Reporting and Analytics Aggregates 8.0

User's Guide

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Table of Contents

Preface

Welcome to the *Reporting and Analytics Aggregates 8.0 User's Guide*. This document introduces you to the configuration, installation, and start procedures that are relevant to the aggregation layer of Genesys Info Mart. This guide is valid only for the 8.0.*x* releases of Reporting and Analytics Aggregates.

This preface provides an overview of this guide, identifies the primary audience, introduces document conventions, and lists related reference information:

About Reporting and Analytics Aggregates

Reporting and Analytics Aggregates (RAA) 8.0 provides the mechanism for creating, maintaining, and populating a subset of tables and views in a Genesys Info Mart 8.0 database that provide aggregated data of contact-center operations for reporting and analytical purposes. This *aggregation layer* is both an optional component of the Genesys Info Mart 8.0 product and a necessary and transparent component of the Genesys Interactive Insights 8.0 product.

Intended Audience

This guide serves primarily two audiences—namely, network, IT, and contact center administrators for:

- Genesys Info Mart
- Genesys Interactive Insights

It assumes that both audiences have a basic understanding of:

- Computer-telephony integration (CTI) concepts, processes, terminology, and applications.
- Network design and operation.
- Your own network configurations.

Both audiences should be familiar also with Genesys Info Mart configuration. In addition, GIM-only users should be familiar with operation of the Genesys Info Mart Administration Console and general Genesys Info Mart functionality.

Chapter Summaries

In addition to this preface, this guide contains the following chapters and appendixes:

- Chapter 1, "Introduction," on page 9, provides an overview of how the aggregation engine operates.
- Chapter 2, "Understanding the Aggregation Hierarchies," on page 13, describes the models that are used to aggregate data based on the type of data that is being aggregated and different reporting intervals.
- Chapter 3, "Managing the Aggregation Process," on page 17, describes how to run and stop aggregation for both continuous operation and one-time execution.
- Chapter 4, "Configuring User Data for Aggregation," on page 27, describes how to set up the environment to aggregate data based on your own custom dimensions in addition to the standard dimensions of Info Mart.
- Chapter 5, "Business View of Aggregation Subject Areas," on page 31, provides several star-schema diagrams that illustrate how each aggregation hierarchy is dimensioned. This chapter also provides a bus matrix that summarizes fact-and-dimension table relationships.

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New in this Release

This section describes the changes that have been incorporated within this guide since the 8.0.0 release of Reporting and Analytics Aggregates:

- The `H_AGENT_CAMPAIGN` and `H_CAMPAIGN` hierarchies have been added to RAA architecture (page 15) to support the operation of Genesys Interactive Insights reports for Genesys Outbound Contact.
- Descriptions of the subject areas for these hierarchies have been added to this document in the following sections:
  - "Subject Area for Agent-Campaign Aggregates" on page 40
  - "Subject Area for Campaign Aggregates" on page 41

Other changes, describing the changes to database schema and deployment, are provided in the *Reporting and Analytics Aggregates 8.0 Reference Manual* and *Reporting and Analytics Aggregates8.0 Deployment Guide* respectively.

Chapter

1 Introduction

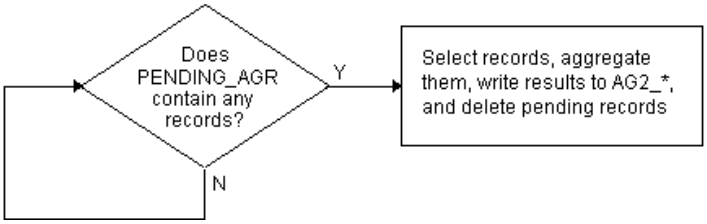
This chapter introduces Reporting and Analytics Aggregates (RAA), how to enable it, and how it interfaces with the Genesys Info Mart Server to aggregate contact center data for reporting purposes. It contains the following sections:

RAA must be installed before aggregation can occur. Refer to the *Reporting and Analytics Aggregates 8.0 Deployment Guide* for installation instructions.

What Is the Aggregation Process?

`Job_TransformGIM` is the Genesys Info Mart (GIM) job that is responsible for sending notifications about newly transformed factual data that is ready for aggregation. If this job is not running, GIM cannot send the notifications. As part of its ETL cycle and before it commits updates, GIM determines the start- and end-date time keys for which the updates apply and sends notification of the updates along with the appropriate time range via the aggregation interface. These notifications are written to an intermediate queue called the `AGR_NOTIFICATION` table. After some asynchronous processing, these notifications are written to the `PENDING_AGR` internal queue.

The aggregation process, then, is the engine that processes GIM aggregate-related notifications, aggregates factual data, and writes the results to tables (all of which are prefaced with `AG2_*`) within the Info Mart. When the aggregation engine is enabled, it constantly polls `PENDING_AGR` for newly added records to aggregate and then aggregates them. In this manner, aggregated data, becomes available for reporting in near-real time.



Enabling Aggregation

Because RAA is an optional component of Genesys Info Mart 8.0, aggregation does not occur automatically. Assigning the aggregation class, that is deployed with RAA installation, within the GIM application enables the aggregation engine and rouses the GIM Server to start sending notifications to the internal queue. This awareness is accomplished by appropriately setting the `aggregation-engine-class-name` configuration option (which is described in the *Reporting and Analytics Aggregates 8.0 Deployment Guide*).

This definition alone, however, does not launch the activity that routinely updates the aggregation tables. To do this, you must invoke the aggregation process in one of two modes:

- Autonomous mode—Requiring no direct involvement with the GIM Server
- Integrated mode—Where the GIM Server drives aggregation activity

Each mode is described in the following subsections.

Invoking Aggregation in Autonomous Mode

Invoking the aggregation process in autonomous mode runs the aggregation engine stand-alone, from the command line, without referencing the configuration of the GIM `Application` object in Configuration Server or invoking the `Job_AggregateGIM` job (this would be operating aggregation in integrated mode). In fact, the GIM Server need not even be running or sending notifications to the `PENDING_AGR` queue—although this mode of operation is not particularly useful for capturing ongoing contact center activity.

Refer to "Running Continuous Aggregation" on page 18 and "Re-aggregating Data over a Certain Time Range" on page 19 to learn how to invoke aggregation in autonomous mode.

Invoking Aggregation in Integrated Mode

Operating the aggregation process in integrated mode relies upon GIM's own internal processes to manage all aspects of aggregation. The aggregation engine is driven by `Job_AggregateGIM`, a job that is managed by the GIM Scheduler—the GIM Administration Console. With respect to aggregation, this console respects the values of aggregation-related configuration options that

are defined in the GIM `Application` object. Other GIM jobs, including `Job_MaintainGIM`, are also managed via this console; however this user interface is beyond the scope of this document. Refer to the *Genesys Info Mart 8.0 Operations Guide* to learn how to start, stop, and manage jobs via this console.

Order of Aggregation

The aggregation engine processes chunks of data in the order in which they appear in its queue, following a simple distribution algorithm, and without giving priority to any particular hierarchy or aggregation level. (Hierarchies and aggregation levels are described in the next chapter, beginning on page 13.)

For any chunk of data, the aggregation engine performs aggregations first for the lowest table node of the aggregation hierarchy—the `*_SUBHR` or `*_HOUR` level depending on the model—then moves up the line to the highest table node of the hierarchy—the `*_MONTH` level. The higher nodes (quarter and year levels) are views that are based on the `*_MONTH` tables, so no further aggregation processing is necessary beyond the month level. When the aggregation process completes aggregating data at certain stages, as part of the transaction, it deletes the row(s) from the `PENDING_AGR` table and then commits the transaction.

Note that data for all aggregation levels might not be available simultaneously. The aggregation engine might propagate data to the higher aggregation nodes in different transactions. For a short period of time, it is possible to retrieve data from one aggregation level that is not available at the higher node. This momentary discrepancy is most evident with the subhour views and hour tables where newly transformed data has not yet been aggregated. The subhour views retrieve data directly from the source GIM `*_FACT` tables and pick up this newly transformed data. Minutes could pass before this data would be reflected in the hour tables.

The aggregation process may process several data chunks simultaneously depending on how many threads it is instructed to use. This instruction comes via the value of the `number-of-writers` configuration option (for integrated mode) or the `numberOfWriters` runtime parameter (for autonomous mode).

Notifications

For voice interactions, the GIM Server sends notifications only about completed interactions. Stuck calls and active calls are not eligible for aggregation until they are cleared from the virtual queue and terminated respectively. For multimedia interactions that originate from an Interaction Server, `Job_TransformGIM` transmits notifications about active interactions as well as completed interactions.

Chapter

2 Understanding the Aggregation Hierarchies

The hierarchies that are present in the Aggregation Layer are based on time—ranging from subhour tables or views to year views of contact center data. Factual data from Info Mart `*_FACT` tables (for example, `MEDIATION_SEGMENT_FACT`) is gathered and grouped by a specific time interval (as well as by other dimensions) and then written to a time-based aggregate table or made available via aggregate views that are based on these tables.

In the following sections, this chapter explains the hierarchies of Reporting and Analytics Aggregates (RAA):

Aggregation Intervals

The Aggregation Layer provides aggregation tables or views for the following seven time intervals:

- `Subhour`
- `Hour`
- `Day`
- `Week`
- `Month`
- `Quarter`
- `Year`

The definition of subhour is configurable at either 15 minutes or 30 minutes. Whether these are made available as tables or views depends upon the model that the aggregation process follows—either the Interval-Based Measures model or the Disposition-Based Measures model. Info Mart stores *disposition* data and *interval* data. Both terms relate to the reporting interval to which contact center data is attributed; however, more about their differences can be found in the Genesys Info Mart documentation set.

Figure 1 illustrates the two models, as they pertain to aggregation.

Interval-Based Measures Model **Disposition-Based Measures Model**

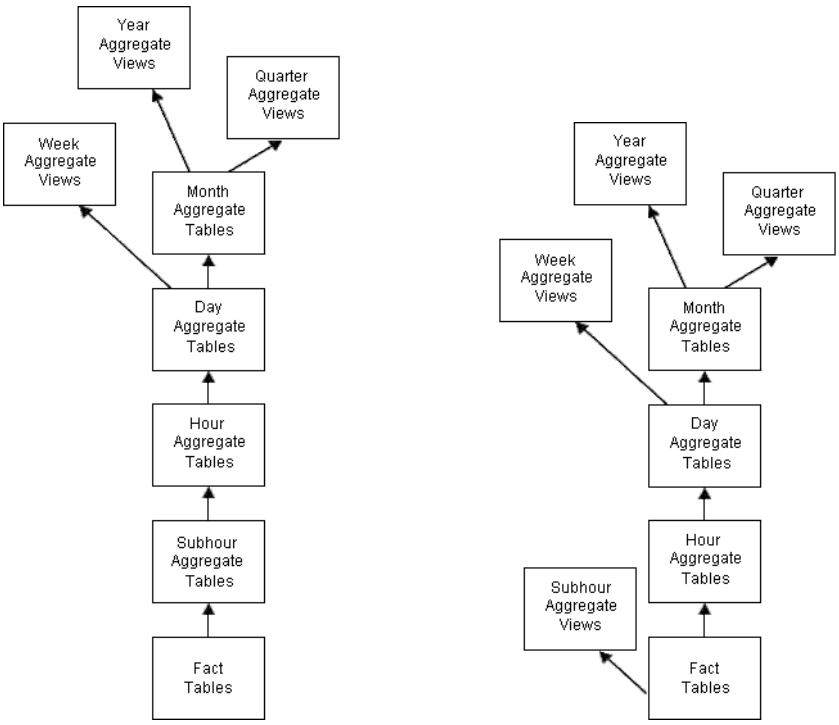
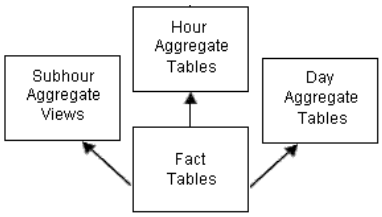


Figure 1: Aggregation Hierarchy Models

The fact tables contain the individual interaction-, session-, or state-related details. They are populated and maintained outside of RAA by the `Job_LoadGIM`, `Job_MaintainGIM`, and other GIM jobs. The *Reporting and Analytics Aggregates 8.0 Reference Manual* lists the fact table(s) that serve as the source for a particular hierarchy from where data is aggregated, and the *Genesys Info Mart 8.0 Reference Guide* describes these fact tables in detail.

Release 7.6 Interval-Based Measures Model



Unlike in the 7.6.*x* releases, the Interval-Based Measures model derives its values from the previous node in the hierarchy, instead of directly from the source fact table (as shown to the left). This design enhancement puts less strain on resources by improving the performance of queries that are run against these tables. The 8.0 model now also includes week, quarter, and year views for each hierarchy which it previously did not. The Disposition-Based Measures model is the same as was presented in the 7.6.*x* releases.

Hierarchies of the Aggregation Layer

RAA defines hierarchies for each set of aggregate tables and views; these hierarchies differ in composition only by their time interval of aggregation. `AG2_QUEUE_HOUR` and `AG2_QUEUE_YEAR`, for instance, belong to the same hierarchy whereas `AG2_QUEUE_HOUR` and `AG2_QUEUE_GRP_HOUR` do not.

Disposition-Measure Hierarchies

The 10 RAA hierarchies that contain disposition-based measures are the following:

- The H_AGENT hierarchy—Consisting of the following tables and views:
  - The AG2_AGENT_SUBHR view
  - The AG2_AGENT_HOUR table
  - The AG2_AGENT_DAY table
  - The AG2_AGENT_WEEK view
  - The AG2_AGENT_MONTH table
  - The AG2_AGENT_QRTR view
  - The AG2_AGENT_YEAR view
- The H_AGENT_GRP hierarchy—Comprising rollups of values from the H_AGENT hierarchy and consisting of the following tables and views:
  - The AG2_AGENT_GRP_SUBHR view
  - The AG2_AGENT_GRP_HOUR table
  - The AG2_AGENT_GRP_DAY table
  - The AG2_AGENT_GRP_WEEK view
  - The AG2_AGENT_GRP_MONTH table
  - The AG2_AGENT_GRP_QRTR view
  - The AG2_AGENT_GRP_YEAR view
- The H_AGENT_QUEUE hierarchy—Following the same pattern of tables and views as the H_AGENT hierarchy
- The H_AGENT_CAMPAIGN hierarchy—Following the same pattern
- The H_CAMPAIGN hierarchy—Following the same pattern
- The H_ID hierarchy—Following the same pattern
- The H_QUEUE hierarchy—Following the same pattern
- The H_QUEUE_ABN hierarchy—Following the same pattern
- The H_QUEUE_ACC_AGENT hierarchy—Following the same pattern
- The H_QUEUE_GRP hierarchy—Following the same pattern, and comprising rollups of values from the H_QUEUE hierarchy

Interval-Measure Hierarchies

The three RAA hierarchies that contain interval-based measures are the following:

- The H_I_AGENT hierarchy—Consisting of the following tables and views:
  - The AG2_I_AGENT_SUBHR table
  - The AG2_I_AGENT_HOUR table
  - The AG2_I_AGENT_DAY table
  - The AG2_I_AGENT_WEEK view

  - The AG2_I_AGENT_MONTH table
  - The AG2_I_AGENT_QRTR view
  - The AG2_I_AGENT_YEAR view
- The H_I_SESS_STATE hierarchy—Following the same pattern of tables and views as the H_I_AGENT hierarchy
- The H_I_STATE_RSN hierarchy—Following the same pattern of tables and views as the H_I_AGENT hierarchy

How Hierarchies Are Used Within RAA

The aggregation process references several select-*.ss files that are located inside the Java aggregation archive (GIMAgg.jar). These files were written using the Scheme programming language. Each Scheme file identifies the hierarchy to which the file applies along with instructions (that is, code) for generating that hierarchy's measures. The aggregation process follows these instructions to populate all of the tables that belong to the hierarchy.

Hierarchies are also referenced within the user-data mapping file, user-data-map.ss, which you prepare to extend the dimensions by which aggregated data can be partitioned. Refer to "Configuring User Data for Aggregation" on page 27 for information about its use.

Chapter

3 Managing the Aggregation Process

There exists more than one way to invoke the Reporting and Analytics Aggregates (RAA) aggregation engine and more than one way to stop it from running. In the following sections, this chapter describes how to manage the aggregation process apart from the Genesys Info Mart (GIM) Administration Console:

To learn how to invoke and stop the aggregation process from within the Genesys Info Mart Administration Console—in integrated mode—refer to the *Genesys Info Mart 8.0 Operations Guide.*

Overview

The aggregation engine must run in order to populate the aggregation tables that are so heavily referenced by Genesys Interactive Insights. However, running this process for the Genesys Info Mart product alone is optional, if you are not interested in referencing aggregated data. Running the aggregation process will also create the `AG2_*` (and supporting) tables, if they do not already exist within Info Mart.

Before it runs, the aggregation engine checks to see whether another aggregation process is already running. If there is, the engine does not start a new process and, instead, logs an error.

Running Continuous Aggregation

To invoke the aggregation process in autonomous mode, from the GIM root directory and have it run continuously until it is stopped, open a console window, and then issue the appropriate command from one of the following subsections. Refer to the *Reporting and Analytics Aggregates 8.0 Deployment Guide* for descriptions of all runtime parameters and command-line syntax.

To invoke aggregation in integrated mode, refer to the discussion about `Job_AggregateGIM` in the *Genesys Info Mart 8.0 Operations Guide.*

`Note:` If properly configured, the aggregation process can function from other than GIM's root directory. However, for simplicity, Genesys recommends that it be positioned there. All instructions in this document pertaining to invoking this process presume this location.

On UNIX Platforms

From the GIM root directory, issue the following command at the command line:

```
java -jar agg/GIMAgg.jar -user=<dbo> -pass=<password> -jdbcurl=<URL>
    [OtherParams]
```

where:

- `GIMAgg.jar` is the name of the Java archive that contains the aggregation engine.
- `user`, `pass`, and `jdbcurl` are mandatory runtime parameters.
- *<dbo>* is the user name of the database owner.
- *<password>* is the password of the database owner.
- *<URL>* is the jdbc URL, including the host, port, system ID (SID, for Oracle), and database name (for Microsoft SQL).
- *OtherParams* are optional runtime parameters that you can specify to affect aggregation results.

On Microsoft Windows Platforms

From the GIM root directory, issue the following command at the command line:

```
java -jar agg\GIMAgg.jar -user=<dbo> -pass=<password> -jdbcurl=<URL>
    [OtherParams]
```

The parameters are the same as described in "On UNIX Platforms" above.

Using the conf Runtime Parameter

From the GIM root directory, issue the following at the command line:

```
java -jar agg/GIMAgg.jar -conf <file>
```

where <*file*> is the name of the file that contains the full listing of runtime parameters that are not specified at the command line. This specification must include the file's absolute path if the file is not located in the same directory as the aggregation java archive.

Examples

The following are examples of how to start aggregation in autonomous mode for two different platforms:

Oracle

```
java -jar agg/GIMAgg.jar -user=Administrator -pass=Adm1n18788704
   -jdbcurl=jdbc:oracle:thin:@whale:1521:orcl
   -levelOfLog=.AGG:FINE
```

Microsoft SQL Server

```
java -jar agg\GIMAgg.jar -user=dbo -pass=Adm1n1874a704
   -jdbcurl=jdbc:jtds:sqlserver://octopus:1433;DatabaseName=Widgets
   -levelOfLog=.:FINE
```

Re-aggregating Data over a Certain Time Range

You can also submit a request in autonomous mode for certain data chunks to be queued for aggregation. This is accomplished by adding the `-insertPendingAggRaw` runtime parameter to the command line. This command exits after the request submission and does not actually aggregate the data. The aggregation process processes the data if it is already running (in either integrated or autonomous mode) or the next time that the process is started.

For example:

```
java -jar agg\GIMAgg.jar -user=<dbo> -pass=<password> -jdbcurl=<URL>
   -insertPendingAggRaw ALLTENANTS:ALLSETS:<start_key>:<end_key>
   <OtherParams>
```

Refer to the following section to learn how to get the values for start and end date time keys. This command records a request to reaggregate data and then exits. Then, run aggregation as described in the previous section, "Running Continuous Aggregation", or from the Genesys Info Mart Administration Console.

Note: Performing reaggregation of all data can be a time-consuming and resource-expensive operation for a large Info Mart.

Determining Start- and End-Date Time Keys

To re-aggregate all existing data in the Info Mart, issue the following command to obtain the start- and end-date time keys:

Warning! Running this query can be time consuming for large Info Mart databases.

```
SELECT MIN(mins) start_key,
       MAX(maxe) end_key
FROM   ( SELECT MIN(START_DATE_TIME_KEY) AS mins,
                MAX(END_DATE_TIME_KEY)    AS maxe
       FROM    SM_RES_STATE_REASON_FACT
       WHERE   END_DATE_TIME_KEY   < 1767224700
       AND     END_DATE_TIME_KEY   > 0
       AND     START_DATE_TIME_KEY > 0

       UNION ALL

       SELECT MIN(START_DATE_TIME_KEY),
              MAX(END_DATE_TIME_KEY)
       FROM   SM_RES_STATE_FACT
       WHERE  END_DATE_TIME_KEY   < 1767224700
       AND    END_DATE_TIME_KEY   > 0
       AND    START_DATE_TIME_KEY > 0

       UNION ALL

       SELECT MIN(START_DATE_TIME_KEY),
              MAX(END_DATE_TIME_KEY)
       FROM   SM_RES_SESSION_FACT
       WHERE  END_DATE_TIME_KEY   < 1767224700
       AND    END_DATE_TIME_KEY   > 0
       AND    START_DATE_TIME_KEY > 0

       UNION ALL

       SELECT MIN(START_DATE_TIME_KEY),
              MAX(END_DATE_TIME_KEY)
       FROM   INTERACTION_RESOURCE_FACT
       WHERE  END_DATE_TIME_KEY   < 1767224700
       AND    END_DATE_TIME_KEY   > 0
       AND    START_DATE_TIME_KEY > 0

       UNION ALL

       SELECT MIN(START_DATE_TIME_KEY),
              MAX(END_DATE_TIME_KEY)
       FROM   INTERACTION_FACT
       WHERE  END_DATE_TIME_KEY   < 1767224700
```

```
AND    END_DATE_TIME_KEY   > 0
AND    START_DATE_TIME_KEY > 0

UNION ALL

SELECT MIN(START_DATE_TIME_KEY),
       MAX(END_DATE_TIME_KEY)
FROM   IXN_RESOURCE_STATE_FACT
WHERE  END_DATE_TIME_KEY   < 1767224700
AND    END_DATE_TIME_KEY   > 0
AND    START_DATE_TIME_KEY > 0

UNION ALL

SELECT MIN(START_DATE_TIME_KEY),
       MAX(END_DATE_TIME_KEY)
FROM   MEDIATION_SEGMENT_FACT
WHERE  END_DATE_TIME_KEY   < 1767224700
AND    END_DATE_TIME_KEY   > 0
AND    START_DATE_TIME_KEY > 0

UNION ALL

SELECT MIN(START_DATE_TIME_KEY),
       MAX(END_DATE_TIME_KEY)
FROM   CONTACT_ATTEMPT_FACT
WHERE  END_DATE_TIME_KEY   < 1767224700
AND    END_DATE_TIME_KEY   > 0
AND    START_DATE_TIME_KEY > 0

UNION ALL

SELECT MIN(START_DATE_TIME_KEY),
       MAX(END_DATE_TIME_KEY)
FROM   CAMPAIGN_GROUP_SESSION_FACT
WHERE  END_DATE_TIME_KEY   < 1767224700
AND    END_DATE_TIME_KEY   > 0
AND    START_DATE_TIME_KEY > 0
)
t ;
```

Updating Tenant Aliases in Multi-Tenant Environments

In multi-tenant environments, the Genesys Info Mart Server enables the use of tenant aliases to control the access that users have to data that is stored in a single Info Mart database. These aliases include a set of intermediate views (all prefaced AGR_ALIAS_*x*) to the original source tables and views that restrict the

data set that is returned to that data which pertains to the tenant only. Because RAA is an optional GIM component, the mechanism for updating tenant aliases for the aggregate tables is achieved apart from GIM's inherent mechanism for updating tenant views. This section describes the RAA tenant alias update module.

How Often Should You Update Tenant Aliases?

Anytime that a tenant is added or deleted from GIM configuration or anytime that there are changes to queries (such as with the rollout of a hot fix or in a development environment in which you are designing your own reports), you should update tenant aliases. If information about a tenant changes—such as when the tenant moves to a different account—updating the aliases will also be necessary. Otherwise, existing aliases might become unusable, and the subset of reports (queries) that are based on the existing tenant views might not retrieve the data that you expect.

After the aggregation process runs for the first time, you should run an update of tenant aliases. Thereafter, consider scheduling the update to occur automatically and regularly. This can be accomplished, for example, in a batch file that is called by an OS scheduler.

Running the RAA tenant alias update affects views of only those database objects that are controlled by the Aggregation Layer—namely:

- The `AG2_*` tables.
- The `AGR_*` tables.
- All Interactive Insights-specific tables and views—such as `GI2_CONSTANTS`, `RELATIVE_RANGE`, `TODAY`, and all `*_GI2` views.

For the GIM dimension and fact tables (which are referenced by the Interactive Insights detail reports), whenever table structures change, you must also update tenant views—but apart from RAA. Refer to the section about creating read-only tenant views in the *Genesys Info Mart 8.0 Deployment Guide* for further information.

Format of the Tenant Alias File

The `-updateAliases` runtime parameter (described in the *Reporting and Analytics Aggregates 8.0 Deployment Guide*) specifies a flat file that defines which tenant accounts to update. The file should contain one line for each tenant alias account to be updated. The format of this line is as follows:

`(aliases-for-account name: `*`UName`*` login: "`*`lname`*`" password: "`*`pwd`*`" (tenant: `*`ID#`*`))`

where:

- *`UName`* is the name of the user account of the tenant.
- *`lname`* is the tenant user account.

- *pwd* is the password of the tenant user account.
- *ID#* is the ID of the tenant as specified in the TENANT_KEY field of the TENANT Info Mart table. This value, incidentally, matches the tenant's DBID in Configuration Server.

Depending on the RDBMS type and the number of tenant accounts that are specified in the alias file, the update completes in a matter of seconds after it has been run.

Prerequisites and Logging

The minimum required permissions for alias (or tenant) account are listed in Table 1:

Table 1: Required Permissions for Alias Account

Oracle	Microsoft SQL
grant connect to <account> grant create view to <account>	grant create view to <account> The account (database user) must belong to the same database as the GIM account. A schema in the database must exist with the same name as database user. The database user must own the schema.

When the update is run, it connects to the specified database and begins creating intermediate views. Each operation is logged—for example:

```
Creating view <AG2_QUEUE_ACC_AGENT_MONTH> in tenant schema
```

When all views are created, the update drops stale views and then exits. Any errors that the update encounters are also logged. Common errors include the following:

- The specified tenant account might not exist.
- The account might have insufficient permissions to connect to the database
- The account might lack permissions to create database objects (views).

The update skips any problematic objects or accounts and proceeds to process the next object or account.

Stopping the Aggregation Process

The method by which to stop the aggregation process depends on the mode of its operation.

Integrated Mode–Stopping Aggregation

When it has started, the aggregation process operating in integrated mode will run continuously, aggregating new facts until the process is scheduled to be stopped. You must explicitly reset or stop the schedule in order to halt aggregation. If you attempt to stop the process within the Genesys Info Mart Administration Console, the GIM Server will restart the job if it is scheduled to be running. Conversely, the GIM Server will not permit this job to be started within the Genesys Info Mart Administration Console if the job is scheduled not to be running.

This schedule is controlled by the values of options in the `[schedule]` configuration section. Refer to the *Reporting and Analytics Aggregates 8.0 Deployment Guide* for a description of this section and its options.

To stop the aggregation process that is operating in integrated mode:

1. In Configuration Manager, open the properties of your Genesys Info Mart `Application` object.
2. Stop the aggregation schedule by changing any one of the following configuration options; you need not change them all:
   - Change the value of `run-aggregates` to `false`.
   - Change the value of `aggregate-schedule` to reflect a schedule in which aggregation will not be run now.
   - Change the value of `run-scheduler` to `false`.

   `Note:` Note that this option affects all GIM jobs—not just aggregation.

   The GIM Server immediately detects these changes and will not begin a new aggregation cycle. If an aggregation cycle is currently underway, however, the cycle first completes its work before stopping. You have but one option to interrupt this cycle: kill its process. (A request to shut down a job within the Genesys Info Mart Console gracefully waits for the cycle to complete.)
3. Shut down the job in the Genesys Administration Console.

Autonomous Mode–Stopping Aggregation

Although the aggregation process operating in Autonomous mode will stop upon command, the GIM Server will restart it in Integrated mode if this process is scheduled to be running. Therefore, you must first deactivate the

Scheduler, as described in the preceding Step 2. Then, you can stop aggregation from being invoked in Autonomous mode by either:

- Clicking `^C` within the console window in which aggregation was invoked.
- Killing the aggregation process.

Purging Aggregate Data

The initial 8.0.*x* releases of Reporting and Analytics Aggregates provide no purge capability of the aggregate (`AG2_*`) tables. `Job_MaintainGIM`, described in the *Genesys Info Mart 8.0 Operations Guide*, purges operational data and data from GIM's core fact tables only.

Chapter

4 Configuring User Data for Aggregation

Aggregated measures that are dimensioned by some aspects of user data are already prestructured within those hierarchies that include a key (`INTERACTION_DESCRIPTOR_KEY`) to the `INTERACTION_DESCRIPTOR` Info Mart table. This dimension table allows contact-center data to be classified by four predefined user-specified business attributes:

- Business result
- Customer segment
- Service type
- Service subtype

You might, however, want to classify interactions and have them aggregated for reporting by additional or other business attributes, such as by product and product line, by business importance (Gold Star, Premium, and so on), or by tier (such as different technical-support levels of experience).

This chapter describes how to configure Reporting and Analytics Aggregates (RAA), so that the aggregation process aggregates data, based on these user-defined dimensions. This chapter contains the following sections:

This chapter does not further address the aggregation of data that is based on preconfigured user data that is available in `INTERACTION_DESCRIPTOR`.

Overview

The aggregate tables and views of the H_AGENT, H_AGENT_CAMPAIGN, H_AGENT_QUEUE, H_CAMPAIGN, and H_ID hierarchies provide two key columns that you can configure to join to two custom user data Info Mart dimension tables of your choice. These columns are the following:

- USER_DATA_KEY1 A key that points to one dimension table that store five dimensions
- USER_DATA_KEY2 A key that points to another dimension table (or the same table) that store another five dimensions

(The H_AGENT_GRP hierarchy also provides two such columns, but their values are inherited from the H_AGENT hierarchy.) These two columns provide access to two hierarchies, or a total of 10 attached-data dimensions, as shown in Figure 2. In this figure, USER_DATA_KEY1 in the H_ID hierarchy of tables and views serves as a foreign key to a mapping key in the IRF_USER_DATA_KEYS table, which joins one-to-one to the primary key in the custom user data table (*x*). USER_DATA_KEY2 is a foreign key to IRF_USER_DATA_KEYS.CUSTOM_KEY_10 which joins to the custom user data table (*y*). (*x* and *y* can be the same table.)

You can configure the aggregation job to aggregate data based on these dimensions.

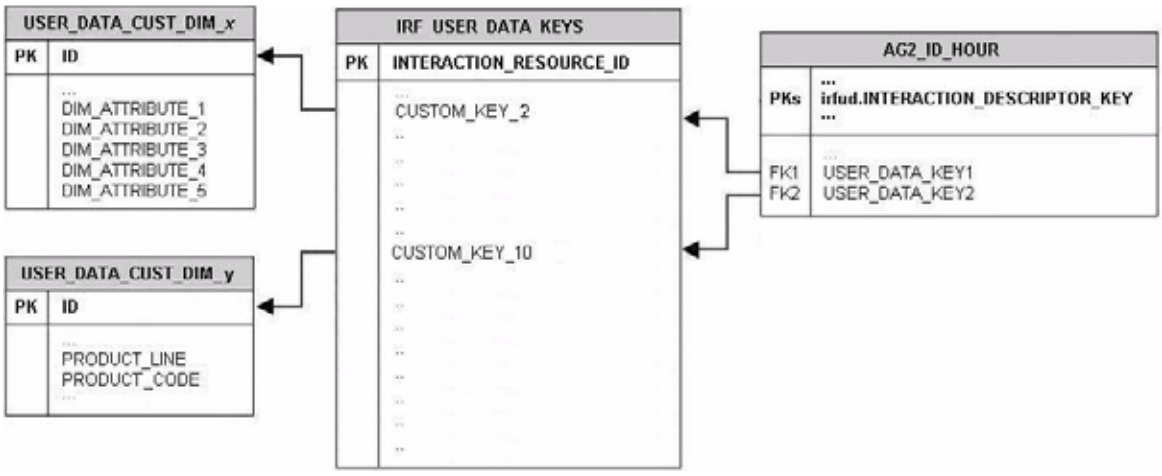


Figure 2: Mapping User Data Keys in the Aggregate Tables/Views to User Data Dimensions

Note: These custom user data fields are not available to other hierarchies.

Refer to the deployment guides of the Genesys Info Mart (GIM) and Interaction Concentrator documentation sets for instructions on how to configure the user-data tables on which these aggregates are based and how to map them so that the GIM Server recognizes user data keys and populates their values along with other pertinent data about interactions.

The User-Data Mapping File

The mapping that defines which user data keys in the aggregate hierarchies point to which custom user data dimensions occurs in a flat file that is named `user-data-map.ss`. This is a file that you prepare and place in the GIM root directory. The aggregation process recognizes and processes the contents of this file if it is formatted properly.

Format of the user-data-map.ss File

To begin, the `user-data-map.ss` file should contain one—and only one—line for every hierarchy and for each key within that hierarchy that you want to map to a custom user data dimension table.

Next, all of the lines in the file should follow this format:

`(map-user-data-key (hierarchy: *HName*) (dimension: *HCol*) (expression: irfud.*MappingCol*))`

where:

- *HName* is the name of the hierarchy (such as `H_ID` or `H_AGENT`).
- *HCol* is the name of the user data key column within that hierarchy. This value is either `USER_DATA_KEY1` or `USER_DATA_KEY2`.
- *MappingCol* is the column name of the key that you configured in the `IRF_USER_DATA_KEYS` (`irfud`) table. This table stores mappings to all of the user data keys.

Therefore, if you want to map all of the user data keys in the aggregation tables to custom user data dimensions, you must include ten independent lines in the `user-data-map.ss` file—one line for each of the following:

- `USER_DATA_KEY1` in the `H_ID` hierarchy
- `USER_DATA_KEY2` in the `H_ID` hierarchy
- `USER_DATA_KEY1` in the `H_AGENT` hierarchy
- `USER_DATA_KEY2` in the `H_AGENT` hierarchy
- `USER_DATA_KEY1` in the `H_AGENT_QUEUE` hierarchy
- `USER_DATA_KEY2` in the `H_AGENT_QUEUE` hierarchy
- `USER_DATA_KEY1` in the `H_CAMPAIGN` hierarchy
- `USER_DATA_KEY2` in the `H_CAMPAIGN` hierarchy
- `USER_DATA_KEY1` in the `H_AGENT_CAMPAIGN` hierarchy
- `USER_DATA_KEY2` in the `H_AGENT_CAMPAIGN` hierarchy

Note that one user data key maps to the same user data dimension throughout the hierarchy. You cannot both map `USER_DATA_KEY1`, for example, in the `AG2_AGENT_MONTH` table to `irfud.x` and map `USER_DATA_KEY1` in the `AG2_AGENT_HOUR` table to `irfud.y`.

Example of a Mapping File

```
(map-user-data-key (hierarchy: H_ID) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_q))
(map-user-data-key (hierarchy: H_ID) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_r))
(map-user-data-key (hierarchy: H_AGENT) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_s))
(map-user-data-key (hierarchy: H_AGENT) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_t))
(map-user-data-key (hierarchy: H_AGENT_QUEUE) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_u))
(map-user-data-key (hierarchy: H_AGENT_QUEUE) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_v))
(map-user-data-key (hierarchy: H_AGENT_CAMPAIGN) (dimension: USER_DATA_KEY1)
                   (expression: irfud.CUSTOM_KEY_w))
(map-user-data-key (hierarchy: H_AGENT_CAMPAIGN) (dimension: USER_DATA_KEY2)
                   (expression: irfud.CUSTOM_KEY_x))
(map-user-data-key (hierarchy: H_CAMPAIGN) (dimension: USER_DATA_KEY1) (expression: irfud.CUSTOM_KEY_y))
(map-user-data-key (hierarchy: H_CAMPAIGN) (dimension: USER_DATA_KEY2) (expression: irfud.CUSTOM_KEY_z))
```

Refer also to the *Genesys Interactive Insights 8.0 User's Guide* for another example that exemplifies attached data configuration from ICON to customizing the Interactive Insights reports, to provide results that are partitioned by your selected user data.

Chapter

5 Business View of Aggregation Subject Areas

This chapter contains the following sections:

Refer to the *Reporting and Analytics Aggregates 8.0 Reference Manual* for a more technical discussion of the subject-area diagrams, and to the *Genesys Info Mart 8.0 Reference Manual* for your particular RDBMS for descriptions of the dimension tables that are depicted throughout this chapter.

Subject Area for Business-Attribute Aggregates

This subject area provides aggregated measures for interactions that are assigned a specific predefined business attribute. Rollups are based on media type and interaction type and are attributed to the reporting interval in which the interactions entered the contact center. You can also configure custom user data by which to dimension the aggregates of this subject area by following the instructions in Chapter 4, "Configuring User Data for Aggregation," on page 27.

This subject area, shown in Figure 3, supports the `H_ID` hierarchy.

Figure 3: H_ID Star Schema

Subject Area for Session-State Aggregates

This subject area provides aggregated measures of summarized agent states based on the media type that is associated with the agent session. Summarized agent sessions consider the collective state of all devices to which the agent has logged in for a particular media type. Measures are attributed to all intervals in which the agent states were active within a session.

This subject area, shown in Figure 4, supports the `H_I_SESS_STATE` hierarchy.

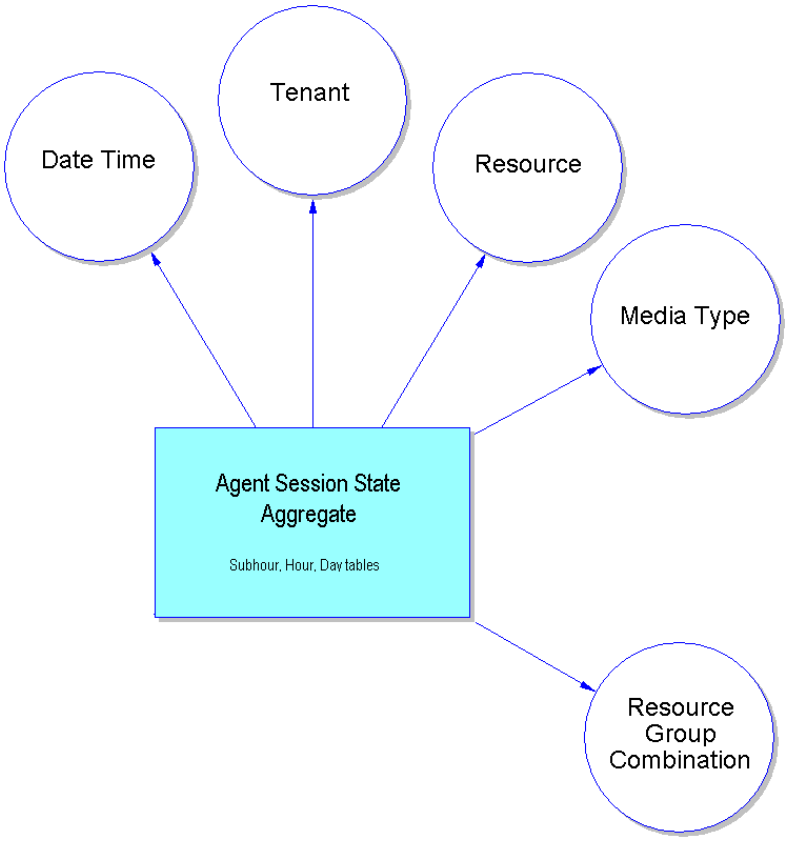


Figure 4: H_I_SESS_STATE Star Schema

Subject Area for State-Reason Aggregates

This subject area provides aggregated measures of summarized agent states that were ascribed a particular reason code. Rollups are based on the media type that is associated with the agent session. Measures are attributed to all intervals in which the reason codes for the agent states were active within a session.

This subject area, shown in Figure 5, supports the `H_I_STATE_RSN` hierarchy.

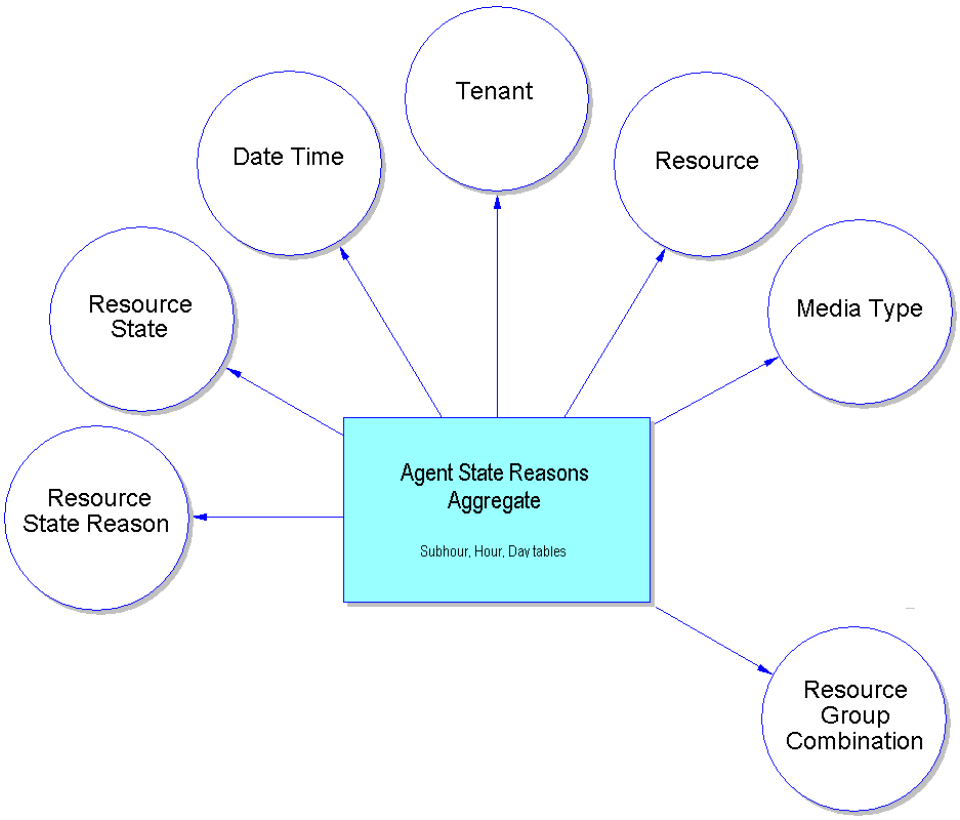


Figure 5: H_I_STATE_RSN Star Schema

Subject Area for Queue Aggregates

This subject area provides aggregated measures for interactions that pass through a specific queue, as viewed from the perspective of that queue. Rollups are based on media type and interaction type and are attributed to the reporting interval in which the interactions entered the queue.

This subject area, shown in Figure 6, supports the H_QUEUE hierarchy.

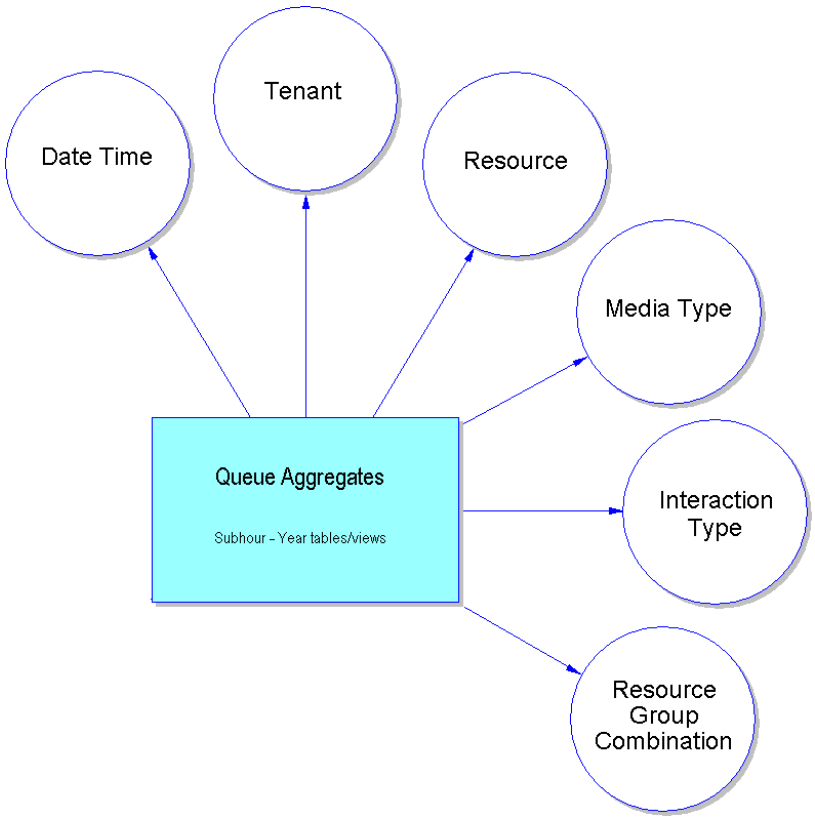


Figure 6: H_QUEUE Star Schema

Subject Area for Queue-Group Aggregates

This subject area provides aggregated measures for interactions that pass through queues that belong to a specific queue group, as viewed from the perspective of those queues. Rollups are based on media type and interaction type and are attributed to the reporting interval in which the interactions entered the queue group.

This subject area, shown in Figure 7, supports the H_QUEUE_GRP hierarchy.

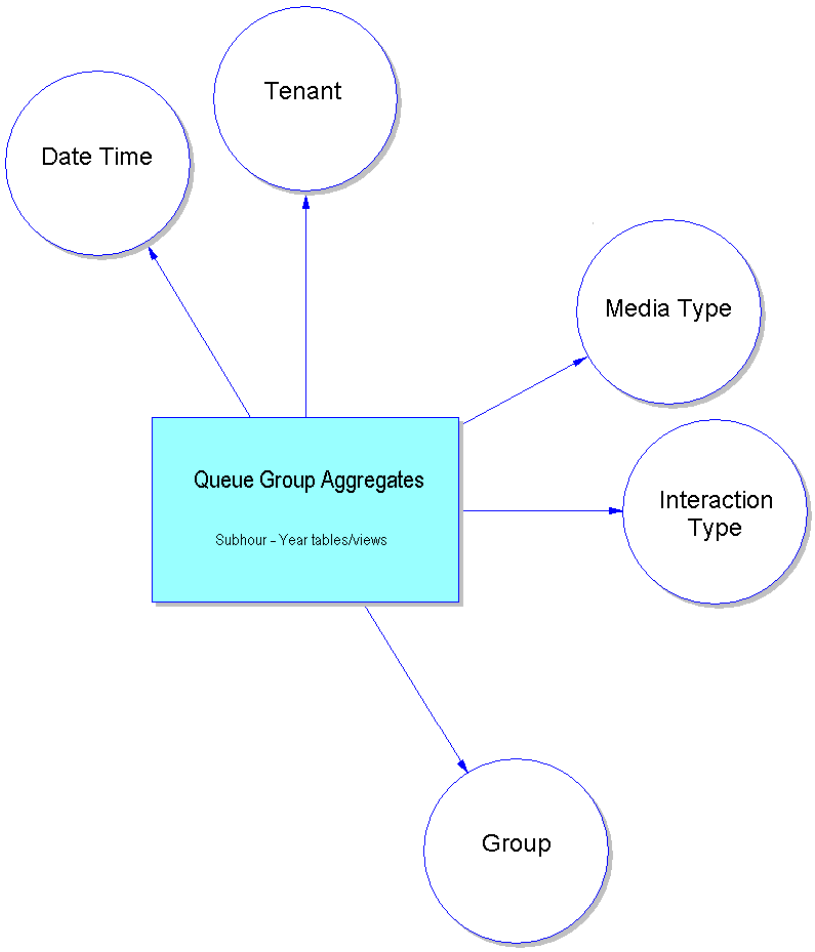


Figure 7: H_QUEUE_GRP Star Schema

Subject Area for Abandoned-in-Queue Aggregates

This subject area provides aggregated measures for interactions that were abandoned within a specific queue, sorting their duration in queue into 20 time-range buckets. Rollups are based on media type and interaction type and are attributed to the reporting interval in which the interactions entered the queue.

Aggregates include interactions that were abandoned within the short-abandoned threshold and exclude those that were abandoned immediately following distribution, such as abandoned-while-ringing interactions.

This subject area, shown in Figure 8, supports the `H_QUEUE_ABN` hierarchy.

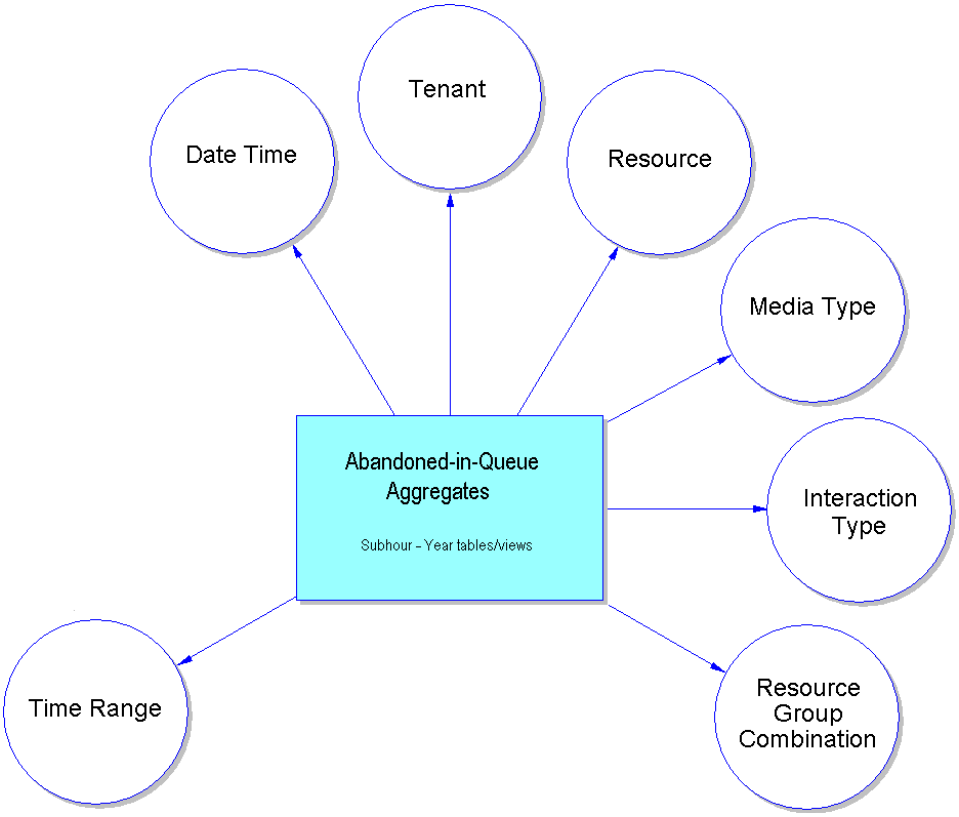


Figure 8: H_QUEUE_ABN Star Schema

Subject Area for Speed-of-Accept Aggregates

This subject area provides aggregated measures for interactions that were distributed from a specific queue and accepted by agent resources, sorting their durations from distribution queue to acceptance into 20 time-range buckets. Rollups are based on media type and interaction type and are attributed to the reporting interval in which the interactions entered the queue. Note that these aggregates do not reflect the customer's overall wait time, as they do not include the duration that interactions spent at other queue objects before they reached the specific queue from which they were distributed.

This subject area, shown in Figure 9, supports the `H_QUEUE_ACC_AGENT` hierarchy.

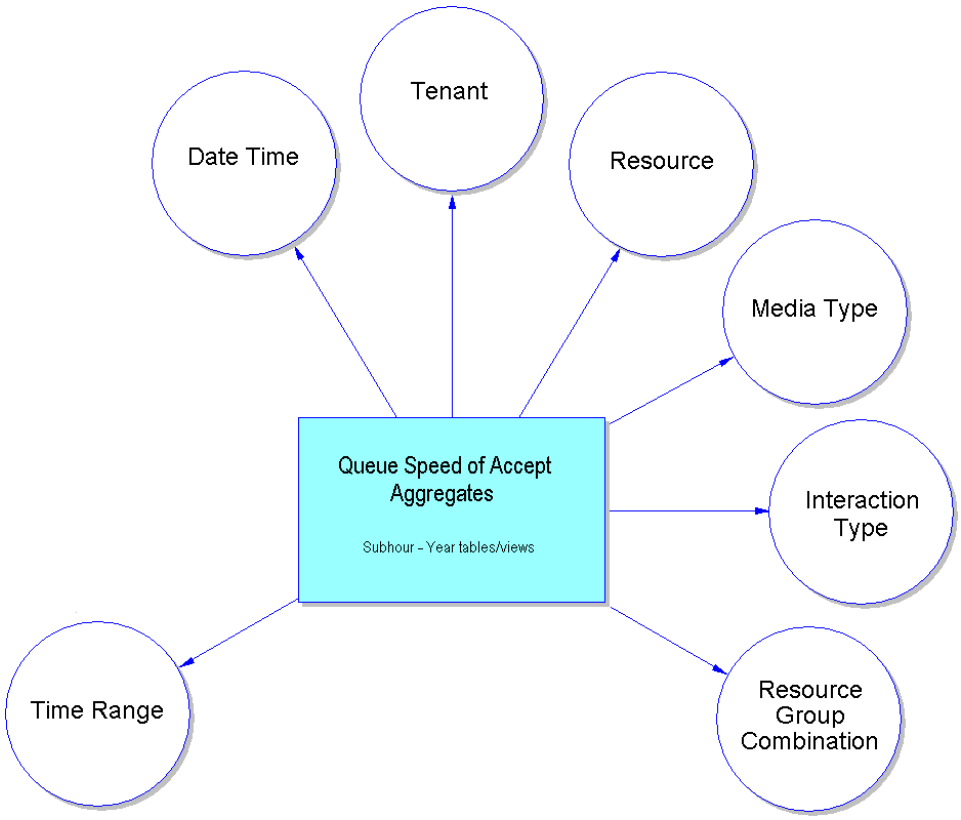


Figure 9: H_QUEUE_ACC_AGENT Star Schema

Subject Area for Agent-Queue Aggregates

This subject area provides aggregated measures of the interaction-handling activities of a specific agent where the interactions were distributed from a specific queue from one of the supported queue-type objects. Rollups for this agent/queue combination are based on key business attributes, media type, and interaction type and are attributed to the interval in which the agent received contact center interactions. You can also configure custom user data by which to dimension the aggregates of this subject area.

The model references the Resource dimension twice—once, to ascertain from which queue that interactions were diverted, and once more, to ascertain to which agents the interactions were distributed. Likewise, the Resource Group Combination dimension is referenced twice—once, to identify the queue-resource groups to which the queue belonged when interactions enter the queue, and once more to identify the agent-resource groups to which the agent belonged when the agent received the interaction.

This subject area, shown in Figure 10, supports the `H_AGENT_QUEUE` hierarchy.

Figure 10: H_AGENT_QUEUE Star Schema

Subject Area for Agent-Campaign Aggregates

This subject area provides aggregated measures of the interaction-handling activities of a specific agent where the interactions originated from a specific Genesys Outbound Contact campaign. Rollups are based both on interaction resource facts and the disposition of the contact attempts to reach customers that were generated by the campaign. Rollups are attributed to the interval in which the contact attempts were initiated by or on the behalf the agent. You can also configure custom user data by which to dimension the aggregates of this subject area.

This subject area, shown in Figure 11, supports the `H_AGENT_CAMPAIGN` hierarchy.

Figure 11: H_AGENT_CAMPAIGN Star Schema

Subject Area for Campaign Aggregates

This subject area provides aggregated measures of the various call results of interactions that are initiated by a specific Genesys Outbound Contact campaign. Rollups are based on the contact attempts and calling lists that are used to dial Outbound Contact voice interactions and are attributed to the interval in which the campaign group sessions began. You can also configure custom user data by which to dimension the aggregates of this subject area.

This subject area, shown in Figure 12, supports the `H_CAMPAIGN` hierarchy.

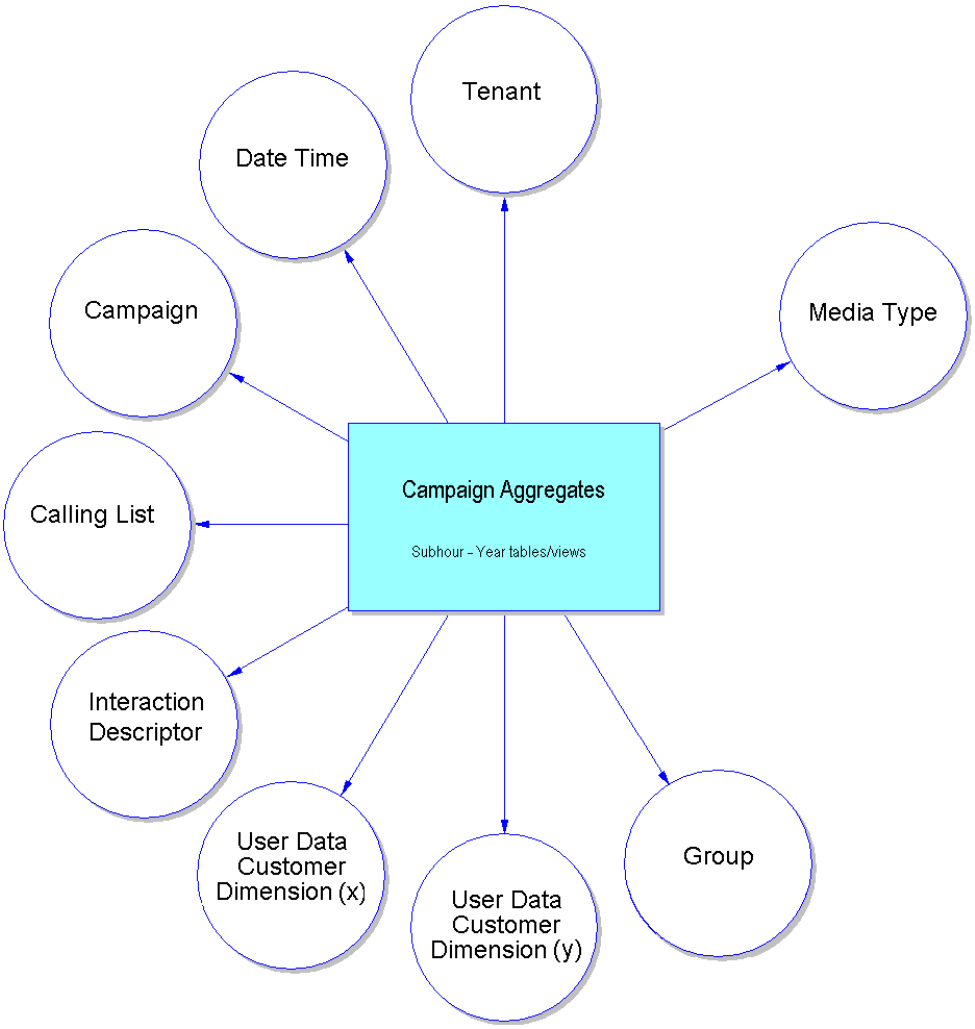


Figure 12: H_CAMPAIGN Star Schema

Subject Area for Agent Aggregates

This subject area provides aggregated measures of the interaction-handling activities that are performed by a specific contact center agent. Rollups are based on key, predefined business attributes (business result, customer segment, service type, and service subtype), media type, and interaction type and are attributed to the reporting interval in which the agent received contact-center interactions. You can also configure custom user data by which to dimension the aggregates of this subject area.

This subject area, shown in Figure 13, supports the H_AGENT hierarchy.

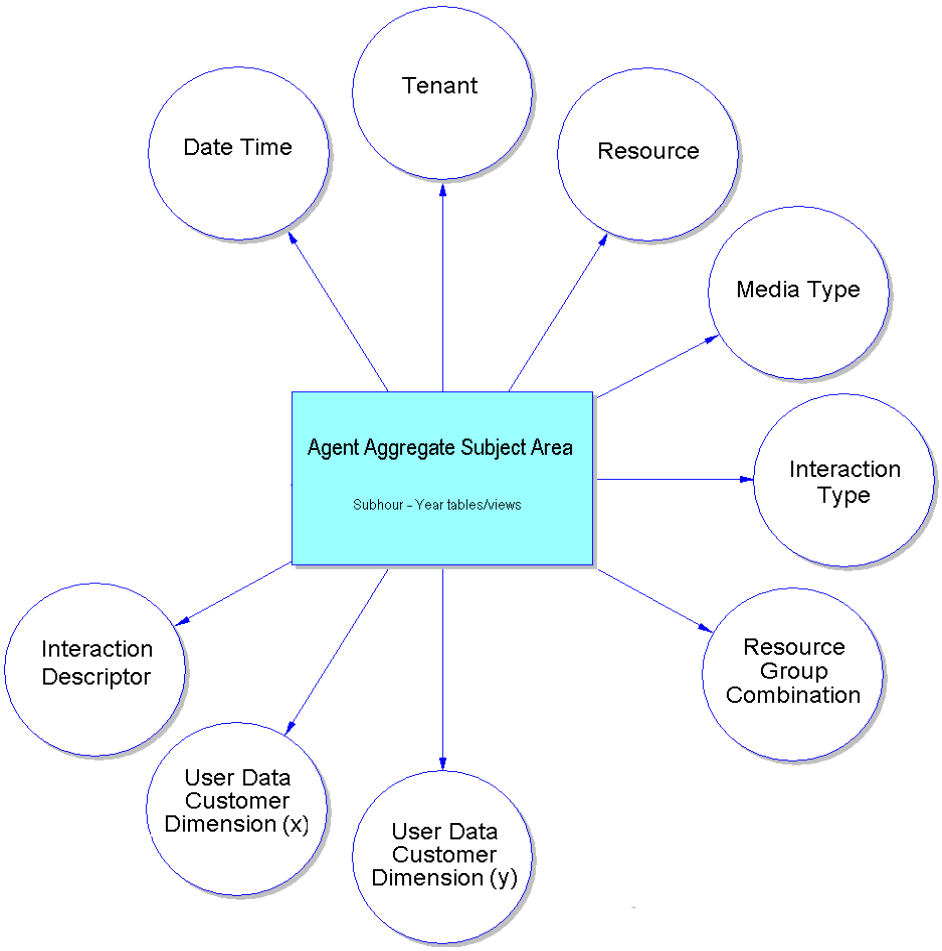


Figure 13: H_AGENT Star Schema

Subject Area for Agent-Group Aggregates

This subject area provides aggregated measures of the interaction-handling activities of all agents who belong to a particular agent group. Rollups are based on key business attributes, media type, and interaction type and are attributed to the interval in which group members received contact-center interactions. You can also configure custom user data by which to dimension the aggregates of this subject area.

This subject area, shown in Figure 14, supports the `H_AGENT_GRP` hierarchy.

Figure 14: H_AGENT_GRP Star Schema

Subject Area for Agent-Interval Aggregates

Alike the Agent Aggregates subject area, described on page 42, the Agent-Interval subject area also provides aggregated measures of the interaction-handling activities of agents. Rollups are based on media type and interaction type but they are not based on key business attributes, as they are within the Agent Aggregates subject area. The more distinguishing characteristic that differentiates the two, however, is the perspective from which the aggregates are prepared. Aggregate measures in the Agent Interval subject area are attributed to all intervals in which the agent *processed* contact-center interactions—not exclusively to the interval in which the agent *received* the interactions. Refer to the Genesys Info Mart documentation set for more information about disposition versus interval measures.

This subject area, shown in Figure 15, supports the `H_I_AGENT` hierarchy.

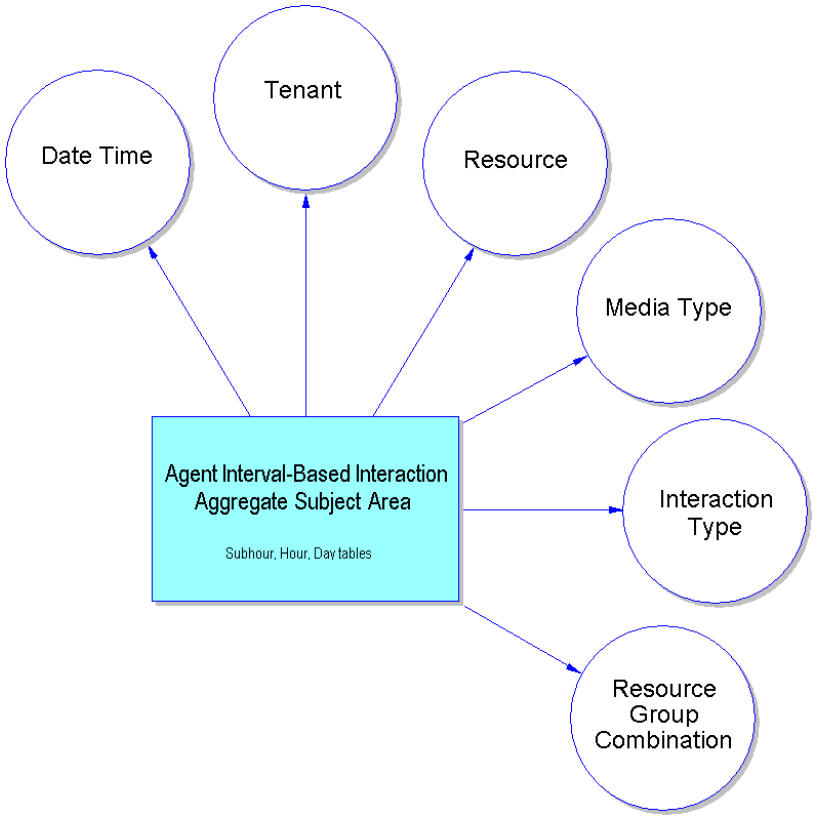


Figure 15: H_I_AGENT Star Schema

Bus Matrix

Table 2 summarizes the dimension tables that join to the aggregates in a bus matrix.

Table 2: Aggregate Tables Bus Matrix

Aggregation Tables	Dimension Tables	Calling List	Camaign	Date and Time	Group	Interaction Descriptor	Interaction Type	Media Type	Reason Code	Resource	Resource Group Combination	Resource State	Tenant	Time Range	User Data
Business Attribute Activity	Tenant			✓		✓	✓	✓					✓		✓
Sessions, States, State Reasons	Session State			✓				✓		✓	✓		✓		
	State Reason			✓				✓	✓	✓	✓	✓	✓		
Queue Activity	Individual Queue			✓			✓	✓		✓	✓		✓		
	Abandoned in Queue			✓			✓	✓		✓	✓		✓	✓	
	Speed of Accept			✓			✓	✓		✓	✓		✓	✓	
	Queue Group			✓	✓		✓	✓					✓		
Agent Activity	Agent-Queue Combination			✓		✓	✓	✓		✓	✓		✓		✓
	Individual Agent			✓		✓	✓	✓		✓	✓		✓		✓
	Agent Group			✓	✓	✓	✓	✓					✓		✓
	Agent Interval			✓			✓	✓		✓			✓		
Campaign Activity	Agent		✓	✓	✓	✓	✓	✓		✓	✓		✓		✓
	Contact Attempt	✓	✓	✓	✓	✓		✓					✓		✓

Related Documentation Resources

The following resources provide additional information that is relevant to this software. Consult these additional resources, as necessary.

Genesys Info Mart

- *Genesys Info Mart 8.0 Operations Guide,* for information about GIM jobs such as `Job_AggregateGIM` and the Genesys Info Mart Administration Console for managing GIM jobs.
- *Genesys Info Mart 8.0 Deployment Guide,* for information about configuring the ICON and GIM servers to recognize user data.

Reporting and Analytics Aggregates

- *Reporting and Analytics Aggregates 8.0 Deployment Guide,* which describes the runtime parameters and configuration options that are mentioned in this document.
- *Reporting and Analytics Aggregates 8.0 Reference Manual,* which describes the aggregate tables and subject areas.

Genesys Interactive Insights

- *Genesys Interactive Insights 8.0 User's Guide,* which includes a report-customization example that displays aggregated results that are sectioned by your own custom user data.

Genesys

- *Genesys Technical Publications Glossary,* which ships on the Genesys Documentation Library DVD and provides a comprehensive list of the Genesys and computer-telephony integration (CTI) terminology and acronyms that are used in this document.

- *Genesys Migration Guide*, which ships on the Genesys Documentation Library DVD, and provides documented migration strategies for Genesys product releases. Contact Genesys Technical Support for more information.
- Release Notes and Product Advisories for this product, which are available on the Genesys Technical Support website at `http://genesyslab.com/support`.

Information about supported hardware and third-party software is available on the Genesys Technical Support website in the following documents:

- *Genesys Supported Operating Environment Reference Manual*
- *Genesys Supported Media Interfaces Reference Manual*

Consult these additional resources, as necessary:

- *Genesys Interoperability Guide,* which provides information on the compatibility of Genesys products with various Configuration Layer Environments; Interoperability of Reporting Templates and Solutions; and G*plus* Adapters Interoperability.
- *Genesys Licensing Guide*, which introduces you to the concepts, terminology, and procedures that are relevant to the Genesys licensing system.

For additional system-wide planning tools and information, see the release-specific listings of System Level Documents on the Genesys Technical Support website, accessible from the `system level documents by release` tab in the Knowledge Base `Browse Documents` Section.

Genesys product documentation is available on the:

- Genesys Technical Support website at `http://genesyslab.com/support`.
- Genesys Documentation Library DVD, which you can order by e-mail from Genesys Order Management at `orderman@genesyslab.com`.

Document Conventions

This document uses certain stylistic and typographical conventions—introduced here—that serve as shorthands for particular kinds of information.

Document Version Number

A version number appears at the bottom of the inside front cover of this document. Version numbers change as new information is added to this document. The following is a sample version number:

80ii_us-raa_03-2011_v8.0.101.00

You will need this number when you are talking with Genesys Technical Support about this product.

Screen Captures Used in This Document

Screen captures from the product graphical user interface (GUI), as used in this document, may sometimes contain minor spelling, capitalization, or grammatical errors. The text that accompanies and explains the screen captures corrects such errors, *except* when such a correction would prevent you from installing, configuring, or successfully using the product. For example, if the name of an option contains a usage error, the name would be presented exactly as it appears in the product GUI; the error would not be corrected in any accompanying text.

Type Styles

Table 3 describes and illustrates the type conventions that are used in this document.

Table 3: Type Styles

Type Style	Used For	Examples
Italic	• Document titles • Emphasis • Definitions of (or first references to) unfamiliar terms • Mathematical variables Used also to indicate placeholder text within code samples or commands, in the special case in which angle brackets are a required part of the syntax (see the note about angle brackets on page 50).	Please consult the *Genesys Migration Guide* for more information. Do *not* use this value for this option. A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession. The formula: $x + 1 = 7$ where *x* stands for . . .

Table 3: Type Styles (Continued)

Type Style	Used For	Examples
Monospace font (Looks like `teletype` or `typewriter text`)	All programming identifiers and GUI elements. This convention includes: • The *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, fields, text and list boxes, operational modes, all buttons (including radio buttons), check boxes, commands, tabs, CTI events, and error messages. • The values of options. • Logical arguments and command syntax. • Code samples. Used also for any text that users must manually enter during a configuration or installation procedure, or on a command line.	Select the `Show variables on screen` check box. In the `Operand` text box, enter your formula. Click `OK` to exit the `Properties` dialog box. T-Server distributes the error messages in `EventError` events. If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls. Enter `exit` on the command line.
Square brackets ([ ])	A particular parameter or value that is optional within a logical argument, a command, or some programming syntax. That is, the presence of the parameter or value is not required to resolve the argument, command, or block of code. The user decides whether to include this optional information.	`smcp_server -host [/flags]`
Angle brackets (< >)	A placeholder for a value that the user must specify. This might be a DN or a port number that is specific to your enterprise. **Note:** In some cases, angle brackets are required characters in code syntax (for example, in XML schemas). In these cases, italic text is used for placeholder values.	`smcp_server -host <confighost>`

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