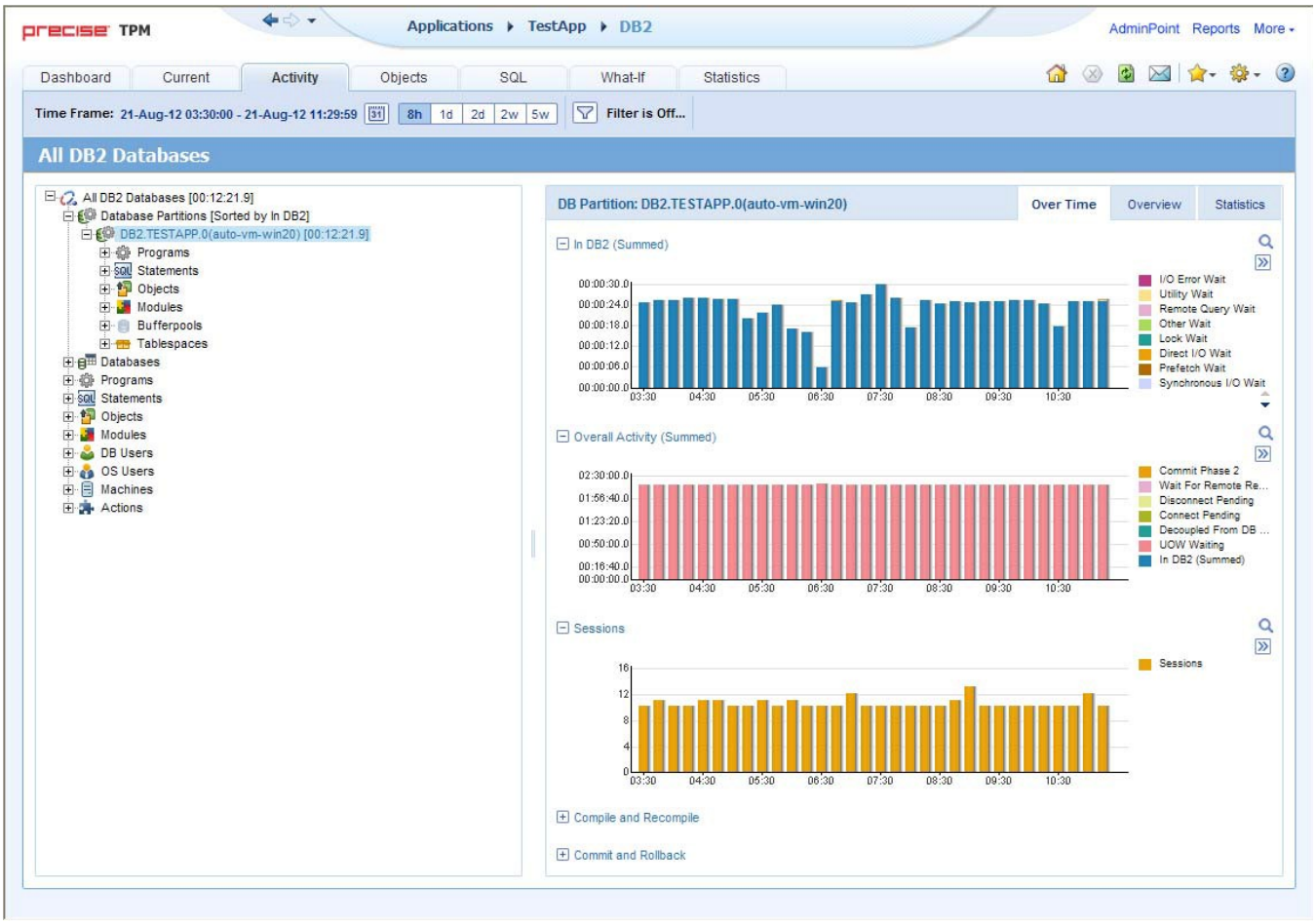
When you do not select a specific database partition to view in-context, a summary of the performance information on All database partitions in the application is displayed. You can analyze the average behavior of the entire Precise for DB2 Tier. You can then identify the database partition which consumes the most resources in your system and focus on it to further your investigation.

When you focus on a specific database partition (either as a result of launching or from the Activity tree) you can also identify which is the dominant resource consumed, in terms of CPU, I/O lock, etc. By identifying your system's wait type you can formulate an idea as to what kind of solutions will help you improve your system.

> If you are working with SAP, PeopleSoft, or Siebel, and ERP support is installed, the Activity tab displays information on the historical Precise for DB2 activity in relation to the ERP application and users, and specific information on executed views and transactions.

How the Activity tab is structured

Figure 1 Precise for DB2 Activity tab



When you open the Activity tab from the Dashboard tab, information on the database partition selected in the Dashboard is displayed, or on All DB2 Databases if the All row was selected. When you open the Activity tab from another tab, the settings from your last visit to the Activity tab are retained, such as a drill down to a Statement entity. This is similar to clicking the History button and returning to a previous tab.

The highest-level entity you can view information for in the Activity tab is All DB2 Databases. You can view a particular database partition by selecting it on the tree.

You can use the Filter dialog box to filter the Details pane so that only the contribution of certain entities is included. See Filtering data.

The Activity tab is divided into two areas, the Tree pane and the Details pane. A breakdown of the entities that are associated with the selected entity is displayed in the Tree pane. Information on the entity you selected is displayed in the Details pane.

About the Tree pane in the Activity tab

Which entries are displayed, and how many items are displayed can be changed in the Settings menu.

The duration value displayed next to each entry reflects the duration of each instance in the selected entity, according to the sort parameter you selected. The sort parameter is displayed next to each entity. The default entity for the top entity in the tree is In DB2 time. See About configuring your settings.

Determining what information is displayed in the Tree

You can also control the number of entries displayed and the order in which they are displayed in the tree using the sort and filter feature.

To determine what information to display in the tree

1. Right-click on an entity in the tree, and then click **Sort and Filter**.
2. In the Associate With dialog box, on the Entries tab, select the entity you want to associate data with from the Populate table with list.
3. In the Sort entries by list, determine according to which criteria you want the information to be sorted and in which order.
4. From the Display top list, select the number of rows to display.
5. On the Criteria tab, do the following for each entity you want to associate data with:
   From the left drop-down list, select an entity.
   From the middle drop-down list, select an operator, such as, Like, <>, Not Like, In, Not In.
   In the text box, type the criteria (case-sensitive) for the selected entity.
   If you select the operator Like or Not Like, you can use the % wildcard character. If you select the operator In or Not In, type a comma to separate values.

6. Click **OK**.

About viewing information for entities associated with a selected entity

You can drill down to the entities that are associated with the selected entity by clicking on the plus sign (+) located next to each entity. When you drill down on an entity, associated entities are displayed on the tree and entity details are displayed in the Details pane. When you drill down on an instance that is associated with the selected entity, you display the instances that are associated with the selected entity and you can view additional information for the selected instance in the Details pane.

Viewing information from a different time frame

You can switch to a different time frame and view additional information on the selected entity that was collected for that time frame. Only the information in the subnodes of the entity you have selected is refreshed.

To select a different time frame

1. Click on the entity in the tree.
2. In the Time Frame list, select a different time frame than the one already being displayed.
   Notice that only the information for the selected entity is refreshed, and it is moved up to the top of the tree.

Refreshing a view

The Refresh option refreshes the display from the PMDB. To refresh the information displayed

1. Right-click on an entity in the tree.
2. Click **Refresh**.

Printing the Tree display

You can print an image of what is displayed on the Tree. To print the Tree display

1. Right-click on an entity in the tree.
2. Click **Print**.
3. Use the print functions of your browser to print out an image of the information displayed on the Tree.

About the Details pane in the Activity tab

The Details pane displays information corresponding to the entity (category) or instance selected in the Tree pane. If an entity (category) is selected, the Details pane displays a Comparison view of all the instances displayed under the selected category in the Tree pane. If an item is selected, the Details pane displays detailed information regarding the selected item.

The Details pane displays information corresponding only to the selected tree branch (displayed in the Tree pane). For example, if you drill down on the Programs category associated to a selected Database Partition item, the Details pane displays only information for the Programs under the selected Database Partition item. The selection you make is reflected in the Details pane only; the Tree display remains unchanged.

When drilling down in the tree, we filter according to the parent entity. There are two exceptions to this rule: drilling down from Tablespaces to Objects and drilling down from Objects to other entities. For example, drilling down from Objects to Statements does not filter Statements in DB2.

For some entities, tabs at the top of the Details pane enable you to view additional information. For example, the tabs displayed for a Statement entity are: General and In DB2. Clicking a tab displays different table columns with the same type of associated entities.

When database files are stored on an EMC Storage unit and the Precise for Storage agent is installed, a tab named Storage is displayed. The tab presents a list of storage device used by the DB Partition entity. For each storage device it displays statistics regarding Cache Hit Ratio, Containers and Table Spaces, Requests amounts, Throughput, and I/O rate. See Storage tab.

When information on a selected entity is displayed in table and graph format in the Details pane, there is a direct correlation between the selected entry in the table and the information displayed in the graph below the table. Selecting a different row changes the information displayed in the graph displayed below the table.

You can also launch a different tab altogether. For example, clicking the Tune icon next to a statement will take you to the SQL tab, in context, to allow detailed investigation and tuning of the SQL statement.

About the entities you can examine

The Activity tab displays information on different entities. This section provides an overview of all entities, their meaning, and their views. See The Precise for DB2 Time Model.

The following entities can be examined in the Activity tab:

- About All DB2 Databases
- About Database Partitions
- About Databases
- About Programs

- About Statements
- About Objects
- About Machines
- About Modules
- About Actions
- About OS Users
- About DB Users
- About Tablespaces
- About Bufferpools

About All DB2 Databases

DB2 instances aggregate information from all the databases.

The following table describes the information displayed in the Over Time tab.

Table 1 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	Application overall activity over time.
Sessions	Number of sessions over time.
Compile and Recompile	The time the application spent for compiles and recompiles over time.
Commits and Rollbacks	The time the application spent for commits and rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 2 Overview tab

Item	Description
Details	Summed information for the chosen time frame of Total In db2, Sessions, etc.
In DB2 (Summed)	The summed In DB2 breakdowns.
Statistics	Summed statistics information such as locks escalations, locks timeouts, etc.

The following table describes the information displayed in the Statistics tab.

Table 3 Statistics tab

Item	Description
Rows Read/Written	The number of rows read and written over time.
Rows Selected/Affected	The number of rows selected and rows affected over time.
Bufferpool Physical I/O	Pages read over time.
Locks	Locks escalations and locks timeouts over time.

About Database Partitions

Database partitions list all the information taking place in the database partitions.

Database Partition Comparison

The following table describes the information displayed in the General tab.

Table 4 General tab

Column	Description
Database Partition	The name of the database: <instance>.<database>.<partition#>
Catalog Server	The server of the catalog partition.

In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement in DB2 (Avg)	The average In DB2 time for the statement.
Statement Execution	Total statement executions within the selected time.
Sessions	Number of sessions.

As pointed out in the About the Details pane in the Activity tab section, the graph at the bottom of the screen displays detailed information for the Data Partition selected in the table above.

The following table describes the information displayed in the In DB2 tab.

Table 5 In DB2 tab

Column	Description
Database Partition	The name of the database: <instance>.<database>.<partition#>
Catalog Server	The server of the catalog partition.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 6 Statistics tab

Column	Description
Database Partition	The name of the database: <instance>.<database>.<partition#>
Catalog Server	The server of the catalog partition.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected Database Partition

The following table describes the information displayed in the Over Time tab.

Table 7 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in Overview tab.

Table 8 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 9 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

The following table describes the information displayed in the Storage tab.

Table 10 Storage tab

Item	Description
Devices in Use	List of devices used by DB2 database partition. Storage Statistics information is shown for each device. Selecting one of devices will present detailed information about the selected device in other components below.
Device <unit name> <device number>'s Cache Hits	Historical overtime graph of read, write, and combined cache hit ratio (%) of the selected device.
Containers and Tablespaces on Device <unit name><device number>	List of Containers and Table spaces stored on the selected device.
Device <unit name> <device number>'s Requests	Historical overtime bars graph for read and write requests for the selected device.
Device <unit name> <device number>'s Throughput	Historical overtime graph for Throughput (Mb/Sec) of the selected device.
Device <unit name> <device number>'s I/O Rate	Historical overtime graph for I/O rate (Sec/Req) on the selected device.

About Databases

Databases list activity by database. All database partition information is aggregated to the database level.

Database Comparison

The following table describes the information displayed in the General tab.

Table 11 General tab

Column	Description
Database	Name of the database where the statement is running.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 12 In DB2 tab

Column	Description
Database	Name of the database where the statement is running.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 13 Statistics tab

Column	Description
Database	Name of the database where the statement is running.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected Database

The following table describes the information displayed in the Over Time tab.

Table 14 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 15 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 16 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

The following table describes the information displayed in the Storage tab.

Table 17 Storage tab

Item	Description
Devices in Use	Information about devices that are in use.
Device <unit name> <device number>'s Cache Hits	The amount of Cache Hits for the selected device.
Containers and Tablespaces on Device <unit name><device number>	Information on the Containers and Tablespaces that are defined for this specific device.
Device <unit name> <device number>'s Requests	The amount of Requests for the selected device.
Device <unit name> <device number>'s Throughput	The Throughput for the selected device.
Device <unit name> <device number>'s I/O Rate	The I/O Rate for the selected device.

About Programs

These are the names of programs that execute Precise for DB2 activity.

Program Comparison

The following table describes the information displayed in the General tab.

Table 18 General tab

Column	Description

Program	Program name.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 19 In DB2 tab

Column	Description
Program	Program name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 20 Statistics tab

Column	Description
Program	Program name.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected Program

The following table describes the information displayed in the Over Time tab.

Table 21 Over Time tab

Column	Description
In DB2 (Summed)	The In DB2 breakdowns over time.

Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 22 Overview tab

Column	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 23 Statistics tab

Column	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts overtime.

About Statements

These are the statements Precise for DB2 is executing. Statements are collapsed.

Statement Comparison

The following table describes the information displayed in the General tab.

Table 24 General tab

Column	Description
Icon	Launch to SQL tab for statement tuning.
Statement	Statement name.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
In DB2 (Avg)	The average In DB2 time per statement execution.
Executions	Total statement executions within the selected time frame. Available for statements, tables, and indexes.
Text	Statement text.

The following table describes the information displayed in the In DB2 tab.

Table 25 In DB2 tab

Column	Description
Icon	Launch to SQL tab for statement tuning.
Statement	Statement name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.

Wait for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

Selected Statement

The following table describes the information displayed in the Over Time tab.

Table 26 Over Time tab

Column	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
In DB2 (Avg)	The average In DB2 time per statement execution.
Statement Executions	Total statement executions within the selected time.

The following table describes the information displayed in the Overview tab.

Table 27 Overview tab

Column	Description
Details	Detailed activity information and last explain details.
In DB2 (Summed)	The In DB2 breakdowns.
Text	Statement text.

About Objects

Lists of tables and indexes in use.

Object Comparison

The following table describes the information displayed in the General tab.

Table 28 General tab

Column	Description
Icon	Launch to Objects tab.
Type	The object type.
Object	The object name.
Schema	The object schema name.
Base Table Name	The name of the table.
In DB2 (Summed)	The In DB2 time.
%	The In DB2 percentage as a % of total rows.
Sequential Prefetch I/O	I/O time used for sequential prefetch.
List Prefetch I/O	I/O time used for list prefetch.
No Prefetch I/O	I/O time used with no prefetch.

Selected Object

The following table describes the information displayed in the Overview tab.

Table 29 Overview tab

Column	Description
Details	Object details.
In DB2 (Summed)	The In DB2 time.
Prefetched I/O (Summed)	Over time information or I/O separated by Sequential prefetch, List prefetch, and No prefetch.

About Machines

This is a list of the machines from which the users are logging in.

Machine Comparison

The following table describes the information displayed in the General tab.

Table 30 General tab

Column	Description
Machine	Machine name.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 31 In DB2 tab

Column	Description
Machine	Machine name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 32 Statistics tab

Column	Description
Machine	Machine name.
Lock Escalations	Total number of lock escalations.

Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected

Selected Machine

The following table describes the information displayed in the Over Time tab.

Table 33 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 34 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 35 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

About Modules

Modules represent the name of the package that was activated.

Module Comparison

The following table describes the information displayed in the General tab.

Table 36 General tab

Column	Description

Module	Module name.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 37 In DB2 tab

Column	Description
Module	Module name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 38 Statistics tab

Column	Description
Module	Module name.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected Module

The following table describes the information displayed in the Over Time tab.

Table 39 Over Time tab

Item	Description

In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 40 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 41 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O.	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

About Actions

These are the account strings that were activated from the client information.

Action Comparison

The following table describes the information displayed in the General tab.

Table 42 General tab

Column	Description
Action	Action name.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 43 In DB2 tab

Column	Description
Action	Action name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.

Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 44 Statistics tab

Column	Description
Action	Action name.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected Action

The following table describes the information displayed in the Over Time tab.

Table 45 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 46 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 47 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

About OS Users

These are the names of the users that logged into the machine and executed activity in DB2.

OS User Comparison

The following table describes the information displayed in the General tab.

Table 48 General tab

Column	Description
OS User	OS User name.
In DB2 (Summed)	The In DB2 breakdowns.
%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 49 In DB2 tab

Column	Description
OS User	OS User name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 50 Statistics tab

Column	Description
OS User	OS User name.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).

BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected OS User

The following table describes the information displayed in the Over Time tab.

Table 51 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application's overall activity including In DB2 over time.
Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 52 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 53 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

About DB Users

These are the names of the users that logged into the DB2 database.

DB User Comparison

The following table describes the information displayed in the General tab.

Table 54 General tab

Column	Description
DB User	Database User name.
In DB2 (Summed)	The In DB2 breakdowns.

%	The In DB2 percentage as a % of total rows.
Statement In DB2 (Avg)	The average In DB2 time for the statement.
Statement Executions	Total statement executions within the selected time.
Sessions	Number of sessions.

The following table describes the information displayed in the In DB2 tab.

Table 55 In DB2 tab

Column	Description
DB User	Database User name.
In DB2 (Summed)	The In DB2 breakdowns overtime.
Using CPU	In DB2 breakdown description.
Waiting for CPU	In DB2 breakdown description.
Sync I/O Wait	In DB2 breakdown description.
Direct I/O Wait	In DB2 breakdown description.
Prefetch Wait	In DB2 breakdown description.
Lock Wait	In DB2 breakdown description.
I/O Error Wait	In DB2 breakdown description.
Remote Query Wait	In DB2 breakdown description.
Utility Active	In DB2 breakdown description.

The following table describes the information displayed in the Statistics tab.

Table 56 Statistics tab

Column	Description
DB User	Database User name.
Lock Escalations	Total number of lock escalations.
Lock Timeouts	Total number of lock timeouts.
BP Data Read I/O	Total data reads (in pages).
BP Index Read I/O	Total index reads (in pages).
Direct Read/Write I/O	Total of direct reads and writes (in pages).
Rows Read	Number of rows read.
Rows Written	Number of rows written.
Rows Selected	Number of rows selected.
Rows Affected	Number of rows affected.
Internal Row Affected	Number of internal rows affected.

Selected DB User

The following table describes the information displayed in the Over Time tab.

Table 57 Over Time tab

Item	Description
In DB2 (Summed)	The In DB2 breakdowns over time.
Overall Activity (Summed)	The application’s overall activity including In DB2 over time.

Sessions	Number of sessions.
Compile and Recompile	The time the application spent for commits & recompiles over time.
Commits and Rollbacks	The time the application spent for commits & rollbacks over time.

The following table describes the information displayed in the Overview tab.

Table 58 Overview tab

Item	Description
Details	Detailed activity information.
In DB2 (Summed)	The In DB2 breakdowns.
Statistics	Statistic counters overview.

The following table describes the information displayed in the Statistics tab.

Table 59 Statistics tab

Item	Description
Rows Read/Written	Number of rows read/written.
Rows Selected/Affected	Number of rows selected/affected.
Bufferpool Physical I/O	Physical I/O over time (in pages).
Locks	Number of lock escalations and lock timeouts over time.

About Tablespaces

Tablespaces list activity by Tablespace. This entity is only available for the Database and Database Partition entities. To display activity by tablespace, drill from the Database or Database Partition to the tablespaces entity.

The following table describes the information displayed in the General tab.

Tablespace Comparison

Table 60 General tab

Column	Desription
Tablespace	The name of the tablespace.
I/O Time (Summed)	Total I/O time breakdown.
I/O Count	Total I/O count breakdown (in pages).
Page Size	The tablespace’s page size.
Pages	The number of pages.
No Victim Available	The number of times an agent did not have a pre-selected victim buffer available.

The following table describes the information displayed in the I/O Time tab.

Table 61 I/O Time tab

Column	Description
Tablespace	The name of the tablespace.
I/O Time (Summed)	Total I/O time breakdown.
Synchronous Read Time	The total Synchronous Read Time.
Asynchronous Read Time	The total Asynchronous Read Time.
Direct Read Time	The total Direct Read Time.
Synchronous Write Time	The total Synchronous Write Time.

Asynchronous Write Time	The total Asynchronous Write Time.
Direct Write Time	The total Direct Write Time.

The following table describes the information displayed in the I/O Count tab.

Table 62 I/O Count tab

Column	Description
Tablespace	The name of the tablespace.
I/O Count	The total I/O Count.
Synchronous Data Reads	The total Synchronous Data Reads.
Synchronous Index Reads	The total Synchronous Index Reads.
Asynchronous Data Reads	The total Asynchronous Data Reads.
Asynchronous Index Reads	The total Asynchronous Index Reads.
Direct Reads	The total Direct Reads.
Synchronous Data Writes	The total Synchronous Data Writes.
Synchronous Index Writes	The total Synchronous Index Writes.
Asynchronous Data Writes	The total Asynchronous Data Writes.
Asynchronous Index Writes	The total Asynchronous Index Writes.
Direct Writes	The total Direct Writes.

The following table describes the information displayed in the Response Time tab.

Table 63 Response Time tab

Column	Description
Tablespace	The name of the tablespace.
Synchronous Read Response Time	The average Synchronous Read Response Time.
Asynchronous Read Response	The average Asynchronous Read Response.
Direct Read Response Time	The average Direct Read Response Time.
Synchronous Write Response Time	The average Synchronous Write Response Time.
Asynchronous Write Response	The average Asynchronous Write Response.
Direct Write Response Time	The average Direct Write Response Time.

Selected Tablespace

The following table describes the information displayed in the Over Time tab.

Table 64 Over Time tab

Item	Description
Hit Ratio	The tablespace Hit Ratio over time.
I/O Time	The tablespace I/O time breakdown over time.
Response Time (Avg)	The tablespace average Response Time over time.
I/O Count	The tablespace I/O Count breakdown over time (in pages).

The following table describes the information displayed in the Overview tab.

Table 65 Overview tab

Item	Description

Details	Details about the selected tablespace.
I/O Time	Total I/O time breakdowns (in Pie chart).
I/O Count	Total I/O Count breakdowns (in Pie chart).

About Bufferpools

Bufferpools list activity by Bufferpool. This entity is only available for the Database and Database Partition entities. To display activity by bufferpool, drill from the Database or Database Partition to the Bufferpools entity.

Bufferpool Comparison

The following table describes the information displayed in the General tab.

Table 66 General tab

Column	Description
Bufferpool	The name of the bufferpool.
I/O Time (Summed)	Total I/O time breakdown.
I/O Count	Total I/O count breakdown (in pages).
Page Size	The bufferpool's page size.
Pages	The number of pages.
No Victim Available	The number of times an agent did not have a pre-selected victim buffer available.

The following table describes the information displayed in the I/O Time tab.

Table 67 I/O Time tab

Column	Description
Bufferpool	The name of the bufferpool.
I/O Time (Summed)	Total I/O time breakdown.
Synchronous Read Time	The total Synchronous Read Time.
Asynchronous Read Time	The total Asynchronous Read Time.
Direct Read Time	The total Direct Read Time.
Synchronous Write Time	The total Synchronous Write Time.
Asynchronous Write Time	The total Asynchronous Write Time.
Direct Write Time	The total Direct Write Time.

The following table describes the information displayed in the I/O Count tab.

Table 68 I/O Count tab

Column	Description
Bufferpool	The name of the bufferpool.
I/O Count	The total I/O Count.
Synchronous Data Reads	The total Synchronous Data Reads.
Synchronous Index Reads	The total Synchronous Index Reads.
Asynchronous Data Reads	The total Asynchronous Data Reads.
Asynchronous Index Reads	The total Asynchronous Index Reads.
Direct Reads	The total Direct Reads.
Synchronous Data Writes	The total Synchronous Data Writes.

Synchronous Index Writes	The total Synchronous Index Writes.
Asynchronous Data Writes	The total Asynchronous Data Writes.
Asynchronous Index Writes	The total Asynchronous Index Writes.
Direct Writes	The total Direct Writes.

The following table describes the information displayed in the Response Time tab.

Table 69 Response Time tab

Column	Description
Bufferpool	The bufferpool name.
Synchronous Read Response Time	The average Synchronous Read Response Time.
Asynchronous Read Response	The average Asynchronous Read Response.
Direct Read Response Time	The average Direct Read Response Time.
Synchronous Write Response Time	The average Synchronous Write Response Time.
Asynchronous Write Response	The average Asynchronous Write Response.
Direct Write Response Time	The average Direct Write Response Time.

Selected Bufferpool

The following table describes the information displayed in the Over Time tab.

Table 70 Over Time tab

Item	Description
Hit Ratio	The bufferpool Hit Ratio over time.
I/O Time	The bufferpool I/O time breakdown over time.
Response Time (Avg)	The bufferpool average Response Time over time.
I/O Count	The bufferpool I/O Count breakdown over time (in pages).

The following table describes the information displayed in the Overview tab.

Table 71 Overview tab

Item	Description
Details	Details about the selected bufferpool.
I/O Time	Total I/O time breakdowns.
I/O Count	Total I/O Count breakdowns.