



## Reporting Data

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## Real Time Data Collection

Every 15 seconds (by default), both the Unified CCE Peripheral Gateway and the Call Router produce data that is forwarded and stored in the databases. This current (real time) data includes data about agents, skill groups, services, call types, Precision Queues, and other entities. Unified Intelligence Center queries the database periodically to retrieve the data stored in the Administrative Workstation (AW) database and presents it to clients, such as reports and message boards. Old real time data is constantly overwritten by new real time data. No history is kept. Real time data is stored in data fields that reflect four time increments, as described in the following table:

**Table 1: Real Time Data Time Increments**

Real time data time increments	Description
Half	<p>“Half” values contain a value for the current half-hour. Real time half-hour values are not affected by Interval configuration. That is, if you set the historical reporting interval to 15 minutes, the Half values in real time tables represent the current half-hour time period falling between xx:00:00 and xx:29:59, or xx:30:00 and xx:59:59.</p> <p>For example, if it is currently 09:18:33, the CallsOfferedHalf column in the Call_Type_Real_Time table contains a value that reflects the first 18 minutes and 33 seconds of the specific half-hour. When a new half-hour begins, at time 09:00:00 or 09:30:00, the database element is reset to zero.</p>

<b>Real time data time increments</b>	<b>Description</b>
Now	<p>“Now” contains a snapshot of the activity at a particular instant (the last check).</p> <p>For example, Unified CCE software tracks CallsQNow, which is the number of calls currently in queue for a route. When a call is answered, the CallsQNow count is reduced immediately by one (-1) because the call has left the queue. This change is seen at the next real time update for reports that query for that value.</p>
To5	<p>The “To5” values track data on a rolling five-minute basis. The rolling five-minute data employs a “sliding” five-minute window. The To5 data is updated every ten seconds in the database.</p>
Today	<p>To arrive at values for “Today”, Unified CCE software adds the values at the end of each interval since midnight. It also counts the values for the current half-hour. At the end of each half hour, half-hour data (for example CallsOfferedHalf) is summed into the Today data. At midnight, the real time Today count is cleared in the database. Midnight is defined using the time of the peripheral.</p>

## Historical and Interval Data Collection

Unified CCE stores some historical data in *Half\_Hour* tables and other historical data in *Interval* tables. Interval tables contain either half-hour or 15-minute summaries (but not both), based on Interval flags set in **Configuration Manager**.

Table 2: Historical and Interval Data

Historical data	Description
Interval (30- or 15-minute, based on configuration)	<p>Some, but not all, Half_Hour tables now have an equivalent Interval table. For those Half-Hour tables with corresponding Interval tables, the Half_Hour tables still appear in the database but they are no longer populated. The Half_Hour table views present the information available in the corresponding Interval tables.</p> <p>For Unified Intelligence Center seven of these Interval tables are populated by either half-hour or 15-minute data, based on configuration.</p> <p><b>Note</b> Two Interval tables—Dialer_Interval and Campaign_Query_Rule_Interval—<i>always</i> contain 30-minute data.</p> <p>15-minute intervals are not supported for Outbound Option.</p> <p>Fields in these Interval tables are no longer appended by <i>ToHalf</i>. For example, the Agent_Half_Hour table has a field named <i>AvailTimeToHalf</i>. In the Agent_Interval table, that field is named <i>AvailTime</i>.</p> <p>Interval tables are :</p> <ul style="list-style-type: none"> <li>• Agent_Interval (15 or 30)</li> <li>• Agent_Skill_Group_Interval (15 or 30)</li> <li>• Call_Type_Interval (15 or 30)</li> <li>• Call_Type_Skill_Group_Interval (15 or 30)</li> <li>• Campaign_Query_Rule_Interval (30)</li> <li>• Dialer_Interval (30)</li> <li>• Peripheral_Interval (15 or 30)</li> <li>• Router_Queue_Interval (15 or 30)</li> <li>• Service_Interval (15 or 30)</li> <li>• Skill_Group_Interval (15 or 30)</li> <li>• System_Capacity_Interval (30)</li> </ul> <p><b>Note</b> By default, data is captured in 30-minute intervals.</p>

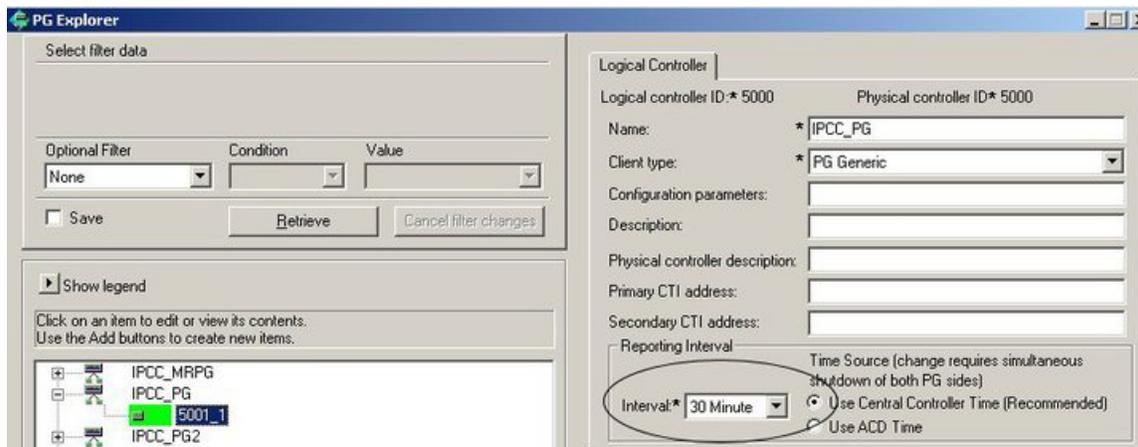
Historical data	Description
Half Hour	<p>The Half_Hour tables that do not have Interval tables are populated for <i>completed</i> half-hour intervals, and the data fields are stored in the database with the extension “ToHalf” (for example, Application_Gateway_Half_Hour.ErrorsToHalf).</p> <p>These elements contain a value for a completed half-hour interval. The completed interval is the time period falling between xx:00:00 and xx:29:59, or xx:30:00 and xx:59:59.</p> <p>For example, it is now 15:50:00. An error occurred at 15:47:00. The half-hour interval reported on right now is for the 15:00:00 to 15:29:59 interval. The error that occurred at 15:47:00 will be written to the database at 16:00:00, when the 15:30:00 to 15:59:59 half-hour interval is complete.</p> <p>The Half_Hour tables that do not have corresponding Interval tables are:</p> <ul style="list-style-type: none"> <li>• Application_Gateway_Half_Hour</li> <li>• Campaign_Half_Hour</li> <li>• Dialer_Skill_Group_Half_Hour</li> <li>• Network_Trunk_Group_Half_Hour</li> <li>• Physical_Controller_Half_Hour</li> <li>• Route_Half_Hour</li> <li>• Translation_Route_Half_Hour</li> <li>• Trunk_Group_Half_Hour</li> </ul>
Five-minute	<p>The five-minute data include many of the same data elements as found in the real-time data. Every five minutes, the CallRouter copies the real-time data to the five-minute tables in the Central Database. In this way, a “snapshot” of the real-time data can be kept in the Central Database and used as historical data.</p> <p>Only the Routing_Client_Five_Minute historical reporting is enabled by default.</p> <p>To enable the historical reporting of other Five_Minute tables the corresponding registry key values, under the following hive at HKEY_LOCAL_MACHINE\SOFTWARE\Cisco Systems, Inc.\ICM\&lt;Instance_Name&gt;\Router&lt;A/B&gt;\Router\CurrentVersion\HistoricalData\FiveMinute are required to be set to 1. The changes are effective dynamically and no router restart is required on either side.</p> <p><b>Note</b> Enabling five-minute data can have a substantial performance impact on your system. Before you enable reporting on five-minute data, consider the performance impact.</p>

## Interval Configuration

Reporting interval configuration is done in two Configuration Manager screens (PG Explorer and System Information).

- **The PG Explorer Tool** has a Reporting Interval field that affects the following tables: Agent, Agent\_Skill\_Group, Peripheral, Service, and Skill\_Group.

Figure 1: Interval Configuration in PG Explorer



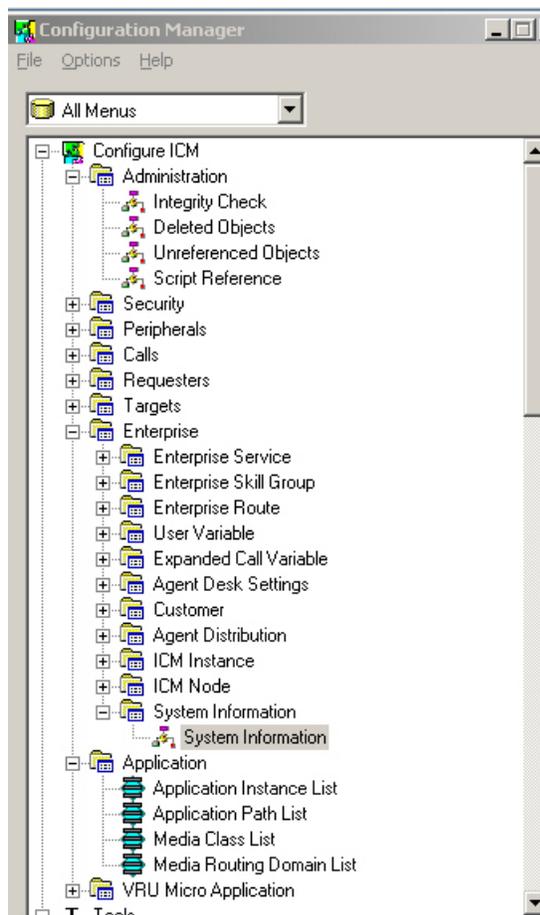
When you change this tool from the default (30) to 15, data starts to be written to the interval tables every 15 minutes. (You cannot pick and choose among the five - for example, you cannot set Agent to 30 and Skill\_Group to 15.)

The PG Explorer configuration for Interval reporting has the Time Source option to use Central Controller time or Automatic Call Distributor (ACD) time. The option to use ACD time is limited to 30-minute data and to certain ACD types, as explained in the Configuration Manager online help for PG Explorer.

- The System Information tool has a Reporting Interval field that affects these tables: Call\_Type, Call\_Type\_Skill\_Group, and Router\_Queue\_Interval.

To access this tool, select **Configuration Manager > Miscellaneous Tools > System Information**.

**Figure 2: Interval Configuration in System Information**



When you change the setting in this tool from the default (30) to 15, data starts to be written to the Call\_Type and Call\_Type\_Skill\_Group Interval tables every 15 minutes.

You can set the PG Explorer Tool to 15 and the System Information Tool to 30, or vice versa. However, Precision Queue interval records are generated from the Router\_Queue\_Interval and Skill\_Group\_Interval records and therefore these intervals need to be the same for complete Precision Queue data.

If you change the Reporting Interval from 15 to 30 or vice versa, data is not written to the corresponding tables until the next 30-minute interval starts. So if you change it at 11:13, data is written to the appropriate tables beginning at 11:30.



**Note**

- 15-minute reporting requires Unified Intelligence Center.
- The Campaign\_Query\_Rule table contains only configuration data. The Campaign\_Query\_Rule\_Interval table contains the reporting data. The superseded Campaign\_Query\_Rule\_Half\_Hour table contains a view of the Campaign\_Query\_Rule\_Interval data for backward compatibility.

## Configuration Data

Configuration tables define the entities and entity names that are defined in Configuration Manager. They contain EnterpriseName fields that associate the key values in the historical tables with the text labels that are used in reports.

Examples of configuration tables are the Agent, Agent Team, Skill Group, and Call Type tables. For example, adding a new Agent Team in Configuration Manager adds an EnterpriseName for that team in the Agent Team database table.

Configuration Data and Routing Scripts are created and edited on the Administration & Data Server, stored on the Administration & Data Server database, replicated to the Central Database, and then to other Administration & Data Servers.

## Call Detail Data

The following database tables store call detail records as described below:

- **Route call details**

For every call routing request it handles, the Router records detailed data about the call and how it was routed to a peripheral by Unified CCE. This *route call detail data* (RCD record) is stored in the Route\_Call\_Detail table.

RCD data is written to the database when the script ends. Non-routed calls, such as direct dials, transfers, and conferences, have no RCD records.

You can use the data in the Route\_Call\_Detail table to see the starting point of the call. For example, you can see the Automatic Number Identification (ANI), any Caller Entered Digits (CED) entered, and the type of request made. A typical Route\_Call\_Detail record might describe a call that originated with a Pre-Routing request, had an ANI of 9785551000 and CED such as an account number. In addition, route call detail tells you how long the call was held in a enterprise queue.

- **Route call variable**

The Route\_Call\_Variable records are associated with the Route\_Call\_Detail records. The Route\_Call\_Variable records are created at the same time as the corresponding Route\_Call\_Detail record. The Route\_Call\_Variable table stores expanded call context variables that are configured as persistent in the system and are employed during the routing.

- **Termination call detail**

Detailed *termination call detail data* (a TCD record) is written for each call that arrives at a peripheral (provided the proper monitoring is enabled for the peripheral).

The TCD record is written after the call segment terminates and the after-call work is complete.

Specifically, the CallRouter creates the Termination\_Call\_Detail record when it receives a “ClosedCallInd” message from the Open Peripheral Controller (OPC). OPC generates the ClosedCallInd message when a call is terminated (that is, when any after-call work associated with the call has completed, or when a call that was not connected to an agent is terminated).

For example, typical Termination\_Call\_Detail data might show that the call was an Inbound ACD Call, that it was handled by a particular Skill Group; and that a particular agent handled the call. The

Termination\_Call\_Detail record also describes the final disposition of the call (for example, how the call terminated; abandoned in network, disconnect/drop, and abandoned delay).

There can be many TCDs created per call, and it is possible for a call to have TCDs records but no RCD records.

- **Termination call variable**

The Termination\_Call\_Variable records are associated with the Termination\_Call\_Detail records. The Termination\_Call\_Variable records are created at the same time as the corresponding Termination\_Call\_Detail record. The Termination\_Call\_Variable table stores expanded call context variables that are configured as persistent in the system and are set either through the agent desktop or received on the PG when the call was routed to it.




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**Note** The above tables can become very large. You must extract the data from the Historical Data Server and Detail Data Server (HDS-DDS) into your own custom database on a separate server (one that is not used for other Unified CCE components). Use only DBDateTime (date and time of the record that was written to the HDS-DDS database) to perform the extraction. The tables on the custom database can be indexed according to the custom reporting needs.

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To use Call Detail data in reports, you must create custom reports that populate from your custom database. These detail tables are constrained by the sizes of the databases. The sizes of the databases are estimated based on configuration and storage durations. Use the ICMDBA tool to estimate the sizes of the databases. Add an external database (AW/HDS/DDS) to the configuration to fulfill your reporting requirements.

**Related Topics**

[Pre-routing](#)

## Event Data

Two database tables store system and application event data that is generated by the various components of Unified CCE software:

- **Event**

The Event table stores all system events that are generated by the various Unified CCE components.

- **Application\_Event**

The Application\_Event table stores all application events that are generated by the various components. This is a subset of the events reported in the Event table.




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**Note** By default, the Event and Application\_Event data is not replicated to the HDS database.

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## Miscellaneous

For the following tables, the data is recorded as and when event or agent state changes occur:

Agent\_Event\_Detail  
Agent\_State\_Trace  
Network\_Event\_Detail

## Database Tables That Hold Reporting Data

All report data is pulled from tables and rows in the Unified CCE database. Many fields are direct database values, as reflected in their displayed column names in the reports.

For example:

- The *direction* of the active task on which the agent is currently working is derived from *Agent\_Real\_Time.Direction*.
- The number of calls to the trunk group that have been abandoned in queue since midnight is derived from *Trunk\_Group\_Real\_Time.CallsAbandonedToday*.

Other report data fields are less obvious for the following reasons:

- The data fields represent calculated values because the same data-entity name is used in multiple contexts.
- The data fields call database values whose names are not clearly indicative.

**Calculated fields.** Many report values are the result of calculated fields. For example, in reports that present Skill Group Real Time activity, the Average Active Time (AAT) is calculated as follows:  $\text{Skill\_Group\_Real\_Time.HandledCallsTalkTimeTo5} / \text{Skill\_Group\_Real\_Time.CallsHandledTo5}$ . Refer to the *Unified Intelligence Center Report Template Guide* for details on the calculated fields.

**Fields used in many tables and context.** Examples are the fields *Deleted*, *Description*, and *EnterpriseName*, which appear in many tables.

See the *Database Schema Handbook for Cisco Unified Contact Center Enterprise* at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-technical-reference-list.html> for descriptions of these database values and any calculations they can take in reports.

The Database Schema Handbook also lists field values such as Agent State values and Call Disposition flags.

