Examining system performance statistics

This section includes the following topics:

About the Statistics tab

To determine whether your SAP system is performing optimally it is necessary to analyze performance measurements over time. The Statistics tab provides many performance counters grouped into several predefined graphs that enable you to analyze performance problems from various aspects, such as, CPU, scalability and load. In addition, the average response time and transactions are displayed so that you can make a correlation between the performance counters and the statistics and gain a better understanding how the activity of your servers affects your SAP system.

The Statistics tab can help you identify the host with the highest average CPU consumption during the last day. The Statistics tab enables you to observe and analyze different activities in your SAP system. For example, you can:

- Determine which server had the highest maximum CPU usage during the selected time period?
- View a capacity graph showing the system's average response time vs. its active users.

> ⓘ The server entity is the only entity viewed in the Statistics tab. As a result the navigation ToolTip is not enabled in this tab.

Understanding the Statistics tab

The Statistics tab displays statistical data on the servers in your SAP application. These servers include your SAP system application servers and the database server. For example, you can observer what was the maximum CPU usage of the database server or the load placed on an application server.

About the Main area in the Statistics tab

The Main area shows a series of overtime graphs and capacity graphs that enable you to examine the performance of the servers in your SAP application, from various aspects. You can, for example, examine how the number of active users and connected users influences CPU capacity or Load capacity or determine how scalable your system servers are, over time.

About the Association area in the Statistics tab

The Association area provides corresponding statistical information on your system's servers and enables you to drill down to a specific server to view additional information in the Main area.

For example, when you want to view information on a specific server in your SAP application, choose the system you want to evaluate from System list in the Action Controls area. The Main area displays statistical information on all the servers in the selected SAP system.

In the Association area, click the row of the server entity you want to view detailed information for. The Tab heading displays the server you selected; the Main area displays statistical information on the server you drilled down to, and the Association area is empty. For more information about these tabs, see About Precise for SAP tabs, How most tabs are structured, and About the Dashboard tab.

Examining Statistics tab entities

The Statistics tab displays statistical information on all SAP Servers in an application. Several Operating System statistics are presented to enable you to examine SAP Server and Operating System statistics together. Capacity graphs enable you to examine how the number of active users and connected users influence your system's capacity. The tab can be used to monitor your system's recent state as well as previous status.

About the Main area in the Statistics tab

In addition to the regular overtime graphs, the Statistics tab introduces capacity graphs. The capacity graph shows how a specific counter (CPU, Load, or Response Time) reacted when there was an increase in the number of active users or connected users, in the specified system.

Table 1 Statistics tab

View	Description
Viewing Scalability statistics	The Scalability view shows the CPU usage and the average response time parameters, over the specified time period.
Viewing Operating system statistics	The Operating System view displays statistics for the selected system or server, over the selected time period.

Viewing Usage statistics	The Usage view displays active users vs. connected users, over the selected time period. This shows how many users are connected (active and not active) and how many users are active in your SAP system. The Steps and Average Response Time provide additional information on the usage of your system. These graphs enable you to observe the connection between the active SAP users and the steps they created.
Viewing CPU capacity statistics	The CPU Capacity view displays the CPU vs. active users and CPU vs. connected users capacity graphs. This enables you to check how the server's CPU performance was affected when additional users were added to the system.
Viewing response time capacity statistics	The Response Time Capacity view displays the Response Time vs. active users Response Time vs. connected users capacity graphs. This enables you to check how the server's response time was affected when additional users were added to the system.
Viewing load capacity statistics	The Load Capacity view displays the Load vs. active users and Load vs. connected users capacity graphs. This enables you to check how the load on the server was affected when additional users were added to the system.

About the Association area in the Statistics tab

The Association are displays the following information on the selected SAP system servers. If you drill down to a server, the Association area is blank. The Association area has six tab views.

The following table describes the information contained in each of these tabs.

Table 2 Association area tabs

Tab	Description
General	Shows the basic counters for the activity.
HitRatio	Shows the most common HitRatio information for this server.
Application Server	Shows application server resources information.
CPU	Shows CPU consumption on this server.
Memory	Shows memory consumption on this server.
Paging	Shows paging activity information on this server.

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

Table 3 General tab

Column	Description
Active Users (Avg)	Displays the average active users (in 5-minute time slices).
Connected Users (Avg)	Displays the average active users (in 5-minute time slices).
CPU (Avg)	Displays the average CPU usage on the server (in 5-minute time slices).
CPU (Max)	Displays the maximum CPU usage on the server.
Load (Avg)	Displays the average load on the server, that is, processes waiting for the CPU (in 5-minute time slices).
Load (Max)	Displays the maximum load on the server.
Page Faults	Displays the number of page faults logged for the server when an attempt was made to access a page of memory that is not currently mapped to physical memory.
Response Time (Avg)	Displays the server's average response time.
Transactions	Displays the number of transactions run by the server.

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

Table 4 HitRatio tab

Column	Description
Select Single Count (Avg)	Number of requests for a single sequential read from the database.

Select Single HitRatio	Percentage of single select requests data found in memory buffers.
Select Count (Avg)	Number of requests for sequential reads from the database.
Select HitRatio	Percentage of select requests data found in memory buffers.
Program HitRatio	Percentage of program code found in memory buffers.
Screen HitRatio	Percentage of screen code found in memory buffers.

The following table describes the information displayed in the Application Server tab.

Table 5 Application Server tab

Column	Description
Session Count (Avg)	Total number of sap sessions on the host.
Roll Area Total (Avg)	Total size of roll area defined for this host.
Roll Area Used (Avg)	Total roll area used for this host.
Extended Memory Total (Avg)	Extended memory defined for this host.
Extended Memory Used (Avg)	Extended memory used for this host.

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

Table 6 CPU tab

Column	Description
Interrupts (Avg)	Number of operation system interrupts on this host.
System Calls (Avg)	Number of system calls made on this host.
Context Switches (Avg)	Number of operating system context switches made on this host.
User Mode CPU (%)	Percentage of user mode CPU usage on this host.
System Mode CPU (%)	Percentage of system mode CPU usage on this host.
Idle mode CPU (%)	Percentage of idle mode CPU usage on this host.

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

Table 7 Memory tab

Column	Description
Free Memory KB (Avg)	Size of memory not used on the host.
Physical Memory KB (Avg)	Size of physical memory on the host.
Swap Config KB (Avg)	Swap area size configured for this host.
Swap Free KB (Avg)	Size of free swap area.
Swap Size KB (Avg)	Swap area size defined.
Swap MAX KB (Avg)	Maximum swap size area used.

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

Table 8 Paging tab

Column	Description
Page in/s (Avg)	Number of pages swapped in.
Page out/s (Avg)	Number of pages swapped out.
Page in/s KB (Avg)	Size of pages swapped in.
Page out/s KB (Avg)	Size of pages swapped out.

Identifying performance problems with the Statistics tab

The Statistics tab displays detailed information on the hosts (application server hosts and database server host) that comprise your SAP system.

Information displayed in this tab can be used to identify and analyze the cause of a performance problem and is a prime source of input for future tuning decisions.

You can identify performance problems by doing one or more of the following:

- Examining CPU statistics
- Examining the capacity of your SAP system

Examining CPU statistics

You can examine a server's activity over time to confirm that CPU usage falls within a normal range. A continually high level of CPU usage may indicate that the application needs improvement or more processes should be added to the machine to enhance performance. A low CPU usage indicates that the system is not using all the machine's processing power. If you conclude that high CPU usage is the result of an activity in the SAP system, open the Activity tab to continue your analysis of the application's performance.

Examining the capacity of your SAP system

You can examine the capacity of your SAP system by viewing the capacity graphs in the Statistics tab. You can view CPU capacity, Load capacity or Response Time capacity. Unlike the overtime graph a capacity graph lets you determine how a specific counter (CPU, Load, Response time) reacted when there was an increase in the number of connected users or the number of active users. For example, if the number of active users reached 100 the CPU counter increased considerably to 90%, this may suggest that letting more users connect to this particular server may eventually bring the CPU to 100% and thereby slow down all the users working on this server.