

Examining Precise for SAP 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 in the Activity tab](#)
- [How the Activity tab can help you identify performance problems](#)

About the Activity tab

The Activity tab displays detailed information on the historical activity of your SAP system.

Performance information displayed in this tab can be used to identify and analyze the cause of a performance problem and serves as the main source of input for future tuning decisions. Use the Activity tab to analyze various aspects of your SAP system's activities. For example:

- Check which organization had the highest average response time.
- Check the average response time of a user over time and observe the elements that constitute his response time.
- View the overtime SLA compliance of a transaction.
- View an over time graph that displays the number of steps executed with respect to their average response time.
- Determine which transactions in your system experienced the highest response time.

How the Activity tab is structured

The Activity tab allows you to analyze the different dimensions of the completed activities in your SAP system from various views. The tab is divided into two areas the Main area and the Association area. The columns displayed in the Association area change to reflect the selected entity.

The Activity tab displays information on a selected entity and the entities that are associated with it. For example, if the selected entity is Organizations, the entities associated with it could be various users that belong to the Organization. Drilling down to a particular user displays the various transactions run by the user.

When you open the Activity tab from the Dashboard tab, the selected entity is by default Organizations, meaning that information is displayed on the organization level. If you open the Activity tab from another tab, the settings you previously selected (such as, selected entity, filters, and time frame) are taken into account and information displayed is related to the same data you previously examined. This is called in-context navigation and enables you to focus in on other aspects of the selected entity and further your analysis.

About the Main area in the Activity tab

The Main area shows comprehensive information on the selected entity. You can choose from several views in the Main area to examine the entity from different angles. You can, for example, focus exclusively on your system's Performance data (default), or SLA Compliance, over the selected time period.

Navigating in the Activity tab

The name of the entity you selected is displayed in the Tab heading, which serves as a point of orientation. The highest level entity for which you can view information in the Activity tab is the Tier.

The selected entity is always reflected in the Tab heading, which serves as a point of orientation. Hovering over the Tab heading displays a ToolTip which shows the navigation path you used to display a particular view.

About the Association area in the Activity tab

The Association area provides corresponding information on the entities that are associated with the selected entity. You can view information on one type of entity at a time, such as organizations only or locales only, by selecting an option from the Association Controls. The selection you make is reflected in the Association area only; the Main area remains unchanged. For some entities, tabs above the Association area enable you to view additional information: Clicking a tab changes the table columns for the same type of entities.

From the Association area, you can also drill down to another entity by clicking a table row. A drill-down affects the entire tab. When you drill down to another entity, the Tab heading reflects the new selection, the Main area displays information on the newly selected entity, and the Association area displays data on the entities associated with the selected entity.

For example, when you want to drill down to an associated entity, such as a specific organization, to view additional information, choose Locales from the Association controls. Note that the Tab heading and the Main area remain unchanged. Click the row of the locale entity you want to view detailed information for. The Tab heading indicates the newly selected entity; the Main area displays information on the locale you drilled down to, and the Association area shows information on the applications associated with selected locale. See "About Precise for SAP tabs" on page 12, "How most tabs are structured" on page 13, and "Tasks common to all tabs" on page 17.

About the entities you can examine in the Activity tab

The information displayed in the Activity tab is divided into the following categories:

- **Business-Oriented entities.** Includes organizations, Locales, Applications, Application Servers, Users, Transactions. Information is displayed in context of the business transaction activities.

- **RFC (Remote function calls) entities.** Includes RFC Functions and RFC Programs. Whenever one of these entities is selected, the information displayed is in context to RFC transactions.
- **Step entities.** Whenever a step entity is selected, the information is displayed in context of the steps and not of business transaction activities.

Business-oriented entities

The Business-Oriented category includes the following entities:

- **Organizations.** Group of users belonging to the same organization, such as, divisions or departments.
- **Locales.** Group of users belonging to the same geographic area and usually sharing the same LAN.
- **Applications–SAP Module.** Group of transactions performed for a specific business-oriented purpose, such as, quality management, financial accounting, personnel management and materials management.
- **Application servers.** Server that provides a range of services for operating the SAP system.
- **Users.** SAP user.
- **Transactions.** Comprised of a logically completed operation in the SAP system and the transaction code (Tcode), the alphanumeric sequence that identifies a transaction in the SAP system.

Each Business-oriented category has six views organized as tabs in the Association area. The following table describes each of these tabs.

Table 1 Association area tabs

Tab	Description
General	Shows the basic information about the activity for the entity (transactions and response time) along with SLA information.
Response Time	Displays the breakdown of the total response time to the different operations it does in the activity.
Client	Displays the breakdown of the client time spent in the activity.
Application	Shows the breakdown of the SAP application server processing time.
Database	Shows the breakdown of the database processing time.
Resources	Shows information about resources consumption for the activity.

All of the above tabs display information on the following entities:

- Organizations
- Locales
- Applications
- Application servers
- Users
- Transactions

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

Table 2 General tab

Column	Description
Response Time (Avg)	Displays the average time of the activity. The response time is the sum of the client time, the queue time, the application time and the database time.
Backend Response Time (Avg)	Displays the average time of the activity in the Back End. The Backend response time is the sum of the queue time, the application time and the database time.
Transactions	Indicates the number of transactions run.
Response Times (Summed)	Displays the total response times of all activities, performed for the specific entity displayed.
Backend Response Time (Summed)	Displays the total Back End response times of all activities, performed for the specific entity displayed.
RFC Time	Indicates the percentage of time the activity was caused by RFCs.
SLA Compliance	Indicates the SLA compliance of the activity.

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

Table 3 Response Time tab

Column	Description
Transactions	Indicates the number of transactions run.

Response Times (Summed)	Displays the total response times of activities, performed for the specific entity displayed.
Backend Response Time (Summed)	Displays the total Back End response times of all activities, performed for the specific entity displayed.
Client Times (Summed)	Indicates the total client time of the activity. The client time is the time the activity spent on the way to or back from the SAP application server plus the time it spent in the client machine.
Queue Times (Summed)	Indicates the total queue time of the activity. The queue time is the time the activity spent in the SAP application server waiting for a work process to process it.
Application Times (Summed)	Indicates the total application time of the activity. The application time is the time the activity spent being processed by the SAP application server.
DB Times (Summed)	Indicates the total database time of the activity. The database time is the time the activity spent in the SAP database.

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

Table 4 Client tab

Column	Description
Transactions	Indicates the number of transactions run.
GUI Time (Sum)	The time spent for the first round-trip to pass from the SAP application server to the client, including the time spent in the client machine.
Work time (Sum)	Total time spent in the network while processing the transactions.
Roundtrips (Sum)	Number of interactions necessary in a transaction step to complete a round-trip from the SAP application server to the client machine.
GUI Time (Avg)	The average time spent for the first round-trip to pass from the SAP application server to the client, including the time spent in the client machine.
Work Time (Avg)	Average time spent in the network while processing the transactions.
Roundtrips (Avg)	Average number of interactions necessary in a transaction step to complete a round-trip from the SAP application server to the client machine.

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

Table 5 Application tab

Column	Description
Transactions	Indicates the number of transactions run.
Load + Generate Time (Sum)	Total time spent on loading from the database and generating objects, such as, ABAP source code, CUA and screen information.
Enqueue Time (Sum)	Time spent waiting for a resource protected by a SAP lock, in seconds.
Roll (Wait + In) Time (Sum)	The time a program spends waiting at the application level for the GUI to respond.
Processing Time (Sum)	CPU time consumed by the work processes, in seconds.
Load + Generate Time (Avg)	Average time spent on loading from the database and generating objects, such as, ABAP source code, CUA and screen information.
Enqueue Time (Avg)	Average time spent waiting for a resource protected by a SAP lock, in seconds.
Roll (Wait + In) Time (Avg)	The average time a program spends waiting at the application level for the GUI to respond.
Processing Time (Avg)	Average CPU time consumed by the work processes, in seconds.

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

Table 6 Database tab

Column	Description
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Transactions	Indicates the number of transactions run.
Sequential Reads Time (Sum)	Time spent in the database for sequential reads.
Direct Reads Time (Sum)	Time spent in the database for direct reads.
Updates Time (Sum)	Time spent in the database for updates.
Sequential Reads	Number of requests for sequential reads from the database.
Direct Reads Requests (Sum)	Number of requests for direct reads from the database.
Updates Requests (Sum)	Number of requests for updates in the database.
Sequential Reads Time (Avg)	Average time spent in the database for sequential reads.
Direct Reads Time (Avg)	Average time spent in the database for direct reads.
Updates Time (Avg)	Average time spent in the database for updates.

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

Table 7 Resources tab

Column	Description
Transactions	Indicates the number of transactions run.
total Memory KB (Sum)	Memory used for processing the request.
PrivMode Count (Sum)	Number of times a work process runs in private mode.
CPU Time (Sum)	CPU time consumed on the machine.
KB Trans (Sum)	Amount of data transferred between client and server.
Total Memory KB (Avg)	Average memory used for processing the request.
PrivMode Count (Avg)	Average number of times a work process runs in private mode.
CPU Time (Avg)	Average CPU time consumed on the machine.
KB Trans (Avg)	Average amount of data transferred between client and server.


RFC (Remote function calls) entities

The RFC category includes the following entities:

- **RFC Functions.** A SAP interface protocol used to call and execute predefined functions on a remote system or within the same system.
- **RFC Programs.** Programs that contain RFC functions.

The following table describes the information displayed in the RFC entities table, when the RFC Functions or RFC Programs view is selected.

Table 8 RFC (Remote function calls) entities

Column	Description
DB Time	Displays an icon when a significant time was detected for this RFC. <div>  This column only appears when the Interpoint extension for an Oracle agent was installed for that system. </div>
RFC Functions/RFC Programs	Displays the following entities: <ul style="list-style-type: none"> • RFC Functions • RFC Programs
Call Time (Avg)	Displays the average time of the RFC activity. The call time is the sum of the wait time and the execution time.
Calls	Displays the number of RFC calls.
Call Times (Summed)	Displays the summed call times of the activity.

SLA Compliance	Displays the SLA compliance of the activity.
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Step entities

The Steps view displays performance information on the steps that were run by your SAP system and the transactions to which each step belongs.



The Steps view behaves differently from the other views. Selecting a row opens the Details Table dialog box that displays additional performance information not displayed initially in the table. The information displayed in the Main area does not change.

The time controls located above the Steps table enable you to determine whether you want to view activity in time frames of 5 minutes, 15 minutes, or 1 hour. The time frame information is displayed to the left of this selector. The left/right arrows enable you to scroll to the next or previous time frame and view additional data. Both the graphic and tabular information on the screen are displayed starting from the exact time the activity started.

The following table describes the information displayed in the Steps table, when the Steps view is selected.

Table 9 Steps table

Column	Description
	Click on the Details icon to open a dialog box that enables you to view additional details for the selected step.
Time	Displays the time unit the transaction was run in.
Transaction	Displays the name of the transaction that was run.
User	Indicates the user that initiated the transaction.
Client	Displays the user's client.
Program	Displays the name of the program that was run.
Screen	Displays the screen that was run.
GUI Program	Displays the GUI program that was run.
Response Time	Displays the total activity time. The response time is the sum of the client time, the queue time, the application time, and the database time.
Backend Response Team	Displays the total Back End activity time. The Backend Response Time is the sum of the queue time, the application time, and the database time.
Steps	Number of steps running for the transaction, user, client, program, screen and GUI program, during the specified time slice.
Client Time	Displays the total client time of the activity. The client time is the time the activity spent going to or from the SAP application server plus the time it spent in the client machine.
Queue Time	Displays the total queue time of the activity. The queue time is the time the activity spent in the SAP application server waiting for a work process to process it.
Application Time	Displays the total application time of the activity. The application time is the time the activity spent being processed by the SAP application server.
DB Time	Displays the total database time of the activity. The database time is the time the activity spent in the SAP database.

See "Copying data to the clipboard" on page 21, "Determining which table columns to display" on page 21, "Viewing additional step details" on page 41, and "About the counters in Precise for SAP" on page 22.

Viewing additional step details

Clicking on the Details icon in the Steps table opens the Step Details dialog box that displays additional performance statistics about the selected step.

The following table describes the additional information that is displayed.

Table 10 Additional step details

Additional Performance Statistics	Description
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Details	<ul style="list-style-type: none"> • Time. Displays the time the transaction was run. • Transaction. Displays the name of the transaction that was run. • User. Indicates the user that initiated the transaction. • Client. Displays the user's client. • Program. Displays the name of the program that was run. • Screen. Displays the screen that was run. • GUI Program. Displays the GUI program that was run.
Response Time	<ul style="list-style-type: none"> • Client Time. Displays the average client time of the activity. The client time is the time the activity spent going to or from the SAP application server plus the time it spent in the client machine. • Queue Time. The average queue time of the activity. The queue time is the time the activity spent in the SAP application server waiting for a work process to process it. • Application Time. The average application time of the activity. The application time is the time the activity spent being processed by the SAP application server. • DB Time. The average database time of the activity. The database time is the time the activity spent in the SAP database.
Client Time	<ul style="list-style-type: none"> • GUI Time. The time spent for the first round-trip to pass from the SAP application server to the client, including the time spent in the client machine. • Front End Time. The time spent for all round-trips, with the exception of the first one. • Round-trips. Number or interactions necessary in a transaction step to complete a round-trip from the SAP application server to the client.
Application Time	<ul style="list-style-type: none"> • Load Time. Total time spent on loading from the database and generating objects, such as, ABAP source code, CUA and screen information. • Enqueue Time. Time spent waiting for a resource protected by a SAP lock, in seconds. • Roll Wait Time. The time a program spends waiting at the application level for the GUI to respond. • Process Time. CPU time consumed by the work processes, in seconds.
DB Time	<ul style="list-style-type: none"> • Sequential Reads. Time spent in the database for sequential reads. • Direct Reads. Time spent in the database for direct reads. • Updates. Time spent in the database for update.
DB Operations	<ul style="list-style-type: none"> • Sequential Reads. Number of requests for sequential reads from the database. • Direct Reads. Number of requests for direct reads from the database. • Updates. Number of requests for updates from the database.
DB Requests Average Time	<ul style="list-style-type: none"> • Sequential Reads. Time spent in the database for sequential reads, in seconds. • Direct Reads. Time spent in the database for direct reads, in seconds. • Updates. Time spent in the database for updates, in seconds.
Application Server Buffers Ratio	<ul style="list-style-type: none"> • Sequential Reads. Number of sequential reads to the database. • Direct Reads. Number of sequential reads to the database.
Memory Resources	<ul style="list-style-type: none"> • Extended Memory. Amount of SAP's extended (shared) memory attributed to the application. • PrivMode Count. Number of times a work process ran in private mode.

Displaying business-oriented entities in the Main Area

The information displayed in the Main area displays the entity's important counters and performance information in the following views:

- **Overview.** Displays the entity's most important counters, in addition to the SLA compliance pie chart and a pie chart representing the various components of response time. The response time components include:
 - Client time
 - Queue time
 - Application time
 - Database time
- **Performance.** Displays the average response time for the entity over the selected time period, broken down into the following components:
 - Client time
 - Queue time

- Application time
 - Database time
- **Load.** Displays the number of transactions and steps executed by the selected entity and its summed response time broken down into its components.
- **SLA compliance.** Displays SLA compliance over the selected time period.
- **Scalability.** Displays the steps and the average response time over the selected time period.

See “About the counters in Precise for SAP” on page 22, “About the entities you can examine in the Activity tab” on page 36, and “Business-oriented entities” on page 36.

RFC Entities in the Main Area

The information displayed in the Main area displays the entity's important counters and performance information in the following views:

- **Overview.** Displays the entity's most important counters, in addition to the SLA compliance graph and a graph representing the various components of the call time. The call time components include:
 - Wait time
 - Exe time
- **Performance.** Displays the average call time for the entity, broken down into the following components:
 - Wait time
 - Exe time
 - DB time (showing high, medium, or low)
- **SLA compliance.** Displays SLA compliance graph over the selected time period.
- **Scalability.** Displays the number of calls executed over the selected time period and the average call time, over time for the selected entity. The average call times are broken down into average Exe times and average Wait times.

How the Activity tab can help you identify performance problems

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

- [Examining resource consumption of the entire system](#)
- [Identifying resource consumers](#)
- [Examining resource consumption over time](#)
- [Examining scalability](#)

Examining resource consumption of the entire system

When performing a tuning audit it is very important to analyze and understand the performance behavior of your SAP system. You may have already drilled down to analyze the performance of a single organization, locale or application. However, examining the entire SAP system's behavior can alert you to the health of your system. This will help you answer questions such as: “A specific transaction suffers from long database times, but is the entire SAP system suffering from long database time?”

Examining the entire SAP system can provide a quick overview of the dominant resources consumed. Choose Overview from the View controls in the Main area to view which are the dominant resources consumed by your system.

Identifying resource consumers

Precise for SAP enables you to drill down to application components (such as Organizations, Locale, Users, Transactions, etc.) to determine which components are consuming the most resources. This is accomplished by clicking on an component in the Association area. This process is iterative and you may continue to drill down until you discover the component that you want to tune.

There are several reasons to drill down and focus on different application components:

- You will want to identify heavy resource consumers. During the tuning process, you drill down to determine which are the most resource consuming components. Tuning a transaction that is consuming most of the resources, will free them for other entities. The tuning process is an iterative process. You will continue to list all components, examine their resource consumption and focus in on several of them, until you have completed the tuning process.
- When you try to analyze user experience you need to isolate one user's activity from the other. to achieve this you can focus in on a single user.



When trying to determine which application component to drill down to, take into account not only the total Response Time of the application, but also its number of Transactions and the average Response Time. If you don't take these elements into account you may concentrate your efforts on the wrong transaction. For example, you may try to tune a transaction that runs once a year, consuming 20 hours, instead of tuning a transaction that consumes 2 seconds but runs every time a user logs on to the system.

Examining resource consumption over time

When you analyze and tune the performance of an application component (such as, Organization, Locale and Application) it is important to take into consideration its performance over time. Precise for SAP allows you easily view the component's performance over a selected time period.

You study a component's performance over time for the following reasons:

- When analyzing a performance problem you want to determine if it is a random problem.
- You are looking for a pattern. For example, does the long client time always happen on Tuesday at around 10 AM?

- You want to determine how your system is behaving throughout an entire day. For example, you see that during the night your system experiences less transaction activity than during the day.

Examining scalability

Applications are called upon to support additional users and data, over the years. One of today's tasks is ensure that your application and servers are scalable for tomorrow's tasks.

Precise for SAP enables you to determine if your SAP system is scalable. This is done by examining the impact of the number of transactions, steps and RFC calls on the average response time. In a well-scalable SAP system, growth in the number of transactions, steps and RFC calls will not impact the average response time. This can be observed in the Scalability View in the Steps and Response Time (Avg) graph.

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