Precise 10.3

Precise for SAP User Guide

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This help provides the following topics for Precise for SAP:

Introducing Precise for SAP

This section includes the following topics:

About Precise for SAP

Precise for SAP offers a wide range of data presentations that provide IT professionals with the information necessary to manage SAP client/server systems. Precise for SAP analyzes SAP system performance and applications and helps you to effectively direct resources and enhance system use.

Precise for SAP collects accurate, up-to-date management information from the SAP system and network and stores this information in the PMDB.

The Precise user interface makes the data available as a series of views accessible from a standard web browser. Information is organized according to your company's business structure, geographic locations, and SAP system characteristics. It can provide the views that show information according to your enterprise's departments or business organizations. In addition, it can show information by location or according to application server performance or the service provided to users of a specific application. Basic information about your business organization, departments, and the key network locations to be monitored must be provided to the Precise for SAP application. This ensures that it generates appropriate views and provides optimum analysis.

Improved performance management

IT staff frequently search for answers to questions like Why did the user experience poor response time yesterday? or Where is the transaction spending the most time?

Precise for SAP can help IT staff find the answer to these questions. The first step is to establish a baseline level of SAP transaction consumption by understanding the behavior of the average SAP transaction.

The behavior of the average SAP transaction represents the average percentage of the total time that all SAP transactions spend consuming or waiting for each resource. These aggregate figures provide a broad picture of the operation of your SAP system. They enable you to identify major bottlenecks in your SAP system. For example, long queue time due to lack of SAP processes, long database time due to missing database resources, poor application servers availability, etc.

Precise for SAP also enables you to focus on and drill down to individual transactions, users, organizations, locations, application server, or applications in your system that are responsible for heavy consumption of system resources. This lets you find the definitive root cause of performance degradation.

Integrating with other Precise products

Precise for SAP has been integrated with Precise Insight, Alerts, Report Manager, Precise Custom Portal, Precise for SQL Server, and Precise for Oracle in addition to the PMDB.

Alerts provides a notification system that alerts you to application response time problems and enables you to launch in context to view more detailed data. For more information, see the *Alerts User's Guide* or Online Help.

Report Manager gathers and organizes historical the information that enables the IT team to focus on infrastructure hot-spots. Report Manager is a reporting tool that resides on a Web server. You can use Report Manager to compare period-to-period performance against a baseline and identify response time problems at-a-glance, before they

affect your bottom-line. It queries the PMDB and displays the results in the reports that are generated on a scheduled basis or on demand.

The Precise Custom Portal is a lightweight, configurable portal application that provides access to various types of data from different applications. The Precise Custom Portal features a Web-based view. It is highly customizable and extensible, allowing you to build a dashboard for each user or each function within your organization. For example, you can build a dashboard for all the information that a system administrator or director of IT operations would need to constantly follow up on. This component is automatically installed as part of the Precise framework installation. For more information, see the Precise Custom Portal User Guide.

Precise for SQL Server allows you to go into the detailed transaction information that is contained in the SQL database while maintaining the context you have specified while working in Precise for SAP. For more information, see the Precise for SQL Server User's Guide or Online Help.

The PMDB is the repository of the Precise for SAP suite, which stores application performance data for long-term analysis and trending reports. The data collected by the Precise product suite. For more information, see the Precise Administration Guide or AdminPoint Online Help.

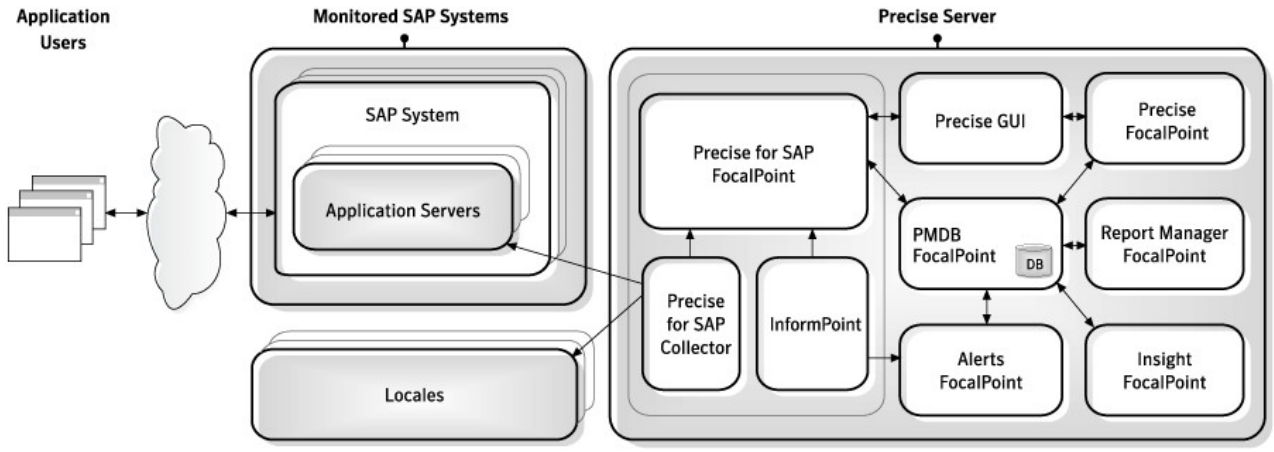
About Precise for SAP components

Precise for SAP employs a client/server architecture to provide high performance database monitoring and tuning. Precise for SAP consists of the following components:

- Precise for SAP Collector agents and one Precise for SAP FocalPoint agent installed on a Windows server in your application.
- PMDB.
- As part of the Precise product suite—Precise FocalPoint, Alerts FocalPoint, Report Manager FocalPoint, and Insight FocalPoint. Precise for SAP is fully integrated with Precise products, allowing you to view SAP activity in Precise Insight, receive alerts using Alerts, and examine SAP activity reports within Report Manager. For more information, see the relevant product manual.

The following figure illustrates the typical architecture of a Precise for SAP installation.

Figure 1 Precise for SAP Architecture



About Precise for SAP Collectors

Precise for SAP Collectors are implemented as NT services (no support is provided for UNIX Collectors). The Collectors can only reside on a Windows OS machine (they do not need to be installed on an SAP application server). See Precise minimum requirements for installation.

One Collector can collect data from many remote SAP systems. The Collector stores the data it collects into cache files in the LOG folder.

The following table describes the various Collectors.

Table 1 Collectors

Collector	Description
Workload	The Workload Collector is the most important Collector in Precise for SAP. It performs remote function calls to gather performance information about all SAP systems. The Workload Collector collects: • **Step data**. Contains information about running dialog steps. Data is not lost due to Collector downtime (limited to short periods of time, up to a number of hours at the most). • **Batch data**. Contains information about batch jobs within the SAP system. Data is not lost due to Collector downtime (limited to short periods of time, up to a number of hours at the most). • **Host statistics data**. Fetched from the SAP OS Collector using RFC. This information is collected using RFC calls that sample the current status. Historical data retrieval is therefore not possible. • **Application server statistics data**.This information is collected using RFC calls that sample the current status. Historical data retrieval is therefore not possible. • **User list**. A list of all defined users in the SAP system. This list is fetched once a day. • **Transaction list**. A list of all existing transaction codes in the SAP system. This list is fetched once a week. • **Program list**. A list of all existing ABAP programs in the SAP system. This list is fetched once a week. • **RFC Data**. Contains information on the execution of RFC functions within the SAP system. Data is not lost due to Collector downtime (limited to short periods of time, up to a number of hours at the most).
Availability	The Availability Collector supplies the availability data of each and every application server in all monitored SAP systems. The Collector calls an RFC Ping method to check for application server availability. This data is then written to the cache files and aggregated in the FocalPoint before being loaded into the PMDB. The application server availability data is computed along with the locale availability data to produce overall system availability data.
Locale	The Locale Collector supplies network information. When a locale is configured, destination machines are configured for that locale. The Locale Collector pings these destination machines using the TCP/IP method and returns information about the availability of these destinations. This data is then written into the cache files and aggregated by the FocalPoint before loading it into the PMDB. The aggregated data is used as the locale availability information for Precise for SAP. It is also computed together with the application server availability to produce overall system availability data.

About the Precise for SAP FocalPoint Manager

The FocalPoint Manager handles several unrelated tasks:

- Answering data requests from GUI or other Precise products.
- Performing infrastructure tasks (installation and agent manager tasks).

About the Precise for SAP Data loader

The Data loader loads the collected data, processes the data, and prepares it for loading into the PMDB. Prior to the statistics load process the Data loader is in charge of processing the data collected.

The Data loader performs the following tasks:

- Summarizes data by time slices.
- Manages the dimension tables (substituting identifiers by keys and adding new dimension records if they don't exist).
- Transforms the union dialog steps into business transactions.
- Calculates SLA values for business transactions.
- Determines the planned downtime status for each availability time slice.
- Converts the time to FocalPoint GMT time.

How Precise for SAP works

Precise for SAP stores a complete history of your SAP system activity in the PMDB. This provides you with a performance tracking tool. It gives you the ability to assess SAP system performance trends and analyze changes in SAP system activities over long periods of time. This data is vital for identifying patterns in resource consumption and predicting future resource consumption in your SAP system.

Precise for SAP employs a client/server architecture to provide comprehensive 24 x 7 performance monitoring, vital for both short and long-term monitoring of your SAP system.

The Precise for SAP Collector agents run from a remote dedicated server. This server connects to your systems application servers using a low overhead, accurate, and comprehensive sampling technology (no software components are installed on your application server machines). The server collects performance and availability data from your SAP system. It is then analyzed and summarized. You can later access this data using the user interface to perform long-term evaluations of performance.

Where to get more information

More information on Precise, its products, technical notes, and so on, can be found in Precise Release Notes for this version.

Precise for SAP basics

This section includes the following topics:

About Precise for SAP tabs

Precise for SAP is a comprehensive performance management product for SAP. It provides specialized data collection and analysis capabilities of SAP Application Servers and it enables you to find performance and availability bottlenecks.

Precise for SAP contains the following tabs that provide you with the information necessary to successfully track your system's performance and identify patterns in resource consumption.

The following table describes which tasks can be performed in each tab.

Table 1 Precise for SAP tabs

Tab	Description
Dashboard	The Precise for SAP Dashboard is an easy-to-use tool for visualizing the overall health and status of all monitored SAP systems. The Precise for SAP Dashboard tab provides support for detailed views of individual application servers, organizations, locales and other entities as well as top-level summary views of multiple SAP systems.
Activity	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 is a prime source of input for future tuning decisions. For example, this tab can help you identify the user and transaction that consumed the most resources during the last day and discover where the time was spent. For example, the time may be spent in waiting for a work process, or in processing the request in the database. The Activity tab enables you to answer the following types of questions: "How well did my SAP system perform yesterday?" or "Why did the transactions in the SAP System run so slowly from 8 AM to 10 AM yesterday?"

Tab	Description
Availability	The Availability tab displays detailed information on the availability of your SAP system. Availability of a SAP system is comprised of application server availability and connectivity (which is the network availability to the locales). Performance information displayed in this tab can be used to identify and analyze the cause of a drop in SAP availability. For example, this tab can help you identify the SAP application servers that were down during the past 24 hours. and discover what component caused this downtime. The Availability tab enables you to answer the following type of question: "How available was my SAP system yesterday?"
Jobs	The Jobs tab displays detailed information on current and historical jobs running on your SAP system. Performance information displayed in this tab can be used to identify and analyze the cause of a job performance problem. For example, this tab can help you identify the user and job of the batch that consumed the most resources during the past 24 hours. The Job tab enables you to answer questions such as: "How long did my batch jobs take yesterday?"
Statistics	The Statistics tab displays detailed information on the hosts comprising 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. For example, this tab can help you identify the host that had the highest average CPU consumption during the past 24 hours.

How most tabs are structured

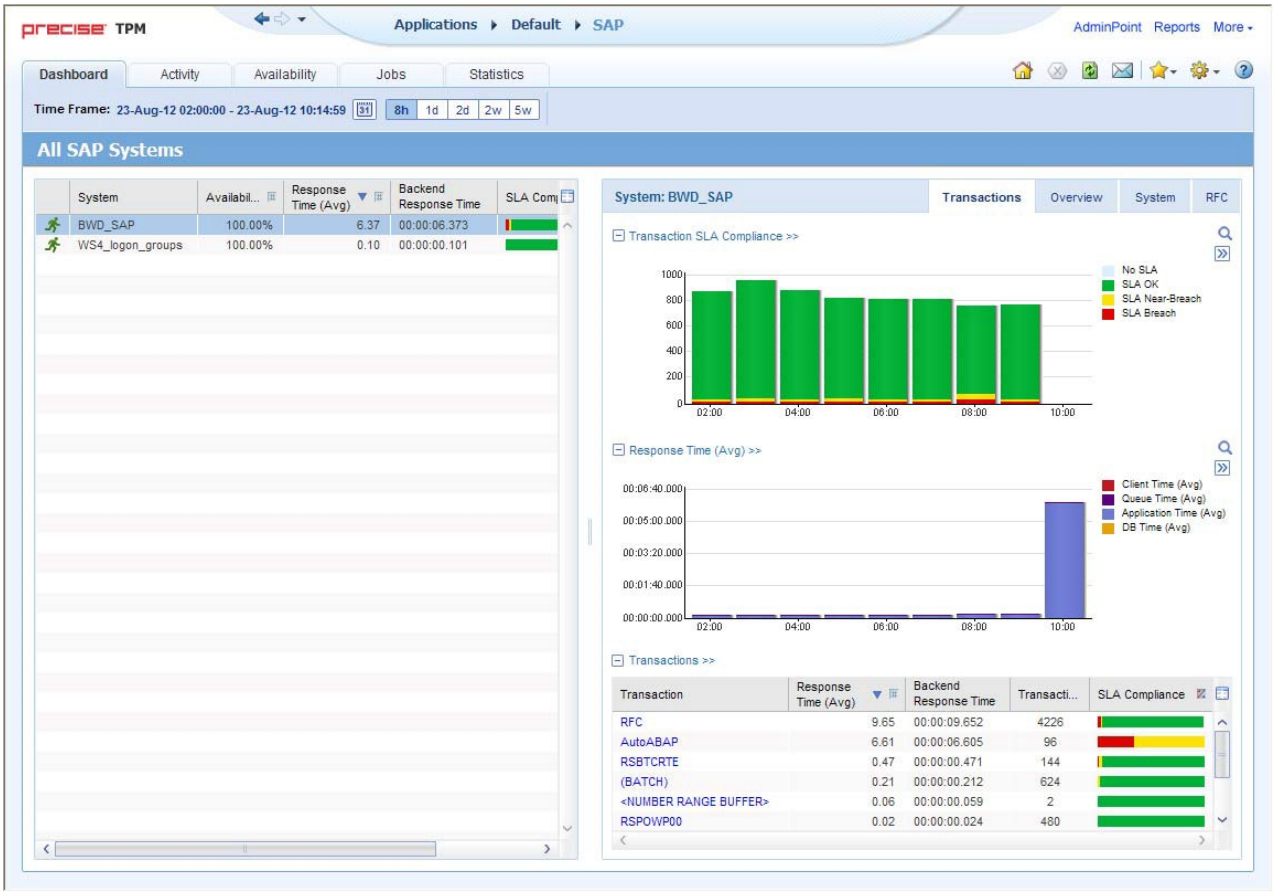
Though each tab is structured differently, most tabs consist of two different areas. Each area can include different control elements, such as tabs and view controls, and displays information in various formats, such as tables, graphs, or charts. The various areas are related to each other in that performing an action in one area affects the information displayed in other areas on the page. For example, the Activity tab contains an upper and a lower area. The lower area (Association area) shows information in a table format. Each row in the table represents an instance or entity. The upper area (Main area) displays general information on the selected instance or entity, in context.

For example, when you want to view information on a specific transaction, in the Activity tab, choose Transactions from the Association controls. The Association area changes to display transaction-related information. The tab heading and the Main area remain unchanged.

If you want to view detailed information on a specific transaction, click on the row in the Association area. The Tab heading indicates the newly selected entity; the Main area displays Performance information on the transaction you drilled down to. If you choose Locales from the Association controls, the Association area displays the locales associated with this transaction.

The following figure describes the common key elements in the Activity tab and what happens when you drill down to a specific entity.

Figure 1 Typical Precise for SAP tab structure



About the Precise bar

The Precise bar enables you to keep track of where you have been and provides various controls. The following table describes the function of each of the toolbar buttons.

Table 2 Precise bar functions

Button	Name	Description
	Back	During a work session, keeps track of where you have navigated to. The Back button enables you to navigate between previously visited views. The Back control displays your previous view.
	Forward	Enables you to navigate to the next view. This button is only enabled if you clicked Back or if you chose a history option.
	Stop	Stops a request for information from the server.
	Refresh	Updates the data currently displayed.

Button	Name	Description
	Favorites	Enables you to add or remove favorites in your Favorites list.
	Send	Opens a new email message in your email program with the link to the current application in context.
	Home	Navigates to the highest level entity (stays in the same Tier, tab, or view). The time frame settings remain the same.
	Help	Opens the online help in context.
	Settings	Lets you configure various program settings.
AdminPoint	AdminPoint	Launches Precise AdminPoint.

About the Main area

The Main area displays general information on the selected instance or entity, in context (the entity that is described in the Tab Heading). The structure of this area depends on the selected entity and tab. For example, some views show two overtime graphs, displayed side-by-side, describing two data series.

The View Control drop-down menu allows you to choose different view options. You can access this menu by clicking the arrow icon.

In some tabs, you can filter the contents of the view by clicking the Filter button. See Filtering data.

About the Association area

The Association area lists entities that have similar attributes, and that are related to the selected entity named in the Tab heading. Besides the Tab bar, the Association area is the main navigation tool. It enables you to drill down from one entity to related entities (usually of a different type).

The entities displayed in this area depend on the selected tab and the selected entity. The same entity may be displayed in several tabs, with different data displayed for each one. For example, it is possible to view performance information on Application servers, transactions, etc., in the Activity tab, while in the Availability tab it is only possible to view information on entities that have availability data collected for them, such as Application Servers.

The Association control, accessed by the arrow icon, allows you to associate with different entities. The last option, More..., opens a dialog box that lets you carry out additional operations, such as to view additional associations, change the sort order, or control the number of returned rows.

The information displayed in the Association area is arranged in a tabular format. Each row in the table represents an entity, and each column describes an attribute of the entity, such as text or a graph. It is possible to change the sort order of the entities in the table by clicking a column title.

The Association tabs located above the table let you display different sets of attributes for the entities displayed in the table. The Association tabs are entity-dependent. For some entities, no tabs are displayed. Selecting a tab does not change the list of entities displayed in the table—it only changes which attributes are displayed.

A numeric column can optionally display a graph, and at times, it can display a stacked bar graph as well (where the combined length corresponds to the numeric value of the column). Switching to a graph view in these columns, offers some level of breakdown to the information displayed in the column.

The following icons are used to indicate which format information is displayed.

Table 3 Changing the format in which information is displayed

Icon	Description
	Display the information in numerical format.
	Display the information in a bar graph.
	Display the information as a stacked bar graph.
	Display the information in percentage format.

The Association area lets you drill down to another entity by clicking a row. The information displayed in both the Main area and the Association area will change to reflect your selection. See Filtering data and Associating entities with data that meets specific criteria.

About drilling down in context

The term "in-context" means that you can display additional information on a selected item by drilling down to another tab or view. The filter settings you defined (for example, the selected time you chose) and the entity you selected are carried over to the other view or tab, to allow you to continue analyzing your subject from a different perspective. This concept takes on slightly different meanings depending upon where you are attempting to drill down in context from.

For example, when viewing information on a problematic metric in Alerts, you can switch to Precise for SAP to view additional information and continue your investigation.

Alternatively, when viewing information on an instance in the Dashboard tab, you can click on a link in the Instance Details area (right pane) to view additional information on the related tab, in context to your original selection.

In short, the information displayed when drilling down in context is always related to your original selection's settings.

How a drilldown affects the Tab heading

The Tab heading displays the name of the currently selected entity on this screen. When you drill down to a new entity in the Association area, the Tab heading changes to reflect the name of the newly selected entity.

About configuring Precise for SAP settings

The following settings allow you to control the appearance and behavior of the user interface. They can be configured from the Settings menu on the Precise bar:

- Mapping settings
- Locale settings
- Display settings
- Time Frame settings

Configuring Mapping and Locale settings

Precise for SAP provides performance and utilization information on your SAP system. You can view this data according to your company's organization structure and locale's by configuring the relevant Mapping and Locale settings. For more information, see SAP tier collector installation.

Configuring Display settings

In general, when you drill down to an entity, the system automatically opens with a default view or tab selected. You may change to a different view or tab setting to view additional information. If you then switch to a different entity, the system will automatically switch back to the default view and tab selection. If you want to maintain a sticky tab or view selection, meaning that your selected tab or view setting is maintained even if you switch to a different entity, you can set this option in the Settings menu in the Precise bar.

To configure the Display settings

1. Choose **Display Settings** from the Settings menu in the Precise bar.
2. In the Display Settings dialog box, select the **Maintain the selected tab or view when switching entities** option.

Configuring Time Frame settings

You can determine the resolution of the data that is displayed in the overtime graphs using the Time Frame Settings dialog box. By using this dialog box you can define the default time frame to display.

Tasks common to all tabs

The following tasks are commonly performed in most tabs:

- Switching to a different tab
- Selecting a time frame
- Selecting a SAP system to analyze
- Selecting which clients to analyze
- About capacity graphs
- Filtering data
- Associating entities with data that meets specific criteria
- Focusing on information in overtime graphs
- Sending an email message
- Adding, viewing, and deleting Favorites
- Determining which table columns to display
- Copying data to the clipboard
- Exporting to the Precise Custom Portal

Switching to a different tab

You can easily switch between the different tabs using the Tab Selection bar. When you start your Precise product, the Dashboard tab opens by default. For other Precise products, another tab will open by default. The button of the selected tab is displayed in orange.

To select a tab, click a button on the Tab Selection bar to display information on the selected entity in a different tab.

Selecting a time frame

You can configure Precise for SAP to display transaction performance data for a specific time frame using the predefined time frame options or calendar icons.

Selecting a predefined time frame from the toolbar displays transaction performance data for the selected time period up to the current time. See Selecting a predefined time frame from the Precise for SAP toolbar.

Selecting the time frame using the calendar icon, you can choose to define a time range independent of the current time, or to define a time range up to the current time. See Selecting a time frame using the calendar icon.

The predefined time frame options are:

- Last 8 hours (8h) (default)
- Last 1 day (1d)
- Last 2 days (2d)
- Last 2 weeks (2w)
- Last 5 weeks (5w)

The time frame selected affects all information displayed in Precise for SAP. Only data that falls within the selected time frame is shown in these areas.

Selecting a predefined time frame from the Precise for SAP toolbar

To select a predefined time frame, from the Precise for SAP toolbar, select one of the predefined time frames.

Selecting a time frame using the calendar icon

To select a time frame

1. Click the calendar icon. In the dialog box that is displayed perform one of the following:
   a. To define a time frame independent from the current time, select **Time Range**, and then select the **Start** and **End** dates and times.
   b. To define a time frame up to the current time, select **Last**, and enter the desired time frame.
   c. To use one of the three previously used time frames, select the 'Recently used' option and from the drop-down menu select the desired time frame.
   d. To use a previously saved time frame, select **Use a previously saved time frame** and from the drop-down menu select the desired time frame.
2. To save your settings for future access, select **Save these definitions for future use as**: and enter a name in the corresponding field.
3. Click **OK**.

Selecting a SAP system to analyze

You can select the system that you want to analyze in more detail using the System selector.

In most of the tabs (with the exception of the Dashboard tab) it is possible to investigate one system only. The System Selector enables you to choose which system you want to investigate from a list of systems belonging to the selected application. When you choose a different system to study, the information displayed in the tab changes accordingly to display relevant information on the selected system.

Selecting which clients to analyze

The Client selector contains a list of all SAP clients that were configured in the selected system. You can choose to filter out and view information on a specific client's activities by selecting it from the Client Selector list or choose All Clients to view information on the activities of all SAP clients configured in the selected system.

About capacity graphs

The capacity graph shows how a specific counter (CPU, Load, or Response Time) reacted after an increase in the number of active users or connected users, in the specified system. The capacity graph plots different counters along its x and y axes. A plot on the graph in position (x, y) indicates a sample of these two counters. A best-fit line, representing a linear approximation of the point sampled is also displayed.

Filtering data

You can focus on specific contents of all tabs (except for the Dashboard tab) by showing a subset of the information. This shows the contribution of entities such as programs and users.

You can define flexible selection criteria in the Filter dialog box. To open the dialog box, click the **Filter Off** icon next to the **Time Frame** selector. **Filter On** or **Filter Off** indicates the current state of the filtering mechanism.

- **Filter Off** all information is shown
- **Filter On** only a subset of information is shown

When you apply your selections in the Filter dialog box, the information displayed in both the Main area and the Association area is modified to reflect your selections. Also, the filtering continues to apply when you drill down to associated entities.

> ⓘ You can enter multiple criteria, in which case each criterion is applied using the logical AND operator.

To filter data

1. Click **Filter is Off/Filter is On**.
2. In the Filter dialog box, do the following for each entity you want to filter:
   a. From the left drop-down list, select an entity.
   b. From the middle drop-down list, select an operator, such as, Like, <>, Not Like, In, Not In.
   c. 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 to represent zero or more characters, and the _ wildcard character to represent exactly one character. If you select the operator In or Not In, type a comma to separate values.
3. Click **OK**.

Associating entities with data that meets specific criteria

You can associate the displayed entity with specific data to focus your analysis.

> ⓘ The criteria no longer apply when you drill down to another entity.

To associate entities with data that meets specific criteria

1. Click the arrow located to the left of the Association controls and select **More...** (applies to Current and Objects tabs only).
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:
   a. From the left drop-down list, select an entity.

b. From the middle drop-down list, select an operator, such as, Like, <>, Not Like, In, Not In.
c. 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 to represent zero or more characters, and the _ wildcard character to represent exactly one character. If you select the operator In or Not In, type a comma to separate values.

6. Click **OK**.

Focusing on information in overtime graphs

Some entities display an overtime graph. The overtime graph displays entity statistics over a specified time period. Depending on the number of points displayed in the graph, you may need to zoom in or out. The text displayed on the x-axis varies according to the time frame. If there is a year or day change, x-axis labels will display accordingly.

To focus on information in overtime graphs, select the desired time frame on the overtime graph, click and drag the left or right handle to increase or decrease the time range. The small zoom (spyglass) icon will display on the upper right of the selected time range, and above the overtime graph legend. Click the zoom icon to zoom in according to the selected time frame.

Sending an email message

You can send an email message to one or more recipients from the Precise toolbar. The default subject for the message is, "Link to a Precise application."

The email will include a link to the Precise product in the current context (time frame and selected entries).

To send an email message

1. Click the email icon on the Precise toolbar. The default email program opens.
2. Fill in the required fields and click **Send**.

Adding, viewing, and deleting Favorites

The Favorites feature allows you to save a specific location in your application and to retrieve the same location later without having to navigate to it.

About the Favorites feature

The new Favorites feature includes the following options:

- **Relative Time Frame**. Saving relative timeframe instead of static date. For example, saving the last seven days will always display the last seven days, depending on the day entered.
- **One click to specific location**. Once you open Precise by launching a saved Favorite item, you will not have to enter a login credential nor click the login button.
- **IE Favorites support**. Adding a new Favorite item in Precise will also add it to the IE Favorites menu.
- **Auto Complete**. The Favorites dialog includes a new combo box which supports AutoComplete.
- **Auto Naming**. The Favorites dialog generates item names based on the current location.

UI description

A Favorites menu has been added to the Precise bar in each product including StartPoint.

An Add/Delete Favorites option under the Favorites menu allows you to save the current location or delete an existing one.

To add a new Favorite location

1. On the Add/Delete Favorites dialog box, enter the name of the new Favorites entry.
2. Click **Add**. The dialog box is closed and the new Favorite is added to the list.

To view a Favorites location

1. On the Precise bar, click **Favorites**.
2. Select the Favorites location you want to view.

To delete an existing Favorite location

1. On the Add/Delete Favorites dialog box, select the Favorite location to be deleted.
2. Click **Delete**. The dialog box closes and the selected Favorite is deleted from the list.

> The favorite address is displayed in the Address field and cannot be edited.

Determining which table columns to display

Tables are used to display information about the set of related entities in the Main and Association areas. It is possible to determine which columns to display in the Association area tables.

To determine which columns to display in the Association area

1. Click the Table icon on the upper right-hand side of a table and select **Column Chooser**.
2. In the Table columns dialog box, click the arrows to move the names of the columns that you want to display to the Visible box and the ones that you do not want to display to the Invisible box.
3. Click **OK**.

Copying data to the clipboard

At times you may want to save data displayed in the table area in a Microsoft Excel spreadsheet for further analysis or save an image of a graph to the clipboard.

To copy data displayed in the Association area to the clipboard, click the Table icon on the upper right-hand side of a table and select Copy to clipboard. The table can be pasted into Microsoft Excel or as an HTML file.

To copy a graph to the clipboard, right-click a graph and choose Copy to clipboard. You can now paste the image into any application that works with the clipboard.

Exporting to the Precise Custom Portal

The Export to the Precise Custom Portal Portlet feature enables you to export the view of the chosen table or graph and generate a portlet with that view in the Precise Custom Portal, so that it will provide you with another way of monitoring your application.

Prerequisites

To be able to use this feature, you need to have the following rights in Precise:

- View permissions to all Tiers in the application

If you do not have sufficient rights, you will get an error message when trying to execute this feature.

Exporting the information

You can either export a table view or a graph view.

The name field has the following restrictions: maximum 100 characters.

To export a table view

1. Click the Column Chooser icon.
2. Select **Export to the Precise Custom Portal Portlet**.
3. Insert a name in the name field that clearly describes the table view.
4. Click **OK**.

To export a graph view

1. Right-click the graph.
2. Select **Export to the Precise Custom Portal Portlet**.
3. Insert a name in the name field that clearly describes the graph view.
4. Click **OK**.

About the counters in Precise for SAP

Counters help you analyze your systems activities and batch processes. Information on the following counters is displayed in the Activity and Batches tabs:

- Response Time
- Application Time
- DB Time
- Requests
- Time per Request
- Average Server Buffer Ratio
- Memory Resources

About response time counters

Response time counters help determine if an application's time is proportional to the amount of time it should be spending for client, queue, application and database processing.

The following table describes the information displayed by the response time counters.

Table 4 Response time counters

Counter	Description
Client time	If working in a LAN, client time should be a very small portion of total SAP response time.
Queue time	Should be a very small portion (less than 1%) of the total SAP response time. When this value is high, other long-running transactions or batch programs prohibit proper throughput, or not enough work processes are available.
Application time	Includes load time and should be no more than 60% of total SAP response time. When this value is high, the CPU is slowed down, there are SAP memory shortages or the program takes an excessive amount of time for load, queue or ABAP/4 application processing.

Counter	Description
DB time	Should be approximately 40% of total SAP response time.

About application time counters

Application time counters help you determine which application time component constitutes a performance bottleneck. The following table describes the information displayed by the application time counters.

Table 5 Application time counters

Counter	Description
Load time	Should be no more than 10% of the application's total response time. If this value exceeds 10%, this indicates that the SAP System is spending too much time loading the application. Check the Memory Resources counter to determine if there are any SAP memory shortages. If it appears that the CPU or memory resources are sufficient for the application's processing, check for the following actions: • The application server is not buffering the application's objects. • Requests are being made to the database server to load application objects into the application server's program buffers. • Either logon balancing is needed to recognize the application and make better use of the application server's program buffers or the program buffers need resizing.
Enqueue time	Should constitute a small percentage of the application time. When enqueue time is high, check or perform the following actions: • The application is waiting for a resource to execute its request. • Try executing enqueue transactions, such as SM12, to help identify potential enqueue problems.

Counter	Description
Roll-wait time	The number of seconds that may be required to wait during roll-in of context information for dialog steps. The number of seconds required to transfer GUI control-related information to the front-end solution is also included. During processing, a program may result in a roll-out while waiting for other processing to take place. The process of roll-out and roll-in (in this case) is usually a change of memory pointers, and roll-wait time is minimal. In SAP 4.6 and higher, several communication steps, called round trips, can occur between the application servers and the front-end system. During the round trip, the application server transfers GUI control-related information to the front-end system. The work process is rolled-out and this time is recorded under roll-wait time. Network and front-end time are included as part of roll-wait time, but only as it applies to the control-related information transferred between the application server and the front-end system during the execution of the dialog step. Network time associated with the first request and the last request is therefore not included in roll-wait time. Roll-wait time should be very low. When high, perform the following steps: • In SAP 4.6 and higher, review client time for this dialog step to determine if network resources are high when the dialog step was executing. • In SAP 4.6 and higher, if this problem occurs for several different dialog steps, investigate potential delays associated with the front-end system.
Process time	Should constitute 50-60% of the application's total SAP response time. When this percentage is higher than it should be, system or SAP memory resources are an issue or the application is spending too much time in application logic. Take the following steps: • Check the memory resources section to determine if SAP memory shortages are occurring. • If CPU or memory resources appear to be sufficient for the application's processing, the ABAP group needs to revisit the application's logic.

About DB time counters

DB time counters identify whether database response time is attributed to sequential reads, direct reads or changes by comparing their times.

DB time counters refer to the Time Per Request section to determine if response times fall within acceptable performance ratings.

When database time is attributed to sequential reads or direct reads, see the Application Buffer Ratio and investigate whether buffering techniques are optimized for read requests.

The following table describes the information displayed by the DB counters.

Table 6 DB time counters

Counter	Description
Sequential Reads	The response time for logical database requests associated with sequential reads (for example, "select * from ..." ABAP/4 statements).
Direct Reads	The response time for logical database requests associated with direct reads (for example, "select single ..." ABAP/4 statements).
Changes	The response time for logical database requests associated with database inserts, updates and deletes.

About requests counters

Requests counters show the volume of database read requests and change requests. The following table describes the information displayed by the Requests counters.

Table 7 Requests counters

Counter	Description
Sequential Reads	The number of logical database requests associated with sequential reads (for example, "select * from ..." ABAP/4 statements).
Direct Reads	The number of logical database requests associated with direct reads (for example, "select single ..." ABAP/4 statements).
Changes	The number of logical database requests associated with database inserts, updates and deletes.

See About DB time counters and About average server buffer ratio.

About time per request counters

Time per request counters identify when database requests do not fall within their performance boundaries. The following table describes the information displayed by the Times per request counters.

Table 8 Time per request counters

Counter	Description
Sequential Reads	The response time, per request, for logical database requests associated with sequential reads (for example, "select * from ..." ABAP/4 statements).
Direct Reads	The response time, per request, for logical database requests associated with direct reads (for example, "select single ..." ABAP/4 statements).
Changes	The response time, per request, for logical database requests associated with database inserts, updates and deletes.

When analyzing these counters, keep in mind the following issues:

- Sequential reads should be less than 40 milliseconds per request.
- Direct read requests should be less than 10 milliseconds per request.
- Change requests are expected to be greater than 25 milliseconds per request.
- When per request times are not within their expected performance boundaries:
  - Use the DB Time section to determine the importance of the types of read or change requests in question, with respect to the overall response time.
  - Use the Requests section to understand the request volume involved in read and change requests.
- When sequential reads or direct reads are performing poorly, see the Application Server Buffer Ratio section to investigate whether buffering techniques are optimized for read requests.
- When changes or reads are performing poorly and your Application Server Buffer ratio appears normal, but the number of returned rows appears unacceptable, the database is likely the source of the problem and should be examined for additional indexes or other causes.

About average server buffer ratio

The average server buffer ratio illustrates the degree of optimization related to application server buffering techniques, which optimize performance for database requests by avoiding the need to transfer read requests to the database server.

The following table describes the information displayed by the average server buffer ratio.

Table 9 Average server buffer ratio

Counter	Description
Sequential Reads	The percentage of time sequential read requests were handled by the application server, instead of the database server. Sequential read requests refer to logical database requests associated with sequential reads (for example, "select * from ..." ABAP/4 statements).
Direct Reads	The percentage of time direct read requests were handled by the application server, instead of the database server. Direct read requests refer to logical database requests associated with direct reads (for example, "select single ..." ABAP/4 statements).

Keep in mind the following issues when analyzing these counters:

- App Server Buffer Ratios should typically be 90% or greater. The higher the percentage indicates that fewer read requests are transferred to the database server and performance is optimized.
- If this percentage is low, determine the importance of the App Server Buffer Ratio to your transaction's database performance:
  - Check the DB Time section of this view to determine if database response time is mostly attributed to reads (sequential and direct) or changes.
  - Database time attributed mostly to changes suggests that the Buffer Ratio is not an important factor to overall response time—this is because changes are always transferred to the database server.
  - When database time is influenced by reads, the buffer ratio is likely to impact overall database time. Buffer usage, for example, can reduce response time for database reads by as much as 10 times.
- Consider implementing 1 of these 3 buffering techniques to increase read performance and reduce load on the database server.
  - Buffer data as context in the shared memory buffer.
  - Buffer data in a table using a generic key or single record buffer.
  - Buffer data using an internal table of a function module.
- Note the following regarding buffering techniques:

- Restrict buffering techniques to read-only data as much as possible to minimize buffer synchronization across application servers.
- When selecting a buffering technique, take data size requirements into consideration. An instance typically has about 50 MB of data in the shared memory and buffers, whereas, information stored in internal tables should not exceed 5 MB.
- Buffered tables take much more effort to change than non-buffered tables. Therefore, restrict buffered tables to read-only data stored in customizing tables or small tables.

About memory resources

Memory resources determine if an application is receiving a sufficient amount of SAP application server memory resources.

The following table shows which counters are included in the Memory resources.

Table 10 Memory resources

Counter	Description
Private Mode	Private mode conditions should not occur. When private mode conditions occur, the SAP application server's shared memory is insufficient to meet the demands of the application, and the following occurs: • Memory for the work process must be "locked down" for the duration of the application request. • Contents of memory for the work process, such as context area, must be restricted to the application and cannot be shared with other applications. • Overhead associated with unnecessary memory management occurs.
Extended Memory	To determine memory shortage impact on an application's response time, do the following: • Check the importance of application time as a percentage to total response time. • If application time is high, determine its relationship to memory usage. • Use the Application Time section to determine if application time is attributed to memory management or application processing. If application time is attributed primarily to load time, private mode conditions may be the cause of poor response time. • SAP shared memory may be insufficient for this particular application or it may be an issue for other applications as well. • Use the Extended Memory counter to determine shared memory requirements for this application.

Launching your Precise product from StartPoint

Precise is a Web-based application. You can access the Precise user interface using the Internet Explorer browser, version 6.0, or later. The syntax of the Precise URL address is `http://<server>:<port>`,where `<server>` refers to the Precise FocalPoint server and `<port>` refers to the port number used by the GUI Web server. By default, the port number is 20790. For example: `http://beantown:20790`.

This URL provides secure access to the StartPoint using authorized roles. From here, you can launch all Precise products. It gives you a quick overview of the status of your environments and access to the AdminPoint, where you can perform various management tasks (see the Precise Administration Guide for details).

> You must have local administrator privileges on the server where the StartPoint is running.

To launch your product using StartPoint

1. Type the address of the StartPoint user interface into the Address bar of your browser and click Enter. The Precise login page opens. The login page provides secure access to Precise and to your specific product.
2. Specify your authorized role name and password. By default, both role name and password are admin. For more information about role names, see the Precise Administration Guide.
3. Click **Login**. The StartPoint page opens. This is the Precise home page.
4. On the Product Selection bar, from the drop-down list, select the product you want to launch.

Getting an overview of your Precise for SAP application

This section includes the following topics:

- About the Dashboard tab
- How the Dashboard tab is structured
- How the Dashboard can help you identify performance problems

About the Dashboard tab

The Dashboard tab provides a comprehensive overview of all SAP systems in a selected application. The Dashboard tab serves as the starting point for your in-depth analysis since it displays a preview of the information that is available in some of the other tabs and enables you to view relevant information on the selected application without having to open each of the tabs. This simplifies and shortens the time required to view information. The Dashboard tab also enables you to view summarized data, such as the activities of all monitored SAP systems, and to compare systems in terms of Response Time and Availability. See About Precise for SAP tabs, About the Activity tab, About the Availability tab, and About the Jobs tab.

How the Dashboard tab is structured

The Dashboard tab is divided into two areas—the Main area and the Instance Details area. The Main area lists all the SAP systems that are monitored by Precise for SAP in the selected application.

The Instance Details area provides comparative information regarding the selected system.

The following table describes the various tabs available in the Instance Details area that enable you to view additional information on the selected system.

Table 1 Information displayed in the Instance Details area

Tabs	Description
Overview	Displays the general behavior of the selected systems or all systems.
System	Displays system performance and availability information, broken down into groups.
Transactions	Shows SAP transactions service and all performance statistics.
RFC	Shows SAP RFC service and all performance statistics.

About the Main area in the Dashboard tab

The All SAP Systems table displayed in the Main area lists all the systems monitored by your SAP system. Each row corresponds to a system.

The following table shows the information displayed in the All SAP Systems table.

Table 2 All SAP Systems table

Column	Description
Icon	Indicates whether or not the SAP System is currently available.

Column	Description
System	Displays the name of the system (as configured during the Installation procedure).
Availability	Displays the average level of availability of the monitored SAP system, during the selected time period.
Response Time (Avg)	Displays the average response time (in seconds) of all SAP activities monitored by the SAP system.
Backend Response Time (Avg)	Displays the average response time (in seconds) of all SAP activities monitored by the SAP system, not including client time.
SLA Compliance	Displays a bar indicating the number of transactions executed during the selected time period. Sections of the bar are highlighted as follows, depending upon the transactions level of SLA compliance: • **Green**. Transaction did not exceed its SLA compliance level. • **Yellow**. Transaction has exceeded its SLA warning threshold. • **Red**. Transaction has exceeded its SLA critical threshold. The information displayed in the Instance Details area, for SLA compliance data, is normalized.
Transactions	Displays the total number of transactions monitored during the selected time period.

About the Instance Details area in the Dashboard tab

This area summarizes the general behavior of the selected system or systems. Clicking on the hyperlink for specific data items launches, in context, the related tab from which the data was derived, enabling you to quickly carry out a more in-depth investigation.

Gaining an overview of system availability

The Overview tab displays the general behavior of the selected system or systems, within the specified time frame. This allows you to view, at a glance, the status of your system's availability and workload.

The following table shows the general information displayed for the selected systems.

Table 3 Information displayed in the Overview

Overview area	Description
Availability	Displays the SAP system's availability, over the selected time period. System availability is compared to the Availability SLA threshold. The Availability label functions as a hyperlink, and enables you to launch the Availability tab, in context. This enables you to continue to investigate an Availability problem or to continue to analyze Availability details.

Overview area	Description
Work load	Displays the workload imposed on the SAP system, over the selected time period. The workload is broken down into different types of activities that consume application servers resources, as follows: • **RFC**. Remote function calls • **Program**. SAP programs that are not associated with Tcodes • **Update**. Update SAP programs • **Dialog**. Dialog transactions (identified by Tcodes) The Work Load label functions as a hyperlink, and enables you to launch the Activity tab, in context. This enables you to focus on Activities in the monitored site.
Applications	Displays the average response times of SAP module's transactions. By default this table is sorted by the Response Time (Avg) column, meaning that transactions that have poor response times will be displayed first. The Applications label functions as a hyperlink, and enables you to launch the Activity tab, in context, with the same list of applications. This enables you to focus on Activities that are related to the application listed in the table by analyzing the response time, in more depth, or to drill down to a specific application.

Viewing system performance and availability

The System view displays performance and availability information of the monitored SAP systems. The following table describes the information displayed for the monitored SAP systems.

Table 4 Information displayed for monitored SAP systems

System	Description

Organizations	This table summarizes various parameters and shows the availability of SAP system organizations. By default this table is sorted by the Response Time (Avg) column, meaning that organizations that have poor response times will be displayed first. This table helps focus on organizations that suffer from performance problems or availability problems.
	• **Organization**. Displays the name of the organization.
	• **Availability**. The organization's average level of availability during the selected time period. Response Time (Avg)—displays the average response time (in seconds) of all SAP activities generated by the organization.
	• **Backend Response Time (Avg)**. Displays the average response time (in seconds) of all SAP activities monitored by the SAP system, not including client time.
	• **Transactions**. The total number of transactions carried out during the selected time period for the specified organization.
	• **SLA Compliance**. Displays a bar indicating the number of transactions executed during the selected time period. Sections of the bar are highlighted as follows, depending upon the transactions level of SLA compliance:
	  • **Green**. Transaction did not exceed its SLA compliance level.
	  • **Yellow**. Transaction has exceeded its SLA warning threshold.
	  • **Red**. Transaction has exceeded its SLA critical threshold.
	The information displayed in the Instance Details area, for SLA compliance data, is normalized.
	When you view information on a specific system, the Organizations label becomes a hyperlink, and enables you to launch the Activity tab, in context, with the same list of organizations. This enables you to focus on Activities that are related to the organization listed in the table by analyzing the response time, in more depth, or to drill down to a specific organization. For more information on how to configure organizations, see the Precise Administration Guide.

System	Description

Locales	This table summarizes various parameters and shows the availability and SLA compliance of your system's locales. By default this table is sorted by the Response Time (Avg) column, meaning that locales that have poor response times will be displayed first. This table helps focus on locales that suffer from performance problems or availability problems.
	• **Locale**. Displays the name of the locale.
	• **Availability**. The locale's average level of availability during the selected time period. Response Time (Avg)—displays the average response time (in seconds) of all SAP activities generated by the locale.
	• **Backend Response Time (Avg)**. Displays the average response time (in seconds) of all SAP activities monitored by the SAP system, not including client time.
	• **Transactions**. The total number of transactions carried out during the selected time period for the specified locale.
	• **SLA Compliance**. Displays a bar indicating the number of transactions executed during the selected time period. Sections of the bar are highlighted as follows, depending upon the transactions level of SLA compliance:
	  • **Green**. Transaction did not exceed its SLA compliance level.
	  • **Yellow**. Transaction has exceeded its SLA warning threshold.
	  • **Red**. Transaction has exceeded its SLA critical threshold.
	The information displayed in the Instance Details area, for SLA compliance data, is normalized.
	When you view information on a specific system, the Locales label becomes a hyperlink, and enables you to launch the Activity tab, in context, with the same list of locales. This enables you to focus on Activities that are related to the locale listed in the table by analyzing the response time, in more depth, or to drill down to a specific locale. For more information on how to configure locales, see the Precise Administration Guide.

System	Description

Application servers	This table summarizes various parameters and shows the availability and SLA compliance of your system's application servers. By default this table is sorted by the Response Time (Avg) column, meaning that application servers that have poor response times will be displayed first. This table helps focus on application servers that suffer from performance problems or availability problems.
	• **Application Server**. Displays the name of the application server.
	• **Availability**. The application server's average level of availability during the selected time period. Response Time (Avg)—displays the average response time (in seconds) of all SAP activities generated by the application server.
	• **Backend Response Time (Avg)**. Displays the average response time (in seconds) of all SAP activities monitored by the SAP system, not including client time.
	• **Transactions**. The total number of transactions carried out during the selected time period for the specified application server.
	• **SLA Compliance**. Displays a bar indicating the number of transactions executed during the selected time period. Sections of the bar are highlighted as follows, depending upon the transactions level of SLA compliance:
	  • **Green**. Transaction did not exceed its SLA compliance level.
	  • **Yellow**. Transaction has exceeded its SLA warning threshold.
	  • **Red**. Transaction has exceeded its SLA critical threshold.
	The information displayed in the Instance Details area, for SLA compliance data, is normalized.
	When you view information on a specific system, the Application Servers label becomes a hyperlink, and enables you to launch the Activity tab, in context, with the same list of application servers. This enables you to focus on Activities that are related to the application server listed in the table by analyzing the response time, in more depth, or to drill down to a specific application server.

Viewing SAP transactions and performance data

The Transactions view displays the SAP transaction's service and performance data. The following table describes the information displayed in the Transactions view.

Table 5 Information displayed in the Transactions view

Transaction	Description
SLA compliance	Shows an overtime graph that displays the number of transactions executed during the selected time period. Each transaction's response time is compared to its SLA (Service Level Agreement) and an indication of its SLA status is displayed, as follows: No SLA, SLA OK, SLA Near-Breach, SLA Breach. The SLA Compliance label functions as a hyperlink, and enables you to launch the Activity tab, in context. This enables you to focus on a transaction's level of service.
Response time (Avg)	Shows an overtime graph that displays the average response time for transactions, during the selected time period. Response time is broken down into Client time, Queue time Application time and DB time. The Response Time (Avg) label functions as a hyperlink, and enables you to launch the Activity tab, in context. This enables you to focus on a transaction's response time.

Transactions	Summarizes the information displayed in the SLA Compliance and Response Times graphs and displays the transaction names and the number of times they were executed during the selected time period.
	• **Transaction**. Displays the name of the transaction.
	• **Response Time (Avg)**. Displays the average transaction's response time, in seconds.
	• **Backend Response Time (Avg)**. Displays the average response time (in seconds) of all SAP activities monitored by the SAP system, not including client time.
	• **Transactions**. Displays the total number of times the transaction was executed during the specified time period.
	• **SLA Compliance**. Displays a bar indicating the number of transactions executed during the selected time period. Sections of the bar are highlighted as follows, depending upon the transaction's level of SLA compliance:
	  • **Green**. Transaction did not exceed its SLA compliance level.
	  • **Yellow**. Transaction has exceeded its SLA warning threshold.
	  • **Red**. Transaction has exceeded its SLA critical threshold.
	The information displayed in the Instance Details area, for SLA compliance data, is normalized.
	The Transactions label functions as a hyperlink, and enables you to launch the Activity tab, in context, with the same list of transactions. This enables you to focus on a specific transaction's response time.

Viewing RFC service and performance data

The RFC view displays the SAP RFC service and performance data.

The following table describes the RFC service and performance data displayed in the RFC area.

Table 6 RFC service and performance data

RFC service and performance data	Description
SLA compliance	Shows an overtime graph that displays the number of RFCs executed during the selected time period. Each execution time (call time) is compared to its SLA (Service Level Agreement) and an indication of its SLA status is displayed, as follows: No SLA, SLA OK, SLA Near-Breach, SLA Breach. The SLA Compliance label functions as a hyperlink, and enables you to launch the Activity tab, in context. This enables you to perform further analysis on a specific RFC's service level.
Call time (Avg)	Shows an overtime graph that displays the average call time for RFC functions, during the selected time period. Call time is broken down into average Exe time and Wait time. The Call Time (Avg) label functions as a hyperlink, and enables you to launch the Activity tab, in context. This enables you to perform further analysis on a specific RFC's call time.

RFC functions	Summarizes the information displayed in the SLA Compliance and Call Times graphs and displays the RFC function names and the number of times they were executed during the selected time period.
	
	• **RFC Function**. Displays the name of the function.
	• **Call Time (Avg)**. Displays the average call time, in seconds.
	• **Calls**. Displays the total number of times the function was executed during the specified time period.
	• **SLA Compliance**. Displays a bar indicating the number of transactions executed during the selected time period. Sections of the bar are highlighted as follows, depending upon the transactions level of SLA compliance:
	  ◦ **Green**. Transaction did not exceed its SLA compliance level.
	  ◦ **Yellow**. Transaction has exceeded its SLA warning threshold.
	  ◦ **Red**. Transaction has exceeded its SLA critical threshold.
	The information displayed in the Instance Details area, for SLA compliance data, is normalized.
	
	The RFC Functions label functions as a a hyperlink, and enables you to launch the Activity tab, in context, with the same list of functions. This enables you to focus on specific RFCs and carry out further analysis on their call times.

How the Dashboard can help you identify performance problems

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

- Identifying which SAP systems are currently down
- Comparing the response time and availability of different SAP systems

- Examining system behavior

Identifying which SAP systems are currently down

The Dashboard tab displays a list of all your SAP systems and their level of availability. A status icon located in the first column of the All SAP Systems table shows the current status of the SAP system. This is a good place to start your analysis. When the non-availability icon is displayed, this indicates that a system has stopped running, its application servers are not available and it is not possible to connect to the system. You can focus on this system and view the Availability graph in the Overview tab. Verify that the relevant time range is selected.

The Availability graph shows you whether the downtime period started now or whether your system has been unavailable for a period of time. It is possible to select a different time frame to gauge the availability of the system in question, for different periods of time.

Comparing the response time and availability of different SAP systems

The Main area of the Dashboard tab displays a list of all SAP Systems that are part of your application and enables you to examine differences in their availability and in the average response times that users are experiencing for each systems.

The SLA Compliance column shows you how each system is performing, in reference to its SLA setting. A red section in the stacked bar graph indicates whether a system is experiencing a performance problem and whether users are experiencing poor response times.

You can sort the list according to the Availability column to determine which systems have the poorest level availability within the selected time frame. You can do the same with the response time and determine which systems show the poorest average response time level for their transactions.

Notice that those two indicators are not always correlated and there can be systems that show a poor availability level yet a very good (low) response time. This would mean that the system is experiencing availability problems and was unavailable for all or much of the time users were trying to access the system, but whenever the system was available, the response time was good.

Having a high level of availability and poor response times may indicate that the system is available most of the time, but is still experiencing performance problems.

Scrolling to the Transactions column in the All SAP Systems table enables you to compare systems in terms of transaction volume.

Examining system behavior

When viewing the Dashboard tab there is always one system in focus (in the Main area, on the left). The selected system's information is displayed in the Instance Details area on the right, in a number of different information tabs.

The Overview tab enables you to locate time range when the system availability breached its SLA. The Availability bars for this time unit will then be below the SLA and highlighted in red. To view more about the availability of that system click on the graph’s label and launch the Availability tab. The Work Load graph displays the time consumption of the system's application servers divided by the different work types, over the specified time period. It is possible to determine what type of activities consume most of the system's resources and identify any abnormal behavior. Viewing the Work Load and Availability graphs together enable you to determine if there is any correlation between your system’s availability and work load.

The Applications table summarizes the data available on the applications used by the selected system, including each application's response time and SLA compliance.

If you want to further investigate the system's applications to discover which transactions were executed or which users are using the application, click on the Application label. This launches the Activity tab which provides more detailed information on the system's applications and provides you with additional investigative tools.

The other tabs in the Instance Details area provide additional information on the selected system.

The System tab can help you determine which are the most problematic user groups (Organization, Locales) or application servers in terms of response time and availability.

The Transactions and RFC tabs provide additional details on the average response time and SLA compliance of the system, over the selected time range, together with the top transactions or RFCs for the specified time range. Once you detect a time range that seems problematic, or any deviation from normal behavior that needs further investigation, you can click on the label of the relevant graph or table to launch the Activity tab, in context, and view additional details.

Examining Precise for SAP performance over time

This section includes the following topics:

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, How most tabs are structured, and Tasks common to all tabs.

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.

Tab	Description
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 or 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 or 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
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.

Column	Description
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. ⓘ This column only appears when the Interpoint extension for an Oracle agent was installed for that system.

Column	Description
RFC Functions/RFC Programs	Displays the following entities: • 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.

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.

Column	Description
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, Determining which table columns to display, Viewing additional step details, and About the counters in Precise for SAP.

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
Details	• **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.

Additional Performance Statistics	Description
Response Time	• **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	• **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	• **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	• **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	• **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	• **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.

Additional Performance Statistics	Description
Application Server Buffers Ratio	• **Sequential Reads**. Number of sequential reads to the database. • **Direct Reads**. Number of sequential reads to the database.
Memory Resources	• **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 and About the counters in Precise for SAP, About the entities you can examine in the Activity tab, and Business-oriented entities.

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.

Checking system availability

This section includes the following topics:

About the Availability tab

The Availability tab displays detailed information on the availability of your SAP system. Availability information displayed in this tab can be used to identify and analyze the cause of a performance problem and is the main source of input for future tuning decisions. This tab enables you to view different aspects of the availability in your SAP system. For example, you can:

- Observe the availability (in percentage) of Application servers, Locales and Organizations, over the selected time period.
- Compare availability information to the average response time of each chosen entity.
- Analyze various predefined graphs that let you check the availability of your SAP system, over a selected time period.

Understanding the Availability tab

The Association area displays data on availability counters measured by the agents for the following views: Organizations, Locales and Application servers.

The Availability 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 displayed in the Association area could be a list of locales associated with the selected Organization. Drilling down further to a particular locale can display the various Application Servers associated with the selected locale in the Association area.

When you open the Availability 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 Availability 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.

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 Main area in the Availability 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 Availability data (default), or Connectivity data, over the selected time period.

About the Association area in the Availability tab

The Association area provides corresponding information on the entities 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 arrow. The selection you make is reflected in the Association area only; the Main area remains unchanged.

From the Association area, you can also drill down to another entity by clicking a table row. A drilldown 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 view information on a specific organization, choose Organizations from the Association controls. The Association area changes to display a list of organizations. Note that the Tab heading and the Main area remain unchanged.

In the Association area, click the row of the organization entity you want to view detailed information for. The Tab heading indicates the newly selected entity; the Main area displays information on the session you drilled down to, and the Association area shows information on the entities associated with this organization.

The following figure shows how to drill down to an Organization entity and view additional information. See About Precise for SAP tabs, How most tabs are structured, and About the Dashboard tab.

Examining Availability tab entities

The Availability Tab displays information on different entities. This section provides an overview of these entities, their meaning, and their views.

The following table describes the information displayed in the Association area.

Table 1 Additional information shown in the Association area

Column	Description
Entity	Displays the entities associated with one of the following entities: • Organizations • Locales • Application servers
	The SLA Breach icon indicates if the SAP system's availability falls below the SLA breach defined for the system.
Application Server Availability	Displays the percentage of time (over the selected time period) that the application servers of the selected entity were available.
Connectivity	Displays the percentage of time (over the selected time period) that the locales defined for the system were available.
Availability	Displays the minimum average availability calculated from both the Application Server Availability and Connectivity values.
Response Time (Avg)	The average time an activity was executed for the specific entity displayed.
Transactions	Indicates the number of transactions run for the entity.
SLA Compliance	Indicates the SLA compliance of the entity.

About the Main Area in the Availability tab

The information displayed in the Main area displays the entity's important counters and performance information.

Getting an overview of availability for an entity

The Overview displays an overview of the entity’s availability data. It displays the most important counters collected for the entity, as follows:

- **Availability**. Displays the minimum average availability calculated from both the Application Server Availability and Connectivity values.
- **Application Server Availability**. Displays the percentage of time (over the selected time period) that the application servers of the selected entity were available.
- **Connectivity**. Displays the percentage of time (over the selected time period) that the locales defined for the system were available.

Viewing the end-to-end availability of a selected entity

The Availability view displays the end-to-end availability of the selected entity as compared to the Availability SLA defined for the system (the black line), over the selected time period. The following counters are displayed:

- Availability SLA
- Availability Breach
- Availability OK

Viewing application server availability for an entity

The Application Server Availability view displays the selected entity's application servers availability as compared to the Availability SLA defined for the system (the black line in this example), over the selected time period. The following counters are displayed:

- Availability SLA
- Application Server Availability Breach
- Application Server Availability OK

Viewing locale availability for an entity

The Connectivity view displays the selected entity’s locale availability as compared to the Availability SLA defined for the system (the black line in this example), over the selected time period. The following counters are displayed:

- Availability SLA
- Connectivity Breach
- Connectivity OK

Identifying availability problems in the Availability tab

You can identify an availability problem by examining the availability of your application servers.

Checking the availability of an application server

Examining the availability of an application server can help identify availability problems that may be causing performance problems for users working in the system.

Using the Availability tab you can view the availability of each application server in the system, and identify time periods when they were not available (they were possibly down). Each application server has its own total availability and average response time for user transactions. This information can indicate whether poor response time was related to poor availability of an application server. Furthermore, since availability is computed from the application server availability and the locales availability, the specific cause of the availability problem can also be detected, indicating whether it was a network problem or actual application server problem.

Isolating batch job performance issues

This section includes the following topics:

About the Jobs tab

The Jobs tab isolates performance issues associated with currently running or completed batch jobs in your SAP system.

Performance information displayed in this tab can be used to identify and analyze the cause of a performance problem on your SAP server and is a prime source of input for future tuning decisions.

The Jobs tab shows two views:

- **Completed Job Steps**. Displays performance information on batch jobs that have finished executing.
- **Running Jobs**. Displays defined SAP batch jobs with one or more active batch job steps or those that are in a scheduling state waiting to become active. For active batch jobs, activity is provided while executing within a SAP batch work process. This is the only information that Precise for SAP obtains directly from SAP using a real time API, instead of the PMDB. Information in the PMDB is collected by Collectors.

For example, this tab can help you identify the batch jobs that consumed the most resources during the last day, discover what led to their high consumption and find a solution to the problem.

The Jobs tab enables you to answer the following types of questions: "Which Job's Batch steps were executed yesterday from 8AM to 10AM?" or "For how long did job steps run yesterday and where was most of the time spent (in the Application Server or Database)?"

> If the SAP Java connector is not installed on the Precise for SAP FocalPoint server, you will not be able to view running jobs in batches. The SAP Java connector can be downloaded from the SAP Web site. For more information, see the Installing SAP tier collectors.

Understanding the Jobs tab

The Jobs table displays performance attributes for batch jobs that are still currently running and for batch jobs that have completed their execution, in a table format.

Examining Jobs tab entities

The Jobs tab provides two different views in a table format:

- Completed job steps
- Running jobs

Viewing performance indicators for jobs that have completed running

The Completed Job Steps view displays performance indicators for jobs that have completed running. Clicking on the Details icon provides additional performance indicators for the selected job.

The following table describes the following information displayed in the Completed Job Steps table.

Table 1 Completed Job Steps table

Column	Description
	Click to open a dialog box that provides additional information on the selected program.
Job	Displays the name of the executed job.
Program	Displays the name of the executed ABAP (Advanced Business Application Programming) program.
User	Displays the name of the user executing the job.
Application Server	Displays the name of the application server that the job step was executed on.
Started	Indicates the 5-minute time slice the job was started in.
Completed	Indicates when the job was completed.
Step	Indicates step number that was executed.
Duration	This column displays the time that has elapsed since job began running, in HH:MM:SS format, or a stacked graph broken down into DB Time, Application Time and Queue Time components, when you click the column icon. Click the relevant icons to display the information in this column as a stacked graph or in a time format.

Displaying additional completed job details

Clicking on the icon in the Detail column opens a dialog box that provides additional performance statistics about the selected job.

The following information is displayed:

- **Details**
  - **Job**. Displays the name of the executed job.
  - **Program**. Displays the name of the executed ABAP (Advanced Business Application Programming) program.
  - **User**. Displays the name of the user executing the job.
  - **Application Server**. Displays the name of the application server that the job step was executed on.
  - **Started**. Indicates when the job was started.
- **Duration**
  - **Queue Time**. Displays the time spent waiting in the dispatcher for a work process, in seconds.
  - **Application Time**. Displays the total time spent in the application server, in seconds.
  - **DB Time**. Displays the total time spent in the database, in seconds.
- **Application Time**
  - **Load Time**. Total time spent 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.
  - **Process Time**. Total CPU time consumed by the work process.

- **DB Time**
  - **Sequential Reads**. Total time spent in the database for sequential reads.
  - **Direct Reads**. Total time spent in the database for direct reads.
  - **Updates**. Total time spent in the database for updates.
- **DB Operations**
  - **Sequential Reads**. Displays how many sequential reads were requested from the database.
  - **Direct Reads**. Displays how many direct reads were requested from the database.
  - **Updates**. Displays how many updates were requested from the database.
- **DB Requests Average Time**
  - **Sequential Reads**. Displays the response time, per request, for database requests associated with sequential reads.
  - **Direct Reads**. Displays the response time, per request, for database requests associated with direct reads.
  - **Updates**. Displays the response time, per request, for database requests associated with updates.
- **Application Server Buffers Ratio**
  - **Sequential Reads**. Number of actual calls to the database to satisfy a sequential read request.
  - **Direct Reads**. Number of actual calls to the database to satisfy a direct read request.
- **Memory Resources**
  - **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.

Running jobs

The Running Jobs view displays performance indicators for jobs that are still running. The following table describes the information displayed in the Running Jobs table.

Table 2 Running Jobs table

Column	Description
Job	Displays the name of the job that is being executed.
Program	Displays the name of the ABAP program that is being executed.
User	Displays the name of the user executing the job.
Application Server	Displays the name of the application server that the job step is executing on.
Status	Indicates the status of the running Job.
Started	Indicates the time the job started.
Elapsed Time	The time that has elapsed since batch job started running.

Identifying performance problems with the Jobs tab

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

- Examining completed jobs performance
- Examining running jobs performance

Examining completed jobs performance

Examining job runs over a selected time frame can help you pinpoint problematic time periods and view the general trend of job runs. In the Jobs tab you can observe how the job ran and compare the duration of a number of runs. You can sort the list of batch jobs according to duration, thereby detecting where the bottlenecks lie and investigating their causes. The duration of each job is broken down into application time, queue time and database time. This breakdown allows you to detect what is causing the performance problem.

For detailed statistics about a specific job, click on the Details icon. This information can help you detect where your performance problem is. For example, you may discover that bottlenecks are caused by many updates in the database.

Integration with Precise for SQL Server allows you to drill down further on a specific performance problem, helping to detect the root cause of the problem.

Examining running jobs performance

Examining currently running jobs can help you identify problematic jobs that cause your system to respond poorly. You can detect jobs that are waiting to be executed, or are executing for too long a period and affecting your system's performance.

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 hit ratio 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.