

# Precise Indepth™ for Oracle

## Active Session History Feature and Value

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### Overview

This document is intended to address and answer the following question:

Can Precise Indepth for Oracle provide useful information on the history of active sessions within the Oracle instance over time to evaluate whether or not all of the sessions allocated are being effectively utilized?

First, we should review exactly what this functionality is: Active Session History (ASH) is a view in Oracle that maps a circular buffer in the SGA. The name of the view is V\$ACTIVE\_SESSION\_HISTORY. This view is populated every second and will only contain data for “active” sessions, which are defined as sessions waiting on a non-idle event or on a CPU. Since the buffer is reused, the amount of data it can contain—its history length—is limited and will average approximately 30 to 60 minutes.<sup>1</sup> The data in the view is populated automatically, so it avoids the overhead of manually querying the v\$ tables. To keep a history of this data longer than the 30–60 minutes the view itself can provide, it is necessary to use AWR snapshots to store the data in persistent form on disk. By default, seven days of history will be saved, and the sample interval is once every 10 seconds. The common purpose of this data is to answer questions on where time is being spent by the sessions.

Not everyone is allowed to query this view; you actually need additional packs or options for OEM, specifically the diagnostic pack in Oracle Database 10g. The Oracle license specifically states that you can query this view only if you have the packs. These packs typically cost \$3,000 per CPU. Without the OEM packs, the data can only be accessed via a dump to a trace file, which would then need to be loaded into a database for further analysis.

### How Indepth for Oracle work

Indepth for Oracle provides the same data that ASH does and presents it in a more convenient and easily interpreted GUI form.

From the **Dashboard** view within Indepth for Oracle, select the instance you are interested in examining and the timeframe you are interested in seeing data for. Then select the **Activity** workspace. Alternatively, you could select the **Activity** workspace immediately, and then use the pull-down menus to specify the instance and timeframe you are interested in.

Once in the **Activity** workspace, use the pull-down menu in the lower pane to select **Recent Sessions: Entries Sorted by in Oracle**, which will list “recent” sessions. By default, the timeframe for “recent” is the last four hours. This can be changed during the Indepth for Oracle install to any desired timeframe.

On the top pane, use the pull-down menu to select Overall Activity. This will show a bar graph of the overall activity within the selected instance over the timeframe selected. Each “bar” will, in turn, provide a breakdown of the time spent in that interval (e.g., how much time was spent “in Oracle,” “request wait,” etc.). This data quickly gives you a sense for how active the whole instance is, and you can easily calculate a good estimate of percentage of active sessions. For example, if “in Oracle” time for a given time slice is one hour, and request wait is two

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<sup>1</sup> Oracle has stated the design goal to be to hold one hour of activity data in memory.

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hours, then on average, one-third of the sessions are active at any given point in time during that time period.

To get the number of sessions over time, choose Scalability from the pull-down menu in the top pane. Note that the data in the lower pane has not changed.

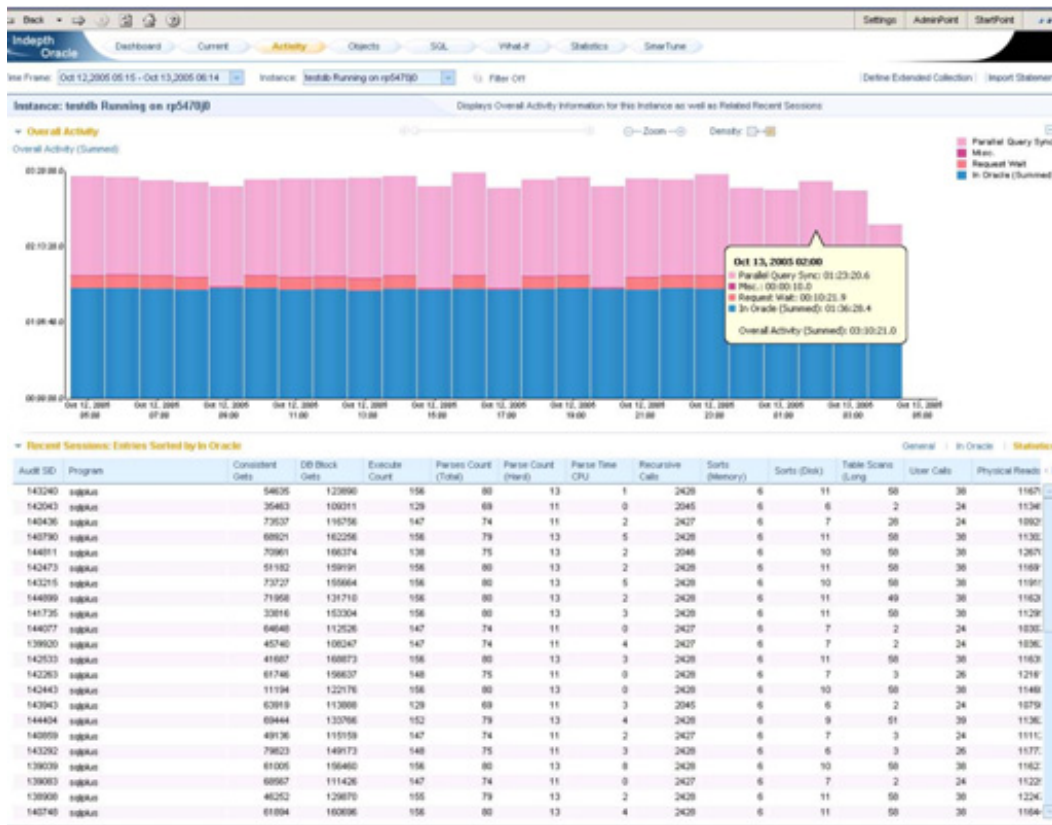


Figure 1 Displays the breakdown of time spent within the individual session.

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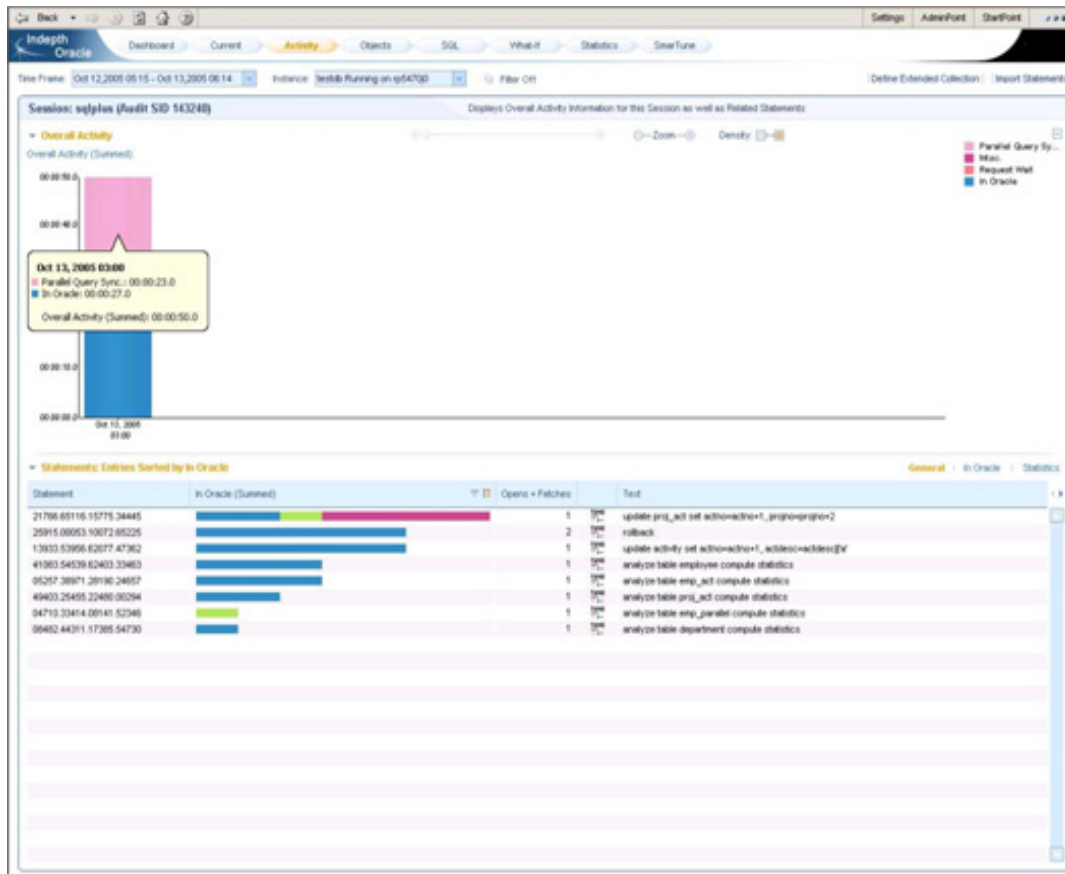


Figure 2 Displays a list of all SQL queries run by the session in Figure 1 within the selected timeframe.

From either of the two screens shown above, you can drill down into any specific session to see more detail on the session. Simply click on any specific session listed in the lower pane to perform the drill-down. This will provide the breakdown of time spent within the individual session in the top pane, while the bottom pane will display, by default, a list of all the SQL statements run by this session in the selected timeframe. The list displays the amount of time spent executing the query in descending order. Hovering your mouse over the bar graph in the top frame will show you the elapsed time of the session in **Overall Activity (Summed)**.

Finally, you can select the **Current** workspace to get a view of the sessions that have existed for the last minute (this view can be set to update automatically at selected intervals.) In the bottom pane, you can use the pull-down menu to select a display of **Current Sessions** or **Active Sessions**. The former will display a list of all sessions currently in existence in the selected instance, while the latter will only display sessions that are active at the time of the display (the **Active Sessions** display is shown below.)

Note that this display provides very useful data in a simple form, including a breakdown of the time spent in the session over the last minute [**In Oracle (Last Minute)**]. As with the other bar graph displays, hovering your

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mouse over the bar graph allows you to see a tool tip giving a numerical breakdown of the data shown in the graph; the current sub-state of the session (**Sub-State**); the event the session is currently waiting on, if applicable (**Wait Event**); and the text of the SQL statement currently being executed by the session, if applicable (**Text**). All of this data gives a near-real-time view of the activity within the database instance.

For all of the data seen in these screens, the underlying collection was performed automatically by the Indepth for Oracle agent<sup>2</sup> and loaded into a long-term repository, the Precise i<sup>3</sup> Performance Warehouse, for later review. The detailed data can be retained for as long as required and reviewed in the same form shown above no matter how long ago the data was gathered. The data collection itself is accomplished with no overhead on the database (i.e., no SQL statements are run against the instance for the collection) and minimal overhead on the server (approximately 2% or less). Where applicable, this data is correlated with the applications that access the database to provide a complete view of your transactions, allowing you to get a full and true view of the performance of your application.

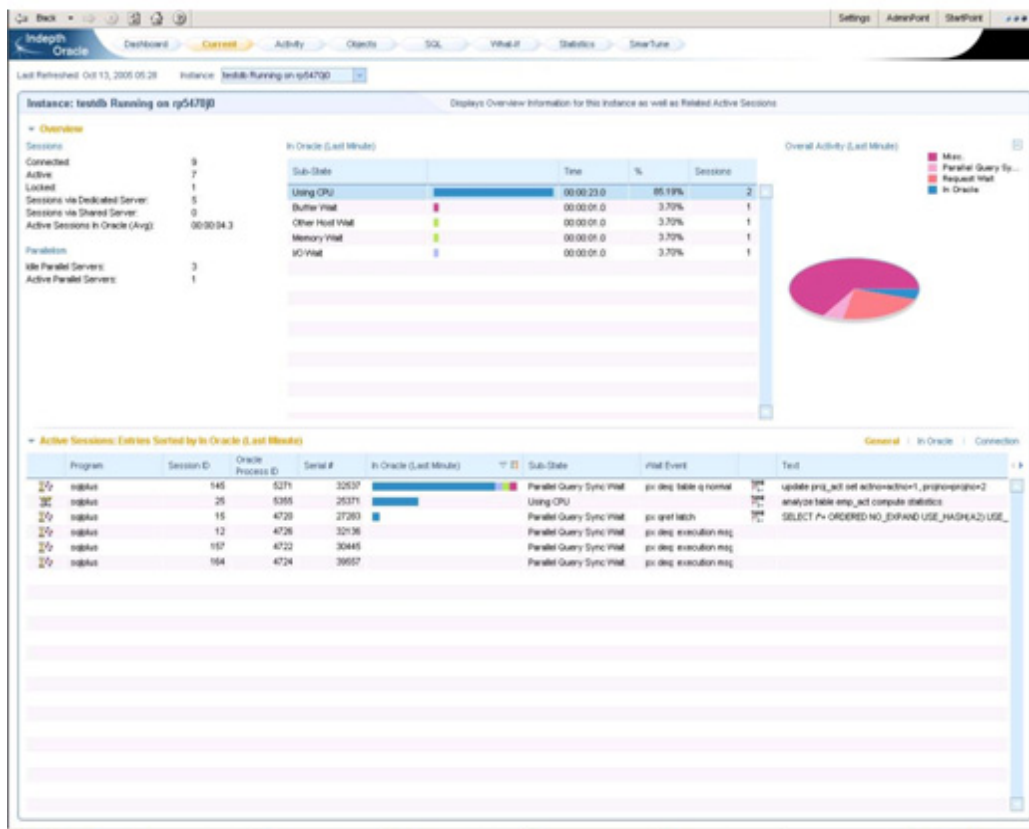


Figure 3 Displays the breakdown of time spent within the last minute.

<sup>2</sup> This also collected more extensive data on the instance not covered in this document.

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