
## Genesys Info Mart 8.0

# Deployment Guide

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**Document Version:** 80gim_dep_02-2011_v8.0.101.00

# Table of Contents

# List of Procedures

# Preface

Welcome to the *Genesys Info Mart 8.0 Deployment Guide*. This document describes the procedures that you must complete in order to configure and install Genesys Info Mart 8.0 and the Genesys Info Mart Administration Console. It is intended for system and database administrators.

In brief, you will find the following information in this guide:

- Overview of Genesys Info Mart architecture and functionality
- Pre-installation considerations
- Installation instructions

This document is valid only for the 8.0 releases of this product.

**Note:** For versions of this document created for other releases of this product, visit the Genesys Technical Support website, or request the Documentation Library DVD, which you can order by e-mail from Genesys Order Management at orderman@genesyslab.com.

This preface contains the following sections:



For information about related resources and about the conventions that are used in this document, see the supplementary material starting on page 345.

# About Genesys Info Mart

Genesys Info Mart produces a data mart that you can use for contact center historical reporting.

Genesys Info Mart includes a server component, administration graphical user interface (GUI), and database. The Genesys Info Mart Server runs a set of predefined jobs that execute extract, transform, and load (ETL) processes to:

- Extract data that has been gathered by Interaction Concentrator from data sources such as Configuration Server, T-Server, Interaction Server, and Outbound Contact Server. Genesys Info Mart stores this low-level interaction data, which is consolidated from Interaction Concentrator databases (Interaction Databases [IDBs]), in the Info Mart database.
- Transform the low-level interaction data and load it into a dimensional model (or star schemas) in the Info Mart database.

Genesys Info Mart can also be configured to host an aggregation engine that aggregates or re-aggregates the data, and populates aggregate tables in the Info Mart database.

You use Structured Query Language (SQL) to query the fact and dimension tables in the dimensional model, to obtain results that enable you to examine the data in detail, identify patterns, and predict trends for your organization.

# Intended Audience

This document is primarily intended for database administrators and system administrators. It has been written with the assumption that you have a basic understanding of:

- Relational database management systems (RDBMSs)
- Network design and operation
- Computer-telephony integration (CTI) concepts, processes, terminology, and applications
- Your own network and database configurations

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# Document Change History

This section lists topics that are new or that have changed significantly since the first release of this document.

## New in Document Version v8.0.101.00

The document has been updated to support Genesys Info Mart release 8.0.1. The following topics have been added or significantly changed since the previous release of this document:

- A new subsection, "New in Release 8.0.1" on page 32, summarizes the feature enhancements that Genesys Info Mart 8.0.1 provides.
- All information about database partitioning has been modified to include Microsoft SQL Server as a platform on which Genesys Info Mart supports partitioning of the Info Mart database.

- A new chapter—Chapter 7, "Multimedia Interactions," on page 97—has been added. The chapter provides information about multimedia-specific aspects of interaction processing that are important for planning and configuring multimedia deployments, including information about new features to support transformation of 3rd Party Media.

  Additional updates in this document for enhanced 3rd Party Media support include:
  - New steps in Task Summary: Enabling the Storage of Voice Details, on page 132 and Task Summary: Post-Installation Activities, on page 289, about customizing the processing and storage of 3rd Party Media interaction data.
  - Procedure: Setting up media types for online interactions, on page 294.
  - Removal of various statements throughout the document that Genesys Info Mart does not support transformation of 3rd Party Media interactions.
- The `Revenue` and `Satisfaction` attached data key-value pairs (KVPs) have been added to the lists of KVPs with predefined mappings, as described in Chapter 8 on page 101, in the "Worksheet for Mapping User Data" on page 320, and in the "Example ICON Attached Data Specification" on page 327.
- For the new functionality to support separate configured thresholds by media type:
  - In the configuration options reference chapter, a new subsection, "gim-etl-media-<media type> Section" on page 257, describes the new, media-specific configuration sections and options.
  - The description of the `q-short-abandoned-threshold-voice` option in the `[gim-etl]` section (page 256) has been modified to indicate that it now controls the threshold for voice interactions only.
  - The description of the former `q-answer-threshold-mm` option has been deleted from `[gim-etl]` section. The renamed media-specific option, `q-answer-threshold` in the `[gim-etl-media-<media type>]` section, is described on page 257.
  - The table that summarizes data-related configuration options (Table 18 on page 219) has been updated.
  - A new procedure, Procedure: Setting Media Type Business Attribute object options, on page 231, has been added to describe how to configure media-specific thresholds at the tenant level.
  - When Genesys Info Mart verifies the deployment, it now also checks the validity of Genesys Info Mart–related options on supporting objects, such as `DNs` or `Business Attributes`. Information in the section on deployment verification ("Configuration Check" on page 79) has been updated accordingly.

- For the new migration job, `Job_MigrateGIM`, the description of the functions that ETL jobs perform ("Genesys Info Mart Jobs" on page 24) has been extended to include migration. Table 4 on page 64 has been updated to include additional database privileges that the Info Mart user requires for migration.
- A new option in the `[gim-etl]` section, `extract-data-max-conn`, enables you to further control ETL performance. The option is described on page 249 and has been included in the lists of performance-related options in "Configuration Recommendations" on page 74 and in Table 19 on page 225.
- The range of valid values for the `max-chunks-per-job` option is now `1–99`. (In Genesys Info Mart 8.0.0, any positive integer was a valid value.) Genesys no longer recommends setting a particular value for this option. The description of this option on page 252 has been changed accordingly.
- Genesys Info Mart does not support deployments in which voice and multimedia interactions share the same virtual queues. In the subsection "Late- and Early-Arriving Virtual Queue Data" on page 74, a former recommendation that you configure separate virtual queues for voice and multimedia interactions has been changed to a requirement.
- A note about columns that are no longer populated in the `CONTACT_ATTEMPT_FACT` table has been added on page 120, and information in Table 7 on page 119 has been modified accordingly.
- Information about preparing Genesys Info Mart to store user data has been clarified. In particular, the instructions about customizing the user data template script (Procedure: Customizing the user data template script, on page 283) and the "Worksheet for Mapping User Data" on page 320 have been revised.
- In Procedure: Configuring Info Mart database for merge, on page 185, an example about required records in the `GSYS_DNPREMOTELOCATION` table has been corrected.
- In the section "Resynchronizing IDB and Configuration Server Data" on page 93, the limitations of the ICON resynchronization feature have been explained further.

## New in Document Version v8.0.002.00

The document has been updated to support Genesys Info Mart release 8.0.001.05. The following topics have been added or significantly changed since the initial 8.0 release of this document:

- Genesys Info Mart now restricts the length of certain key-value pair (KVP) values in Microsoft SQL Server deployments. New subsections in the Attached Data chapter—"RDBMS Considerations" on page 113 and

"Common Attached Data KVPs" on page 111—modify information about requirements and considerations for mapping KVPs. The "Worksheet for Mapping User Data" on page 320 has also been modified.

- The spelling of the `Business Result` KVP name has been corrected in Chapter 8 on page 101, in the "Worksheet for Mapping User Data" on page 320, and in the "Example ICON Attached Data Specification" on page 327. In the previous version of this document, the name was spelled incorrectly as one word (`BusinessResult`).
- In Chapter 8 on page 101 and in the "Worksheet for Mapping User Data" on page 320, information about the `IApplication` KVP has been modified to clarify that Interaction Concentrator must be configured to store this KVP, even if it is not required to be stored in the Info Mart user data tables.
- Procedure: Preparing IDBs, on page 174 has been revised to clarify that the scripts to modify IDB must be run for all types of ICON details. The task summaries about enabling storage of different types of ICON details (see "Enabling Specific Functionality" on page 129) have also been revised.
- The Interaction Concentrator (ICON)–related `gls-max-duration` and `gls-max-inactivity` configuration options are not significant for Genesys Info Mart 8.0. Therefore, descriptions of these options have been removed from Chapter 11, "Preparing Interaction Concentrator," on page 147.
- Changes to any of the Genesys Info Mart `[date-time]` or `[date-time-*]` configuration options take effect at the next run of `Job_MaintainGIM`. The descriptions of all of the options in the "date-time Section" on page 235 have been modified accordingly.

Part

# 1 Overview and Planning

Part 1 of this document provides an overview of Genesys Info Mart functionality, as well as information about the implementation of Genesys Info Mart features that you must consider when you plan your deployment. This information appears in the following chapters:

Chapter

# 1 Genesys Info Mart Deployment Overview

This chapter describes the basic Genesys Info Mart architecture, the main Genesys Info Mart components and their functions, and features and functionality that are new in release 8.0. It also includes a discussion of Genesys Info Mart database schemas.

This chapter contains the following sections:



## Architecture

Genesys Info Mart 8.0 extracts data from one or more Genesys Interaction Concentrator databases (Interaction Databases [IDBs]) and produces a data mart for contact center historical reporting.

Genesys Info Mart consists of a server component that extracts, transforms, and loads data into a data mart, based on a schedule that is configured in the Genesys Info Mart application. The Genesys Info Mart Administration Console provides a graphical user interface (GUI) for managing some of the extract, transform, and load (ETL) processes. The Info Mart database stores low-level interaction data that is consolidated from any number of Interaction Databases (IDBs), as well as processed data that is suitable for end-user reports.

Figure 1 illustrates the Genesys Info Mart 8.0 architecture and the primary data flow between the Genesys Info Mart components and other Genesys components. (The diagram does not depict high-availability architecture for any components.)

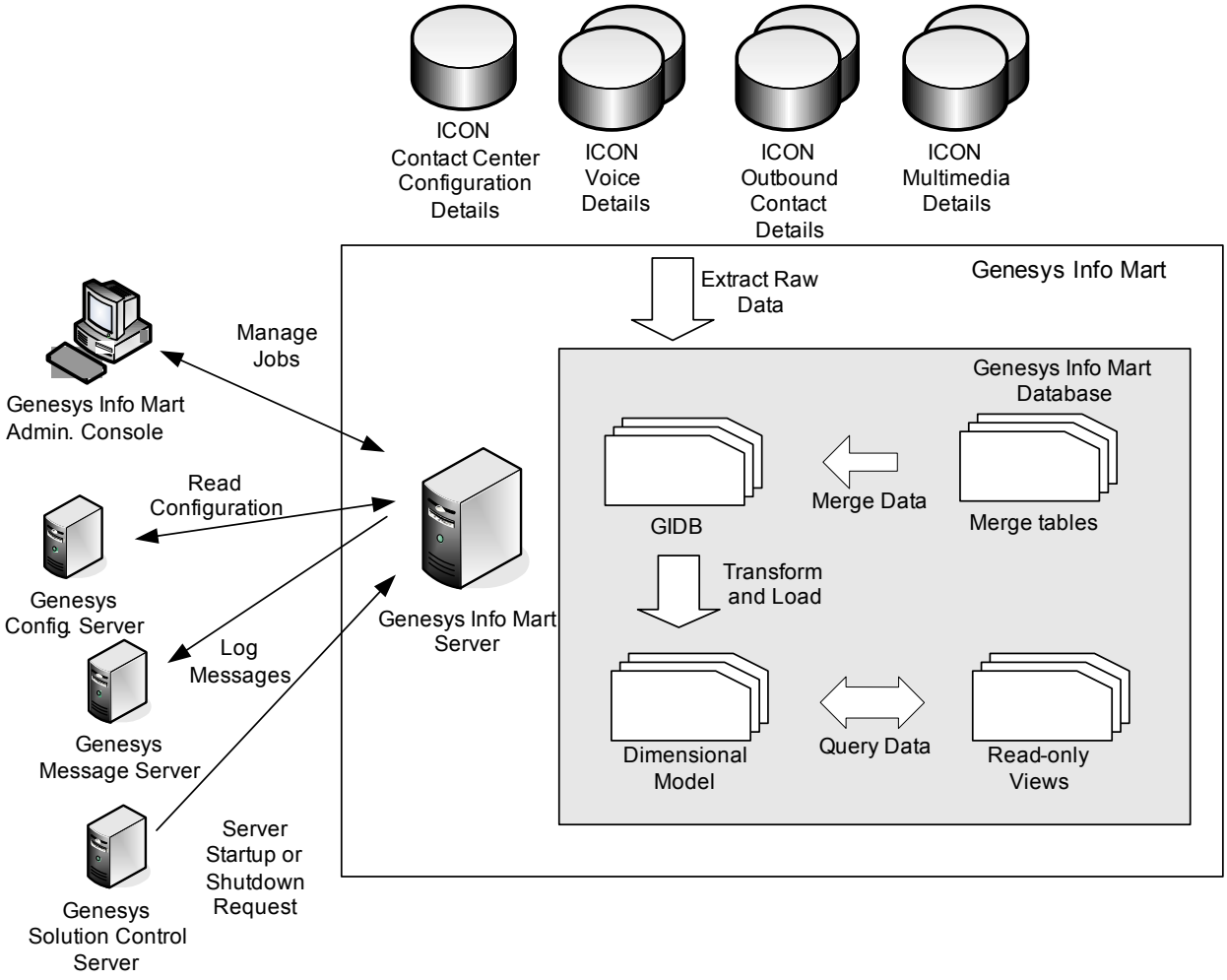


**Figure 1: Genesys Info Mart Architecture and Data Flow Diagram**

# Types of Reporting Data

Depending on how it is configured, Genesys Info Mart stores the following types of data, which it extracts from one or more IDBs that are populated by one or more Interaction Concentrator (ICON) applications:

- ICON Configuration details, which include:
  - Configuration objects (such as a `DN`, `Person`, `Skill`, or `Place`)
  - Configuration object relationships (that is, associations between configuration objects, such as a `Person` assignment to a `Group`)

  The ICON data source for Configuration details is Configuration Server.
- ICON Voice details, which include:
  - Voice interaction data
  - Voice attached data and UserEvent-based key-value pair (KVP) data. (The combination of the two is also referred to as *user data*.)
  - Voice agent login data

  - Voice agent state and agent state reason details, including the ability to associate after-call-work with voice interactions
  - Voice DND mode details
  - Virtual queue data

  The ICON data source for Voice details is T-Server.

  **Note:** In this document, the term *T-Server* is used generically to refer to all T-Server types (premise and network TDM Voice, SIP Server, IVR Server, and Virtual T-Server).

- ICON Multimedia details, which include:
  - Multimedia interaction data
  - Multimedia attached data
  - Multimedia agent login data
  - Multimedia agent state and agent state reason details
  - Virtual queue data

  The ICON data source for Multimedia details is Interaction Server.
- Outbound Contact details, which include:
  - History and results of campaigns, chains, and contact attempts
  - Associations between Outbound Contact objects (such as campaigns) and contact center objects (such as agent groups or place groups)
  - Precalculated Outbound Contact metrics

  The ICON data source for Outbound Contact details is Outbound Contact Server (OCS).

# Components and Functions

Genesys Info Mart consists of the following components:

- Genesys Info Mart Server
- Genesys Info Mart Administration Console (see page 25)
- Info Mart database, which is created with Genesys-provided scripts (see page 26)

These components are described in the following subsections.

## Genesys Info Mart Server

The Genesys Info Mart Server, a Java-based component, is the main executable process in Genesys Info Mart 8.0. Its main function is to run various functional jobs, including but not limited to ETL jobs. These jobs run according to the schedule that is configured in the Genesys Info Mart ETL application in Genesys Configuration Layer.

The Genesys Info Mart Server interfaces with:

- Solution Control Server (through Local Control Agent [LCA]), to control when the Genesys Info Mart Server starts and stops.
- Configuration Server, to read Genesys Info Mart application configuration options, as well as other configuration objects and options that affect Genesys Info Mart functionality.
- The Genesys Info Mart Administration Console, to start and stop jobs, and to provide the status of ETL jobs.
- Message Server, to log messages to the Centralized Log Database.
- The log4j Java client, to log messages to the local log.

## Genesys Info Mart Jobs

Genesys Info Mart jobs, which run under the Genesys Info Mart Server, do the following:

**Extract**

- Extract contact center configuration history details from the Interaction Concentrator (ICON) Interaction Database (IDB).
- Extract voice interaction, user data (including call-based attached data and UserEvent-based key-value pair (KVP) data), virtual queue, and agent activity details from one or more IDBs.
- Extract Outbound Contact details from one or more IDBs.
- Extract multimedia interaction, attached data, virtual queue, and agent activity details from one or more IDBs. For more information about the types of interactions that Genesys Info Mart considers to be *multimedia,* see "Multimedia Interactions" on page 28.
- In an HA configuration, evaluate all redundant IDBs by comparing ICON-provided session information for each set of redundant IDBs (that store Configuration, Voice, Outbound Contact, or Multimedia details), prior to extracting the data in a particular extraction cycle.

**Merge**

- As part of the extraction process for Voice details, run a merge procedure to establish associations between related voice interactions that were extracted from the same or multiple IDBs—for example, to resolve intersite call linkages between related calls in a multi-site environment.

**Transform**

- Transform the extracted data so that it becomes suitable for end-user reports and is available in a set of tables that are referred to as *dimensional model.*
- Load the transformed data into the Info Mart database.

**Maintain**

- Purge old information from the Info Mart database.
- In partitioned databases, update partitioning as necessary.
- Maintain calendar data by prepopulating calendar tables.

**Migrate**
- Run the necessary scripts to update your database schema and perform any other steps necessary to move from an earlier 8.x release to the current one.

**Aggregation**
- In deployments that include Genesys Interactive Insights (GI2) or the separately installed Reporting and Analytics Aggregates (RAA) package, Genesys Info Mart also hosts the aggregation process. An aggregation job, which is implemented as a plug-in, runs the aggregation engine inside the Genesys Info Mart Server process.

## Genesys Info Mart Administration Console

The Genesys Info Mart Administration Console is a GUI that enables monitoring and real-time administration of some aspects of the Genesys Info Mart ETL processes. It is included on the Genesys Info Mart CD as a separate installation package, and you install it on the same host as your Genesys Configuration Manager.

The Genesys Info Mart Administration Console provides the following functionality:

- Displays the current ETL job execution status.
- Displays a history of ETL job execution, including start time, stop time, duration, and final status.
- Filters the ETL job execution history that is displayed based on time and or status.
- Executes a single job on an ad hoc basis, either immediately, or at a specified future time and date.
- Cancels a scheduled job.
- Shuts down a running ETL job.

The Genesys Info Mart Administration Console interfaces with the following components:

- The Genesys Info Mart Server, to start, schedule, and stop ETL jobs on an ad hoc basis.
- The Info Mart database, to query job status and job history from the Info Mart database. The Genesys Info Mart Administration Console connects to the Info Mart database through a DB Server and a database access point (DAP).

**Note:** All timestamps in the Genesys Info Mart Administration Console are in the local time zone of the host on which the Genesys Info Mart Administration Console is installed and running.

# Info Mart Database

The Info Mart database contains all of the data that is populated by the ETL jobs, including the low-level interaction data that is consolidated from one or more Interaction Databases (IDBs) as well as the processed data that is suitable for end-user reports.

## Genesys Info Mart Database

The Genesys Info Mart data resides in a database schema that includes the following tables:

- Control tables—Store information that controls ETL execution, such as the status of running jobs, job schedules, execution history, audit logs, and similar bookkeeping information.
- Merge tables—Used for merge of voice interactions. After the merge, voice interactions are moved into Global Interaction Database (GIDB) tables.
- GIDB tables—Store the low-level interaction data that is consolidated from one or more IDBs.

  There are separate sets of interaction-related GIDB tables for voice and multimedia interactions, to accommodate different requirements for transformation logic, indexes, data-retention periods, and so on.

  The low-level reporting data in GIDB supports the possibility of custom detailed reporting to drill down from the dimensional model.
- Staging tables—Store information that is required in the transformation process. Staging tables contain data that has not yet been transformed or cannot be transformed because of incompleteness or inconsistency of source data and other auxiliary data that are necessary for the ETL process.
- Temporary tables—Store data that is used only during the lifetime of an ETL job.
- Fact and dimension tables (collectively referred to as *dimensional model)*—Contain transformed data that downstream reporting applications can query and combine in meaningful reports.

In deployments that use GI2 or RAA, the Info Mart database also includes aggregate tables and views that are used by GI2. For more information, see the *Reporting and Analytics Aggregates 8.0 Reference Manual.*

In addition to the previously mentioned tables that are used by ETL jobs, the following views are intended to simplify data retrieval for reports:

- Predefined views—Read-only views of certain configuration dimensions and facts that are contained in GIDB tables. These views are created in the Info Mart database schema.

- Genesys Info Mart Tenant Views—Tenant-specific, read-only views of the dimensions and facts in the dimensional model and predefined views of the Info Mart schema. These views are created in a Genesys Info Mart Tenant Views schema. Genesys Info Mart supplies a separate database schema for each tenant (including the Environment tenant), so that each tenant user can access their own data. In addition, these views shield business users from evolutionary changes to the underlying database schema and prevent users from accidentally changing the contents of the underlying database. Customers should use these views to query Genesys Info Mart data.

  For an illustration of the relationship between the tenant views and the Info Mart database schema, see Figure 17 on page 299.

Genesys Info Mart provides SQL scripts that you execute to create the database schemas and views that your reporting application can query.

For more information about the database schemas, see the Genesys Info Mart overview section in the *Reference Manual* for your relational database management system (RDBMS):

- *Genesys Info Mart 8.0 Microsoft SQL Server Reference Manual*
- *Genesys Info Mart 8.0 Oracle Reference Manual*

### RDBMS-Specific SQL Scripts

A set of SQL scripts is provided for each RDBMS type that is supported. The scripts perform a variety of tasks, including the following:

- Create the Info Mart database objects.
- Create the single-tenant and multi-tenant read-only views.
- Update source databases for efficient data extraction.

# Terminology Conventions

This subsection describes the usage of terms that have specific meanings in the Genesys Info Mart documentation.

#### Database Area

As described in the section "Info Mart Database" on page 26, the Info Mart database consists of only one schema, which comprises several groupings of tables (GIDB tables, Merge tables, and so on). In this document, the groupings of tables might be referred to as a *database area*—for example, the Merge area.

#### Data Domains

The scope of Genesys Info Mart activity, in terms of the type of details that it processes, is defined by the configured role of the DAP(s) through which

Genesys Info Mart accesses IDB. The *data domains* correspond to the type of details that each IDB stores—Configuration details, Voice details, Multimedia details, or Outbound Contact details. Genesys Info Mart processes each data domain separately.

For more information about the types of details, see "Types of Reporting Data" on page 22.

### Data Source

The immediate source of data for Genesys Info Mart is IDB, which is populated by ICON. The source of data for ICON is Configuration Server, T-Server, Interaction Server, or OCS, depending on the configured role of the ICON application.

In this guide, the term *data source* refers to the upstream data provider—the source of data for ICON.

### Voice and Multimedia Interactions

Genesys Info Mart supports reporting on both voice and multimedia interactions.

**Voice Interactions**

The term *voice interactions* refers to traditional telephony calls.

**Multimedia Interactions**

The term *multimedia interactions* refers collectively to all interactions that are processed through Genesys eServices/Multimedia solution, such as:

- *eServices/Multimedia interactions*. E-mail and chat are two of the Genesys-provided media types that Genesys Info Mart currently supports.
- *3rd Party Media interactions* (formerly referred to as *Open Media*). These are interactions of any custom media channel that is supported on top of Genesys eServices/Multimedia. The `Workitem` media type is an example of 3rd Party Media.

Genesys Info Mart processes data that is related to all multimedia interactions in a similar manner.

# New in This Release

This section describes new or changed functionality that was introduced in Genesys Info Mart 8.0.x releases:


- New in Release 8.0.0, page 29
- New in Release 8.0.1, page 32

# New in Release 8.0.0

This subsection describes new or changed functionality that was introduced in the initial 8.0 release of Genesys Info Mart:

**User Data Handling**

- This release provides a unified mechanism for processing user data from both `EventUserEvents` and call-based `TEvents`, with flexible data storage that you can configure according to the number and types of user data that is captured in your contact center environment. A customizable database schema enables you to treat each key-value pair (KVP) field as either a fact or a dimension and store user-data KVPs in a configurable number of user-data dimensions and fact extension tables. Genesys Info Mart 8.0 also processes the user data that arrives after call completion, and updates call records accordingly.

**Error Handling**

- New configuration options enable you to control Genesys Info Mart behavior when Genesys Info Mart encounters errors during transformation. For more information about the error-handling configuration options, see "error-policy Section" on page 239.

**Data Lineage**

- This release provides a capability to store the processing history of ETL jobs and the extraction and transformation history of each piece of data.

  There are two aspects of data lineage:

  - Voice of Data—Special fields store service data that enables you to trace a particular reporting data item to its source system, as well as to trace data in the opposite direction (from source to target). Information that is stored as Voice of Data enables data tracking for the purpose of validating data and troubleshooting data quality issues. For more information, see the *Genesys Info Mart 8.0 User's Guide.*
  - Voice of Process— Special fields store ETL processing history that enables you to trace which ETL process created or updated what piece of data. You can use this data in data quality investigations—for example, when a review of a particular reporting item requires identification and review of other items that were processed by the same ETL job. For more information, see the *Genesys Info Mart 8.0 Operations Guide.*

**Simplified Database Model**

- A simplified database model eliminates the representation of the lowest level of data details in a segment model.
- The lowest level of data details that Genesys Info Mart provides is better aligned with Interaction Concentrator model.
- Global Interaction Database (GIDB) within the Genesys Info Mart database schema represents a subset of Interaction Database (IDB) tables that consolidates data from one or more IDBs. GIDB, which is a replacement of the segment model that was used in previous releases of Genesys Info Mart, serves as a new storage of low-level interaction details.

- The data in the new model requires a less resource-consuming transformation.
- The usability of the Info Mart database is improved by eliminating obsolete and prohibitively expensive tables and fields, among other modifications. For more information, see the *Genesys Info Mart 8.0 Reference Manual* for your particular RDBMS.

**Support for Oracle Partitioning**

- Genesys Info Mart supports partitioning of the Info Mart database in Oracle 10g and 11g deployments. Genesys Info Mart 8.0 supports range partitioning only. Genesys Info Mart provides SQL scripts to create a partitioned database schema out of the box, and Genesys Info Mart jobs automatically create and maintain the partitions.

**Aggregation**

- Genesys Info Mart default functionality does not include aggregation. Instead, Genesys provides aggregation software that is bundled with the Genesys Interactive Insights (GI2) product. The aggregation software is also available as a separate installation package (IP), called Reporting and Analytics Aggregation (RAA), which is delivered with Genesys Info Mart. The aggregation layer is installed on top of Genesys Info Mart, which hosts the aggregation process.

**ETL Redesign**

- The ETL cycle consists of two main jobs:
  - The extraction job retrieves all data from available IDBs and, merging data for voice interactions as necessary, consolidates all low-level details data within a single GIDB.
  - The transformation job processes all extracted data, populating dimensions and loading data directly into the fact tables.
- When enabled, the aggregation job aggregates the transformed data in parallel with the ETL cycle, in environments that include GI2 or in which RAA is deployed as a separate package. Within scheduled daily intervals, which are configurable, `Job_AggregateGIM` runs continuously.

**Maintenance**

- `Job_MaintainGIM` purges eligible data from GIDB, the dimensional model, and discard, audit, and history tables, in accordance with configurable data retention policies for the various types of data. The maintenance job can be scheduled to run on a daily basis, or it can be run manually from the Administration Console.
- The maintenance job also prepopulates customizable calendar tables for a configurable period ahead, so that calendar dimensions are available for use in reports (see “Multiple Calendars” on page 31).

**Multimedia Data Processing**

- Genesys Info Mart 8.0 supports reporting on Interaction Queue and Interaction Workbin activity in addition to previously supported mediation DNs.
- Interaction resource facts and interaction resource state facts are now populated for Genesys eServices/Multimedia e-mail and chat interactions.

**Outbound Contact Data Processing**

- Genesys Info Mart 8.0 processes Outbound Contact data independently from interaction data.

**High Availability**

- Genesys Info Mart 8.0 supports high availability (HA) of Configuration, Voice, Multimedia, and Outbound Contact details.
- The implementation of Genesys Info Mart support for HA of reporting data has been changed. Genesys Info Mart no longer requires special configuration to identify primary and secondary IDB data sources. Instead, Genesys Info Mart relies on session control information that is provided by redundant Interaction Concentrator 8.0 applications in IDBs. The extraction job evaluates all redundant IDBs and extracts data from the IDB that is the best source for Configuration, Voice, Multimedia, or Outbound Contact details for a particular timespan.

  For more information about HA in Genesys Info Mart 8.0, see Chapter 6 on page 85.

**Genesys Voice Platform Support**

- Genesys Info Mart supports reporting on the interaction aspect of Genesys Voice Platform (GVP) 8.x activity, provided that GVP has been configured for computer-telephony integration (CTI) through IVR Server. However, Genesys Info Mart does not support reporting on voice application usage (for example, subcallflows); GVP itself provides reporting services to support this functionality.

  For information about configuring GVP for CTI through IVR Server, see the *Voice Platform Solution 8.1 Integration Guide.*

**Configuration Verification**

- A configuration-checking process verifies the validity of environment and application settings for the Genesys Info Mart and ICON applications, as well as the availability of configured data sources. The Genesys Info Mart Server automatically launches this process during initialization and whenever the configuration of the Genesys Info Mart application, database access points (DAPs), or ICON application(s) changes. For more information about the configuration-checking process, see "Deployment Verification" on page 78.

**Multiple Calendars**

- Genesys Info Mart supports multiple, customizable calendars with flexible week-numbering rules that can be configured to conform to the ISO 8601 standard for the representation of dates and times.
- Genesys Info Mart stores time facts in Coordinated Universal Time (UTC) time. Scalable support for multiple calendars means that Genesys Info Mart can be configured to express time data in any Java time zone format.
- Genesys Info Mart provides one default calendar (`DATE_TIME` dimension). The default configuration expresses UTC time in the GMT time zone and conforms to legacy Genesys Info Mart week-numbering rules, which are not the ISO 8601 standard.

**Flexible DAP Configuration**

- To simplify your deployment, you can reuse the non-JDBC DAPs in your deployment, and make these DAPs suitable for Genesys Info Mart to access the same databases. For more information, see "Reusing DAPs" on page 188.

# New in Release 8.0.1

Starting with Genesys Info Mart release 8.0.1, Genesys Info Mart provides the following new or changed functionality:

**Support for Microsoft SQL Server Partitioning**

- Genesys Info Mart supports partitioning of the Info Mart database in Microsoft SQL Server 2005 and Microsoft SQL Server 2008 deployments. Genesys Info Mart provides SQL scripts to create a partitioned database schema out of the box, and Genesys Info Mart jobs automatically create and maintain the partitions.

**Additional Attached Data**

- Genesys Info Mart provides predefined support for storage of two new attached data KVPs—`Revenue` and `Satisfaction`:
  - New columns—`Revenue` and `Satisfaction`—have been added to the `IRF_USER_DATA_GEN_1` table.
  - The sample ICON attached data specification that is included with the Genesys Info Mart IP now also specifies `Revenue` and `Satisfaction` as KVPs to be stored by ICON.

**Multimedia Data Transformation**

- In release 8.0.0, Genesys Info Mart supported extraction of 3rd Party Media interactions but did not transform them. Starting with release 8.0.1, the transformation job transforms all multimedia interactions, including 3rd Party Media interactions.
- This release introduces dynamic support for adding new media types that are encountered during transformation of multimedia interactions. When Genesys Info Mart encounters an unknown media type, the transformation job automatically adds a new media type to the `MEDIA_TYPE` table, and it includes the new media type when it transforms data. For more information, including configuration considerations, see "Media Types" on page 97.
- A new column, `IS_ONLINE,` has been added to the `MEDIA_TYPE` dimension table as a flag to indicate whether the corresponding media type is associated with online or offline interactions. For more information, see "Online and Offline Interactions" on page 98.

  **Note:** By default, all dynamically added media types are identified as offline.

- This release introduces dynamic support for new multimedia interaction subtypes. When Genesys Info Mart encounters a new interaction subtype, it automatically adds it to the `INTERACTION_TYPE` table and includes it when transforming data.

- A new column, IGNORE, in the INTERACTION_TYPE table enables you to disable transformation of multimedia interactions of a specified type.

  **Note:** By default, all newly added multimedia interaction types are set to be transformed.

**Enhanced Interaction Types**

- Two new Interaction Types have been added, INBOUNDREPORT and INBOUNDDISPOSITION. By default, these fields are set to IGNORE=1 (they will not be transformed).

**Configured Thresholds by Media Type**

- For the answer and abandon thresholds that were supported in release 8.0.0, Genesys Info Mart now supports configuration of the thresholds separately for each media type. You can configure the thresholds:
  - Per media type
  - Per tenant per media type
  - Per tenant per media type per DN

  New configuration sections and options have been added in the Genesys Info Mart Application and in supporting objects, and the scope of some existing options have changed. In particular:
  - short-abandoned-threshold and q-short-abandoned-threshold-voice in the [gim-etl] configuration section now control thresholds for voice calls only, and similar options in new [gim-etl-media-<media type>] sections (in the Genesys Info Mart Application object) or [gim-etl-media] section (in the Media Type Business Attribute object for the tenant) control equivalent, media-specific thresholds for multimedia interactions at the application and tenant levels, respectively.
  - The queue answer threshold, which used to be controlled for all multimedia interactions by the q-answer-threshold-mm option in the [gim-etl] section, is now controlled separately by media-specific q-answer-threshold options in [gim-etl-media-<media type>] or [gim-etl-media] sections at the application, tenant, switch, DN, and script levels.
  - By default, the Genesys Info Mart Application includes new configuration sections for specifying thresholds for Genesys/eServices e-mail and chat interactions—[gim-etl-media-email] and [gim-etl-media-chat]. If you want to customize media-specific thresholds for other media types, you must add the required [gim-etl-media-<media type>] configuration section and options to the Genesys Info Mart Application.

  For more information about the redefined and new options, see "gim-etl-media-<media type> Section" on page 257 and Table 18 on page 219.

**Support for Outbound Contact Preview Dialing**

- For Outbound Contact reporting, the `RESOURCE_GROUP_COMBINATION_KEY` field has been added to the `CONTACT_ATTEMPT` table. For details, see the description of Outbound Contact dimensions in the *Genesys Info Mart 8.0 User's Guide*.

**Additional User Data**

- Two new UserData fields have been added to those available out-of-box: `Revenue` and `Satisfaction`. For descriptions of these fields, see Table 6 on page 111.

**Migration Job**

- A new job, `Job_MigrateGIM`, now performs all the necessary database updates to migrate from any earlier 8.0.0 release of Genesys Info Mart to release 8.0.1.

  For more information about migration, see the Genesys Info Mart 8.x chapters in the *Genesys Migration Guide.*

**Platform Support for Administration Console**

- Platform support for the Genesys Info Mart Administration Console has been extended to include Windows 7.

Chapter

# 2 System Requirements

This chapter describes the system requirements for Genesys Info Mart. It contains the following sections:



## Supported Operating Systems and Databases

For information about operating systems and the relational database management systems (RDBMSs) that Genesys Info Mart and Genesys Info Mart Administration Console support, see the *Genesys Supported Operating Environment Reference Manual* document, which is available on the Genesys Technical Support website at http://genesyslab.com/support.

## Interoperability Requirements

Genesys Info Mart can operate only with the Genesys components that are listed in Table 1 on page 38. Other Genesys software components that you might have in an environment with Genesys Info Mart must be compatible with Interaction Concentrator 8.0.

**Note:** For Genesys Info Mart to provide accurate and reliable data, the system clocks on all hosts on which Genesys applications are running (for example, T-Servers, Interaction Servers, and Universal Routing Servers) must be synchronized.

Genesys recommends that you install both the Genesys Info Mart Administration Console 8.0 and Genesys Configuration Manager 8.0 on the machine on which an administrator will perform the Genesys Info Mart ETL administration.

**Note:** There is *no* requirement that the Genesys Info Mart Server and the Genesys Info Mart Administration Console reside on the same machine. The Genesys Info Mart Administration Console displays timestamps in the local time of the host on which it is installed.

For specific interoperability requirements, see the *Genesys Interoperability Guide*.

# Software and Database Requirements

The following software must be installed on the Genesys Info Mart Server host to support Genesys Info Mart 8.0:

- Java 1.6 Java Development Kit (JDK) (see page 36)
- Java Database Connectivity (JDBC) driver (see page 37)

## System Resources

The Genesys Info Mart Administration Console requires approximately 10 MB of hard-disk space to accommodate the installed program. It does not require any additional RAM beyond what Genesys Configuration Manager and Wizard Framework require.

The Genesys Info Mart Server requires approximately 20 MB of hard disk space and a sufficient amount of disk space for local log files. It requires a minimum of 1 GB of additional RAM depending on the configuration options that are set to define the data chunk size. For more information about these options, see “Configuration Recommendations” on page 74.

## Java Development Kit

Genesys Info Mart uses the Server Java Virtual Machine (JVM) that ships with the JDK. (The Java Runtime Environment [JRE] packaging of Java does not include the Server JVM.) You must install the JDK, version 1.6 or later, on the server on which you plan to install the Genesys Info Mart Server. Several Genesys Info Mart software components use Java 1.6 JDK. Note that Genesys Info Mart operates with 32-bit or 64-bit versions of Java JDK.

**Note:** If your deployment is affected by the 2007 changes in daylight saving time (DST) definitions, make sure that you install the JDK version that contains these changes.

You must also modify your `PATH` and `JAVA_HOME` environment variables so that Genesys Info Mart can locate the Server JVM. The `PATH` and `JAVA_HOME` environment variables that you modify depend on the operating system and user account under which the Genesys Info Mart Server runs.

For specific information about installing JDK and modifying the environment variables, see "Preparing the Genesys Info Mart Server Host" on page 273.

## JDBC Drivers

Genesys Info Mart Server and the ETL jobs use JDBC to access all databases. For specific information about installing the appropriate JDBC driver for your environment, see "Preparing the Genesys Info Mart Server Host" on page 273.

# Compatibility with Genesys Software

For general requirements on interoperability with Genesys Configuration Layer, see the *Genesys Interoperability Guide*.

Table 1 lists the Genesys software components with which Genesys Info Mart operates directly. For requirements for various other Genesys software components that you may have in an environment with Genesys Info Mart, refer to Interaction Concentrator 8.0 documentation. The two exceptions are:

- Universal Routing Server (URS) 8.0 or higher.
- Outbound Contact Server (OCS) release 7.6, which Genesys Info Mart 8.0 requires in order to populate Outbound Contact–related data correctly.

For each component, Table 1 provides the *minimum* release number with which Genesys Info Mart release 8.0 is compatible.

**Note:** Genesys recommends that you install the most recent generally available release of Genesys products. Refer to the corresponding product *Release Notes* for information about new or improved functionality.

Refer to the *Genesys Info Mart 8.0 Release Notes* and *Release Advisory* for any updates to the release requirements for the various components.

### Table 1: Genesys Info Mart Compatibility

| Area of Functionality | Component/Product Release | Comments |
|---|---|---|
| Configuration Layer | • Configuration Server release 7.6<br>• DB Server release 7.6 | Configuration Server release 7.6 or higher provides improved support for the configuration history log.<br>Genesys Info Mart 8.0 supports Advanced Disconnect Detection Protocol (ADDP) for the connection from Genesys Info Mart to Configuration Server. |
| Management Layer | • Local Control Agent (LCA) release 7.6<br>• Message Server release 7.6<br>• Solution Control Interface (SCI) release 7.6<br>• Solution Control Server (SCS) release 7.6 | |
| Interaction Concentrator | • Interaction Concentrator release 8.0 | |
| T-Server | • T-Server release 7.6 | |
| Routing | • For deployments that use virtual queues, Universal Routing Server (URS) release 8.0<br>• For deployments that do not use virtual queues, URS release 7.2 | URS 8.0 is required for processing missing virtual queue configuration objects.<br>For more information about why Genesys Info Mart requires URS 8.0, see "Missing Virtual Queue Resource Example" on page 77.<br>For information about the minimum release of URS that is required to support this functionality, see the *Interaction Concentrator 8.0.x Release Note.* |

**Table 1: Genesys Info Mart Compatibility (Continued)**

| Area of Functionality | Component/Product Release | Comments |
|---|---|---|
| Outbound Contact | Outbound Contact Server (OCS) release 7.6 | For information about configuring Genesys Info Mart and other contact center objects to store reporting data for Outbound Contact campaign activity, see "Enabling Storage of Outbound Contact Details" on page 136. |
| Genesys Voice Platform | Genesys Voice Platform (GVP) release 8.1 | GVP must be configured to provide CTI through IVR Server. |

Chapter

# 3 Data Source Topologies

This chapter describes and illustrates the various data source topologies that Genesys Info Mart 8.0 supports.

This chapter contains the following sections:



## Data Domains

The Interaction Concentrator server (ICON) monitors data sources and stores data about data source activity in the Interaction Database (IDB). Genesys Info Mart extracts data from one or more IDBs, according to the configuration. Genesys Info Mart extracts each of the following data domains separately:

- *ICON Configuration details*—Contains data about contact center configuration objects and object relationships. The data source for Configuration details is Configuration Server.
- *ICON Voice details*—Contains interaction, user data, virtual queue, and agent activity for voice media. The data source for Voice details is T-Server.

> **Note:** In this document, the term *T-Server* is used generically to refer to all T-Server types (premise and network TDM Voice, SIP Server, IVR Server, and Virtual T-Server).

- *ICON Multimedia details*—Contains interaction, attached data, virtual queue and agent activity for Genesys eServices/Multimedia e-mail, chat, and 3rd Party Media. The data source for Multimedia details is Interaction Server.
- *ICON Outbound Contact details*—Contains data that relates to Outbound Contact activity, such as the history and results of campaigns, chains, and contact attempts; associations between Outbound Contact objects and contact center objects; and precalculated Outbound Contact metrics. The data source for Outbound Contact details is Outbound Contact Server (OCS).

Genesys Info Mart has specific minimum requirements for the types of ICON details that must be included in the deployment. For more information, see "Genesys Info Mart Requirements for ICON Details Storage" on page 42.

### Topology Considerations

Genesys Info Mart supports a variety of data source topologies. The topology that you choose for each data source depends on several deployment-specific factors, including the number of sites, the data network capacity between sites, the interaction volume, and the required level of data source redundancy or high availability (HA).

Review the topologies on the following pages to determine which ones meet your contact center's needs for performance and HA.

# Interaction Concentrator Topologies

In a contact center that has a large Genesys configuration environment or that processes high call volumes—possibly, with large amounts of attached data and/or UserEvent-based key-value pair (KVP) data—you can improve performance of both ICON and Genesys Info Mart by deploying multiple ICON instances to collect data for a particular data domain. When data is stored in multiple IDBs, Genesys Info Mart extracts data from these IDBs in parallel, thus decreasing the extraction time.

## Genesys Info Mart Requirements for ICON Details Storage

The Interaction Concentrator topologies that Genesys Info Mart 8.0 supports are similar for all types of ICON details, except for the following special requirements:

- Your deployment must include only one IDB (or one HA set of redundant IDBs) that stores Configuration details.
- Your deployment must include at least one IDB (or one HA set of redundant IDBs) that stores either Voice or Multimedia details.

The following general requirements apply to all supported topologies:

- Each ICON application must populate its own IDB. In other words, consider each ICON-IDB pair (Interaction Concentrator instance) a unit.
- Each Interaction Concentrator instance (or HA set) can process and store data for only one data domain.
- You must use separate Interaction Concentrator instances for Voice details, Multimedia details, and Outbound Contact details.
- You can combine storage of Configuration details with any of the other types of ICON details. However, Genesys recommends that you use a separate Interaction Concentrator instance to store Configuration details.

  To minimize the possibility of missing configuration data, Genesys further recommends that you co-locate the Configuration details IDB on the same host as the Configuration Database (see "Recommendations on Hosting" on page 53).
- You can have one instance or multiple Interaction Concentrator instances (or HA sets) that store Voice, Multimedia, or Outbound Contact details.
- For Voice details or Outbound Contact details, each Interaction Concentrator instance can store data from one or multiple instances of T-Server or OCS (or HA pairs), as applicable. In other words, the relationship between the data source(s) and Interaction Concentrator can be one-to-one, many-to-one, or many-to-many.

  For Multimedia details, each Interaction Concentrator instance can store data from only one Interaction Server (or HA pair). In other words, the relationship between the data source(s) and Interaction Concentrator can be one-to-one or many-to-many.

## ICON Roles

The `role` option in the ICON application specifies the type of data that each ICON instance processes; similarly, the `role` option in the Interaction Concentrator database access point (DAP) specifies the type of data that the ICON instance stores in IDB. For a thorough discussion of ICON roles, see the *Interaction Concentrator 8.0 Deployment Guide*. For more information about setting the roles that are required for Genesys Info Mart, see Procedure: Configuring the ICON application, on page 150.

When you plan your deployment, consider the following requirements:

**ICON Configuration Details**

- In all Genesys Info Mart topologies for ICON Configuration details, you cannot have more than one ICON instance (or HA set) monitoring the same Configuration Server (or HA pair) and storing configuration data in the same IDB. To store Configuration details, the `role` option of the ICON application must contain the value `cfg`. Be aware that the default value of the ICON `role` option is `all`. If you have more than one ICON application

in your deployment, ensure that you specifically exclude `cfg` from the value of the `role` option in the ICON applications that will not be storing Configuration details.

**ICON Voice or Multimedia Details**

- In all Genesys Info Mart topologies for ICON Voice or Multimedia details:
  - The ICON application must be configured to store interaction activity, attached data, virtual queue, resource login, and agent state and work mode details. Optionally, the ICON application may also be configured to store UserEvent-based key-value pair (KVP) data. In other words, the `role` option of the ICON application must contain the values `gcc`, `gud`, and `gls`.
  - A single ICON application (or a single HA set of redundant ICON applications) must record *all* activity for a particular agent. If, for example, a particular agent in your contact center logs in to two switches, the same ICON application (or the same ICON HA set) must monitor both switches.

**ICON Outbound Contact Details**

- In all Genesys Info Mart topologies for ICON Outbound Contact details, the `role` option of the ICON application must contain only the value `gos`.

# Topology Diagrams

Provided that the requirements for storage of ICON details are observed (see page 42), the Genesys Info Mart architecture is flexible and scalable. For example, supported topologies can include:

- Single- or multi-site deployments, with one T-Server per site or several T-Servers per site.
- For the deployment as a whole or on each site, a single media type or data domain (for example, voice only) or a combination (for example, voice and multimedia; voice and Outbound Contact; or voice and Outbound Contact and multimedia).
- Common components located at one of the data source sites or at some other, central location. Common components include the Configuration Server and the Genesys Info Mart application and Info Mart database.

This section provides diagrams that illustrate the data source topologies that Genesys Info Mart supports. The supported topologies implement the rules that are described in "Genesys Info Mart Requirements for ICON Details Storage" on page 42.

Given the range of potential combinations, the diagrams in this section are not intended to represent specific deployment architectures. Instead, the diagrams illustrate generic building blocks for topologies that Genesys Info Mart supports. This section includes the following diagrams:

- Conceptual Architecture—Illustrates the data source architecture at the highest level. See Figure 2 on page 46 for the basic non-HA architecture and Figure 3 on page 47 for the basic HA architecture.

- One Data Source per ICON—Illustrates topology building blocks based on a one-to-one relationship between the data source and ICON. See Figure 4 on page 49.
- Multiple Data Sources per ICON—Illustrates topology building blocks based on a many-to-one relationship between the data sources for a particular data domain and ICON. See Figure 5 on page 51.
- Mixed Example—Multi-Site, All Details—Depicts a specific multi-site topology for all details, as an example of how you can mix and match architectural approaches. See Figure 6 on page 53.

For related information about distributing the applications among hosts, see "Recommendations on Hosting" on page 53.

### Diagram Conventions

The topology diagrams use the following conventions:

- The diagrams do not show the DB Server and DAP that each ICON requires in order to access the IDB it populates. In all cases, the role that is configured for the DAP matches the role that is configured for the ICON application.

  **Note:** You can reuse the Interaction Concentrator DAP to enable Genesys Info Mart to access the same IDB. For more information, see "Reusing DAPs" on page 188.

- Square brackets ([ ]) indicate optional, additional data sources and Interaction Concentrator instances that you can include to scale your deployment.
- The diagrams show only one instance of the Genesys Info Mart application and Info Mart database. An instance of the Genesys Info Mart Server application can store data in only one Info Mart database schema. However, you can deploy multiple instances of the Genesys Info Mart Server and Info Mart database schema, each storing data for one or more distinct data domains.

  For reasons of database maintenance, consider deploying separate Info Mart instances and separate Info Mart database schemas for Voice and Multimedia details if your deployment includes both media types and if there is no need to combine them for reporting purposes. In separate Info Mart databases, the long-living nature of multimedia interactions does not affect data retention policies for short-living voice interactions; in a combined database schema, active multimedia interactions can delay purging of completed voice interactions. For more information, see "Purging Info Mart Data" on page 81.

# Conceptual Architecture

Figure 2 and Figure 3 illustrate the data source architecture at the highest level. You can extrapolate from the basic architectural concepts to scale or customize your deployment topology as required.

## Basic Architecture

Figure 2 illustrates the basic architecture for each data domain.

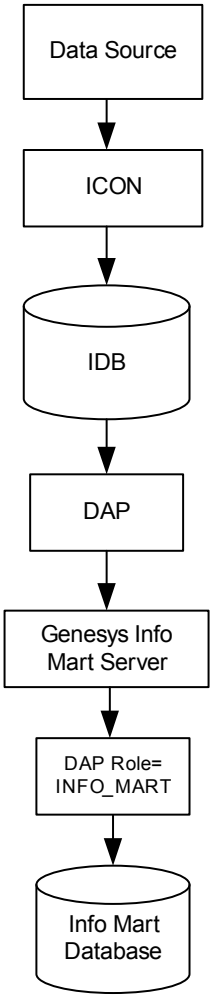


**Figure 2: Conceptual Data Source Architecture**

## Basic HA Architecture

Figure 3 illustrates the basic architecture for high availability (HA).

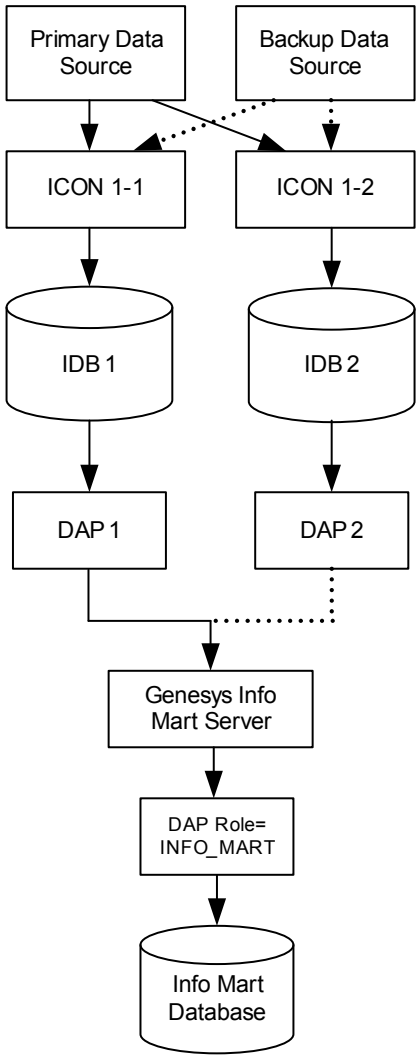


**Figure 3: Conceptual HA Architecture**

In each HA set of redundant ICONs and IDBs, the ICON applications must be configured to perform the same role, and they must have configured connections to all the primary data sources in the HA set.

The Genesys Info Mart extraction job uses session information in the IDBs to identify which instance of IDB from the HA set of IDBs contains the most complete and accurate set of data from each data source. For more information about Genesys Info Mart support for HA, see Chapter 6 on page 85.

# One Data Source per ICON

Figure 4 illustrates a topology in which each ICON monitors a single data source. This topology "building block" is supported for all data domains.

In this topology, the deployment consists of:

- A single Interaction Concentrator instance to store Configuration details.

  You can co-locate the Configuration details IDB in the same RDBMS instance with Configuration Database (see "Recommendations on Hosting" on page 53).
- At least one Interaction Concentrator instance to store data from either a T-Server (for Voice details) or an Interaction Server (for Multimedia details).
- Any number of additional Interaction Concentrator instances for the Voice, Multimedia, or Outbound Contact data domains, with each ICON storing data from a single data source.

**Note:** When this topology is deployed in a multi-site environment, temporary outages in network connectivity are less likely to result in a loss of data as long as the ICON application resides on the same site as its data source.

For HA support, provide redundant sets of Interaction Concentrator instances and Info Mart DAPs for each Interaction Concentrator in the non-HA deployment, as shown in Figure 3 on page 47.

**Legend**

In Figure 4:

- Data Source 1 represents either a T-Server (for Voice details) or an Interaction Server (for Multimedia details).
- Data Source *N* represents any number of additional, optional data sources (T-Server, Interaction Server, or OCS).
- DAP roles for the Info Mart DAP depend on the data domain:
  - DAP Role 1 is either `ICON_CORE` or `ICON_MM`.
  - DAP Role *N* is `ICON_CORE`, `ICON_MM`, or `ICON_OCS`.

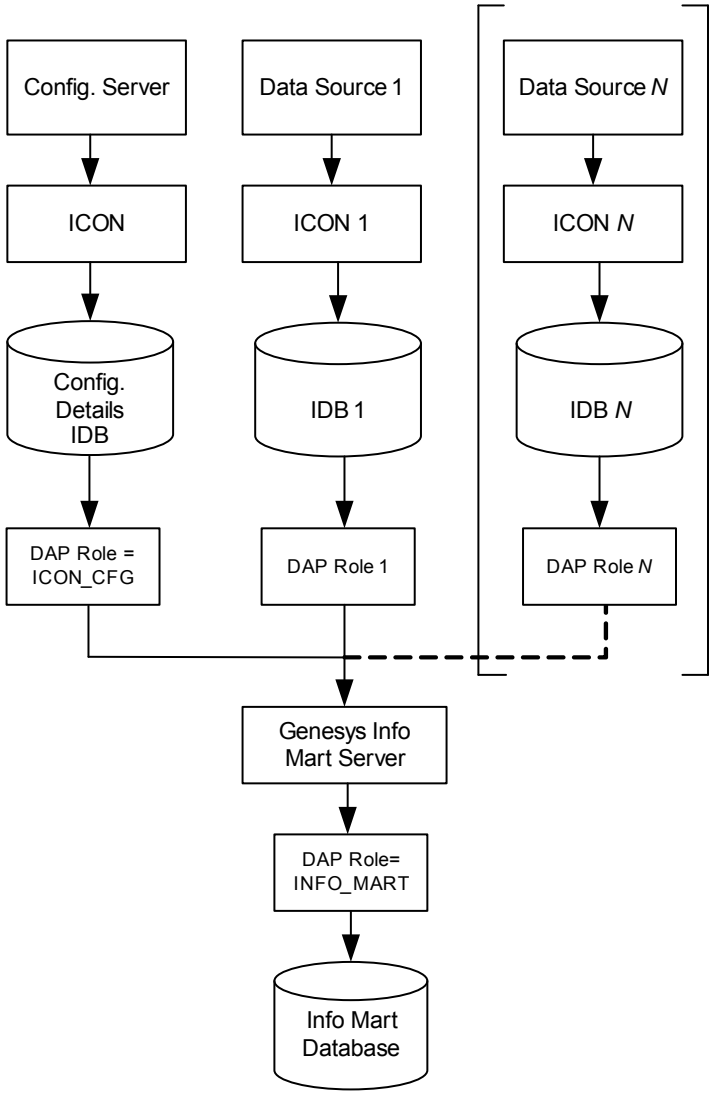


**Figure 4: One Data Source per ICON**

# Multiple Data Sources per ICON

Figure 5 illustrates a topology in which each ICON monitors multiple data sources for a data domain. This topology "building block" is supported only for the Voice and Outbound Contact data domains.

In this topology, the deployment consists of:

- A single Interaction Concentrator instance to store Configuration details.

  You can co-locate the Configuration details IDB in the same RDBMS instance with Configuration Database (see "Recommendations on Hosting" on page 53).
- At least one Interaction Concentrator instance to store data from multiple T-Servers (for Voice details) or a single Interaction Server (for Multimedia details).

- Any number of additional Interaction Concentrator instances for the Voice or Outbound Contact data domains, with each ICON storing data from multiple data sources of the same type.

**Note:** In a multi-site environment, this topology is susceptible to data delays when temporary outages in network connectivity affect connections between sites. If the ICON instance is not on the same site as one or more of the data sources, this topology might also be susceptible to data loss in a non-HA deployment, if temporary outages in network connectivity affect the connection between a data source and ICON.

For more information about identifying and mitigating data availability issues, see "Data Source Availability" on page 80.

For HA support, provide redundant sets of Interaction Concentrator instances and Info Mart DAPs for each Interaction Concentrator in the non-HA deployment, as shown in Figure 3 on page 47.

**Legend** In Figure 5:

- Data Sources 1-1 through 1-*N* represent a set of *N* T-Servers (for Voice details).
- Data Sources N-1 through N-*N* represent any number of additional, optional sets of data sources, provided that each set consists of data sources of the same type (T-Server or OCS).
- DAP roles depend on the data domain:
  - DAP Role 1 is `ICON_CORE`.
  - DAP Role N is `ICON_CORE` or `ICON_OCS`.

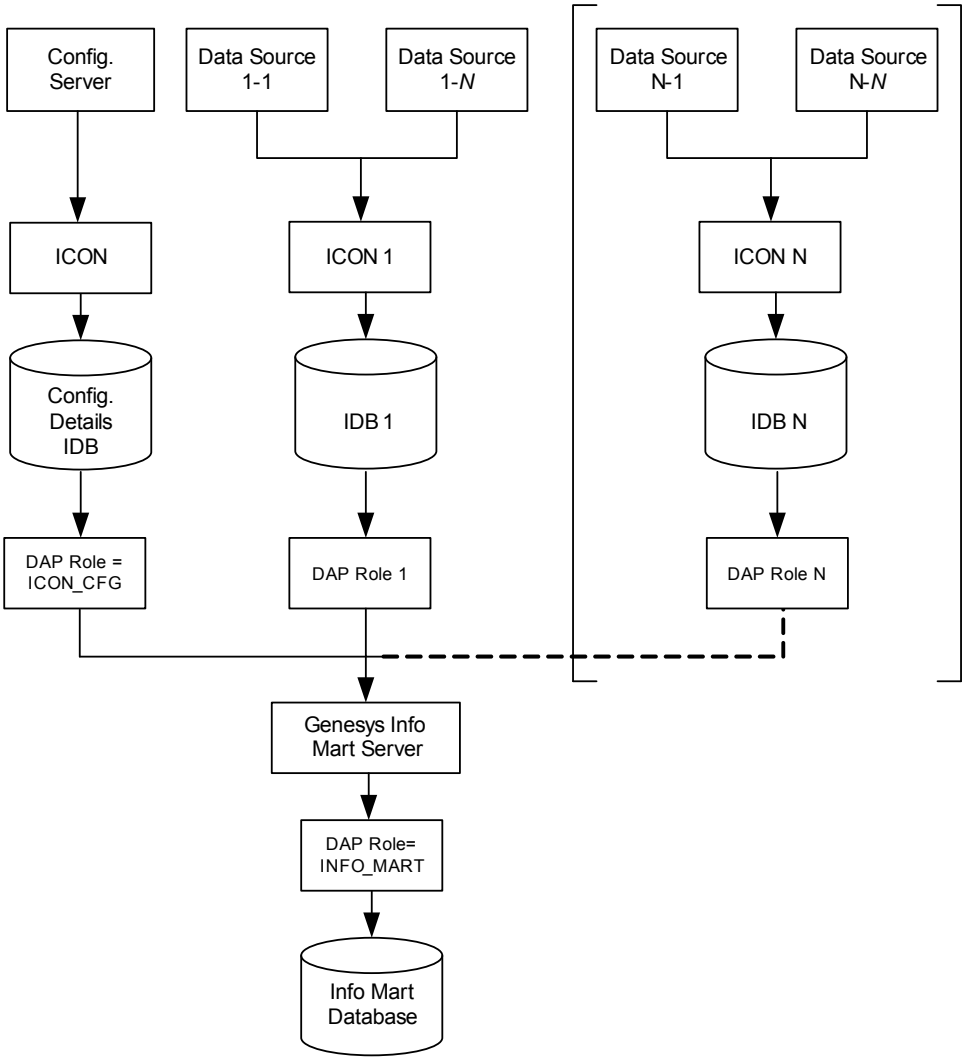


**Figure 5: Multiple Data Sources per ICON**

# Mixed Example—Multi-Site, All Details

Figure 6 on page 53 illustrates a specific multi-site deployment, as an example of how you can combine the various approaches that are described in the preceding diagrams. In this example:

- HA is provided for Configuration details and Voice details, but not for the other data domains.
- The T-Server on Site 1 and the T-Server on Site 2 are monitored by a single Interaction Concentrator instance (on Site 1).
- Two Interaction Servers, both on Site 2, are each monitored by a separate Interaction Concentrator instance (on Site 2).

- Two OCS data sources, one on Site 1 and one on Site 2, are each monitored by a separate Interaction Concentrator instance.

> **Note:** Each Interaction Server must be monitored by a separate ICON, but there is nothing special about the Outbound Contact topology requirements. Figure 6 shows one OCS per ICON simply to illustrate the possible topology "building blocks" in a multi-site context. However, as with T-Server, multiple OCS data sources can be monitored by a single ICON.

The example illustrates the following features:

- The deployment complies with the minimum requirements for supported topologies.
- Both sites host a combination of media types.
- In some cases, multiple data sources of the same type populate a single IDB; in other cases, multiple data sources of the same type each populate their own IDB.

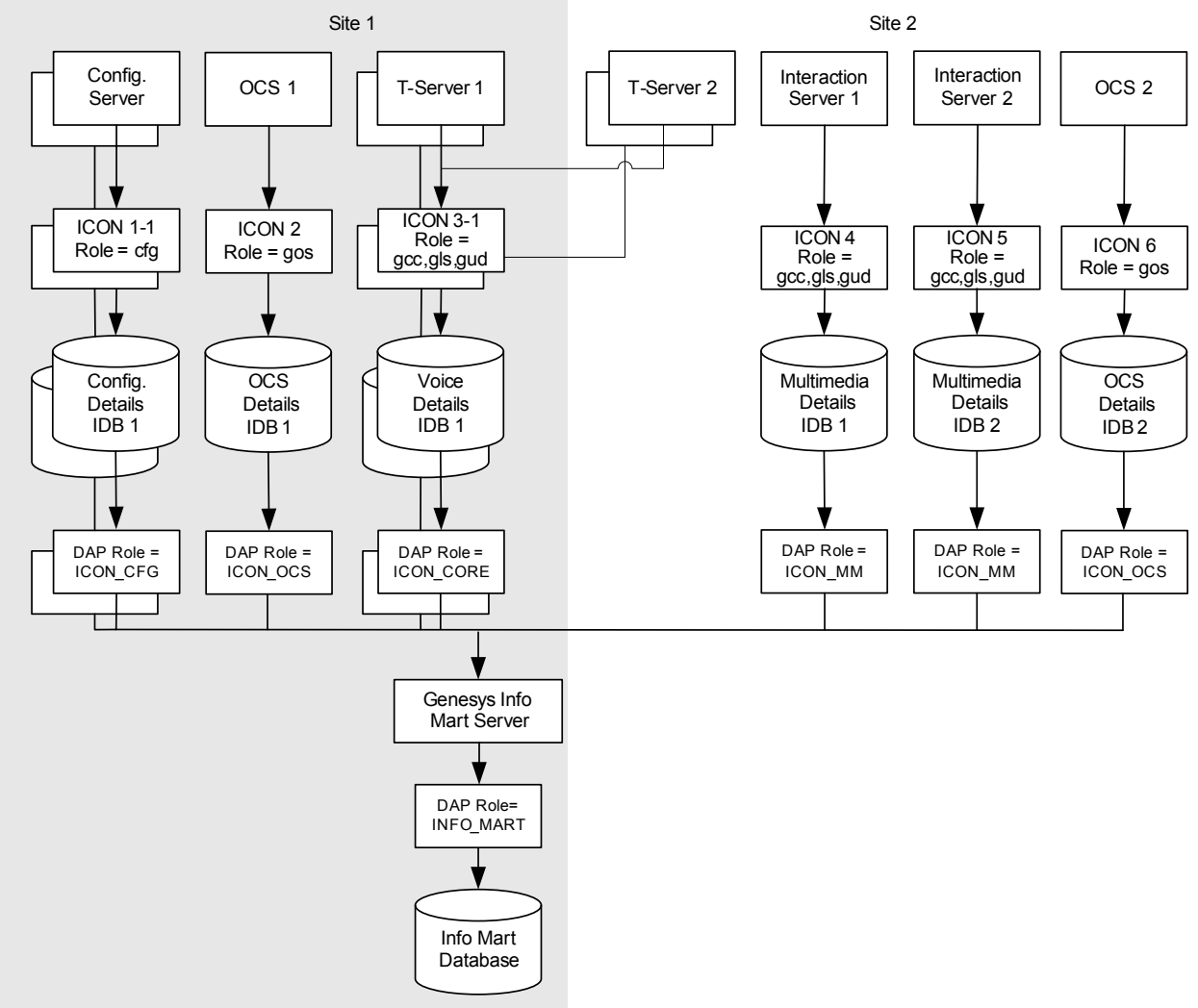


**Figure 6: Mixed Topologies Example—Multi-Site, All Details**

# Recommendations on Hosting

Genesys Info Mart has a strong dependency on the availability of the contact center configuration information that is stored in the Configuration details IDB. To maximize the availability of the data, Genesys strongly recommends that you:

- Use a separate ICON application instance to store the contact center configuration history.
- Install this ICON application on the same host as the Genesys Configuration Server that provides the source event stream.

- Configure this ICON application to share the same Genesys DB Server that the Genesys Configuration Server uses. If this is not possible, install the DB Server that ICON will use on the same host as the Configuration Server's DB Server.
- Create the IDB in the same database server instance as the Configuration Server database.
- Use the ICON feature to resynchronize configuration data as soon as data inconsistency is suspected between the Configuration Database and IDB.

Genesys also recommends that you consider HA architecture for configuration data. For more information, see "HA for Configuration Details" on page 93.

To achieve a high level of data availability, Genesys recommends that you co-locate certain components on the same host computers.

Table 2 summarizes the hosting recommendations for a sample single-site deployment that provides HA reporting of Configuration details and Voice or Multimedia details, as well as non-HA reporting of Outbound Contact details. Extrapolate from these hosting recommendations to scale the topology for a multi-site deployment or for additional data sources and data domains.

**Table 2: Hosting Recommendations for Configuration and Voice/Multimedia Details (HA) and Outbound Contact Details (Non-HA)**

| Host | Applications and Databases | Comment |
|---|---|---|
| A | • Primary Configuration Server<br>• ICON-1A | |
| B | • Backup Configuration Server<br>• ICON-1B | Host B provides backup support, in case Host A fails. |

**Table 2: Hosting Recommendations for Configuration and Voice/Multimedia Details (HA) and Outbound Contact Details (Non-HA) (Continued)**

| Host | Applications and Databases | Comment |
|---|---|---|
| C | • Configuration Database<br>• DB Server that provides access to Configuration Database<br>• IDB-1A (the IDB that is populated by ICON-1A) | Genesys recommends that you co-locate the Configuration details IDB and its data source.<br>A failure of Host C results in Configuration Server being unable to write to Configuration Database. Running on a separate host, Configuration Server can continue to write configuration changes to its history log while Host C is being restored; the maximum amount of configuration changes that Configuration Server can write to its history log is configurable. Genesys recommends that you set the `max-record` configuration option in Configuration Server to the maximum valid value.<br>Genesys recommends that the DB Server that provides access to IDB be located on the same host as IDB. To prevent the situation in which Configuration Server continues to write to Configuration Database while ICON cannot write to IDB, you might consider using the same DB Server to access both databases. On the other hand, to avoid a heavy load on the DB Server that provides access to Configuration Database, you might consider deploying a separate DB Server instance on either this or another host.<br>**Note:** You can deploy an HA pair of DB Servers to access Configuration Database. If you do, Genesys recommends that you install the primary DB Server on Host C. You can install the backup DB Server either in a separate directory on Host C or on a different computer, such as Host B. |
| D | • DB Server that provides access to IDB-1B<br>• IDB-1B (the IDB that is populated by ICON-1B) | Host D provides backup support in case the IDB on Host C is no longer being populated. |
| E | • Primary T-Server or Interaction Server<br>• ICON-2A | As a general recommendation, select a network location for an ICON server to be the same host or to be close to the T-Server or Interaction Server host.<br>If ICON is located away from its data source, the connection between the two servers is more likely to break. A loss of connection results in missing notifications about interaction or agent activity; this data cannot be restored. |
| F | • Backup T-Server or Interaction Server<br>• ICON-2B | Host F provides backup support, in case Host E fails. |

**Table 2: Hosting Recommendations for Configuration and Voice/Multimedia Details (HA) and Outbound Contact Details (Non-HA) (Continued)**

| Host | Applications and Databases | Comment |
|---|---|---|
| G | • DB Server that provides access to IDB-2A<br>• IDB-2A (the IDB that is populated by ICON-2A) | Genesys recommends that the DB Server that provides access to IDB be located on the same host as IDB.<br>If ICON is located away from IDB, your configuration must account for data latency.<br>A loss of connection between ICON and its IDB does not necessarily result in a loss of data, because ICON continues to write data to the persistent storage until the database connection is restored. |
| H | • DB Server that provides access to IDB-2B<br>• IDB-2B (the IDB that is populated by ICON-2B) | Host H provides backup support, in case the IDB on Host G is no longer being populated. |
| I | • OCS<br>• ICON-3 | As a general recommendation, select a network location for an ICON server to be the same host or to be close to the OCS host.<br>If ICON is located away from its data source, the connection between the two servers is more likely to break. A loss of connection results in missing notifications about Outbound Contact activity; this data cannot be restored. |
| J | • DB Server that provides access to IDB-3<br>• IDB-3 (the IDB populated by ICON-3) | Genesys recommends that the DB Server that provides access to IDB be located on the same host as IDB.<br>If ICON is located away from IDB, your configuration must account for data latency.<br>A loss of connection between ICON and its IDB does not necessarily result in a loss of data, because ICON continues to write data to the persistent storage until the database connection is restored. |

**Table 2: Hosting Recommendations for Configuration and Voice/Multimedia Details (HA) and Outbound Contact Details (Non-HA) (Continued)**

| Host | Applications and Databases | Comment |
|---|---|---|
| K | • Genesys Info Mart Server application | Host K presents a single point of failure.<br>Failure of the Genesys Info Mart Server does not necessarily result in data loss, because the data might still be in the IDB(s); however, failure of the Genesys Info Mart Server might delay data availability. |
| L | • Info Mart database | Host L presents a single point of failure.<br>Failure of the Info Mart database might result in data delays, but it does not usually result in data loss, provided that you have implemented adequate database management strategies to protect data. Genesys recommends that you perform frequent database backups or use failover strategies, such as clustering or mirroring to minimize delays and data loss. For example, if the Info Mart database fails, but the information in IDBs remains intact, Genesys Info Mart will process the IDB data later, when the Info Mart database is restored from backup. |

Chapter

# 4 Database Considerations

This chapter describes database issues that you must consider before you deploy Genesys Info Mart. It contains the following sections:



In addition to the topics that are discussed in this chapter, there are several deployment-specific Genesys Info Mart database design considerations that are outside the scope of this *Deployment Guide*, including partitioning, indexing and storage. To develop a suitable physical database design and implementation for your environment, consult your database administrator or data warehousing specialist.

## Databases in Your Genesys Info Mart Deployment

Genesys Info Mart ships predefined jobs that run on the Genesys Info Mart Server to extract, transform, and load (ETL) data. These ETL jobs access several databases, as described in "Genesys Info Mart Jobs" on page 24. There are also several supported database schemas (Genesys Info Mart and Genesys

Info Mart Tenant Views), as described in "Genesys Info Mart Database" on page 26.

**Notes:**

- When you install Genesys Info Mart, you select a single RDBMS type: Microsoft SQL Server or Oracle. All source databases (one or more IDBs) and the target database (Info Mart) must reside in databases of this same RDBMS type. The only possible exception is the Interaction Database (IDB) from which Genesys Info Mart extracts configuration history.
- You must configure your Info Mart database to be case insensitive.
- Be sure to consult the Genesys Info Mart Release Advisory for important information about known RDBMS issues and potential solutions to those issues.

# Database Capacity

As discussed in Chapter 1 on page 21, Genesys Info Mart 8.0 reads from and writes to the Info Mart database. To determine the database capacity requirements for the Info Mart database in your environment, answer the following questions:

- How much space does the database require?
- How much space is needed for future growth?
- How powerful should the database server be?
- How do you plan to use the Genesys Info Mart database?
- How do you plan to manage the Genesys Info Mart indexes?
- What will your purging strategy be?

Use the following information to help answer these questions.

## Storage Capacity

The Genesys Info Mart database must have the capacity to store the row data that is extracted from the required number of IDBs, as well as the facts and dimensions that the ETL jobs load. The Genesys Info Mart database grows over time, because the ETL jobs load new facts and dimension values each day.

If your deployment includes Genesys Interactive Insights (GI2) or the Reporting and Analytics Aggregation (RAA) package, you will also need to provide storage for the aggregate tables and indexes that you create in order to improve query performance, and to provide storage for an extended period of time that suits your requirements. See the RAA documentation set (described on page 347) for more information.

Genesys Info Mart provides a maintenance job that purges data in the Info Mart database. The maintenance job automatically purges data in accordance with configurable data retention policies. For more information, see "Maintenance" on page 80.

Genesys provides an interactive tool, the *Genesys Info Mart 8.0 Database Size Estimator,* to help you estimate the size of your Info Mart database.

## Processing Capacity

The ETL jobs perform many intensive SQL operations against extracted data in the Info Mart database, including `SELECT`, `INSERT`, and `UPDATE`. These operations require significant resources, such as disk (for tables, indexes, and logs), memory, and CPU capacity.

The ETL jobs load data in the Info Mart database at the end of each ETL cycle. The amount of time that the ETL jobs run varies, depending on how often you schedule them and on the volume of data that they process. The ETL jobs do not create or update statistics on the Genesys Info Mart fact tables.

If you intend to use the Genesys Info Mart database as the database that your business applications query, provide additional capacity so that many users can query the data.

If you intend to upload Genesys Info Mart data to a data warehouse, instead of having users query the data directly, you do not need to have the capacity to support many users who query the data. You will probably require fewer indexes, and will probably store the data for less than a year.

**Note:** Adding multiple indexes to those fact tables in the Info Mart database that contain data that relates to interactions or resources can have a significant negative effect on the performance of `Job_TransformGIM`. Genesys recommends that you first test the impact of additional indexes in a non-production environment.

# Database Partitioning

Genesys Info Mart 8.0 supports the use of partitioning in the Info Mart database in Oracle 10g or 11g (range partitioning only) and in Microsoft SQL Server 2005 and 2008 deployments. In general, if partitioning is used, fact tables and associated indexes in GIDB and the dimensional model are partitioned. Configuration object tables and configuration relationship fact tables are not partitioned, and all dimension tables are also not partitioned.

If your contact center is large and operates at high volumes, Genesys strongly recommends that you implement partitioning. Otherwise, maintenance of a nonpartitioned database can significantly affect performance.

For each applicable RDBMS, Genesys Info Mart provides a separate script to create the partitioned database schema. The purpose of the script is to identify the tables that are partitioned. The script creates a single, throwaway partition for each partitioned database object; these partitions are purged during the first run of `Job_MaintainGIM`. During initialization, `Job_InitializeGIM` creates the first set of partitions to be populated during the first ETL cycle, and `Job_MaintainGIM` subsequently creates additional partitions as required.

Configuration options enable you to specify the size of the partitions in GIDB and the dimensional model (see `partitioning-interval-size-gidb` and `partitioning-interval-size-gim`, starting on page 254). Another configuration option, `partitioning-ahead-range` (page 253), enables you to control how far ahead the Genesys Info Mart jobs will create partitions, in preparation for future ETL cycles. (`Job_InitializeGIM` creates the partitions in the first instance, then `Job_MaintainGIM` creates them on an ongoing basis.)

**Note:** By default, Genesys Info Mart runs the maintenance job daily. If your database is partitioned, ensure that you do not jeopardize routine maintenance of the partitions by inappropriately changing the configuration options that control scheduling of the ETL cycle and the maintenance job.

For more information about the scheduling-related configuration options, see "schedule Section" on page 265.

# Source Data Retention and Purging

Genesys Info Mart does not automatically purge source data in IDB. However, Genesys does provide stored procedures that are recommended for source database purging. When you use these procedures, be sure to:

- Avoid deleting data that has not yet been extracted.
- Retain enough data to allow for error recovery and problem determination.

The amount of data that you should retain in your source databases depends on both the database server's hardware resources—such as memory and disk space—and the performance of its disk subsystems.

Generally, you should aim to achieve a balance that enables you to retain enough data in your Interaction Concentrator databases without affecting either the operating performance of your source database or the extraction process of Genesys Info Mart.

Genesys provides specific recommendations regarding source data retention and purging frequency. For more information, see the *Genesys Info Mart 8.0 Operations Guide*.

# Database Object Owners and User IDs

Genesys Info Mart requires access to source and target databases to perform a variety of operations. Logically, there are two types of users:

- Owner—The owner's account is used by a database administrator to run the scripts that create the database objects. Each `Owner ID` must have the necessary privileges to perform the required operations against the applicable database (see "Database Privileges" on page 63).
- User—The user's account is used by the ETL jobs to connect to the database. Each `User ID` must have the necessary privileges to perform the required operations against the applicable database (see "Database Privileges" on page 63).

**Note:** In Microsoft SQL Server 2005 and Microsoft SQL Server 2008, all database objects are contained in *schemas,* instead of being owned by a database *owner.* The SQL Server logins are mapped to database users, who can own objects in the various schemas. In addition, a *default schema* is configured for each database user, to contain unqualified database objects.

In this document, for Microsoft SQL Server 2005 and 2008, the term *Owner ID* refers to the database user who owns the object—for example, the database user who created a view.

Identifying the owner and user accounts that you will use in your Genesys deployment is an important step in your deployment and installation planning. After you have identified the accounts that you will use, record the IDs and passwords on the applicable worksheet that is provided in "Installation Worksheets" on page 315. You will need this information to create the database schemas and to specify connection parameters when you configure the database access points (DAPs).

In general, the `User ID` that you specify to connect to each database does not need to be the same as the `Owner ID`. For Oracle and for Microsoft SQL Server 2005 and Microsoft SQL Server 2008, you can create the database objects in a schema that is different from the `User ID` that accesses them, provided that the `User ID` has the required privileges.

## Database Privileges

Table 3 summarizes the owner account privileges that are required for the respective source and target database schemas.

### Table 3: Required Owner Account Privileges

| Database | Required Privileges[a] | Comments |
|---|---|---|
| **Source Database Schemas** | | |
| IDB | `CREATE` tables and indexes | Required only for IDBs from which Genesys Info Mart will extract Voice or Multimedia details. |
| **Genesys Info Mart Database Schemas** | | |
| Info Mart | `CREATE`, `DROP`, and `ALTER` tables, views, synonyms,[b] indexes, and, if applicable, partitions | |
| Info Mart Views | Full DBA access to the Info Mart database schema and the Tenant Views user schema(s) | |
| Info Mart Tenant Views | `CREATE` views and synonyms[b] | For Microsoft SQL Server 2005, separate database users and schemas are required for each tenant. |

a. Privileges are called *permissions* in Microsoft SQL Server.

b. Synonyms are created only for Oracle databases.

Table 4 summarizes the user account privileges that are required for the respective source and target database schemas.

### Table 4: Required User Account Privileges

| Database | Required Privileges[a] |
|---|---|
| **Source Database Schemas** | |
| IDB | • `SELECT` on <`tables in the IDB`>. See Table 24 on page 331 for a list of the IDB tables from which the ETL jobs extract data. |

**Table 4: Required User Account Privileges (Continued)**

| Database | Required Privileges[a] |
|---|---|
| **Genesys Info Mart Database Schemas** | |
| Info Mart | • `SELECT` on all tables and views.<br>• `INSERT, UPDATE,` and `DELETE` on all tables.<br>• RDBMS-specific privileges that are required to truncate tables.<br>• `EXECUTE` on all stored procedures.<br>• (For databases that implement partitioning) RDBMS-specific privileges that are required to `CREATE, DROP,` and `ALTER` tables, indexes, and partitions.<br>• For migration, `CREATE, DROP,` and `ALTER` privileges on all tables, and `CREATE` and `DROP` privileges on indexes. |
| Info Mart Views | • `SELECT` on all views. |
| Info Mart Tenant View[b] | • `SELECT` on all views in the applicable tenant-specific Genesys Info Mart Tenant View schema. |

a. Privileges are called *permissions* in Microsoft SQL Server.

b. Applicable only for read-only views, which are strictly required only for multi-tenant deployments.

# Database User Authentication

The ETL jobs make many database connections as they extract, transform, and load data. To ensure that connections are authenticated quickly, review the authentication policy that is configured in your database software. Authentication timeouts can greatly increase the amount of time that it takes for the ETL jobs to run to completion.

Chapter

# 5 Data Processing

Both data quality in the Genesys Info Mart database and the performance of the Genesys Info Mart jobs that extract, transform, and load (ETL) data depend, to a large degree, on the amount and timeliness of new and late-arriving data that a given ETL cycle has to process. This chapter provides some details on extraction and transformation processing that help to answer the following questions during the planning process, to enable you to configure ETL jobs appropriately for your deployment:

- How much new data should be extracted and transformed in each cycle?
- What is the optimal transaction size?
- How long should ETL processing wait for missing data, so that reports reflect the most accurate data, yet the jobs do not get stuck?

This chapter contains the following sections:



## Data Extraction

### High-Water Marks

Genesys Info Mart 8.0 extracts data by using timestamp values as the *high-water mark,* which is a term that is used for the indicator of the starting point for the next extraction. For example, if data was already extracted until 3:00 PM, the extraction job checks that the high-water mark (HWM) value from the previous cycle is 3:00 PM and extracts the next group of data starting from 3:00 PM.

## Transaction Size for Extract

To better manage database performance, data is extracted in chunks, which are defined by a configurable time interval. A chunk of data for each table (or group of tables) is committed in a separate transaction.

## Extraction Window

To align the data in time, the extraction job extracts all data from all tables that fits inside the same extraction window. The extraction window advances forward if there is available data, and it waits a configurable, limited time for stuck data. Figure 7 illustrates the extraction window.

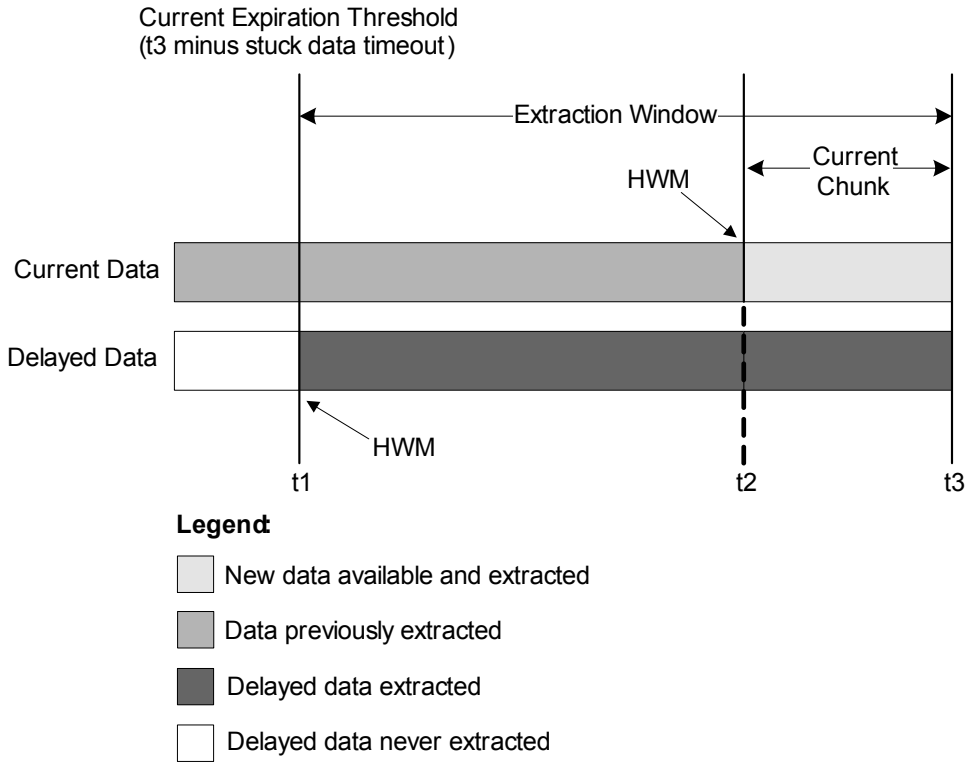


**Figure 7: Extraction Window for a Data Domain**

**Extraction Window Example**

For example, say that the configured chunk size is 15 minutes and the stuck data threshold is set to the default value of 28860 (8 hrs 1 min.). If the previous extraction cycle extracted data until 2:45 PM (`t2` in Figure 7), and if data is available beyond 3:00 PM (`t3`), the extraction window is from 6:59 AM (`t1`) to 3:00 PM in the current ETL cycle. If there is unextracted IDB data that has timestamps earlier than 6:59 AM, that data is not, and will never be, extracted. In this scenario, the Genesys Info Mart Server identifies that all data has been processed by the extraction job up to 6:59 AM; in other words, Genesys Info Mart adjusts all delayed extract HWMs (before `t1`) to 6:59 AM, and the

transformation job proceeds to transform available data (see "Data Transformation" on page 72).

To look at the example in another way, if Genesys Info Mart extracted interactions that have timestamps up to 6:59 AM (`t1`) but some data is available up to 6:44 AM (`t0`) only, the ETL will wait for the delayed data until it has extracted data up to 3:00 PM (`t3`). If the delayed data (in other words, that has timestamps up to 6:59 AM) arrives in IDB after the leading edge of the extraction window has moved past 3:00 PM, the delayed data will never be extracted, because the extract HWM will have moved past the 6:59 AM timestamp.

### Separate Extraction Windows for Each Data Domain

The extraction job manages extraction windows for different data sources (server types) separately. Thus, up to four extraction windows could coexist concurrently—one for data from each of the following server types: Configuration Server, T-Server, Interaction Server, and Outbound Contact Server (OCS).

However, the actual time ranges of the extraction windows and HWMs for each data domain might be different. To extend the preceding example, if new Voice details data is available but there is no new Outbound Contact details data, the extraction window and HWM for Voice details will advance as described in the example, but the extraction window and HWM for Outbound Contact details will not. So the concurrent extraction windows could be, say, from 6:59 AM to 3:00 PM for the Voice details data domain (T-Server data source) and from 6:44 AM to 2:45 PM for the Outbound Contact details data domain (OCS data source).

### Controlling Data Extraction

The extraction window defines how much data to extract in one extraction cycle. Except for configuration *object* data, you can control the amount of data that is extracted in each ETL cycle. All available configuration object data is always extracted in one extraction cycle, as soon as it becomes available in IDB, so that it is available for the transformation of the other data. For all other types of data, configuration settings for the chunk size and stuck data waiting period affect how much data will be extracted during each ETL cycle.

A separate configuration option, `extract-data-cfg-facts-chunk-size` (see page 248) enables you to configure a larger extraction window for configuration *relationship* data than for other types of data, so that all available configuration relationship data can be extracted and transformed in one extraction cycle. For Voice details, Multimedia details, and Outbound Contact details, the `extract-data-chunk-size` (see page 248) and `extract-data-stuck-threshold` (see page 249) configuration options determine the size of the extraction window for all three data domains. However, the actual time ranges for which data is being extracted and the HWMs for the different data domains might not be synchronized because of differences in data availability, as described above.

For more detailed information about how Genesys Info Mart extracts data for the various data domains, see the section about extraction processing in the

chapter about understanding Genesys Info Mart jobs in the *Genesys Info Mart 8.0 Operations Guide*.

### Concurrency

Data is extracted concurrently using a configurable number of threads. In general, data from each table in a source database that is recorded from each server (T-Server, Interaction Server, and OCS) can be extracted concurrently. When the configured number of threads is 1 (one), all extraction tasks are executed sequentially. Setting the number of threads to a higher number can help to improve performance of the extraction job; however, it requires more hardware resources: operational memory (RAM) and database transaction log.

### Limitations

Genesys Info Mart does not support extraction of data that has an event timestamp earlier than the previous HWM. Therefore, the extraction job might skip data if:

- The IDB data was not available until after the stuck data threshold expired. For example, stale data might result if Genesys Info Mart was disconnected from IDB for a prolonged period of time.
- One data source is disabled. In this scenario, Genesys Info Mart continues to extract from available data sources for that data domain, and the extraction HWM continues to advance. By the time the data source becomes available again, the expiration threshold for the extraction window might have advanced past some of the data, so that data will never be extracted.

## Merge

The Merge process is the process of merging related voice calls after extracting their data from one or more Interaction Concentrator IDBs.

- In a single-site deployment, the merge establishes associations between voice calls that appear to be independent but are, in fact, part of the same voice interaction.
- In a multi-site deployment, the merge also processes interswitch voice calls—that is, the calls that involve parties from different monitored switches.

Genesys Info Mart automatically merges calls in the special merge tables within the Info Mart database. During the extraction process, voice data from IDB is copied into the Merge tables. The Genesys Info Mart Server merges the voice calls, and the merged calls are then moved into the GIDB tables.

# Configuring for Merge

If you collect reporting data for voice interactions, you must configure Genesys Info Mart for merge. To do so, you must identify unmonitored switches and ensure that merge-related configuration option settings are appropriate for your deployment. For more information, see Procedure: Configuring Info Mart database for merge, on page 185.

# Partially Merged Calls

When Genesys Info Mart has information about both sides of an IS-Link, the merge process combines both call records into a single, end-to-end interaction. However, there are situations in which Genesys Info Mart does not have information about both sides of an IS-Link. In these cases, only a partial merge can be performed. When the extraction job moves partially merged interactions into GIDB, the interaction records have unresolved linkages, which are referred to as *dangling links.*

The usual reasons that link information is missing are:

- One of the sites in a multi-site call is not monitored by ICON (see "Unmonitored Sites").
- All sites are monitored, but link information is delayed or missing (see "Delayed or Missing Information").

### Unmonitored Sites

In a multi-site environment in which ICON does not monitor one or more of the sites (T-Servers), data from any unmonitored site(s) will never arrive. To streamline processing, identify unmonitored sites in the `GSYS_DNPREMOTELOCATION` table in the Merge area, so that the merge operation does not wait for the stuck link timeout to expire before the procedure finalizes the partial merge of interactions with links to the unmonitored site. For more information about configuring unmonitored (remote) locations, see Procedure: Configuring Info Mart database for merge, on page 185.

After the merge process finalizes the partial merge, the extraction job moves the partially merged interaction data to GIDB. The transformation job ignores dangling links that point to unmonitored sites, and transforms the interaction as if it were an inbound or outbound call to a remote site. For example, if the dangling link provides information about the target for an internal transfer, the interaction will be transformed as an inbound call, instead of as a transfer.

### Delayed or Missing Information

Link information from a monitored site might be delayed (for example, because of intermittent connectivity issues) or permanently missing (for example, because of extended outage of an ICON application during an extraction cycle).

In these situations, the merge operation will wait for the missing data until the stuck link timeout expires. If the data arrives before the timeout expires (delayed data), the interaction is processed normally. If the data does not arrive before the timeout expires (missing data), the ETL finalizes the partial merge, and the extraction job moves the partially merged interaction data to GIDB. The transformation job processes the interaction as a partially merged call with dangling links (see "Transforming Partially Merged Calls" on page 72).

**Merge Operation Stuck Threshold**

The merge operation uses the `max-call-duration` configuration option to determine the stuck link timeout. The timeout is determined in relation to the earliest HWM for all extracted data; the calculation is: min(HWM for all extracted data) – `max-call-duration`. If an unpaired `G_IS_LINK` record has a link initiation timestamp earlier than the stuck link threshold, the merge operation determines that the link is stuck, and moves the record into GIDB.

### Transforming Partially Merged Calls

The transformation job treats dangling IS-Links as a data inconsistency, which it handles as described in "Data Inconsistencies During Transformation" on page 78. The interaction-level error policy option that controls behavior when the transformation job encounters this data inconsistency is `error-policy-islink-dangling` (see page 240).

Partially merged calls have implications for data quality. For more information, see the section about data issues in a partially monitored environment in the *Genesys Info Mart 8.0 User's Guide*.

## Data Transformation

**Transaction Size in Transform**

To make transaction size manageable, Genesys Info Mart 8.0 transforms data in chunks. After a chunk of data is transformed, a new transaction is committed. A chunk (or transaction size) is defined as all data in a given primary (main) table that is marked by the same audit key, plus related data in a secondary (details) table that is marked with its own audit key. For example, `GIDB_G_IR_V` (for voice) or `GIDB_G_IR_MM` (for multimedia) is the primary `GIDB` table for data that is transformed into `INTERACTION_RESOURCE_FACT` or `MEDIATION_SEGMENT_FACT` tables, while the secondary GIDB table in this case is `GIDB_G_PARTY_HISTORY_V` or `GIDB_G_PARTY_HISTORY_MM`, respectively.

The transformation job uses the audit key that the extraction job assigned to GIDB data during the extraction. This means that the transaction size for the transformation job depends on the transaction size of the preceding extraction job within the same cycle. With the same configuration parameters, you control the transaction size for both jobs.

## Horizontal Transform

Horizontal transformation is tied closely to chunking. The data from the primary table (such as `GIDB_G_IR_*` in the previous example) is transformed only when the data in the secondary table(s) is available (`GIDB_G_PARTY_HISTORY_*` in the previous example). In other words, a dependency between the primary and secondary tables is built into the transformation logic. If data arrival in the secondary IDB table is delayed, a current data chunk in the primary table is not processed either. Transform checks that all dependent information is available in GIDB: if data for the chunk is not available in some of the dependent tables, the chunk is not processed until the next run of the transform job.

Under normal conditions, the transform job would not get stuck, because the data that is currently missing would be extracted during a subsequent ETL cycle. It is important to allow enough time for the delayed data to appear in the source database. If data is missing forever (for example, because a given ICON instance was stopped and was then uninstalled), the extraction job moves the HWM forward after the stuck threshold expires, and transformation proceeds with the available data. If the transform job detects references to unavailable data, it generates a log message.

### Delayed Data

If data from one data source is delayed, transformation of data from all data sources for that data domain is delayed while the transformation job waits for the missing data.

A configuration option in the `[gim-etl]` section, `delayed-data-threshold` (see page 247), enables you to specify a timeout after which Genesys Info Mart logs a detailed message if expected data does not arrive. The message (55-20110) includes information about the data sources and IDB tables from which related data was expected.

Genesys recommends that you set an alarm on this message, so that you can investigate the reasons for data delays in a timely manner and take appropriate action. Depending on the reasons for the delay and your reporting requirements, appropriate action might include:

- Temporarily disabling an unavailable data source by clearing the `State Enabled` check box on the `General` tab of the data source `Application` object. Disabling the data source means that Genesys Info Mart will no longer expect to receive any data from it, so transformation of data from other data sources in the same data domain will not be delayed.
- Interrupting the job or temporarily stopping the ETL schedule, so that the next run of the extraction job does not advance the HWM to a point that would result in permanent loss of the delayed data.

### Late- and Early-Arriving Virtual Queue Data

Because the T-Server or Interaction Server that handles virtual queue data might not be the same T-Server or Interaction Server that handles the associated interaction, the virtual queue and interaction data streams are not necessarily synchronized. Virtual queue data might be available in GIDB at the same time as the interaction data, before the interaction data arrives, or after some delay.

Late- and early-arriving data requires additional processing and causes additional updates to fact tables in the dimensional model. The reasonably intensive processing has a performance impact.

Genesys Info Mart requires that you use separate virtual queues for voice and multimedia interactions in your contact center deployment. For example, if a `Virtual Queue` has been configured on a voice switch, the DNs that use that virtual queue must also be configured on a voice switch; conversely, if the DNs that use a particular virtual queue are configured on a multimedia switch, also configure the `Virtual Queue` on a multimedia switch.

## Multimedia Data Transformation

Genesys Info Mart provides integrated processing of voice and multimedia interactions. However, because of differences in the characteristics of voice and multimedia interactions, there are additional special requirements for the internal processing of multimedia interactions. For more information about considerations for multimedia interaction processing, including their implications for configuration and management of your Genesys Info Mart deployment, see Chapter 7 on page 97.

## Configuration Recommendations

The following configuration options control important aspects of ETL operation:

- `extract-data-chunk-size` controls the size, in seconds, of the time interval for which the data is committed in one transaction. For more information about this option, see page 248.
- `extract-data-cfg-facts-chunk-size` controls the size, in seconds, of the time interval for which configuration relationship data is committed in one transaction. For more information about this option, see page 248.
- `extract-data-stuck-threshold` specifies the time, in seconds, that Genesys Info Mart waits for delayed data. For more information about this option, see page 249.
- `extract-data-thread-pool-size` sets the maximum number of threads that will be used to extract data concurrently. For more information about this option, see page 250.

- `extract-data-max-conn` sets the maximum number of connections that can be used to extract data concurrently from each database access point (DAP) through which Genesys Info Mart accesses IDB. For more information about this option, see page 249.
- `max-call-duration` specifies the time, in seconds, that:
  - The merge operation waits for delayed IS-Link information during extraction processing.
  - The transformation job waits for After Call Work (ACW) information.
  - The transformation job performs party activity lookup for multimedia interactions.

  For more information about this option, see page 250.
- `merge-chunk-size` controls the size, in rows, of a chunk of merged data for transformation. For more information about this option, see page 253.

When you select values for these options, keep in mind the following recommendations:

- Chunk size should be small enough to process database transactions quickly, yet large enough to avoid the overhead that is caused by almost empty chunks. Note that the number and frequency of transactions affect database performance.

  For example, if you have one month's worth of data in IDBs in your lab environment, but data density is low (under 10,000 calls per day), it makes sense to increase the chunk size temporarily to one day (about 85,000 seconds). By contrast with the default chunk size of 900 seconds, this new setting would enable Genesys Info Mart to speed up significantly the processing of the backlog of IDB data.
- Transformation chunk size is defined by the extraction chunk size. Therefore, consider the size of the transform transaction when you select the value for `extract-data-chunk-size`.

  For Voice details, the supplementary `merge-chunk-size` configuration option enables you to limit the chunk size for merged data, to assist you in managing situations in which the Merge tables grow excessively large (for example, if disruptions during extraction processing result in the Merge tables containing more than one extraction chunk's worth of unmerged data).
- The waiting period for stuck data should be large enough to ensure adequate data quality, yet small enough so as not to cause the jobs to wait for missing data longer than is acceptable for adequate performance.
- The recommended setting range for `extract-data-thread-pool-size` is between 16 and 32 threads.

You must also specify in the configuration how often the ETL cycle (extraction and transformation) runs. Make sure that the transaction size for the extraction job (`extract-data-chunk-size`) is greater than or equal to the interval that is configured between extraction cycles.

# Aggregation

In deployments that include GI2 or the separately installed Reporting and Analytics Aggregates (RAA) package, before the transformation is committed, the transformation job notifies the aggregation engine that there is new or changed data. The aggregation engine writes the data to an auxiliary table. The aggregation job, which is implemented as a plug-in inside the Genesys Info Mart Server process, reads the data from the auxiliary table, aggregates new data and recalculates historical aggregates, and updates the aggregate tables in the Info Mart database.

For more information about the aggregation package and running the aggregation process, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide.* For information about managing the aggregation job through the Administration Console, see the chapter about working with ETL jobs in the *Genesys Info Mart 8.0 Operations Guide*.

# Error Handling

The main categories of error that Genesys Info Mart might encounter are the following:


- Invalid Configuration, page 76
- Unavailable Data Sources, page 76
- Missing Configuration Data, page 77
- Data Inconsistencies During Transformation, page 78


## Invalid Configuration

Genesys Info Mart checks the configuration of Genesys Info Mart, Interaction Concentrator, and the database environment. For more information about Genesys Info Mart behavior with regard to required configuration settings, see “Deployment Verification” on page 78.

## Unavailable Data Sources

In the path from the data source through ICON to Genesys Info Mart, there are three possible points of failure that can arise from either component or network outages:

- Between the data source and ICON
- Between ICON and IDB
- Between IDB and Genesys Info Mart

At the start of each extraction job, as described in “Data Source Availability” on page 80, Genesys Info Mart compares a list of configured data sources

against a list of available data sources. Any discrepancy between the lists enables Genesys Info Mart to infer that a failure has occurred.

During extraction processing, Genesys Info Mart uses information in the G_DSS_*_PROVIDER tables in IDB to monitor activity on each data source session. In particular, Genesys Info Mart compares last event and NoData timestamps to identify connection losses.

During transformation processing, if expected data does not arrive within a configurable time interval, Genesys Info Mart generates a log message to alert you about the delay from a particular data source. For more information, see "Delayed Data" on page 73.

For more information about the scenarios in which delays might occur and their implications for data quality, see the section about error handling in case of missing data in the *Genesys Info Mart 8.0 User's Guide*.

## Missing Configuration Data

During transformation, Genesys Info Mart might encounter references to configuration objects about which it has no other data.

For Configuration details themselves (configuration object records or configuration relationship records), missing configuration objects are an error that indicates a problem in the source data. For example, the IDB schema has no constraint against foreign-key violations; therefore, a configuration relationship record might reference a configuration object for which there is no record. (For example, if an agent was created before ICON started, and then the agent was added to a group and subsequently deleted, there will be a record in the GCX_GROUP_AGENT table but no corresponding record in the GC_AGENT table.) When the transformation job encounters this kind of missing configuration data, it discards the configuration relationship record and records the information in the STG_IDB_FK_VIOLATION table.

When Genesys Info Mart transforms other kinds of fact data, the transformation job treats missing configuration objects as delayed dimension data. In other words, the transformation job does not yet have sufficient information to identify the configuration object, but it expects to receive that information later. In the meantime, the transformation job has sufficient information (object type and unique configuration ID) to enable it to create an incomplete record as a placeholder for the missing object, so that transformation can continue. When data about the missing configuration objects subsequently arrives from Configuration Server, the incomplete records are populated with full information.

### Missing Virtual Queue Resource Example

For example, starting with Universal Routing Server (URS) release 8.0, URS provides the database identifier that Configuration Server assigns to the virtual queue (VQ DBID) in EventRouteUsed for the Virtual Queue, and ICON stores the DBID. If an interaction is routed through a virtual queue for which Genesys Info Mart has not yet created a Resource record, Genesys Info Mart uses the available data about VQ DBID to create a placeholder VirtualQueue

record in the RESOURCE_ table, and the Mediation Segment Fact record references that Resource. When full information arrives from Configuration Server, Genesys Info Mart updates the VirtualQueue record in the RESOURCE_ table.

## Data Inconsistencies During Transformation

Genesys Info Mart does not make any special effort to validate data consistency during processing. However, the transformation job will report data inconsistencies if the transformation algorithm encounters them.

Genesys Info Mart has a two-level approach to handling errors during transformation:

- Interaction level—Error policy options enable you to configure the behavior of the transformation job when it encounters various types of data inconsistency during processing (for example, missing IS-Link information, missing party creation data, or duplicated party creation data). The options enable you to specify different treatment for different kinds of errors.

  If the option that specifies an error-handling policy at the interaction level is set to interrupt processing with an exception, the exception is handled as specified by the error policy option for the job.
- Job level—An error policy option, error-policy-irf-exception (see page 239), controls the behavior of the transformation job when it encounters an exception.

For full details about the available error policy options, see "error-policy Section" on page 239.

The default setting of the interaction-level error policy options is exception, to favor data consistency.

# Deployment Verification

The Genesys Info Mart Server checks the integrity of the Genesys Info Mart deployment. Genesys Info Mart automatically performs this check on startup; whenever the configuration of the Genesys Info Mart Application changes (option settings or connections); and whenever the configuration of any ICON Applications that are in the Genesys Info Mart Application connections changes. Genesys Info Mart also performs a configuration check at the start of each extraction cycle.

# Configuration Check

The Genesys Info Mart Server verifies the following items in the deployment. If it finds any errors, the Genesys Info Mart Server logs an error, and does not start any new jobs until the error is corrected.

**Genesys Info Mart Configuration**

- The version of the Genesys Info Mart database schema is correct.

  For information about creating the Genesys Info Mart database schema, see "Preparing the Info Mart Database" on page 183.
- Values for Genesys Info Mart `Application` options are valid. Genesys Info Mart does not perform any further checks to validate internal consistency.

  For information about the Genesys Info Mart configuration options, see Chapter 15 on page 235.

**ICON Configuration**

- Mandatory ICON `Application` options are present and their values are correct. In the `callconcentrator` section:
  - `use-dss-monitor=true`
  - `calls-in-the-past=true`
  - `om-force-adata=true`
  - `gls-active-reason-codes=true`
  - `partition-type=2`

  Any changes in the ICON `Application` configuration options or connections trigger the configuration check, but Genesys Info Mart checks only that these mandatory options have been set as required.

  For more information about ICON configuration options that affect Genesys Info Mart functioning, see "Preparing ICON" on page 149.

**Genesys Info Mart Configuration on Related Objects**

- If Genesys Info Mart–related configuration options are present on `DN`, `Switch`, or `Business Attribute` configuration objects, the options have valid values.

  For more information about Genesys Info Mart–related configuration options that can be set on related configuration objects, see "Configuring Supporting Objects" on page 228.

**General Deployment**

- The correct version of the JDBC driver is available.

  Genesys Info Mart verifies the version of the JDBC driver against the version that is specified in the `gim_cfg_checkup.properties` file. By default, the specified driver is `oracle.jdbc.driver.OracleDriver`. For information about specifying an alternative JDBC driver, see "Modifying the Configuration Checkup Properties File" on page 275.
- There is at least one ICON in the Genesys Info Mart `Application` connections.
- There is one ICON (or one HA set) that provides Configuration details in the Genesys Info Mart `Application` connections.

- Voice details, Multimedia details, and Outbound Contact details are in separate IDBs.

## Data Source Availability

As part of the configuration check, Genesys Info Mart verifies the availability of configured data sources:

1. Genesys Info Mart looks into the connections lists of all the ICON `Applications` to which Genesys Info Mart has a configured connection, and it compiles a list of all the enabled data sources that have been configured for the deployment. (A data source is *enabled* if the `State Enabled` check box on the `General` tab of the data source `Application` object is selected.) If the same data source is present in the connections list of more than one ICON application, HA mode is automatically in effect.
2. When it performs the check at the start of each extraction cycle, Genesys Info Mart also checks configuration of the ICON DAPs, and it compiles a list of all the IDBs that have been configured for the deployment.
3. Genesys Info Mart opens connections to all available IDBs, reads session information from the `G_DSS_*_PROVIDER` tables, and compiles a list of all available data sources.
4. Genesys Info Mart compares the list of configured data sources against the list of available data sources, to verify the integrity of the deployment.
5. If required, Genesys Info Mart performs maintenance on HWM(s). For example, adjustment of HWMs might be necessary if a data source that was previously in the deployment is removed from ICON connections.
6. If the list of configured data sources (or HA set) does not match the list of available ones, Genesys Info Mart logs an error and does not continue with extraction.

# Maintenance

Genesys Info Mart provides a maintenance job, `Job_MaintainGIM`, to maintain the Info Mart database and calendar data. You can schedule the maintenance job to run on a regular basis, or you can run the job manually from the Genesys Info Mart Administration Console, as required.

The main functions of the maintenance job are:

- Maintaining database partitions in partitioned databases
- Purging the Info Mart database (see page 81)
- Maintaining calendars (see page 82)

## Maintaining Database Partitions

In deployments that use a partitioned Info Mart database, `Job_MaintainGIM` creates partitions ahead of the ETL cycle, to provide storage for GIDB and dimensional model fact data in upcoming ETL cycles.

The size of the partitions, as well as the number of days ahead for which the maintenance job creates partitions, are configurable. For more information, see the descriptions of the `partitioning-interval-size-*` and `partitioning-ahead-range` options, starting on page 254.

## Purging Info Mart Data

`Job_MaintainGIM` purges:

- Completed and active fact data from GIDB, in accordance with data retention policies specified by the `days-to-keep-gidb-facts` and `days-to-keep-active-facts` options (see pages 246 and 243)
- Completed and active fact data from the dimensional model, including certain Staging tables, in accordance with data retention policies specified by the `days-to-keep-gim-facts` and `days-to-keep-active-facts` options (see pages 246 and 243)
- Discarded operational data from discard tables, as well as data lineage and ETL job history data from various Control tables, in accordance with a data retention policy specified by the `days-to-keep-discards-and-job-history` option (see page 245)

### Short-Living and Long-Living Facts

The subjects of fact records are entities such as interactions, agent login sessions, or Outbound Contact campaigns. The purging algorithms divide dimensional model and GIDB tables into two categories:

- Tables that contain *short-living entities*—Entities whose lifespans are well defined and of short durations, typically less than a day (for example, agent login sessions)
- Tables that contain data about *long-living entities*—Entities whose lifespans are indefinite and potentially of long durations (for example, e-mail interactions)

The maintenance job applies different purging strategies for short-living and long-living facts, respectively. In brief, the `days-to-keep-gidb-facts` and `days-to-keep-gim-facts` options directly specify the retention period for short-living entities (which, by definition, are completed in less than a day); the `days-to-keep-active-facts` option directly specifies the retention period for active long-living facts. However, the actual retention period for completed long-living facts is determined by the start time of the earliest active fact in the interval between the active and the completed (short-living) retention periods

(in other words, between `days-to-keep-active-facts` and `days-to-keep-gidb-facts` or `days-to-keep-gim-facts`).

**Notes:** In GIDB, voice interaction data and multimedia interaction data are stored in separate, media-specific tables. For the purposes of purging GIDB, voice interactions are treated as short-living entities, and multimedia interactions are treated as long-living entities.

In the dimensional model, voice interaction data and multimedia interaction data are stored in common tables. For the purposes of purging the dimensional model, both voice interactions and multimedia interactions are treated as long-living entities.

Be aware that active multimedia interactions might delay the purging of voice data in the dimensional model. For example, if `days-to-keep-gim-facts=400` but, on the day that `Job_MaintainGIM` is running, the earliest active interaction is an e-mail that has been left in a workbin for 550 days, voice interaction data will be retained for 550 days.

In partitioned databases, data is purged by partition. Therefore, partitioning might further delay the purging of multimedia interactions in GIDB and the purging of voice and multimedia interactions in the dimensional model, because a partition will be dropped only when all data in that partition is eligible to be purged.

For more information about data retention policies and about the purging algorithms that `Job_MaintainGIM` uses, see the description of how `Job_MaintainGIM` works in the chapter about understanding ETL jobs in the *Genesys Info Mart 8.0 Operations Guide*. See also the descriptions of the retention policy options starting on page 246.

For a list of the dimensional model and GIDB tables that contain short- and long-living facts (as defined for purging purposes), including the root tables for each category of data, see Appendix D on page 335.

## Maintaining Calendars

`Job_MaintainGIM` performs calendar maintenance by populating the calendar table(s) for future reports. The *calendar tables* are the default `DATE_TIME` dimension table and any custom calendar tables that you create to support your reporting.

`Job_InitializeGIM` initially populates the calendar table(s) as far ahead as you specify (see the `date-time-max-days-ahead` option, on page 236), so that calendar dimensions are available for your reports. `Job_MaintainGIM` continues to populate the calendar tables when the next batch of calendars is required (as specified by the `date-time-min-days-ahead` option).

For more information about creating custom calendars, see Procedure: Configuring custom calendars, on page 297.

Chapter

# 6 High Availability

Genesys Info Mart supports high availability (HA) of all types of reporting data—Configuration details, Voice details, Multimedia details, and Outbound Contact details.

In an HA environment, Genesys Info Mart ensures that, if a component or network outage prevents one of the Interaction Concentrator (ICON) processes from obtaining and storing data from its data source in its Interaction Database (IDB), the data is not lost, as long as another ICON process is able to store the information in its IDB.

This chapter provides information about the following topics that relate to Genesys Info Mart support of HA for reporting:



## Genesys Info Mart HA Model

The HA model that is used in Interaction Concentrator and Genesys Info Mart differs significantly from the Genesys standard HA model that is implemented in a majority of Genesys servers.

Unlike typical Genesys servers (for example, T-Server or OCS), two ICON instances that are deployed as an HA pair do not operate in either primary or backup mode; nor does their mode switch from backup to primary when the other ICON server fails. Instead, the redundant ICONs operate in parallel as stand-alone servers: They process incoming data independently and store the data in independent IDBs.

The Genesys Info Mart HA model is based on redundant ICONs, each of which stores data in its own IDB. In other words, more than one IDB contains the same type of data from the same data source (Configuration Server, T-Server, Interaction Server, or OCS).

For each extraction domain (Configuration, Voice, Multimedia, or Outbound Contact), Genesys Info Mart extracts data from the IDB that contains the most reliable set of data during time slices in that extraction cycle. There is no limit on the number of redundant IDBs from which Genesys Info Mart can potentially extract data. The only limiting requirement is that data from the `G_IR`, `G_CALL`, and `G_IS_LINK` tables that relates to the same voice interaction must be extracted from the same IDB.

**Architecture Diagrams**

For illustrations of the Genesys Info Mart HA architecture, see Figure 3 on page 47. See also "Recommendations on Hosting" on page 53.

# Determining HA Mode

Before it starts the extraction process, Genesys Info Mart looks into the list of connections for each ICON and compiles a list of the data sources that are supposed to be available in the deployment, based on the configured ICON connections and the configured state of the data source (`State Enabled` or disabled). If the same data source is present in the connections list of more than one ICON application, HA mode is automatically in effect.

At the same time, Genesys Info Mart opens connections to all available IDBs, reads session information from the `G_DSS_*_PROVIDER` tables, and creates a list of the data sources that are currently available.

Genesys Info Mart then compares the list of configured data sources (both IDBs and upstream data sources) against the list of available data sources. Genesys Info Mart can identify the following situations:

- *Partial failure*—Some *data source paths* (data source through ICON to IDB) are not available, but another path in the HA set is available.
- *Total failure*—All data source paths in the HA set are not available.

## HA Behavior

When Genesys Info Mart encounters failure situations in an HA deployment, behavior depends on the type of failure:

- In the case of partial failure, Genesys Info Mart will extract data from another available IDB in the HA set, as described in "Time-Based Switchover" and "Extracting Data in an HA Deployment" on page 89.
- In the case of total failure, Genesys Info Mart logs an error and does not proceed with the extraction job.

# Time-Based Switchover

Genesys Info Mart uses session information in the `G_DSS_*_PROVIDER` tables in the IDBs to identify which instance of IDB contains the most complete and accurate set of data for a particular timeframe. Genesys Info Mart then extracts data from the IDB that contains the more reliable set of data for that timeframe. Genesys Info Mart switches over from one IDB to another, as required, to extract the best set of data that is available for time slices in each extraction cycle.

To determine the timeframes of reliable data, Genesys Info Mart compares timestamps (in the time of the originating data source) for the first and last events that the respective IDBs have recorded for data source sessions.

To avoid unnecessary or premature switchovers, the HA algorithm also considers values of the `NoData` timestamp in the IDB session control tables, with allowance for inaccuracies in time synchronization between the ICON hosts in the deployment. The `NoData` timestamp is an indirect ICON heartbeat mechanism that records "no data" from ICON after a period of inactivity on the ICON connection with its data source; the inactivity interval is configurable (see the description of the ICON `dss-no-data-tout` option on page 153). The amount of time to allow as a cushion for time synchronization inaccuracies is also configurable (see the description of the Genesys Info Mart `max-time-deviation` option on page 252).

The switchover mechanism enables Genesys Info Mart to minimize data loss, if the ETL identifies gaps in the data between the previous high-water mark and the timestamps of events in the next extraction cycle.

#### More Information—Using IDB Session Control Data

- For more information about the session information that is available in IDB, see the chapter about the data source session control schema in the *Interaction Concentrator 8.0 Physical Data Model* for your RDBMS.
- For a description of the kind of analysis that the Genesys Info Mart ETL performs to detect gaps in the data from a particular data source, see the sections in the *Interaction Concentrator 8.0 User's Guide* about determining data availability and reliability and about extracting HA data.

## Criteria for Best IDB

The rules that govern how the ETL determines the time slices within an extraction cycle, as well as how it selects the best IDB source for each time slice, are designed to minimize both data loss and the number of switchovers.

- If Genesys Info Mart identifies that there are no gaps in the data from an IDB that was used in the previous extraction cycle, the ETL continues to extract from that IDB during the next extraction cycle.

- If Genesys Info Mart identifies that there are gaps in the data from one or more of the redundant IDBs, the ETL extracts data from:
  - The IDB in which there are no gaps in the data for the current extraction cycle
  - If there are disruptions in all the redundant IDBs, the IDB that had the longest period of uninterrupted data
  - If no IDB had an uninterrupted period longer than the other(s), the IDB that has the fewest gaps

Data in the Genesys Info Mart audit and control tables identifies the IDB(s) from which records were extracted during each extraction cycle, the ICON instance(s) that populated the IDB(s), and the original data source application(s) (for example, T-Server).

# Points of Failure

The session control information in each IDB enables Genesys Info Mart to minimize data loss or data delays (which might result in data loss) from the following sources of failure, which might arise from either network or component outages:

- Disconnection of an ICON from its data source (Configuration Server, T-Server, Interaction Server, or OCS).
- Disconnection of an ICON from its IDB—The session control tables in IDB provide sufficient information for Genesys Info Mart to distinguish between (a) the situation in which new data is not being stored in IDB, because there is no activity (ICON has not received any new data within the "no data" interval), and (b) failure of ICON or IDB.
- Disconnection of Genesys Info Mart from an IDB.

## Consequences of Failures

Dropped server connections and other failures that interrupt data might result in missing data or other inconsistencies in IDB that are propagated to Genesys Info Mart. For information about the kinds of inconsistencies that might arise in IDB data, see the chapter about the Interaction Concentrator HA model in the *Interaction Concentrator 8.0 User's Guide*.

Additional data inconsistencies that might arise from the implementation of HA in Genesys Info Mart are:

- Skipped data (data is available in an IDB but Genesys Info Mart never extracts it). Data will be skipped in the following circumstances:
  - IDB data becomes available only after the stuck threshold for the next extraction window has expired (see Figure 8 on page 91).

  - Voice calls were created but not ended before the failure, and the redundant ICON(s) were not available when the calls were created. In this situation, the data is skipped because Genesys Info Mart extracts only completed calls, while ICON does not store information about calls that were in progress when the connection to T-Server is established. For an illustration of this scenario, see Figure 9 on page 92 and Figure 10 on page 93.
- Incorrect or incomplete Info Mart data, as a result of missing or skipped IDB data—for example:
  - Incorrect agent states
  - Incomplete attached data
  - Incorrect Resource Roles or Technical Descriptors

    For example, for a voice interaction, ICON-1 fails while a consultation call is in progress, and ICON-2 was not available when the main call, which spawned the consultation, started. In this case, ICON-2 will report the consultation call as an independent call; Genesys Info Mart might report a corresponding resource role of `RECEIVED`, instead of `RECEIVED_CONSULT`.

  For more information about the data inconsistencies that might arise in Genesys Info Mart, see the section about data issues in a partially monitored environment in the *Genesys Info Mart 8.0 User's Guide*.

For related information, see "HA for Configuration Details" on page 93.

# Extracting Data in an HA Deployment

Genesys Info Mart uses time-based switchover to extract all types of reporting data in an HA deployment. However, there are some differences in the extraction-processing details for different types of data and data flows. In particular, the fact that Genesys Info Mart processes voice interaction data only for completed calls, while ICON does not record data for voice calls that were already in progress when ICON established the connection with T-Server, has additional implications for HA data.

This subsection contains information about the following topics:



For more information about how the ETL extracts all types of data, see "Data Extraction" on page 67.

# General Data Extraction Approach

To extract data from redundant IDBs when one of the IDBs experiences a disruption, Genesys Info Mart:

1. Determines the timestamps of data flow interruption and the timeframes of reliable data.
2. Extracts data from an IDB that it identifies as available and reliable, until the timestamp of the disruption.
3. Switches to another IDB that it identifies as available and reliable, and continues to extract all data from the other IDB.

## HA Data Extraction Example

The following example illustrates the overall approach to data extraction in an HA environment.

- An HA pair of ICONs (ICON-1 and ICON-2) populates an HA pair of IDBs (IDB-1 and IDB-2).
- Connection events occur at the following times:

| Time | Event |
|---|---|
| t0 | ICON-1 starts. |
| t1 | ICON-2 starts. |
| t2 | ICON-1 disconnects/terminates unexpectedly. |
| t3 | ICON-1 reconnects/restarts. |
| t4 | Both IDBs become unavailable to either ICON or Genesys Info Mart. They remain unavailable for a period that exceeds the configured stuck data timeout for the extraction window. |
| t5 | Expiration threshold for the next extraction window (t6 – the stuck data timeout). |
| t6 | IDB-1 reconnects/restarts. |

  The intervals [t0–t1], [t2–t3], and from t6 onward represent a partial failure—data is not available from one of the IDBs but is available from the other.

  The interval [t4–t6] represents a total failure—data is not available from any IDB. In this scenario example, in which the failure occurs on the IDB side, data for the interval [t4–t6] might continue to accumulate in the ICON persistent queue during the outage and, subsequently, be stored in IDB-1.

Genesys Info Mart extracts data from the highly available ICONs and IDBs as follows:

- [t0–t2]: IDB-1

- [t2–t4]: IDB-2
- [t5–next disruption]: IDB-1

Data for the period [t4–t5] is never extracted.

Figure 8 illustrates HA data extraction in this scenario.

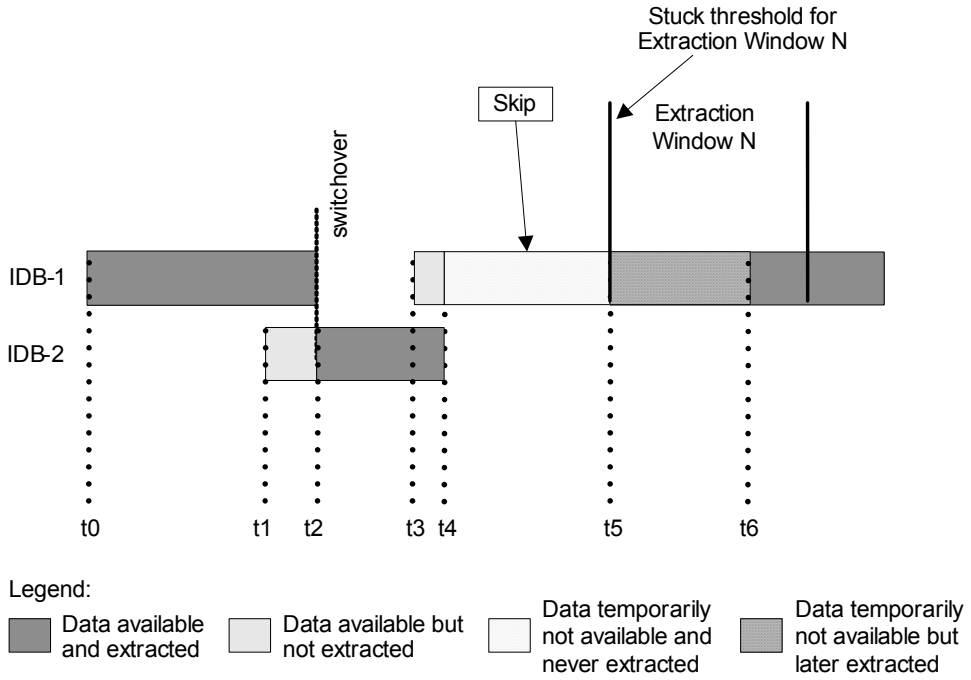


**Figure 8: HA Data Extraction**

# Extracting Voice Interaction Data

The ETL processes only completed voice interactions. The extraction job initially extracts eligible interaction-related data to Merge tables, and it does not move the data to GIDB until related voice interactions have been merged.

The ETL extracts interaction data from a reliable IDB in the usual way, based on a comparison of the extraction high-water mark against the termination timestamp in the record. For reliable call data, the call must be visible to ICON for the entire call duration, from the time of call creation until call completion.

- When there are no disruptions, the ETL continues to extract each table independently from a reliable IDB that it used in the previous extraction cycle. Data from the `G_IR`, `G_CALL`, and `G_IS_LINK` tables is always extracted from the same IDB.
- When disruptions occur, the data that Genesys Info Mart extracts from the redundant IDB starts with the first call that has a termination timestamp later than the last completed call from the original IDB. Data about calls that started, but did not complete, before the disruption will be lost if there are no redundant IDBs that cover those calls entirely.

Figure 9 illustrates a partial failure scenario for HA extraction of voice interaction data. There is no data loss if the redundant ICON and IDB were operating before the disruption.

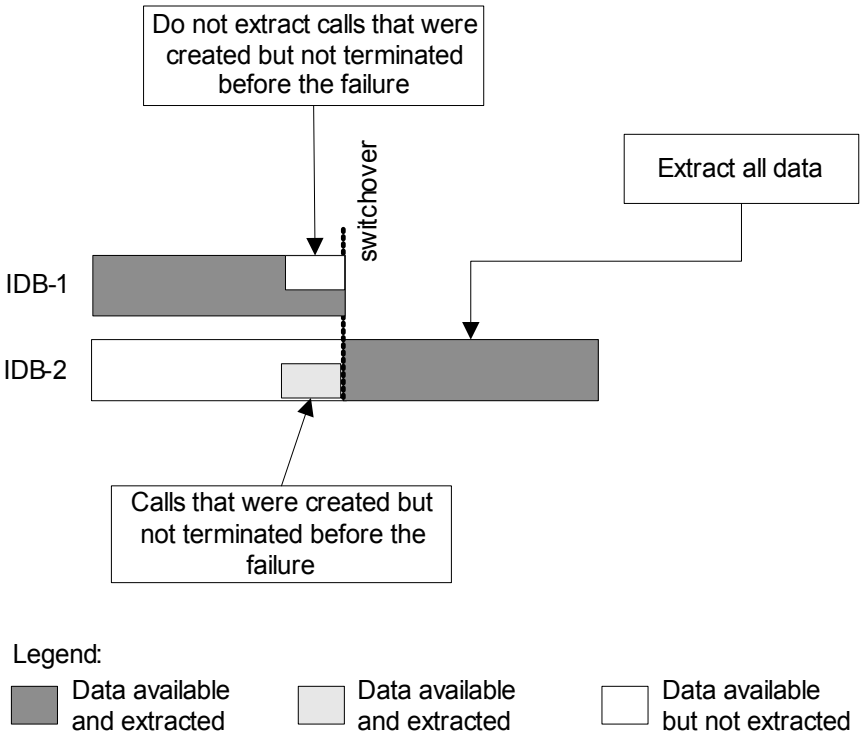


**Figure 9: HA Data Extraction for Voice Calls—Partial Failure**

Figure 10 illustrates the total failure scenario for HA extraction of voice interaction data. Data will be lost for calls that end or start during the period when neither ICON is recording data.

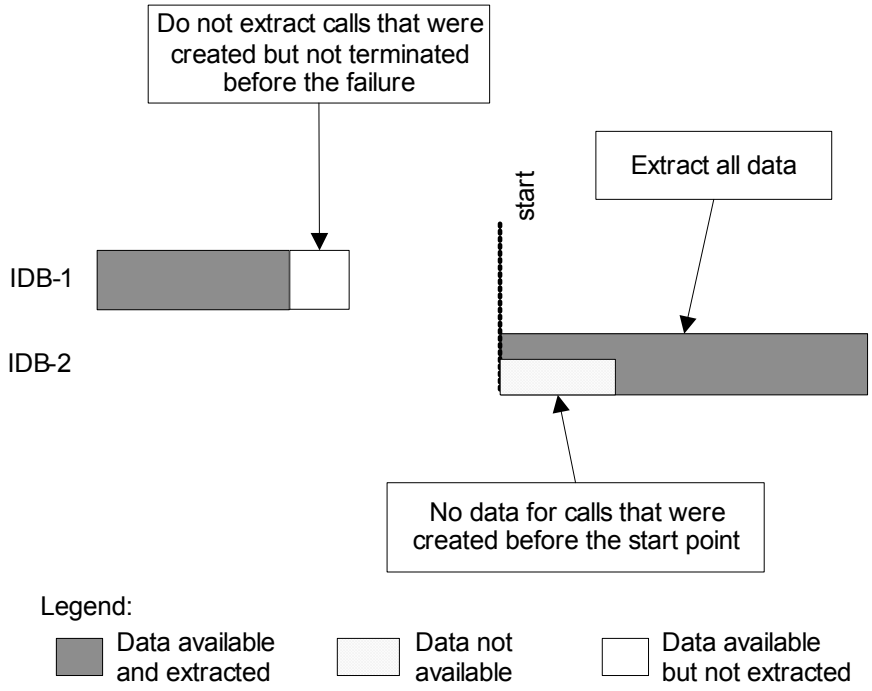


**Figure 10: HA Data Extraction for Voice Calls—Total Failure**

# HA for Configuration Details

Every object in your contact center is mirrored as a configuration object in the Genesys environment, and the correctness and completeness of configuration data is vital to reporting on contact center activity. Therefore, Genesys recommends that you set up HA architecture for configuration data. Without HA, some configuration data might be lost, affecting your reporting data.

### Resynchronizing IDB and Configuration Server Data

In a non-HA environment, with a single ICON application that captures Configuration details, you can use functionality that is provided by ICON to resynchronize configuration data between IDB and Configuration Server on demand. However, Genesys does not recommend that you rely solely on resynchronization to ensure that your configuration data is up to date.

**Limitations of Relying on Resynchronization Only**

The Genesys Configuration Database does not contain historical data about configuration changes. When you request the resynchronization of configuration data in a non-HA environment, ICON retrieves current information from the Configuration Database, and the resynchronization might not retrieve a missing configuration object or relationship from the past. For example, if an agent was added and then deleted and ICON missed both events, there will be no configuration data about the agent in IDB. Subsequent resynchronization with Configuration Server will not provide the missing data,

because the agent has been deleted from the Configuration Database. Similarly, if an agent was added to and then removed from an agent group, and ICON missed both events, resynchronization will not supply the missing relationship records.

In a non-HA environment, there is no redundant IDB with Configuration details from which Genesys Info Mart could extract data about missing objects or relationships. To compensate for the missing data, if the ETL detects missing configuration objects during transformation, it automatically creates them in the Info Mart database, based on the information that is available in interaction data.

- If the corresponding configuration objects are extracted from IDB at a later point, Genesys Info Mart updates the automatically created configuration objects with the extracted data.
- Otherwise, the Info Mart database stores the automatically created configuration objects. This could result in incomplete configuration data, because interaction data has only a limited set of configuration object attributes available.

Genesys Info Mart cannot detect if any configuration object relationships:

- Are missing from the source (IDB).
- Have unreliable start and end times after the relationships have been recovered during the ICON resynchronization of configuration data.

Missing relationships or relationships that have unreliable timestamps result in data quality issues, such as incorrect data for agent groups or queue groups, or incorrect indications of whether requested skills matched the skills of the handling agent.

**Advantages of HA**

An HA environment greatly reduces the likelihood of these issues, because two ICON processes are actively processing the source events from Configuration Server and are storing the data in their separate IDBs. If one IDB is missing a configuration object or relationship, Genesys Info Mart can extract the necessary data from the other IDB.

**HA and Resynchronization**

At the same time, HA architecture for configuration data does not remove the need for the on-demand resynchronization of IDB configuration data. This functionality helps to maintain data consistency between Configuration Database and each IDB in the HA pair, when you suspect that the data is no longer synchronized.

# Configuring for HA

Beyond ensuring that you configure identical redundant ICON applications that populate redundant IDBs through redundant DAPs, there are no special configuration requirements to enable HA in your Genesys Info Mart deployment. Genesys Info Mart automatically switches to HA mode when it detects that the DAPs are providing redundant data (in other words, there is

more than one copy of data from the same Configuration Server, T-Server, Interaction Server, or OCS data source).

For more information about configuring Genesys Info Mart to extract ICON details from redundant HA IDBs, see “Enabling High Availability” on page 141.

Chapter

# 7 Multimedia Interactions

In this document, *multimedia interactions* refers to all interactions for which the data source for Genesys Info Mart is Interaction Server. Multimedia interactions include Genesys eServices/Multimedia e-mail and chat interactions, as well as 3rd Party Media interactions (formerly referred to as *Open Media*). For a more detailed definition of the term, see "Multimedia Interactions" on page 28.

The most important difference between voice and multimedia interactions is that voice interactions are short-lived and multimedia interactions can be long-lived. Therefore, multimedia interactions might be transformed while they are still active.

Genesys Info Mart processes data that is related to all multimedia interactions in a similar manner. However, from the point of view of internal processing, 3rd Party Media interactions require separate handling. This chapter describes special considerations for 3rd Party Media interactions, as well as considerations for configuring your Genesys Info Mart deployment.

This chapter contains the following sections:



## Media Types

Genesys Info Mart can support any media type that is properly configured as a `Media Type Business Attribute` in the Configuration Layer.

Genesys Info Mart stores the media types that are available to describe interaction facts in the `MEDIA_TYPE` dimension table in the Info Mart database. By default, the `MEDIA_TYPE` table includes the Genesys eServices/Multimedia e-mail and chat media types. It can be extended to include any number of deployment-specific 3rd Party Media media types.

### Dynamic Addition of Unknown Media Types

When Genesys Info Mart is transforming agent activity data or any interaction data—including 3rd Party Media interaction data—and a media type arrives that is new to Genesys Info Mart, the transformation job automatically adds the new media type to the MEDIA_TYPE dimension table and includes it when transforming data. Genesys Info Mart generates a log message to alert you about the addition.

**Note:** The new media type must already have been configured in the Configuration Layer. If not, Interaction Server rejects the media type before it reaches Genesys Info Mart.

## Online and Offline Interactions

Genesys Info Mart distinguishes between two types of interactions:

- Online—The interaction involves an online session with a customer in real time (for example, chat).
- Offline—The interaction does not involve an online session with a customer in real time (for example, email).

Genesys Info Mart uses the IS_ONLINE column in the MEDIA_TYPE table to indicate whether a particular media type is associated with online interactions (IS_ONLINE=1) or with offline interactions (IS_ONLINE=0).

Downstream reporting applications can use the IS_ONLINE flag to produce reports that distinguish between online and offline interactions.

For internal processing, Genesys Info Mart uses the IS_ONLINE flag to determine whether to process the interaction as online or offline. The distinction affects:

- Detection of when an interaction is abandoned—An offline interaction cannot be abandoned by the customer.
- Detection of when an interaction is serviced—An online interaction is serviced by an agent when the agent joins the interaction (and the session). An offline interaction has some level of service when an agent accepts and begins to work on the interaction, but it is not fully serviced until the agent sends a reply back to the customer.
- The setting of the Technical Descriptor for transfers to a queue.
- Determination of ONLINE_DURATION.

### Configuration Considerations for 3rd Party Media

When Genesys Info Mart dynamically adds an unknown media type to the MEDIA_TYPE table (see "Dynamic Addition of Unknown Media Types"), the new media type is added as an offline media type (IS_ONLINE=0). If you want Genesys Info Mart to identify interactions that are associated with this media type as online interactions, you must manually change the setting of the IS_ONLINE flag in the MEDIA_TYPE table. You can change the setting at any time.

The change takes effect as soon as it is committed in the database, but it does not apply to data that has already been processed.

Genesys recommends that you set an alarm on the log message that Genesys Info Mart generates when the media type is added (message number 20150), to prompt you to verify this flag and, if required, change the setting to suit your deployment and reporting requirements.

**Configuration Recommendation for Online Media Types**

To ensure that online interactions that are associated with 3rd Party Media are processed consistently, Genesys recommends that you manually add the online media types to the `MEDIA_TYPE` table before Genesys Info Mart starts processing, so that you can set `IS_ONLINE=1` from the start.

For more information about manually adding online media types or changing the `IS_ONLINE` flag, see Procedure: Setting up media types for online interactions, on page 294.

# Interaction Types and Subtypes

Genesys Info Mart can support any multimedia interaction subtype that is properly configured in the Configuration Layer.

In Genesys Info Mart 8.0.1 or higher, when a multimedia interaction subtype arrives that is new to Genesys Info Mart, the transformation job automatically adds the new interaction subtype to the `INTERACTION_TYPE` dimension table and includes it when transforming data. Genesys Info Mart generates a log message to alert you about the addition.

**Note:** The new interaction subtype must already have been configured in the Configuration Layer. If not, Interaction Server rejects the interaction type before it reaches Genesys Info Mart.

Genesys Info Mart uses the `IGNORE` column in the `INTERACTION_TYPE` table to determine whether to include interactions of a particular subtype in transformation processing:

- `0` (false)—Genesys Info Mart transforms all interactions with this interaction type.
- `1` (true)—Genesys Info Mart does not transform any interactions with this interaction type. No records are generated in fact tables for interactions of this type.

By default, all newly added multimedia interaction subtypes are set to be transformed. You can disable transformation of multimedia interactions of a

specified subtype by setting a value of 1 (true) for the IGNORE field in the INTERACTION_TYPE table.

**Note:** If you disable a subtype, both the parent interactions of that subtype and any child interactions of such parent interactions are disabled, even if the child interactions themselves are of a different subtype, one that is configured to be transformed.

Genesys recommends that you set an alarm on the log message that Genesys Info Mart generates when the interaction subtype is added (message number 20151), to prompt you to verify the IGNORE flag and, if required, change the setting to suit your deployment and reporting requirements.

You can change the setting at any time. The change takes effect as soon as it is committed in the database, but it does not apply to data that has already been processed.

# Multi-Tenant Considerations

The IGNORE setting for an interaction type or subtype and the IS_ONLINE setting for a media type apply across the deployment, without regard to tenant. In other words, Genesys Info Mart does not support ignoring a particular interaction type for one tenant, but processing it for another. Similarly, Genesys Info Mart does not support transforming interactions that are associated with a particular media type as online for one tenant and offline for another.

Chapter

# 8 Attached Data

This chapter describes how Genesys Info Mart processes attached data. It contains the following sections:



## Genesys Info Mart and Attached Data

Genesys Info Mart uses attached data key-value pairs (KVPs) to populate several of its fact and dimension tables, including any number of custom-created tables. Interactive Voice Response (IVR) applications, Enterprise Routing Solution, Network Routing Solution, Outbound Contact solution, Genesys eServices/Multimedia solution, and Agent Desktop applications all attach KVPs to interactions. The KVPs that these applications attach depend on the following factors:

- Your deployment's interaction flows
- The information that is required by the resources that handle the interactions
- The information that you want to report

Genesys recommends that you attach KVPs as early in the interaction flow as possible. In this way, key interaction attributes are captured, even if the interaction is abandoned.

**Note:** To ensure that applications use certain attributes consistently (for example, `CustomerSegment`, `ServiceType`, and `ServiceObjective`), use Configuration Manager to configure values for them. For more information about configuring these attributes, see *Framework 8.0 Configuration Manager Help*.

As part of deployment planning:

1. Review the high-level algorithm for processing user data in Genesys Info Mart. See "Processing User Data" on page 102.
2. Evaluate what KVPs from what applications you need to store for your contact center reporting purposes. See "User Data Sources and KVPs" on page 103 for information.
3. Research how to enable respective applications to attach required KVPs. Refer to the documentation for Genesys solutions, if necessary.
4. Research how to enable Interaction Concentrator to store required KVPs in IDB. Refer to Appendix B on page 327 and the Interaction Concentrator documentation, as necessary.
5. Decide what tables, if any, you require to store user data values. See "Storing User Data" on page 109.
6. Fill the User Data Mapping worksheet, to use with your user data template script at the time of deployment. See "Mapping Call-Based Attached Key-Value Pairs" on page 110 for information and Appendix A on page 315 for the sample worksheet.
7. Prepare your copy of the `make_gim_UDE_template`.sql template script to use to create custom user data tables and columns when you deploy the database. See "Customizing the User Data Template" on page 282.

# Processing User Data

There are two types of KVP data (referred to as *user data,* when discussed collectively elsewhere in this document):

- *Call-based* attached data
- *UserEvent-based* KVP data, which allows the agent to associate KVP data with a voice interaction after the voice interaction has ended (that is, after the call is released)

Genesys Info Mart uses the same, unified mechanism to process these two data types.

By content, user data can also be divided as follows:

- High-cardinality user data—Data for which there can be a very large number of possible values. Each interaction has no more than one value for each user-data type. A Customer ID number is an example of high-cardinality user data.
- Low-cardinality user data—Data that has a limited range of possible values. There may be multiple values of a specific type for a single interaction. A "new customer" flag, which has only two values—`Y` and `N`—in a respective database column is an example of a low-cardinality user data. Service type is another example of data that has a limited number of possible values.

The following high-level algorithms help you understand how Genesys Info Mart processes user data.

1. Genesys Info Mart Server extracts user data along with other interaction data from one or more Interaction Databases (IDBs).
2. Global Interaction Database (GIDB), which is a set of tables within the Info Mart database schema, stores the extracted user data for future processing.
3. Genesys Info Mart processes the user data and creates records in relevant user data tables (predefined or custom). Genesys Info Mart uses customer-configured mapping rules to identify in which user data tables to store certain KVP values. Typically, low-cardinality data is expected to be stored in dimension tables, while high-cardinality data is expected to be stored in fact extension tables.
4. During the data transformation, Genesys Info Mart Server identifies whether the newly extracted user data should be associated with any `INTERACTION_RESOURCE_FACT` records:
   - If the interaction data is processed in the same cycle with the user data, Genesys Info Mart creates an association between a user data record and a newly created `INTERACTION_RESOURCE_FACT` record.
   - If the interaction data was processed in a previous cycle (that is, the user data arrived after call completion), Genesys Info Mart updates records in user data tables that are associated with the `INTERACTION_RESOURCE_FACT` records.

# User Data Sources and KVPs

This section provides some guidelines about the KVPs that contact centers typically use for reporting purposes. KVPs are listed by the Genesys application that attaches them:

- IVR Application, page 104
- Universal Routing, page 106

- eServices/Multimedia-Specific Attached Data, page 107
- Outbound Contact Solution, page 108
- Agent Desktop Applications, page 108


# IVR Application

You must configure your applications to send the `IApplication` KVP—and you must configure Interaction Concentrator (ICON) to store it—even if you do not want to store the `IApplication` KVP in Info Mart user data tables for your reporting purposes. Genesys Info Mart uses the `IApplication` KVP value internally during transformation.

Other KVPs that your IVR applications attach depend on the following factors:

- The technologies that your IVR application supports
- Whether the applications are self-service-oriented
- Whether the applications work in conjunction with Enterprise Routing Solution

Based on these factors, you may choose to modify your IVR applications so that they attach the following KVPs:

- `IPurpose`
- `IResult`
- `IResultReason`
- `ITextToSpeech`
- `ISpeechRecognition`
- `CustomerID`
- `CaseID`
- `Revenue`
- `Satisfaction`
- `CustomerSegment`
- `ServiceType`
- `ServiceSubtype`
- `Business Result`

You may also decide to attach user-defined KVPs.

**Note:** If the IVR Ports act as agents by logging into a queue, IVR applications can associate KVP data with a voice interaction by sending UserEvents after the voice interaction has ended (that is, after the call is released). The UserEvent has to be sent within the timeout that is specified in the Genesys Info Mart application configuration. `IPurpose` cannot be sent in UserEvents.

## IPurpose IVR KVP

Genesys Info Mart uses the `IPurpose` KVP to determine whether an IVR application represents a self-service application or only a part of the mediation process:

- For a self-service IVR, Genesys Info Mart creates a separate row in the `INTERACTION_RESOURCE_FACT` table that represents the IVR activity as interaction handling (not as mediation). In other words, the `INTERACTION_RESOURCE_FACT` table is populated with facts for this self-service IVR port in the same manner as for an agent.
- For a nonself-service IVR, no separate `INTERACTION_RESOURCE_FACT` row is created; the IVR activity is represented as mediation (not as interaction handling) as part of another row in the `INTERACTION_RESOURCE_FACT` table.

The presence of the `IPurpose` key with the value of `1 (Self Service)` forces Genesys Info Mart to treat an IVR port as a handling resource. Otherwise, Genesys Info Mart treats the IVR port as a mediation resource.

**Notes:**

- In an environment in which IVR applications rely on Universal Routing to select a target, you can modify your Universal Routing Server (URS) routing strategies to attach the `IPurpose` KVP on behalf of the self-service IVR application. See page 107 for more information.
- If you do not modify your self-service IVR applications or routing strategies to attach `IPurpose` KVP, you will see a high number of customer-abandoned interactions. To mitigate this, configure the ETL to treat all IVR applications as self-service.

  Do this by setting the `default-ivr-to-self-service` configuration option to `TRUE` in the `[gim-transformation]` section; in this way, you can configure Genesys Info Mart to treat all IVR port resources as self-service IVRs.
- If a self-service IVR uses a Two-Step or Mute transfer to transfer calls to an agent, configure the IVR application to set the value of the `IPurpose` key to `1` for consultation calls as well. Alternatively, set the T-Server option `consult-user-data` to `inherited` or `joint`, so that T-Server will propagate all user data, including the `IPurpose` KVP, from the original call to the consultation call.

In the following deployments, an IVR application can attach the `IPurpose` key with the value of `1 (Self Service)` to indicate to the reporting system that the corresponding IVR port is a self-service resource:

- IVR In Front of the Switch—An IVR and IVR ports exist as configuration objects in the Configuration Database, and IVR ports are associated with DN objects that are configured under the IVR Server's virtual switch.

- IVR Behind the Switch—An IVR and IVR ports exist as configuration objects in the Configuration Database, and IVR ports are associated with DN objects that are configured under the premise switch.

When it arrives at your IVR port, the call is associated with a corresponding DN object in the Genesys environment; this association clearly indicates to the ETL that the call is at an IVR.

The IVR application can set the `IPurpose` key to the `Self Service` value and attach this data to the original call while the call is at the IVR port.

As a result, Genesys Info Mart creates a record in the `INTERACTION_RESOURCE_FACT` table to represent the self-service IVR application that is handling the customer interaction.

## Universal Routing

The KVPs that Universal Routing attaches depend on the following factors:

- The type of routing strategies that you deploy
- Whether routing strategies work in conjunction with IVR applications

You can configure URS to attach the following strategy name and routing target KVPs automatically, by setting the URS `report_targets` configuration option to `true`:

- `RTenant`
- `RStrategyName`
- `RTargetTypeSelected`
- `RTargetObjectSelected`
- `RTargetAgentSelected`
- `RTargetPlaceSelected`

**Note:** By default, ICON stores values for these keys in the IDB `G_ROUTE_RESULT` table.

Your routing strategies can use Interaction Routing Designer's `Multi Attach` object and `FindServiceObjective` function to attach the following KVPs that represent requested skills, business attributes, and service objectives:

- `RRequestedSkillCombination`
- `CustomerSegment`
- `ServiceType`
- `ServiceObjective`

You may also decide to attach the following KVPs or user-defined KVPs:

- `CustomerID`
- `CaseID`

- Revenue
- Satisfaction
- ServiceSubtype

## Attached Data for Self-Service IVRs

When used in conjunction with self-service IVR applications, your routing strategies might also choose to attach the IPurpose KVP on behalf of the IVR application. (The IPurpose KVP that is attached by the IVR application takes priority.) The Self Service value for the IPurpose key indicates to the reporting system that the corresponding IVR port is a self-service resource in the following deployments:

- IVR In Front of the Switch
- IVR Behind the Switch

### IVR In Front of the Switch

In this deployment (as defined on page 105), a call also involves a routing point, which is configured as a DN of the Routing Point type under the IVR Server's virtual switch.

Either the IVR application or the routing strategy that is associated with the routing point (or both) can set the IPurpose key to the Self Service value. As a result, Genesys Info Mart creates a record in the INTERACTION_RESOURCE_FACT table to represent the self-service IVR.

### IVR Behind the Switch

In this deployment (as defined on page 106), a call might involve a routing point, which is configured as a DN object of the Routing Point type under the premise switch.

The IPurpose key with the Self Service value is set as follows, in any combination:

- The routing strategy that is associated with the routing point at the premise switch attaches the KVP before it routes the call to the IVR port.
- The IVR application attaches the KVP while the call is at the IVR port.

As a result, Genesys Info Mart creates a record in the INTERACTION_RESOURCE_FACT table to represent the self-service IVR.

# eServices/Multimedia-Specific Attached Data

Events from the eServices/Multimedia solution include a number of attributes that are specific to multimedia interactions. ICON stores these attributes in the GM_F_USERDATA and GM_L_USERDATA tables only if you configure ICON to do so in the attached data specification file. Table 5 lists these attributes.

**Table 5: Multimedia-Specific Interaction Attributes**

| Attribute | Description |
|---|---|
| Subject | The subject of the multimedia interaction. |
| FromAddress | The "from" address of the multimedia interaction. |
| InteractionSubType | The interaction subtype of the multimedia interaction.<br>This subtype is a component of the value for the INTERACTION_TYPE_KEY. The INTERACTION_TYPE dimension includes both interaction type and subtype, |
| StopReason | eServices/Multimedia allows a reason name to be provided for each action. ICON records this reason name for the action that stops the interaction, identifying the reason the interaction was stopped. Genesys Info Mart uses this stop reason for internal purposes—for example, when setting the TECHNICAL_DESCRIPTOR_KEY in the INTERACTION_RESOURCE_FACT. |

If you do not require the eServices/Multimedia attributes, you can remove them from the attached data specification file.

## Outbound Contact Solution

Outbound Contact Server (OCS) automatically attaches the GSW_CALL_ATTEMPT_GUID call attempt ID for progressive and predictive dialing modes. For preview dialing mode, OCS provides the GSW_CALL_ATTEMPT_GUID KVP in the UserEvent with record information. You must ensure that your desktop application attaches this KVP.

The Genesys Info Mart ETL uses this information to integrate call details—such as talk time, hold time, after-call-work time, and the first agent or IVR port—with the Outbound Contact details.

## Agent Desktop Applications

Agent desktop applications may attach various KVPs that depend on your configuration of business attributes in Configuration Manager. For example, desktop applications can attach the following KVPs if they have not already been attached by some other application (such as IVR applications or Enterprise Routing Solution):

- CaseID
- CustomerID
- Revenue

- Satisfaction
- Business Result

You may also decide to attach some of the user-defined KVPs.

**Note:** Agent desktop applications can associate KVP data with a voice interaction by sending UserEvents after the voice interaction has ended (that is, after the call is released). The UserEvent has to be sent within the timeout that is specified in the Genesys Info Mart application configuration.

If you want to track the reasons for agents being in NotReady states, ensure that relevant KVPs are available to your agents through their desktop applications.

OCS automatically attaches the GSW_CALL_ATTEMPT_GUID call attempt ID for progressive and predictive dialing modes. For preview dialing mode, you must ensure that your desktop application attaches the GSW_CALL_ATTEMPT_GUID KVP to the actual interaction. The GSW_CALL_ATTEMPT_GUID KVP is provided by OCS in the UserEvent with record information. For voice interactions, the KVP must be attached before the voice call is released. Genesys Info Mart ETL uses this information to integrate call details—such as talk time, hold time, after-call-work time, and the first agent or IVR port—with the Outbound Contact details.

For eServices/Multimedia, Interaction Concentrator automatically stores information about the reason that processing of an interaction stopped. If you want to track the reasons for agents stopping multimedia interactions, ensure that the Stop Reason key with relevant values is available to your agents through their desktop applications. Interaction Concentrator 8.0 also stores information about the party that issued the request to stop processing an interaction, when the party is known.

# Storing User Data

User data can be stored as facts or dimensions. Genesys Info Mart release 8.0 provides you with flexibility to store the same key as a fact and dimension. High-cardinality user data is stored as facts. Although there are no absolute limits on the quantity of high-cardinality user data that you can store, be mindful of database storage space and database performance.

The following fact extension tables are used for storage of predefined high-cardinality user data:

- IRF_USER_DATA_GEN_1.
- Custom fact extension tables. (Use the sample script that is provided for the IRF_USER_DATA_CUST_1 table to add these tables.)

Low-cardinality user data is most efficiently stored as dimensions. The following dimension tables are used for storage of predefined low-cardinality user data:

- INTERACTION_DESCRIPTOR.
- Custom dimension tables. (Use the sample script that is provided for the USER_DATA_CUST_DIM_1 table to add these tables.)

If your reporting needs change after the initial deployment of Genesys Info Mart, you can add more custom tables to the Info Mart database to store extra user data KVPs.

When you add custom tables to the Info Mart database, keep in mind the following limitation: An upper limit for low-cardinality user data is 800 custom dimension tables.

# Mapping Call-Based Attached Key-Value Pairs

Genesys Info Mart extracts attached data KVPs from the ICON Voice details and ICON Multimedia details data sources—specifically, from the following IDB tables:

- G_CUSTOM_DATA_S
- G_USERDATA_HISTORY
- G_SECURE_USERDATA_HISTORY

ICON automatically stores predefined router-specific KVPs in the G_ROUTE_RESULT table, provided that you configure Universal Routing Server (URS) to attach the KVPs to interactions. For more information, see "Universal Routing" on page 106.

ICON stores voice and multimedia attached KVPs in the G_USERDATA_HISTORY and G_SECURE_USERDATA_HISTORY tables, based on the options that you configure in the ICON application and in the ICON attached data specification (adata_spec) XML file.

By default, Genesys Info Mart stores the values of the KVPs that are listed in the "KVPs That Are Mapped by Default" section of Table 6 on page 111. If you want to store additional, custom user data, you must define mapping and propagation rules and store them in Control tables in the Info Mart database. Genesys Info Mart then extracts the user data details on the basis of the KVP name and propagates the value to the table and column that you designate in the mapping tables (CTL_UD_TO_UDE_MAPPING and CTL_UDE_KEYS_TO_DIM_MAPPING).

As part of the mapping, you specify what value is stored if more than one value with the same key is extracted for the same interaction. These propagation rules define whether Genesys Info Mart stores the latest KVP value:

- That is associated with the call (propagation rule = `CALL`)
- That was associated with the call during the fact duration (propagation rule = `IRF`)
- As modified by a party of the call (propagation rule = `PARTY`)

You can also specify what value is stored as a default if a particular KVP is missing for an interaction.

## Common Attached Data KVPs

Table 6 describes the attached data KVPs that contact centers most commonly use for reporting purposes.

Some KVPs have numeric values, as specified in Table 6. The values of all of the other KVPs in Table 6 are strings, for which the maximum length in IDB is 255 characters. However, depending on the RDBMS, Genesys Info Mart further restricts the maximum length of certain KVP values, and you might similarly need to restrict the length of KVP values for customized user data dimension tables. For more information, see "RDBMS Considerations" on page 113.

Some of the KVPs are Genesys-defined, while others are user-defined. Both types of KVPs can populate predefined as well as deployment-specific facts and dimensions, according to the user-defined mapping rules.

**Note:** Your applications do not need to attach all of the KVPs that are listed in Table 6.

Use the "Worksheet for Mapping User Data" on page 320 to map the KVP names in your contact center to the target Info Mart tables and column names.

### Table 6: Commonly Used Attached Data KVPs

| KVP Name | KVP Description |
|---|---|
| **KVPs That Are Mapped by Default** | |
| Business Result * | The business result of the interaction. |
| CaseID * | The case identifier in an external case management application. |
| * The mapping of the KVP to fact or dimension tables is predefined, as shown in the worksheet on page 320.<br>** The mapping of the KVP to fact or dimension tables is user-defined. Configure the mapping in the Control tables, as described in Chapter 17 on page 281. | |

**Table 6: Commonly Used Attached Data KVPs (Continued)**

| KVP Name | KVP Description |
|---|---|
| CustomerID * | The customer identifier in an external customer relationship management (CRM) application. |
| CustomerSegment * | Identifies a segment of the customer base to which the customer has been assigned. Customer segments are typically based on criteria such as revenue potential, service plan, or demographic attributes. |
| IPurpose * | The presence and value of this KVP affects how the ETL populates the `INTERACTION_RESOURCE_FACT` table.<br>• `0` = Not self-service. The IVR application is considered to be a mediation resource.<br>• `1` = Self-service. The IVR application is considered to be a handling resource. Genesys Info Mart creates a record in the `INTERACTION_RESOURCE_FACT` table.<br>For more information, see page 105. |
| Revenue* | The amount of revenue that was generated for the customer interaction. |
| Satisfaction * | The numerical customer-satisfaction score for the customer interaction. |
| ServiceObjective * | The time objective (in seconds) to service the interaction, based on the customer segment, service type, and media type. |
| ServiceSubtype * | The detailed type of service that the customer is requesting. |
| ServiceType * | The type of service that the customer is requesting. |
| **Routing KVPs** | |
| RRequestedSkillCombination * | The agent skills that are required to service the interaction. |
| RStrategyName * | The name of the routing strategy that is servicing the interaction. |
| RTargetObjectSelected * | The name of the target object that the router selects. |
| * The mapping of the KVP to fact or dimension tables is predefined, as shown in the worksheet on page 320.<br>** The mapping of the KVP to fact or dimension tables is user-defined. Configure the mapping in the Control tables, as described in Chapter 17 on page 281. | |

**Table 6: Commonly Used Attached Data KVPs (Continued)**

| KVP Name | KVP Description |
|---|---|
| RTargetTypeSelected * | The type of routing target that the router selects—for example, `0` = Agent, `1` = Place, `2` = Agent Group, `3` = Place Group, `100` = Default Route.<br>Valid values are defined by ICON. For more information, see the list of Route Target Type dictionary values in the *Interaction Concentrator 8.0 Physical Data Model* for your RDBMS. |
| **KVPs That Can Be Mapped to Custom User Data Tables** | |
| IApplication ** | The IVR application that is servicing the interaction.<br>**Note:** Genesys Info Mart uses this KVP during processing. You must configure ICON to store this KVP in IDB even if you do not require `IApplication` for your reporting and do not configure it to be stored in user data tables in the Info Mart database. |
| IResult ** | The technical result of the IVR application.<br>• `1` = Completed<br>• `2` = Abandoned<br>• `3` = Transferred |
| IResultReason ** | The reason for the IVR technical result. Values should be of *low cardinality*. |
| ISpeechRecognition ** | Indicates whether IVR speech recognition was used.<br>• `0` = No<br>• `1` = Yes |
| ITextToSpeech ** | Indicates whether IVR text-to-speech was used.<br>• `0` = No<br>• `1` = Yes |
| * The mapping of the KVP to fact or dimension tables is predefined, as shown in the worksheet on page 320.<br>** The mapping of the KVP to fact or dimension tables is user-defined. Configure the mapping in the Control tables, as described in Chapter 17 on page 281. | |

## RDBMS Considerations

Depending on the RDBMS, you might need to consider RDBMS limitations when you specify customized mapping of KVPs to user data dimension tables.

### Microsoft SQL Server

A Microsoft SQL Server limitation restricts the maximum length of index keys to 900 bytes. To avoid failures of the transformation job, the total length of values for KVPs that are configured to populate any one of the user data dimension tables must not exceed the RDBMS limit.

For the KVPs that are mapped to any one of the user data dimension tables by default, Genesys Info Mart restricts the length of individual user data KVP values to 170 bytes, to ensure that combinations of KVPs do not exceed the limit.

This limitation does not apply to KVPs that are configured to populate user data fact tables.

### Oracle

There are no RDBMS limitations that you need to consider.

# Using UserEvent-Based KVP Data

Some agent desktop applications issue UserEvents to set KVP data after the agent's participation in the voice interaction has completed (that is, after the call is released). You can configure an ICON application that captures Voice details to store UserEvent-based KVP data in its IDB. When you configure the ICON application, you use ICON application configuration options—instead of the attached data specification XML file—to specify which KVPs ICON should store. Then you can configure Genesys Info Mart to extract this data from the IDB `G_CUSTOM_DATA_S` table.

Note the following about Genesys Info Mart processing of UserEvent-based KVP data:

- This functionality is supported for voice interactions only.
- This functionality is supported for logged-in agents and IVR applications that emulate logged-in agents.
- Data from only the `G_CUSTOM_DATA_S` table in IDB is extracted. UserEvent-based KVP data is *not* extracted from `G_CUSTOM_DATA_P`, nor are custom agent states extracted from the `G_CUSTOM_STATES` table in IDB.
- Applications that issue UserEvents must be sure to set the fields inside the UserEvent properly. Unlike with call-based attached data, T-Server does not validate the contents of the UserEvents, nor does it propagate their KVP data values among related calls, such as consultations, transfers, or conferences.

Instead of storing the extracted UserEvent data in a separate Genesys Info Mart database table, Genesys Info Mart stores the data in the same facts and dimensions as those that are sourced from call-based attached data. During deployment planning, you decide which Info Mart fact or dimension column

should receive data from each UserEvent-based KVP that is of interest for reporting. During deployment configuration, you must configure ICON application options to specify which KVPs should be stored in `G_CUSTOM_DATA_S`. Also, you must configure Genesys Info Mart mapping between those KVPs and the Info Mart facts and dimensions.

**Note:** If you report on Outbound Contact details, you must configure ICON to store UserEvent-based KVP data for the `GSW_CALL_ATTEMPT_GUID` KVP.

For more information about how Genesys Info Mart populates its facts and dimensions from UserEvent-based KVP data and call-based attached data, see the "Populating Genesys Info Mart Data" section in the *Genesys Info Mart 8.0 Operations Guide*.

Chapter

# 9 Outbound Contact Data

This chapter describes how Genesys Info Mart processes Outbound Contact data. It contains the following sections:



## Genesys Info Mart and OCS Record Field Data

When support for Outbound Contact details is configured in your deployment, Genesys Info Mart writes data about every outbound contact attempt. Outbound Contact Server (OCS) may attach a number of custom attributes (*record fields*) to each contact attempt. ICON then stores Record Field data in the Outbound Contact extension tables in IDB—that is, the tables that start with the `GO_` prefix (for example, `GO_FieldHist`). These IDB tables become the source of the Record Field data for Genesys Info Mart.

**Note:** For a complete list of the Outbound Contact extension IDB tables that Genesys Info Mart uses, see page 332.

Genesys Info Mart stores Record Field data that is defined in OCS calling lists in several places in the Info Mart database:

- Predefined dimensions, such as `Record Type`, `Record Status`, and `Contact Info Type`. These are mandatory record fields.
- Predefined facts, such as `Record ID`, `Chain ID`, `Chain N`, `Dialing From`, `Dialing Until`, and `Contact Info`. These are mandatory record fields.

- User-defined dimensions, such as the columns in the RECORD_FIELD_GROUP_1 and RECORD_FIELD_GROUP_2 tables. These are nonmandatory record fields.
- User-defined facts, such as Record Field 1 through Record Field40 in the CONTACT_ATTEMPT_FACT table. These are nonmandatory record fields.

**Predefined and Custom Fields**

Some Field objects are populated in the Configuration Database at the time of this database creation, to represent record fields that are typical to most campaign environments; these fields are referred to as *predefined* record fields. To reflect the record fields that are typical to campaigns in your specific contact center, you may have to create other Field objects in the Configuration Database; these fields are referred to as *user-defined* or *custom* fields. This division between predefined and custom fields is true for both mandatory and nonmandatory record fields. In other words, some fields that are mandatory from the perspective of Genesys Info Mart are not predefined in the Configuration Database.

# Mandatory Record Field Data

Table 7 shows how Genesys Info Mart uses the data from each mandatory Field object. Some fields map directly to Info Mart table columns, whereas others are used indirectly in calculations.

You *must* configure each predefined field and each user-defined field that are expected in the Info Mart database. Proper configuration of the fields ensures that:

- OCS Server attaches each field value to a specified attached data key. The table indicates which fields require the send_attribute and/or icon_attribute options in their configuration. An asterisk (*) next to the field name in the table indicates that OCS automatically attaches the value of this field to events, in a key-value pair (KVP) with a key name that starts with GSW_.
- The ICON application stores mandatory field data in its database, regardless of whether or not the field maps directly to an Info Mart table column. ICON stores the field value in a specified IDB table.

Genesys Info Mart Server retrieves the field value from IDB and stores the value in a specified field of a specified Info Mart table or uses the value in calculations of other fields. Note that some predefined fields that are used in calculations also require a value that indicates a positive result.

For information on configuring ICON to store Record Field data, see Procedure: Configuring the storage of OCS Record Field data, on page 165.

### Table 7: Mandatory Record Field Data

| OCS Mandatory Field Name | Requires send_attribute | Requires icon_attribute | Column Name in Info Mart CONTACT_ATTEMPT_FACT Table |
|---|---|---|---|
| agent_id | Yes | | No direct mapping |
| app_id | Yes | Yes | No direct mapping |
| attempt* | | | ATTEMPT_ORDINAL |
| call_result* | | Yes | No direct mapping |
| call_time | Yes | Yes | No direct mapping |
| campaign_id | Yes | Yes | No direct mapping |
| chain_id* | | | CHAIN_ID |
| chain_n | Yes | | CHAIN_N |
| contact_info* | | | CONTACT_INFO |
| contact_info_type | Yes | | CONTACT_INFO_TYPE_KEY |
| daily_from | Yes | | DAILY_FROM_SECONDS<br>DAILY_FROM_TIME<br>CONTACT_DAILY_FROM_TIME |
| daily_till | Yes | | DAILY_UNTIL_SECONDS<br>DAILY_UNTIL_TIME<br>CONTACT_DAILY_UNTIL_TIME |
| dial_sched_time | Yes | | DIAL_SCHED_TIME<br>CONTACT_DIAL_SCHED_TIME |
| group_id | Yes | Yes | No direct mapping |
| record_id | Yes | | RECORD_ID |
| record_status | Yes | | RECORD_STATUS_KEY |
| record_type | Yes | | RECORD_TYPE_KEY |
| switch_id | Yes | Yes | No direct mapping |
| treatments | Yes | Yes | No direct mapping |
| tz_dbid | | | TIME_ZONE_KEY<br>CONTACT_DAILY_FROM_TIME<br>CONTACT_DAILY_UNTIL_TIME<br>CONTACT_DIAL_SCHED_TIME |

**Note:** The following columns in the CONTACT_ATTEMPT_FACT table are no longer populated, although they remain in the schema:

- IXN_START_TIME
- IXN_START_TIME_KEY
- CONTACT_IXN_START_TIME
- CONTACT_WITHIN_DAILY_RANGE

# Nonmandatory (Custom) Record Field Data

Genesys Info Mart can optionally store a limited number of nonmandatory record fields in the following tables.

- CONTACT_ATTEMPT_FACT
- RECORD_FIELD_GROUP_1
- RECORD_FIELD_GROUP_2

The CONTACT_ATTEMPT_FACT table can store up to 40 nonmandatory fields in the following formats:

- 20 integers: NUMBER(10)
- 10 floating-point numbers: NUMBER(14,4)
- 10 strings: VARCHAR(255)

RECORD_FIELD_GROUP_1 and RECORD_FIELD_GROUP_2 each store up to 10 nonmandatory fields (strings).

If you want to report on nonmandatory record fields, you must configure each nonmandatory field properly so that OCS attaches the value of the field, and you must configure ICON to store this field in a designated table. (For more information, see Procedure: Configuring the storage of OCS Record Field data, on page 165.) In addition to configuring each field similarly to mandatory field configuration, configure options in each Field object to indicate the Genesys Info Mart table and column into which the data should be loaded.

You can use any field that you choose. The data type of the Field object must match the data type of the target Info Mart database table and column. Interaction Concentrator stores all custom field data as strings. The Genesys Info Mart ETL performs all necessary data conversions between strings and other target data types.

Each Field object maps to one and only one table and column in the Info Mart database. Nulls are loaded for any unmapped columns in the Info Mart CONTACT_ATTEMPT_FACT table. The Unspecified value is loaded for any unmapped columns in the Info Mart RECORD_FIELD_GROUP_1 and RECORD_FIELD_GROUP_2 tables.

RECORD_FIELD_GROUP_1 and RECORD_FIELD_GROUP_2 column values should be of low cardinality. Storing record fields with high-cardinality values will cause a decrease in the performance for both the ETL and your report queries.

For information about nonmandatory fields that have special meaning for Genesys Info Mart, see "Right Person Contacted Record Field" and "Conversion Record Field" on this page. You can also use the worksheet in Appendix A to plan your mapping of OCS Record Fields to the Info Mart table columns.

# Right Person Contacted Record Field

Although Right Person Contacted is not a mandatory field, it has significance to Genesys Info Mart. It can be any Field object that you designate by adding the right_person option to the default section of the Annex tab on the Field object. The option value specifies the value of the field when the right person is contacted—for example, TRUE, YES, or 1. If the value of this field matches the configured option value (which is case-insensitive), Genesys Info Mart sets the RPC_FLAG in its CONTACT_ATTEMPT_FACT table to 1. For more information, see Procedure: Configuring the mapping of OCS Record Fields, on page 167.

If you want to report on right person contacted, you must configure ICON to store nonmandatory field data in its database. For information about how to configure ICON to store field data, see Procedure: Configuring the storage of OCS Record Field data, on page 165.

# Conversion Record Field

Although Conversion is not a mandatory field, it has significance to Genesys Info Mart. It can be any Field object that you designate by adding the conversion option to the default section of the Field object's Annex tab. The option value specifies the value of the field when the purpose of the Outbound Contact attempt has been achieved—for example, TRUE, YES, or 1. If the value of this field matches the configured option value (which is case-insensitive), Genesys Info Mart sets the CONVERSION_FLAG in its CONTACT_ATTEMPT_FACT table to 1.

If you want to report on conversion, you must configure ICON to store nonmandatory field data in its database. For information about how to store field data, see Procedure: Configuring the mapping of OCS Record Fields, on page 167.

Part

# 2 Deploying Genesys Info Mart

Part 2 of this document provides information about the configuration and installation of Genesys Info Mart and the supporting components and objects.

This information appears in the following chapters:

- Chapter 10, “Configuration Tasks,” on page 125
- Chapter 11, “Preparing Interaction Concentrator,” on page 147
- Chapter 12, “Preparing Genesys Info Mart Database,” on page 177
- Chapter 13, “Configuring DAPs,” on page 187
- Chapter 14, “Configuring the Genesys Info Mart Application,” on page 209
- Chapter 15, “Genesys Info Mart Configuration Options Reference,” on page 235
- Chapter 16, “Installing Genesys Info Mart Components,” on page 271
- Chapter 17, “User Data,” on page 281

Chapter

# 10 Configuration Tasks

This chapter summarizes the actions that are required to deploy Genesys Info Mart and to implement specific functionality. It contains the following sections:



## Overview of Deployment Tasks

The deployment of Genesys Info Mart is a complex task because it involves setup of, and interaction with, various components, such as Interaction Concentrator, the Genesys Info Mart Server, the graphical user interface (GUI), and databases. Before you start the deployment, review the recommended deployment task flow carefully, and make sure that you understand all of the activities that are involved.

The following table summarizes, at a high level, the task flow for activities that are required to plan and execute the Genesys Info Mart deployment.

### Task Summary: Deploying Genesys Info Mart

| Objective | Related Procedures and Actions |
|---|---|
| 1. Plan the deployment. | Review the information in Part 1 of this guide to familiarize yourself with Genesys Info Mart architecture, requirements, and functioning, and to plan the implementation of Genesys Info Mart features in your deployment.<br>Appendix A on page 315 provides worksheets to assist you in identifying and recording required configuration information for your environment. |

### Task Summary: Deploying Genesys Info Mart (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 2. Prepare Interaction Concentrator and other supporting objects to provide source data for Genesys Info Mart. | 1. Prepare the Interaction Concentrator server (ICON) application(s), which capture and store data from data sources such as Configuration Server and T-Server.<br>For detailed information, see "Preparing ICON" on page 149.<br>2. Prepare the Interaction Database (IDB) instance(s) from which Genesys Info Mart will obtain data.<br>For detailed information, see "Preparing IDBs" on page 174.<br>3. Prepare the database access point (DAP) application(s) that enable ICON to access the IDB(s) it populates.<br>For more information, see the *Interaction Concentrator 8.0 Deployment Guide*.<br>4. Prepare other objects as required to support detailed reporting about interactions of various media types:<br>• `Switch` (for Voice or Multimedia details). For more information, see Procedure: Configuring the switch for ICON Voice or Multimedia details, on page 159. See also Procedure: Setting Switch object options, on page 229.<br>• `Media Type Business Attribute` (for Multimedia details). For more information, see Procedure: Setting Media Type Business Attribute object options, on page 231).<br>• `DN` (for Voice or Multimedia details). For more information, see Procedure: Configuring a DN for ICON Voice or Multimedia details, on page 163. See also Procedure: Setting DN object options, on page 232.<br>• `Field` (for Outbound Contact details). For more information, see Procedure: Configuring the storage of OCS Record Field data, on page 165.<br>• `Script` (for Multimedia details). For more information, see Procedure: Setting Script object options, on page 233.<br>5. Ensure that all required data sources have been enabled, to identify them to Genesys Info Mart as available.<br>To enable specific functionality, such as support for Outbound Contact details or High Availability (HA), see also the summary task tables in "Enabling Specific Functionality" on page 129. |
| 3. Prepare the Genesys Info Mart Server and database hosts. | See Chapter 16 on page 271. |

### Task Summary: Deploying Genesys Info Mart (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 4. Prepare the target Genesys Info Mart database and views. | 1. Set up and tune RDBMS resources to support the Info Mart database.<br>For more information, see "Database Tuning" on page 179 and "Creating Database Links" on page 185.<br>2. Create and configure database schemas to process and store detailed reporting data.<br>For more information, see "Preparing the Info Mart Database" on page 183. After you have installed Genesys Info Mart (step Step 8 on page 128), see also Procedure: Creating Genesys Info Mart tenant views, on page 299. |
| 5. Configure the database access points (DAPs) that Genesys Info Mart uses to access source and target databases. | Create DAPs, or modify the configuration of existing DAPs, to enable:<br>• Genesys Info Mart Server to access the IDBs.<br>• Genesys Info Mart Server to access the Info Mart database.<br>• The Genesys Info Mart Administration Console to access the Info Mart database in order to monitor ETL jobs.<br>For detailed information, see Chapter 13 on page 187. |
| 6. Configure the Genesys Info Mart Server application, to support detailed reporting about contact center configuration and interactions of various media types. | 1. Import the required `Application Template` for the Genesys Info Mart application.<br>2. Create and configure an `Application` object for Genesys Info Mart Server.<br>The required configuration settings depend directly on the Genesys Info Mart features that you want to implement and on your choice of an end-user reporting tool, such as Genesys Interactive Insights (GI2).<br>For more information, see Chapter 14 on page 209.<br>To enable specific functionality, such as support for Outbound Contact details or high availability (HA), see also the summary task tables in "Enabling Specific Functionality" on page 129. |

### Task Summary: Deploying Genesys Info Mart (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 7. Configure other objects that are required to support Genesys Info Mart reporting about interactions of various media types. | Configure necessary options in individual configuration objects, for use by Genesys Info Mart Server:<br>• `Switch` (for Voice and Multimedia details). For more information, see Procedure: Setting Switch object options, on page 229.<br>• `DN` (for Voice and Multimedia details). For more information, see Procedure: Setting DN object options, on page 232.<br>• `Field` (for Outbound Contact details). For more information, see Procedure: Configuring the mapping of OCS Record Fields, on page 167.<br>• `Script` (for Voice and Multimedia details)<br>For detailed information about Genesys Info Mart requirements for configuration settings on these objects, see "Configuring Supporting Objects" on page 228. |
| 8. Install the Genesys Info Mart components. | • Install the Genesys Info Mart application on its host. For more information:<br>◦ For Windows, see Procedure: Installing the Genesys Info Mart application (Windows), on page 276.<br>◦ For UNIX, see Procedure: Installing the Genesys Info Mart application (UNIX), on page 277.<br>• Install the Administration Console GUI. For more information, see Procedure: Installing the Genesys Info Mart Administration Console (Windows), on page 279.<br>**Note:** The Administration Console host must use the Microsoft Windows operating system. |

**Task Summary: Deploying Genesys Info Mart (Continued)**

| Objective | Related Procedures and Actions |
|---|---|
| 9. Complete the basic deployment. | Perform post-installation activities:<br>• Start Genesys Info Mart. For more information, see Chapter 19 on page 303.<br>• Review Genesys Info Mart logs to verify that the deployment is complete and configuration is correct.<br>• In the Genesys Info Mart Administration Console, review the status of `Job_InitializeGIM` to verify successful initialization of the database.<br>• (Required for multi-tenant deployments; optional for single-tenant deployments) Create tenant-specific, read-only views on the Info Mart database. For more information, see "Creating Genesys Info Mart Read-Only Tenant Views" on page 298.<br>• Access the Administration Console, to continue managing Genesys Info Mart jobs. For more information, see "Accessing the Genesys Info Mart Administration Console" on page 291. For more information about managing jobs, see the *Genesys Info Mart 8.0 Operations Guide*. |
| (Optional) Enable aggregation.<br>**Note:** This is required for GI2. | For more information, see Task Summary: Enabling Aggregation in a Genesys Info Mart Deployment, on page 144. |

# Enabling Specific Functionality

This subsection provides targeted task flows to enable Genesys Info Mart to support various specific functions.



## Enabling Storage of Configuration Details

The following table summarizes the task flow to enable Genesys Info Mart to capture and store Configuration details.

### Task Summary: Enabling the Storage of Configuration Details

| Objective | Related Procedures and Actions |
|---|---|
| 1. Prepare the ICON application to capture and store Configuration details. | When you configure the ICON application, ensure that:<br>• At a minimum, you set the following option values:<br>◦ The `role` option includes the value `cfg`.<br>**Note:** If you follow the Genesys recommendation to provide a dedicated Configuration details ICON (and IDB), ensure that the `role` option specifies only `cfg`.<br>◦ The mandatory options that are listed in Step 2 on page 150 are set as specified.<br>• You configure a connection to Configuration Server (or HA pair of Configuration Servers).<br>For more information about configuring the ICON application, see Procedure: Configuring the ICON application, on page 150.<br>For more information about all of the ICON configuration options that affect ICON processing and data storage, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*. |
| 2. Prepare the IDB instance(s) from which Genesys Info Mart will obtain Configuration details. | After you have run the ICON-provided scripts to create the IDB(s), execute one of the following SQL scripts, which Genesys Info Mart provides:<br>• `update_idb_for_gim.sql`<br>• `update_idb_for_gim_mm.sql`<br>For more information, see Procedure: Preparing IDBs, on page 174. |
| 3. Enable ICON to access the Configuration details IDB. | When you create and configure the DAP application that enables the Configuration details ICON to access IDB, ensure that you add the DAP to the `Connections` tab of the ICON `Application` object. |

### Task Summary: Enabling the Storage of Configuration Details (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 4. Configure and install the Genesys Info Mart application. | When you configure the Genesys Info Mart application, ensure that:<br>• The values of Genesys Info Mart configuration options are suitable for your deployment. For more information, see "Options Summary Charts" on page 218.<br>• You configure a connection to the ICON application (or HA set) that stores Configuration details.<br>For more information about configuring the Genesys Info Mart application, see Chapter 14 on page 209. |
| 5. Enable Genesys Info Mart to access the Configuration details IDB. | • When you configure the DAP application that enables Genesys Info Mart to access the Configuration details IDB, ensure that the `role` option includes the value `ICON_CFG`. For more information, see "Extraction DAPs" on page 192.<br>• On the `Connections` tab of the Genesys Info Mart `Application` object, add a connection to this DAP. |

## Enabling Storage of Voice Details

The following table summarizes the task flow to enable Genesys Info Mart to capture and store Voice details.

### Task Summary: Enabling the Storage of Voice Details

| Objective | Related Procedures and Actions |
|---|---|
| 1. Prepare the ICON application to capture and store Voice details. | When you configure the ICON application, ensure that:<br>• At a minimum, you set the following option values:<br>◆ `role` includes `gcc,gls,gud`.<br>◆ The mandatory options that are listed in Step 2 on page 150 are set as specified.<br>◆ Other voice-related options that are described in Table 8 on page 152 are set as specified.<br>For more information, see Procedure: Configuring the ICON application, on page 150.<br>For more information about all of the ICON configuration options that affect ICON processing and data storage, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*.<br>• You configure connections to all of the T-Servers (or HA pairs of T-Servers) in the deployment that ICON might be required to monitor. |
| 2. Prepare other objects that are required to enable ICON to capture Voice details. | • On the `Annex` tab of the `Switch` object that handles voice interactions, create a section named `gts`, and specify the required options, as described in Table 9 on page 160.<br>• On the `Annex` tab of `DN` objects for IVRs or virtual queues for voice interactions, create a section named `gts`, and specify the required options, as described in Table 10 on page 164.<br>• Verify that all of the T-Servers that ICON is required to monitor for Voice details are enabled.<br>For more information about configuration options on supporting objects that affect ICON processing, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*. |
| 3. Prepare the IDB instance(s) from which Genesys Info Mart will obtain Voice details. | After you have run the ICON-provided scripts to create the IDB(s), execute the following SQL script, which Genesys Info Mart provides:<br>• `update_idb_for_gim.sql`<br>For more information, see Procedure: Preparing IDBs, on page 174. |
| 4. Enable ICON to access the Voice details IDB(s). | When you create and configure the DAP application that enables the Voice details ICON to access IDB, ensure that you add the DAP to the `Connections` tab of the ICON `Application` object. |

### Task Summary: Enabling the Storage of Voice Details (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 5. Configure and install the Genesys Info Mart application. | When you configure the Genesys Info Mart application, ensure that:<br>• The values of Genesys Info Mart configuration options are suitable for your deployment. For more information, see "Options Summary Charts" on page 218.<br>• You configure a connection to all of the ICON applications (or HA sets) that store Voice details.<br>For more information about configuring the Genesys Info Mart application, see Chapter 14 on page 209. |
| 6. Enable Genesys Info Mart to access the Voice details IDB. | • When you configure the DAP application that enables Genesys Info Mart to access the Voice details IDB, ensure that the `role` option includes the value `ICON_CORE`. For more information, see "Extraction DAPs" on page 192.<br>• On the `Connections` tab of the Genesys Info Mart `Application` object, add a connection to this DAP. |
| 7. Optimize the extraction job. | After you have created the Info Mart database schema, modify the `GSYS_DNPREMOTELOCATION` table in the Info Mart database, as required, to optimize performance of the merge procedure during the extraction job. For more information, see Procedure: Configuring Info Mart database for merge, on page 185. |

## Enabling Storage of Multimedia Details

The following table summarizes the task flow to enable Genesys Info Mart to capture and store Multimedia details.

### Task Summary: Enabling the Storage of Multimedia Details

| Objective | Related Procedures and Actions |
|---|---|
| 1. Prepare the ICON application to capture and store Multimedia details. | When you configure the ICON application, ensure that:<br>• At a minimum, you set the following option values:<br>◆ `role` includes `gcc,gls,gud`.<br>◆ The mandatory options that are listed in Step 2 on page 150 are set as specified.<br>◆ Other Multimedia-related options that are described in Table 8 on page 152 are set as specified.<br>For more information, see Procedure: Configuring the ICON application, on page 150.<br>For more information about all of the ICON configuration options that affect ICON processing and data storage, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*.<br>• You configure connections to all of the Interaction Servers (or HA pairs of Interaction Servers) in the deployment that ICON might be required to monitor. |
| 2. Configure other objects that are required to enable ICON to capture Multimedia details. | • On the `Annex` tab of the `Switch` object that handles multimedia interactions, create a section named `gts`, and specify the required options, as described in Table 9 on page 160.<br>• On the `Annex` tab of `DN` objects for IVRs or virtual queues for multimedia interactions, create a section named `gts`, and specify the required options, as described in Table 10 on page 164.<br>• Verify that all of the Interaction Servers that ICON is required to monitor for Multimedia details are enabled.<br>For more information about configuration options on supporting objects that affect ICON processing, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*. |
| 3. Prepare the IDB instance from which Genesys Info Mart will obtain Multimedia details. | After you have run the ICON-provided scripts to create the IDB, execute the following SQL script, which Genesys Info Mart provides:<br>• `update_idb_for_gim_mm.sql`<br>For more information, see Procedure: Preparing IDBs, on page 174. |

### Task Summary: Enabling the Storage of Multimedia Details (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 4. Enable ICON to access the Multimedia details IDB(s). | When you create and configure the DAP application that enables the Multimedia details ICON to access IDB, ensure that you add the DAP to the `Connections` tab of the ICON `Application` object. |
| 5. Configure and install the Genesys Info Mart application. | When you configure the Genesys Info Mart application, ensure that:<br>• The values of Genesys Info Mart configuration options are suitable for your deployment. For more information, see "Options Summary Charts" on page 218.<br>• You configure a connection to all of the ICON applications (or HA sets) that store Multimedia details.<br>For more information about configuring the Genesys Info Mart application, see Chapter 14 on page 209. |
| 6. Configure other objects as required to support Genesys Info Mart processing. | If you want to override application settings for configured thresholds by media type at the tenant, switch, DN or script level, set the supported options on the applicable objects.<br>• For a summary of the media-specific thresholds that you can configure at various levels, see Table 18 on page 219.<br>• For more information about configuring the applicable objects, see:<br>◆ Procedure: Setting Switch object options, on page 229<br>◆ Procedure: Setting Media Type Business Attribute object options, on page 231<br>◆ Procedure: Setting DN object options, on page 232<br>◆ Procedure: Setting Script object options, on page 233 |

### Task Summary: Enabling the Storage of Multimedia Details (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 7. Enable Genesys Info Mart to access the Multimedia details IDB. | • When you configure the DAP application that enables Genesys Info Mart to access the Multimedia details IDB, ensure that the `role` option includes the value `ICON_MM`. For more information, see "Extraction DAPs" on page 192.<br>• On the `Connections` tab of the Genesys Info Mart `Application` object, add a connection to this DAP. |
| 8. Customize the processing and storage of 3rd Party Media interaction data, if applicable. | • (Recommended) Before you start ETL processing, add to the `MEDIA_TYPE` dimension table any new or missing online media types that might be associated with 3rd Party Media interactions in your deployment. Ensure that the `IS_ONLINE` flag in the `MEDIA_TYPE` record is set to `1`. (You do not need to add offline media types in advance.)<br>For more information about adding online media types to the Info Mart database schema, see Procedure: Setting up media types for online interactions, on page 294.<br>For more information about why Genesys recommends predefining expected online media types for 3rd Party Media interactions, see "Online and Offline Interactions" on page 98.<br>• During runtime, if you want to change whether Genesys Info Mart processes a particular interaction subtype, alter the record for that interaction type in the `INTERACTION_TYPE` dimension table, to set the value of the `IGNORE` field appropriately.<br>For more information about disabling transformation of interaction subtypes, see "Interaction Types and Subtypes" on page 99. |

## Enabling Storage of Outbound Contact Details

The following table summarizes the task flow to enable Genesys Info Mart to capture and store Outbound Contact–related data.

### Task Summary: Enabling the Storage of Outbound Contact Details

| Objective | Related Procedures and Actions |
|---|---|
| 1. Prepare the ICON application to store Outbound Contact details. | When you configure the ICON application, ensure that:<br>• At a minimum, you set the following option values:<br>◦ `role` includes `gos`.<br>◦ The mandatory options that are listed in Step 2 on page 150 are set as specified.<br>◦ `gos-write-duplicate-metrics=1`.<br>For more information, see Table 8 on page 152.<br>For more information about all of the ICON configuration options that affect ICON processing and data storage, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*.<br>• You configure connections to all of the Outbound Contact Servers (or HA pairs of OCS instances) in the deployment that ICON might be required to monitor. |
| 2. Prepare the IDB instance(s) from which Genesys Info Mart will obtain Outbound Contact details. | After you have run the ICON-provided scripts to create the IDB(s), execute one of the following SQL scripts, which Genesys Info Mart provides:<br>• `update_idb_for_gim.sql`<br>• `update_idb_for_gim_mm.sql`<br>For more information, see Procedure: Preparing IDBs, on page 174. |
| 3. Enable ICON to access the Outbound Contact details IDB(s). | When you create and configure the DAP application that enables the Outbound Contact details ICON to access IDB, ensure that you add the DAP to the `Connections` tab of the ICON `Application` object. |

### Task Summary: Enabling the Storage of Outbound Contact Details (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 4. Configure Outbound Contact–related objects so that OCS will send the required data and ICON will store it. | • On the `Annex` tab of each `Field` configuration object that describes a single field within a record, in the `default` section:<br>◦ For every field, configure the `icon_attribute` option, to control ICON storage of the data.<br>◦ For every nonmandatory (user-defined) field and certain mandatory fields, configure the `send_attribute` option, to ensure that OCS attaches the data.<br>For more information, see Procedure: Configuring the storage of OCS Record Field data, on page 165.<br>• Verify that all of the Outbound Contact Servers that ICON is required to monitor for Outbound Contact details are enabled. |
| 5. Map Outbound Contact–related objects to columns in the Genesys Info Mart database. | For every nonmandatory field:<br>• In the `gim-etl-mapping` section, configure the `table-name` and `column-name` options.<br>• In the `default` section, configure the `right_person` and `conversion` options, if applicable.<br>For more information, see Procedure: Configuring the mapping of OCS Record Fields, on page 167. |
| 6. Configure and install the Genesys Info Mart application. | When you configure the Genesys Info Mart application, ensure that:<br>• The values of Genesys Info Mart configuration options are suitable for your deployment. For more information, see “Options Summary Charts” on page 218.<br>• You configure a connection to all of the ICON applications (or HA sets) that store Outbound Contact details.<br>For more information about configuring the Genesys Info Mart application, see Chapter 14 on page 209. |
| 7. Enable Genesys Info Mart to access the Outbound Contact details IDB. | • When you configure the DAP application that enables Genesys Info Mart to access the Outbound Contact details IDB, ensure that the `role` option includes the value `ICON_OCS`. For more information, see “Extraction DAPs” on page 192.<br>• On the `Connections` tab of the Genesys Info Mart `Application` object, add a connection to this DAP. |

# Enabling Storage of User Data

The following table summarizes the task flow to enable Genesys Info Mart to capture and store user data (interaction-based attached data or `UserEvent`-based data) that is attached to voice or multimedia interactions.

### Task Summary: Enabling the Storage of User Data

| Objective | Related Procedures and Actions |
|---|---|
| 1. Configure the ICON application to store user data. | When you prepare the ICON application, ensure that you set the following option values:<br>• `role` includes `gud`<br>• `adata-extensions-history = none` (for Voice details)<br>• `adata-reasons-history = none` (for Voice details)<br>• `adata-userdata-history = none` (for Voice or Multimedia details) |
| 2. Specify the user data that ICON will store in IDB. | 1. Identify the key-value pairs (KVPs) from various applications that Genesys Info Mart requires for data processing. For more information about the KVPs that contact centers typically use for reporting purposes, see "User Data Sources and KVPs" on page 103.<br>2. For call-based attached data, modify the ICON attached data specification file to capture the KVPs that you require and to specify the IDB table(s) in which ICON will store the data. By default, the name of the ICON attached data specification is `ccon_adata_spec.xml`.<br>Genesys Info Mart provides an example of a customized attached data specification. The sample specification file, `ccon_adata_spec_GIM_example.xml`, is included in the `sql_scripts` folder in your Genesys Info Mart 8.0 installation package. The sample is reproduced in Appendix B on page 327.<br>For more information about customizing the attached data specification file, see Procedure: Customizing your ICON attached data specification file, on page 173. See also the section about storing attached data in the *Interaction Concentrator 8.0 Deployment Guide*.<br>3. For `UserEvent`-based user data, set ICON configuration options as required to store user data in the `G_CUSTOM_DATA_S` table in IDB. For more information, see "Using UserEvent-Based KVP Data" on page 114.<br>For more information about the required ICON configuration settings, see the descriptions of the options in the `custom-states` section in the *Interaction Concentrator 8.0 Deployment Guide*. |

### Task Summary: Enabling the Storage of User Data (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 3. Plan the Info Mart tables in which you want to store user data. | 1. Identify the Info Mart fact or dimension tables in which you want user data to be stored. For more information, see "Storing User Data" on page 109.<br>**Note:** Some target tables and columns are predefined. You can also store user data in custom-defined tables and columns, which you create later when you modify and execute SQL scripts.<br>2. Map the user data KVPs to the Info Mart tables and columns that you have identified. Genesys provides a worksheet (see "Worksheet for Mapping User Data" on page 320) to assist you in completing the mapping.<br>For more information about mapping attached data and specifying the propagation rules, see "Mapping Call-Based Attached Key-Value Pairs" on page 110. |
| 4. Modify the Info Mart database schema, as required, to store the custom user data. | 1. Modify the user data SQL template script (`make_gim_UDE_template.sql` or `make_gim_UDE_template_partitioned.sql`, as applicable) to:<br>• Specify creation of the target user data fact and dimension tables and columns, in accordance with your mapping worksheet.<br>• Map the user data key names to the target tables and columns (in the `CTL_UD_TO_UDE_MAPPING` table), and the key names in the user data dimension table(s) to the `IRF_USER_DATA_KEYS` table (in the `CTL_UDE_KEYS_TO_DIM_MAPPING` table).<br>For more information, see Procedure: Customizing the user data template script, on page 283.<br>The `make_gim_UDE_template.sql` and `make_gim_UDE_template_partitioned.sql` scripts are available in the RDBMS-specific scripts folder in your Genesys Info Mart 8.0 installation package.<br>2. Execute the modified script when you create the rest of the Info Mart database schema, or when you complete the deployment after installing Genesys Info Mart.<br>**Note:** If you are modifying an existing Info Mart database schema, Genesys recommends that you back up the Info Mart database before you execute the script. |

# Enabling High Availability

The following table summarizes the task flow to enable Genesys Info Mart to provide high availability (HA) of reporting data in a new or existing deployment.

**Notes:** If you are adding HA to an existing deployment, be aware that:

- ICON does not support dynamic changes to connections, deployment configuration information, and some important ICON configuration options. Therefore, existing ICON applications might need to be restarted (for example, to read T-Server configuration information, if you add a backup T-Server data source to an existing non-HA deployment). When you restart an existing ICON application, active calls are lost.
- The Genesys Info Mart Server supports dynamic changes. It is not necessary to interrupt the Genesys Info Mart job schedule or to stop Genesys Info Mart for new connection information or other configuration option changes to take effect.

To minimize data loss and possible data inconsistencies when you add HA to an existing deployment, Genesys recommends that you:

- Do not restart the existing ICON application(s) before you have created, configured, and started the new ICON application(s) and created and initialized the new IDB(s).
- Perform the reconfiguration during off-peak hours, when contact center activity is low. If this is not feasible, Genesys recommends the following steps:
  a. Add a new instance of ICON with a new IDB configured for HA.
  b. Bring the new ICON online, and use both instances for a period of time that is greater than the expected maximum duration of calls.
  c. Bring the old ICON offline, and remove it from the configuration.
- Ensure that all existing data in IDB has been extracted before you add HA.

### Task Summary: Enabling High Availability in a New or Existing Deployment

| Objective | Related Procedures and Actions |
|---|---|
| 1. Provide redundancy for monitoring the data sources and storing source data. | Create and configure identical redundant ICON `Applications` for the type of details you require. For more information, see Procedure: Configuring the ICON application, on page 150.<br>Except for identical configuration, there are no special requirements for HA ICON applications. However, especially ensure the following:<br>• On the `Connections` tab of every ICON `Application` object, a connection has been configured to every data source which that ICON instance might be required to monitor. The connection list can include HA pairs of Configuration Servers, T-Servers, Interaction Servers, or Outbound Contact Servers.<br>For example, say the deployment consists of:<br>◦ An HA pair of Configuration Servers (primary Configuration Server 1 and backup Configuration Server 1a)<br>◦ Two HA pairs of T-Servers (primary T-Server 1, backup T-Server 1a, primary T-Server 2, and backup T-Server 2a)<br>◦ A single set of redundant ICONs for Configuration and Voice details (ICON-1 and ICON-2, storing data in IDB-1 and IDB2, respectively)<br>Then both ICON-1 and ICON-2 must have connections to:<br>◦ Configuration Server 1<br>◦ T-Server 1, T-Server 2<br>• On the `General` tab of every data source application whose availability and activity Genesys Info Mart needs to monitor, the `State Enabled` check box is selected.<br>• The value of the `dss-no-data-tout` option (see page 153) is suitable for your HA deployment; the default value is 5 minutes.<br>**Note:** If you are adding HA to an existing deployment and are adding new backup data sources, be aware that the existing ICON application(s) must be restarted for new configuration information to take effect. However, Genesys recommends that you do not restart ICON at this time; see the note on page 141 and Step 5 on page 143. |

### Task Summary: Enabling High Availability in a New or Existing Deployment (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 2. Provide redundancy for the Genesys Info Mart database sources (IDBs). | Create and initialize identical redundant IDBs, together with their associated DAPs, to store the type of ICON details that you require.<br>• For more information about preparing an IDB, see "Preparing IDBs" on page 174.<br>• For more information about configuring a DAP for Interaction Concentrator, see the *Interaction Concentrator 8.0 Deployment Guide*. |
| 3. Provide redundancy for Genesys Info Mart to access the redundant IDBs. | Configure identical redundant DAPs to enable the Genesys Info Mart Server to access the redundant IDBs. Create a separate DAP to enable access to each redundant IDB.<br>For more information about configuring the required DAPs, see "Extraction DAPs" on page 192. |
| 4. Configure the Genesys Info Mart Server application. | Configure the Genesys Info Mart `Application` object in the usual way. For more information, see Procedure: Creating the Genesys Info Mart application, on page 213.<br>There are no special requirements for the Genesys Info Mart Server application in an HA environment. However, especially ensure the following:<br>• On the `Connections` tab of the Genesys Info Mart `Application` object, a connection has been configured to every redundant ICON `Application` in the deployment.<br>• On the `Connections` tab of the Genesys Info Mart `Application` object, a connection has been configured to every DAP that provides access to a redundant IDB in the deployment.<br>• The values of the following options are suitable for your HA deployment:<br>◆ `extract-data-stuck-threshold` (see page 249)<br>◆ `max-time-deviation` (see page 252) |
| 5. Start or restart the ICON applications. | For more information about starting ICON, see the chapter about starting and stopping ICON in the *Interaction Concentrator 8.0 Deployment Guide*. |
| 6. In a new deployment, start the Genesys Info Mart Server. | For more information about starting Genesys Info Mart, see Chapter 19 on page 303.<br>(If you are adding HA to an existing deployment, the Genesys Info Mart Server will already be running.) |

### Task Summary: Enabling High Availability in a New or Existing Deployment (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 7. Verify the deployment. | Review logs to confirm the results of the configuration check, to verify connections to all redundant Interaction Concentrator instances and data sources, and to verify correct configuration. |

## Enabling Aggregation

The following table summarizes the task flow to enable Genesys Info Mart to support the aggregation process and to populate aggregate tables in the Info Mart database.

**Note:** If you plan to use Genesys Interactive Insights (GI2), you must enable aggregation.

### Task Summary: Enabling Aggregation in a Genesys Info Mart Deployment

| Objective | Related Procedures and Actions |
|---|---|
| 1. Install the aggregation engine software. | Install GI2 or the separate Reporting and Analytics Aggregates (RAA) package.<br>• For full information about installing GI2, see the *Genesys Interactive Insights 8.0 Deployment Guide.*<br>• For full information about installing the RAA package, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide.* |
| 2. Configure the Genesys Info Mart `Application` object and other applications and objects in your Genesys environment, as required, to support aggregation. | Settings on the Genesys Info Mart `Application` object—as well as settings for ICON filtering options, switch and DN options, Business Objects components (for GI2), and other applications—affect aggregation. Be aware that GI2 has specific requirements for certain settings.<br>• For full information about configuring Genesys Info Mart for aggregation, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide.*<br>• For information about configuring Business Objects and creating the aggregation-related database objects for GI2, see the *Genesys Interactive Insights 8.0 Deployment Guide.* |

### Task Summary: Enabling Aggregation in a Genesys Info Mart Deployment (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 3. (Optional) Configure custom calendars. | See Procedure: Configuring custom calendars, on page 297.<br>**Note:** If your reports use custom calendar dimensions, create the custom calendars before you start aggregation. |
| 4. Start the aggregation engine. | If you have configured the Genesys Info Mart scheduler to control the aggregation process (`run-aggregates=true`), the aggregation job will start automatically at the scheduled time (as specified by `aggregate-schedule`). To run aggregation continuously, set `aggregate-schedule=0 0` and `aggregate-duration=24:00`.<br>For full information about starting the aggregation engine, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide.*<br>For more information about scheduling and managing the aggregation job in Genesys Info Mart, see the *Genesys Info Mart 8.0 Operations Guide*. |

Chapter

# 11 Preparing Interaction Concentrator

This chapter describes how to prepare the Interaction Concentrator applications (ICONs) and Interaction Databases (IDBs) that provide data to Genesys Info Mart.

Refer to this chapter before you install your Genesys Info Mart 8.0 application.

This chapter contains the following sections:



For information about the various data source topologies that are supported by Genesys Info Mart 8.0, see Chapter 3 on page 41.

For information about database access accounts and privileges, see "Database Object Owners and User IDs" on page 63.

## Overview: Preparing Interaction Concentrator for Genesys Info Mart

The following table summarizes the task flow for preparing Interaction Concentrator to capture and store reporting data for Genesys Info Mart.

### Task Summary: Preparing Interaction Concentrator for Genesys Info Mart

| Objective | Related Procedures and Actions |
|---|---|
| Capture information to support detailed reporting about contact center configuration and activities for interactions of any type, as well as related agent activity. | 1. Set up the ICON applications to capture and store data from instances or HA pairs of data sources—Configuration Server, for Configuration details; T-Server, for Voice details; Interaction Server, for Multimedia details; or Outbound Contact Server (OCS), for Outbound Contact details.<br>For information about configuring the ICON application as required for Genesys Info Mart, see Procedure: Configuring the ICON application, on page 150. For full details about creating and configuring an ICON `Application` object, see the *Interaction Concentrator 8.0 Deployment Guide*.<br>2. Prepare other objects, as required, to support detailed reporting about interactions of various media types:<br>• `Switch` (for Voice or Multimedia details). For more information, see Procedure: Configuring the switch for ICON Voice or Multimedia details, on page 159.<br>• `DN` (for Voice or Multimedia details). For more information, see Procedure: Configuring a DN for ICON Voice or Multimedia details, on page 163.<br>• `Field` (for Outbound Contact details). For more information, see Procedure: Configuring the storage of OCS Record Field data, on page 165.<br>See also "Configuring Supporting Objects" on page 228 for further modifications that the Genesys Info Mart Server application requires.<br>3. Verify that all data sources from which information is required to be captured have been configured to be available:<br>• The data sources are included in the connections of the applicable ICON applications.<br>• All data source applications that you want Genesys Info Mart to consider as available for use are enabled. |
| (Optional) Provide support for high availability (HA) of reporting data. | Set up redundant ICON applications to store ICON details in a highly available (HA) set of redundant IDBs. For more information, see "Enabling High Availability" on page 141. |
| (Optional) Minimize the required database storage space, while supporting detailed reporting of interactions of any type and related agent activity. | Set up the ICON application to exclude extra details from being stored in IDB. For more information, see Procedure: Controlling IDB storage, on page 170. |

**Task Summary: Preparing Interaction Concentrator for Genesys Info Mart (Continued)**

| Objective | Related Procedures and Actions |
|---|---|
| (Optional) Capture attached data to support detailed reporting of interactions of any type. | Indicate what attached data ICON should store in IDB. You must include all key-value pairs (KVPs) that Genesys Info Mart requires for data processing, as described in "Genesys Info Mart and Attached Data" on page 101. Optionally, include any additional KVPs that you require for end reports.<br>For more information, see "Enabling Storage of User Data" on page 139 and Procedure: Customizing your ICON attached data specification file, on page 173. |
| Verify correct configuration for database connectivity between ICON and IDB. | • Verify configuration settings on the database access points (DAPs) that enable ICON(s) to access IDB(s). For more information, see the *Interaction Concentrator 8.0 Deployment Guide*.<br>• Verify that all required DAPs have been added to the `Connections` tab of the applicable ICON `Application` objects. |
| Enable extraction of ICON details from the IDBs for reporting purposes. | 1. Create the IDB instances that are required for your deployment. For more information about the SQL scripts that Interaction Concentrator provides, and for information about executing the scripts to create the IDB schema, see the chapter about creating IDB in the *Interaction Concentrator 8.0 Deployment Guide*.<br>2. Modify IDB so that the jobs that extract, transform, and load (ETL) data extract relevant reporting data. For more information, see Procedure: Preparing IDBs, on page 174. |

# Preparing ICON

Your Genesys Info Mart deployment requires at least one ICON application and one IDB. However, depending on your chosen topology, you may have additional ICON applications or additional IDBs for separate storage of Configuration details, Voice details, Multimedia details, and Outbound Contact details.

Within Configuration Manager, you must configure each ICON `Application` object and related objects in the deployment, in accordance with the Genesys Info Mart deployment requirements that are described in this section.

The type of data that Genesys Info Mart will extract from a particular ICON and IDB depends on your topology and reporting requirements. The required configuration settings, therefore, also depend on your topology and reporting requirements. In some cases, you must configure settings on other

configuration objects (`DN`, `Field`, `Switch`, `Script`), as well as on the ICON `Application` object.

**Note:** The valid values that are listed for ICON application options in this chapter do not necessarily represent the entire set of values that are available in ICON; instead, these are the values that make sense in a reporting environment that is based on Genesys Info Mart.

**Recommendations on ICON Deployment and Upgrade**

- If you are deploying Interaction Concentrator at the same time as Genesys Info Mart, follow the installation and configuration instructions in the *Interaction Concentrator 8.0 Deployment Guide,* while observing the Genesys Info Mart deployment requirements that are documented in this chapter.
- You can deploy Genesys Info Mart in an environment in which Interaction Concentrator 8.x has already been deployed, provided that ICON was configured in accordance with Genesys Info Mart requirements when Interaction Concentrator was originally deployed. If there is a large amount of data in IDB by the time Genesys Info Mart is added to the deployment, be aware that this approach might result in significant data latency while the Genesys Info Mart ETL processes the backlog.

## Procedure: Configuring the ICON application

**Purpose:** To enable ICON to capture Configuration details, Voice details, Multimedia details, or Outbound Contact details for Genesys Info Mart.

### Start of procedure

1. Create and configure an Interaction Concentrator `Application` object, as described in the configuration and installation chapter in the *Interaction Concentrator 8.0 Deployment Guide*.
2. Review the options from the `callconcentrator` section, and modify settings as required for Genesys Info Mart. At a minimum, you must set the following option values for all types of ICON details:
   - `use-dss-monitor=true`
   - `calls-in-the-past=true`
   - `om-force-adata=true`
   - `gls-active-reason-codes=true`
   - `partition-type=2`
   - `role` (the value depends on the type of ICON details that you require that ICON application to store)

Table 8 describes the required ICON options, as well as other ICON options and recommended settings that are important for Genesys Info Mart. The options are grouped by type of ICON details to which the option applies:

- All Details (page 152)
- Voice or Multimedia Details (page 155)
- Voice Details Only (page 157)
- Multimedia Details Only (page 158)
- Outbound Contact Details Only (page 158)

For more information about all the ICON configuration options, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide.*

**Note:** In the context of this section, the term *interaction* is used generically to refer to voice calls and multimedia interactions.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| **All Details** | | | |
| ICON role | role* | • `cfg`—For Configuration details<br>• `gcc`, `gud`, `gls`—For Voice or Multimedia details<br>• `gos`—For Outbound Contact details | Specifies what type of data this ICON instance processes and stores in an IDB:<br>• `cfg`—Stores the initial configuration state and a history of configuration changes, which are retrieved from Configuration Server.<br>• `gcc`—Stores interaction-related and party-related information.<br>• `gud`—Stores T-Server (for Voice) or Interaction Server (for Multimedia) data about the attached data that is associated with interactions.<br>• `gls`—Stores T-Server (for Voice) or Interaction Server (for Multimedia) data about agent states and agent login sessions.<br>• `gos`—Stores data that pertains to Outbound Contact calls and campaigns. |

* Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.

** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Session monitoring | dss-no-data-tout | `300` (seconds) | Specifies the time interval, in seconds, after which, if no data has been received from the data source, ICON updates the `NODATA_IUTC` field in the applicable `G_DSS_*_PROVIDER` table.<br>The `nodata` record is a kind of heartbeat mechanism that enables Genesys Info Mart to distinguish between situations in which there is no data from a data source because there is no activity, and situations in which there is no data because the data source is unavailable. |
| | use-dss-monitor* | `true` | Specifies that ICON will populate the `G_DSS_*_PROVIDER` tables in IDB. |

* Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.

** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Interaction processing | calls-in-the-past* | `true`<br>**Note:** Although this option applies only when ICON processes multimedia interactions, Genesys Info Mart requires that you set the value of this option to `true` for all types of ICON details. | Enables reporting for multimedia interactions that have started in the past.<br>**Note:** Reporting on multimedia interactions that began while ICON was down or before ICON started raises unavoidable data quality issues. For more information about the potential issues and about strategies for mitigating them when `calls-in-the-past=true`, see the section in the *Genesys Info Mart 8.0 Operations Guide* about extracting multimedia interaction data, in the chapter about understanding Genesys Info Mart jobs. |
| | om-force-adata* | `true`<br>**Note:** Although this option applies only when ICON processes multimedia interactions, Genesys Info Mart requires that you set the value of this option to `true` for all types of ICON details. | Specifies that ICON will store a UserData snapshot in the `GM_F_USERDATA` table for interactions that started in the past. |

* Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.

** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| IDB | partition-type* | 2<br>**Note:** For Genesys Info Mart purposes, this option effectively applies only to processing of multimedia interactions. However, Genesys Info Mart requires that you set the value of this option to 2 for all types of ICON details. | Specifies that, for multimedia interactions, the value of gsys_partition in the G_IR and G_CALL tables is taken from the attr_itx_submitted_at attribute of the Interaction Server event. The value populates the CREATED_TS field in the GIDB_G_IR_MM and GIDB_G_CALL_MM tables in the Info Mart database. |
| **Voice or Multimedia Details** | | | |
| Agent state and login session | gls-active-reason-codes* | true<br>**Note:** Although this option applies only when ICON processes voice or multimedia interactions, Genesys Info Mart requires that you set the value of this option to true for all types of ICON details. | Specifies that ICON captures active agent state reason codes, and temporarily stores the values in the G_AGENT_STATE_RC_A table in IDB.<br>Genesys Info Mart requires knowledge of active reason codes to prevent inconsistencies in the SM_RES_STATE_REASON_FACT table when a reason code state ends after transformation of the interval in which the reason code started. |

* Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.

** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Virtual queue | vq-write-mode** | • 0—For Voice details<br>• 1—For Multimedia details | Specifies when ICON creates the IDB record:<br>• 0—ICON creates a complete IDB record at the time that a particular association between an interaction and a virtual queue terminates, as indicated by either EventDiverted or EventAbandoned.<br>• 1—ICON initially creates an IDB record when a particular association between an interaction and a virtual queue starts (as indicated by EventQueued); after the association is terminated (as indicated by either EventDiverted or EventAbandoned), ICON updates the existing record.<br>**Note:** If you are using virtual queues in multimedia interaction processing, it is very important to configure a DN object for this virtual queue under the Switch object for your multimedia switch in Configuration Manager. Otherwise, the ICON applications that report on multimedia details are unable to indicate interactions that have entered, but not left, a virtual queue. |

* Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.

** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Attached data | adata-userdata-history** | `none` | No value is recorded in IDB for a key that originates from the `UserData` TEvent attribute, but that is not included in the XML specification file that is specified by the `adata-spec-name` option value. |
| **Voice Details Only** | | | |
| Agent state and login session | gls-acw-first | No recommended value, but the setting might affect reporting results:<br>• `false` (default)—ICON associates after-call work (ACW) metrics with the voice interaction that immediately precedes the *completion* of the ACW (the last voice interaction).<br>• `true`—ICON associates ACW metrics with the voice interaction that immediately precedes the *start* of the ACW (the first voice interaction). Subsequent voice interactions are considered to be related to ACW processing and should not interrupt measurement of ACW-related metrics. | Specifies which interaction ICON associates with ACW.<br>When the agent logs out, changes his or her state to `Ready`, or goes `NotReady` for any reason other than to perform ACW, ICON reports the end of the current ACW state.<br>**Note:** This option applies to all switches that ICON is configured to monitor, but the value does not override the value of the `gls-acw-first` configuration option (described on page 161) if it is configured within the `Switch` configuration object. |

* Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.

** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*.

**Table 8: ICON Application Options—callconcentrator Section, by Type of Details (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Attached data | adata-extensions-history** | none | No value is recorded in IDB for a key that originates from the Extensions TEvent attribute, but that is not included in the XML specification file that is specified by the adata-spec-name option value. |
| Attached data | adata-reasons-history** | none | No value is recorded in IDB for a key that originates from the Reasons TEvent attribute, but that is not included in the XML specification file that is specified by the adata-spec-name option value. |
| **Multimedia Details Only** | | | |
| 3rd Party Media | mcr-om-processing | 1 (default)—This is the recommended setting because it enables recording of 3rd Party Media agent states and interaction data in IDB. | Specifies whether ICON stores information about 3rd Party Media interactions in IDB. |
| **Outbound Contact Details Only** | | | |
| Outbound Contact metrics | gos-write-duplicate-metrics** | 1 | ICON writes to IDB all metrics that are related to active outbound objects, exactly as OCS provides them, without filtering out duplicate metrics. ICON identifies active outbound objects by CampaignGUID, ChainGUID, and CallAttemptGUID. |
| * Mandatory option—Genesys Info Mart will not function if the option value is not set as specified.<br>** Recommended option—Data quality might be compromised if you do not use the recommended value. For more information about data quality considerations, see the *Genesys Info Mart 8.0 User's Guide*. | | | |

**End of procedure**

### Next Steps

- For a dedicated Configuration details ICON, Procedure: Preparing IDBs, on page 174
- For Voice or Multimedia details, Procedure: Configuring the switch for ICON Voice or Multimedia details, on page 159
- For Outbound Contact details, Procedure: Configuring the storage of OCS Record Field data, on page 165

## Procedure: Configuring the switch for ICON Voice or Multimedia details

**Purpose:** To enable `Switch` object settings that are required for ICON to gather data for reporting on voice or multimedia interactions, including interaction,user data, resource, and agent activity details.

For Multimedia details, this procedure applies only if you want to include virtual queues in your reporting.

### Prerequisites:

- The `Annex` tab must be displayed for configuration objects in Configuration Manager.
- Procedure: Configuring the ICON application, on page 150.

### Start of procedure

1. Open the `Annex` tab of the `Switch` object that handles voice or multimedia interactions.
2. Create a new section that is named `gts`, if it does not exist already on the `Annex` tab.
3. Open the `gts` section.
4. Configure the required ICON-related options:
   - For Voice details, configure all required options that are described in Table 9.
   - For Multimedia details, if your deployment includes virtual queues, configure only the `monitor` option (see page 164).

   For more information, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*.

### Table 9: ICON Voice or Multimedia Details—Switch Options—gts Section

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Agent state and login session | gls-associations-rule | `0`<br>**Note:** `0` is the only valid value for Genesys Info Mart. | ICON creates a single login session for two DNs that belong to the same place when an agent logs in at one of these DNs. |
| | gls-flag-on-disconnect | `0` (default) | When reconnecting to T-Server, ICON compares the agent state from its memory with the state from `EventRegistered`. If the in-memory state does not match the currently reported agent state, ICON updates the agent state in both its internal memory and IDB. When disconnecting from T-Server, ICON performs no actions that are specific to agent states. |
| | gls-use-ts-id | `1` (default)<br>**Note:** `1` is the only valid value for Genesys Info Mart. | ICON uses the login session ID that is generated by T-Server (GUID). |

**Table 9: ICON Voice or Multimedia Details—Switch Options—gts Section (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Agent metrics | gls-acw-first | To ensure that ICON associates ACW with the first voice interaction, do one of the following:<br>• At the switch level, set this option value to `1`.<br>• Retain the default value of `-1` at the switch level, and set the `gls-acw-first` option to `true` at the ICON application level (see page 157). | Specifies, for this switch, which interaction ICON associates with ACW.<br>For accurate measurement of ACW-related metrics, Genesys Info Mart requires ICON to associate ACW metrics with the voice interaction that immediately precedes the *start* of the ACW (the first voice interaction). Subsequent voice interactions are considered to be related to ACW processing.<br>When the agent logs out, changes his or her state to `Ready`, or goes `NotReady` for any reason other than to perform ACW, ICON reports the end of the current ACW state.<br>This option overrides an explicit setting of the `gls-acw-first` configuration option (described on page 157) at the ICON application level. |

**Table 9: ICON Voice or Multimedia Details—Switch Options—gts Section (Continued)**

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Agent metrics | gls-enable-acw-busy | No recommended value, but the setting might affect reporting results:<br>• `0`—ICON does not interrupt `ACW` and `NotReady` agent states.<br>• `1` (default)—ICON interrupts `ACW` and `NotReady` agent states.<br>**Note:** If you set the option value to `0` (false) because you want ICON to report uninterrupted `ACW`, ICON will also report uninterrupted `NotReady` states. Other states that might occur during `NotReady` (for example, `Busy`) will not be reported in IDB or the Info Mart database. For more information, see the section about populating agent activity data in the *Genesys Info Mart 8.0 User's Guide*. | Specifies whether ICON interrupts `ACW` and `NotReady` agent states when an agent places or receives another interaction during the period of time that `ACW` or `NotReady` agent states were invoked.<br>For more information about uninterrupted `ACW` and `NotReady` states, see the chapter about agent states and login sessions in the *Interaction Concentrator 8.0 User's Guide*.<br>**Note:** This option is not valid for Session Initiation Protocol (SIP)–compliant switches that handle interactions other than voice interactions. |
| Virtual queue | support-dn-type-5 | `1` (default) | ICON processes events that pertain to DNs of the `Virtual Queue` type that belong to this switch. |

### End of procedure

### Next Steps

- For Multimedia details, Procedure: Configuring a DN for ICON Voice or Multimedia details, on page 163.
- (Optional, to customize attached data processing) Procedure: Customizing your ICON attached data specification file, on page 173
- (Optional, to reduce IDB size and optimize Genesys Info Mart ETL performance) Procedure: Controlling IDB storage, on page 170
- Procedure: Preparing IDBs, on page 174

## Procedure:
## Configuring a DN for ICON Voice or Multimedia details

**Purpose:** To enable DN object settings that are required for ICON to gather data for reporting on IVR and virtual queue usage for voice or multimedia interactions.

### Prerequisites:

- The Annex tab must be displayed for configuration objects in Configuration Manager. For more information, see Procedure: Setting the Annex tab to display, on page 229.
- Procedure: Configuring the ICON application, on page 150.

### Start of procedure

1. If you are deploying Genesys Info Mart to report on both ICON Voice details and ICON Multimedia details, make sure that any DN objects for virtual queues that are dedicated to voice calls are configured under the Switch object that is configured for your traditional telephony switch. Otherwise, the ICON application that is dedicated to handling Voice details cannot track activity on virtual queues.
2. Open the Annex tab of the DN object that handles voice or multimedia interactions.
3. Create a new section that is named gts, if it does not exist already on the Annex tab.
4. Open the gts section.
5. Configure the required ICON-related options:
   - For Voice details, configure all required options that are described in Table 10.
   - For Multimedia details, if your deployment includes virtual queues, configure only the monitor option (see page 164).

   For more information, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*.

### Table 10: ICON Voice or Multimedia Details—DN Options—gts Section

| Area of Functionality | Option Name | Recommended Value | Description |
|---|---|---|---|
| Scenario recognition | ivr | 0 (default) | ICON does not recognize this DN as an IVR port unless the DN configuration satisfies one of the following criteria:<br>• DN has a type of Voice Treatment Port in Configuration Database.<br>• DN has a type of ACD Position or Extension, and it is specified as an Associated DN in the properties of the IVR port at ICON startup time.<br>**Note:** See the gls-ivr option description on page 171 to exclude data about agent activity that is associated with this IVR device from IDB storage. |
| Network Routing Solution | emulate-event-queued | • 0—EventQueued is not emulated.<br>• 1—EventQueued is emulated.<br>**Note:** Network Routing Solution uses Service Number DNs. There is no EventQueued-related option at the switch level for Service Numbers. If the Network T-Server does not generate EventQueued, set this option to 1 on the Service Number DNs. | Enables the emulation of EventQueued for this particular DN. This option supersedes the value that is set in a related option at the Switch level.<br>**Note:** Generation of EventQueued for a Routing Point, Routing Queue, and External Routing Point depends on the particular T-Server and its switch. ICON requires this event for correct party representation in any environment. |
| Virtual queue | monitor | 1 (default) | ICON processes virtual queue–related events for this DN.<br>**Note:** This option is meaningful only when the support-dn-type-5 option (see page 162) is set to 1 (default) in the corresponding Switch object. |

**End of procedure**

### Next Steps

- (Optional, to customize attached data processing) Procedure: Customizing your ICON attached data specification file, on page 173
- (Optional, to reduce IDB size and optimize Genesys Info Mart ETL performance) Procedure: Controlling IDB storage, on page 170
- Procedure: Preparing IDBs, on page 174

## Procedure: Configuring the storage of OCS Record Field data

**Purpose:** To enable the `Field` object settings that are required for ICON to store mandatory field data in IDB.

### Prerequisites

- The `Annex` tab must be displayed for configuration objects in Configuration Manager.
- Procedure: Configuring the ICON application, on page 150.

### Start of procedure

1. Review the configuration options in Table 11 on page 166 that you should configure in the `default` section on the `Annex` tab of the `Record Field` object.
2. For each mandatory field, add the `icon_attribute` and the `send_attribute` options to the `default` section on the `Annex` tab of the `Field` object, as indicated in Table 7 on page 119. For information about recommended values and restrictions, see Table 11.
   - For nonsensitive data, set the `icon_attribute` option value to `1` in the corresponding `Field` configuration object, to store the data in the `GO_CUSTOM_FIELDS` and `GO_FIELDHIST` IDB tables.
   - For sensitive data, set the `icon_attribute` option value to `2` in the corresponding `Field` configuration object, to store the data in the `GO_SECURE_FIELDS` and `GO_SEC_FIELDHIST` IDB tables.
   - For the `send_attribute` option, specify a value that OCS will use as the key in the key-value pair (KVP) that is sent in user data. Typically, the value will be the same as the name of the `Field` configuration object. For information about recommended values and restrictions, see Table 11.
3. For each nonmandatory (custom) field that you want Genesys Info Mart to store in its database, add the `icon_attribute` and `send_attribute` options to the `default` section of the `Annex` tab on the `Field` object. For information about recommended values and restrictions, see Table 11.

- For nonsensitive data, set the `icon_attribute` option value to `1` in the corresponding `Field` configuration object, to store the data in the `GO_CUSTOM_FIELDS` and `GO_FIELDHIST` IDB tables.
- For sensitive data, set the `icon_attribute` option value to `2` in the corresponding `Field` configuration object, to store the data in the `GO_SECURE_FIELDS` and `GO_SEC_FIELDHIST` IDB tables.
- For the `send_attribute` option, specify a value that OCS will use as the key in the key-value pair (KVP) that is sent in user data. Typically, the value will be the same as the name of the `Field` configuration object.

**Table 11: Field Object—Annex Options—default Section**

| Option Name | Recommended Value | Description |
|---|---|---|
| send_attribute | Specify a value that OCS will use as the key in the KVP that is sent in user data. You can use any non-empty string that consists of letters, numbers, and underscores. Do not use the `GSW_` prefix. Genesys recommends that you establish a naming convention that uses a consistent user-defined prefix (for example, `CUSTOM_`) for all `send_attribute` values. | Specifies what key name is used for this record field when it is attached as user data.<br>For more information about the `send_attribute` option, see the section of the *Outbound Contact 8.0 Deployment Guide* that describes the field-level options. See also the information in the *Outbound Contact 8.0 Reference Manual* about attaching record information to desktop and OCS user events. |
| icon_attribute | For each of the record field names that are listed in Table 7 on page 119:<br>• For nonsensitive data, set this option to `1` to store the data in the IDB `GO_CUSTOM_FIELDS` and `GO_FIELDHIST` tables.<br>• For sensitive data, set this option to `2` to store the data in the IDB `GO_SECURE_FIELDS` and `GO_SEC_FIELDHIST` tables. | Instructs ICON as to whether or not to report on this field and which tables ICON should use.<br>See Procedure: Configuring the mapping of OCS Record Fields, on page 167 for more information. |

**Table 11: Field Object—Annex Options—default Section (Continued)**

| Option Name | Recommended Value | Description |
|---|---|---|
| right_person | (Optional) Specify a value that indicates that the right person is contacted.<br>**Examples:**<br>• TRUE<br>• YES<br>• 1 | Specifies the value of the record field when the right person is contacted. If the value of the Right Person Contacted field matches this option value (case-insensitive), Genesys Info Mart sets the RPC_FLAG in its CONTACT_ATTEMPT_FACT table to 1.<br>**Note:** This option should not be specified for more than one field within a calling list. |
| conversion | (Optional) Specify a value that indicates that a transaction was successful. | Marks the field that indicates that the answered call was a successful transaction. If the field is updated with a value that equals the value that is configured for this option, Genesys Info Mart recognizes it as a conversion indicator.<br>**Note:** This option should not be specified for more than one field within a calling list. |

**End of procedure**

**Next Steps**

- Procedure: Configuring the mapping of OCS Record Fields

## Procedure: Configuring the mapping of OCS Record Fields

**Purpose:** To enable the Field object settings that are required for mapping to the Genesys Info Mart database.

To determine what fields you need to map, see "Worksheet for Mapping OCS Record Fields" on page 323. Configure the mapping only for those nonmandatory Field objects that you want to store in the Info Mart database. Follow this procedure to configure the Annex tab of the corresponding Field object, to indicate the Info Mart table name and column name to which it will be mapped.

### Prerequisites

- The Annex tab must be displayed for configuration objects in Configuration Manager.
- Procedure: Configuring the storage of OCS Record Field data, on page 165.
- Mapping requirements must be finalized, as per "Worksheet for Mapping OCS Record Fields" on page 323.

### Start of procedure

1. Review the configuration options in Table 11 on page 166 and Table 12 on page 169.
2. On the Annex tab of the Field object, add a section that is named gim-etl-mapping.

**Notes:** When you configure options in the gim-etl-mapping section:
- Do not map more than one field to the same Info Mart table and column.
- Do not configure options for extra Info Mart table columns that will not store Field object data.

3. In the gim-etl-mapping section, add an option that is named table-name, and set its value to the name of the Info Mart table in which you want the ETL to store this field (see Table 12).
4. In the gim-etl-mapping section, add an option that is named column-name, and set its value to the name of the column in the Info Mart table in which you want the ETL to store this field (see Table 12).
5. In addition, Genesys Info Mart supports the designation of nonmandatory fields to indicate right party contacted and conversion:
   - For a field to indicate that the correct party was contacted, add the right_person option (see page 167) to the default section on the Annex tab of the Field object, and set its value to the field value that you want to indicate that the right party has been contacted (for example, TRUE).
   - For a field to indicate conversion, add the conversion option (see page 167) to the default section on the Annex tab of the Field object, and set its value to the field value that you want to indicate that a conversion has taken place (for example, TRUE).

**Table 12: Field Object—Annex Options—gim-etl-mapping Section**

| Option Name | Recommended Value | Description |
|---|---|---|
| table-name | The name of one of the following Info Mart tables:<br>• CONTACT_ATTEMPT_FACT<br>• RECORD_FIELD_GROUP_1<br>• RECORD_FIELD_GROUP_2 | Specifies the name of the Info Mart table in which the ETL should store the value of this field. The option value is case insensitive.<br>**Note:** Configure this option only for the nonmandatory Field objects that you want to store in the Info Mart database. |
| column-name | The name of a column (in the table that is specified by the table-name option) that is not used in the configuration of any other Field object.<br>The type of the OCS field must match the data type of the column.<br>Refer to "Worksheet for Mapping OCS Record Fields" on page 323 for the list of column names. | Specifies the name of the column in the selected Info Mart table in which the ETL should store the value of this field. The option value is case insensitive.<br>**Note:** Configure this option only for the nonmandatory Field objects that you want to store in the Info Mart database. |

**End of procedure**

**Next Steps**

- (Optional, to reduce IDB size and optimize Genesys Info Mart ETL performance) Procedure: Controlling IDB storage, on page 170
- Procedure: Preparing IDBs, on page 174

# Controlling IDB Storage

By default, ICON stores full details about voice and multimedia interactions, as well as associated agent-related data. To customize IDB as a source of data for Genesys Info Mart, you can enable certain filtering through ICON configuration options. If you do not store in IDB the details that Genesys Info Mart does not extract, you can minimize the required storage space for IDB and improve ETL data extraction performance.

For a list of the IDB tables from which Genesys Info Mart extracts data, see Appendix C on page 331.

The following procedure describes how you can set up the ICON application to exclude storage of details that Genesys Info Mart does not use.

## Procedure: Controlling IDB storage

**Purpose:** To exclude the data that is not required for Genesys Info Mart from being stored in IDB.

This procedure is optional.

### Prerequisites

- Procedure: Configuring the ICON application, on page 150

### Start of procedure

1. Review the options from the `filter-data` section, described in Table 13 on page 171, for configuring ICON storage.
2. Open the ICON `Application` object.
3. Create a new section that is named `filter-data`, if it does not already exist on the `Options` tab.
4. Open the `filter-data` section.
5. Configure the ICON options that control data storage, as recommended in Table 13. To turn a filter on, so that certain details are excluded from storage in IDB, set the value of the option to `1`.

   **Note:** Table 13 lists only those `filter-data` options that you can set to safely exclude data from IDB. To avoid compromising Genesys Info Mart data quality, do not set any other filtering options to `1` (`true`). By default, ICON does not exclude any data from storage (all the `filter-data` option values are set to `0`).

   For more information, see the chapter about configuration options in the *Interaction Concentrator 8.0 Deployment Guide*.
6. Repeat this procedure for every IDB in your environment that stores either Voice details or Multimedia details.

### Table 13: ICON Storage—Application Options—filter-data Section

| Option Name | Effect of Setting the Filter (option value = 1) |
|---|---|
| acd-party-metrics | ICON does not store party metrics for distribution devices—such as ACD queues, Routing Points, and virtual routing points—in the G_PARTY_STAT table in IDB.<br>Genesys Info Mart does not extract data from the G_PARTY_STAT table.<br>**Note:** The acd-party-metrics option applies to SIP and voice interactions only. |
| gls-ivr | ICON verifies whether the DN at which an agent logs in is an Interactive Voice Response (IVR) device. If it is, ICON does not store information about this agent's activity in the following IDB tables:<br>• G_LOGIN_SESSION<br>• GX_SESSION_ENDPOINT<br>• G_AGENT_STATE_HISTORY<br>• G_AGENT_STATE_RC<br>• G_DND_HISTORY<br>• GS_AGENT_STAT<br>• GS_AGENT_STAT_WM<br>Furthermore, for parties that are associated with an IVR device, ICON does not record the agent's ID in the G_PARTY table.<br>**Note:** See the description of the ivr option (page 164) for more information about configuring a DN as an IVR port. For more information about how ICON identifies an IVR, see the *Interaction Concentrator 8.0 Deployment Guide.* |
| gls-metrics | ICON does not store information about agent states in the following IDB tables:<br>• GS_AGENT_STAT<br>• GS_AGENT_STAT_WM |
| ir-history | ICON does not store information about the interaction record history in the G_IR_HISTORY table in IDB. |

**Table 13: ICON Storage—Application Options—filter-data Section (Continued)**

| Option Name | Effect of Setting the Filter (option value = 1) |
|---|---|
| observer-party | ICON does not store data about a party that has the role of `Observer` in an interaction. ICON collects data about every other party that is involved with the interaction, and it stores this information in the following IDB tables:<br>• `G_PARTY`<br>• `G_PARTY_HISTORY`<br>• `G_PARTY_STAT` |
| udata-history-terminated | ICON does not insert new records in the following IDB tables, at interaction termination time:<br>• `G_USERDATA_HISTORY`<br>• `G_SECURE_USERDATA_HISTORY`<br>However, ICON does continue to write information about the creation, addition, and removal of KVPs to these tables. |

**End of procedure**

**Next Steps**

- (Optional, for Voice or Multimedia details) Customizing Your ICON Attached Data Specification File
- Procedure: Preparing IDBs, on page 174

# Customizing Your ICON Attached Data Specification File

When applications attach KVPs to interactions, ICON records them in the appropriate IDB table. When you deploy the ICON application, you configure certain ICON options and you also create an XML-based specification file, to indicate which KVPs ICON should store and in which IDB tables and columns they should be stored.

Genesys Info Mart ships an attached data specification file (`ccon_adata_spec_GIM_example.xml`), which specifies the KVPs that are related to Genesys Info Mart functionality. You modify the file to specify which KVPs you want ICON to store.

When you install Genesys Info Mart, the `ccon_adata_spec_GIM_example.xml` file is copied to the `sql_scripts` folder in the installation directory. It overwrites any file that has the same name.

The `ccon_adata_spec_GIM_example.xml` file is also available in the `sql_scripts` folder on the Genesys Info Mart CD.

You must edit the `ccon_adata_spec_GIM_example.xml` file to customize the attached data specification for your deployment. To do so, use the following general procedure.

## Procedure: Customizing your ICON attached data specification file

**Purpose:** To customize your ICON attached data specification file to indicate the KVPs that ICON should store and in which IDB tables and columns they should be stored.

For a detailed description of the attached data KVPs that Genesys Info Mart recognizes, see Table 6 on page 111.

### Prerequisites

- Install Genesys Info Mart, and locate the `ccon_adata_spec_GIM_example.xml` file in the `sql_scripts` folder in the installation directory.

OR

- Locate the `ccon_adata_spec_GIM_example.xml` file in the `sql_scripts` folder on the Genesys Info Mart CD.

### Start of procedure

1. Provide KVP names for the attached data elements that you want the ETL to extract.
2. Comment out the attached data elements that you do not want the ETL to extract.
3. Copy this file to your ICON installation directory on the ICON host that stores attached data (that is, where the ICON `role` contains `gud`).
4. In the ICON `Application` object, update the `adata-spec-name` option to point to this file.
5. Restart the ICON application so that the configuration changes take effect.
6. Repeat these steps for each ICON application from which Genesys Info Mart will extract Voice or Multimedia details (that is, where the ICON `role` contains `gud`).

### End of procedure

### Next Steps

- To continue preparing Interaction Concentrator, see Procedure: Preparing IDBs, on page 174.

- To continue preparing Genesys Info Mart to store user data, see Procedure: Customizing the user data template script, on page 283. For more information, see also "Enabling Storage of User Data" on page 139.

# Preparing IDBs

For each IDB in the deployment, you must run the ICON-provided SQL scripts to create the IDB after you have configured and installed ICON. Refer to the *Interaction Concentrator 8.0 Deployment Guide* for the list of initialization scripts, their location, and the order in which to execute them.

After an IDB is created, complete the following Genesys Info Mart–specific procedure to enable the ETL jobs to use the IDB.

## Procedure: Preparing IDBs

**Purpose:** To prepare the IDB so that the ETL jobs are able to use it.

### Prerequisites

- All IDB instances that are required for your deployment have been created by using the ICON-provided SQL scripts. (Refer to the *Interaction Concentrator 8.0 Deployment Guide* for the list of initialization scripts, their location, and the order in which to execute them.)

### Start of procedure

1. For each IDB from which Genesys Info Mart will extract ICON details, run the Genesys Info Mart–provided SQL script to add to IDB the views and indexes that Genesys Info Mart requires:
   a. Ensure that the database access account that you used to create the IDB is available and has the required owner account privileges (see Table 3 on page 64).
   b. Log in to IDB using the IDB `Owner ID` (that is, the database access account that you used to create the IDB). Refer to the "Installation Worksheets" beginning on page 315 to determine the ID to use.
   c. Run the SQL script that applies to the particular IDB:
      - For a Voice details IDB, use `update_idb_for_gim.sql`.
      - For a Multimedia details IDB, use `update_idb_for_gim_mm.sql`.

- For a Configuration details or an Outbound Contact details IDB, use either `update_idb_for_gim.sql` or `update_idb_for_gim_mm.sql`.

**Note:** If you do not run the applicable script, Genesys Info Mart will be unable to extract data from the IDB.

2. Ensure that the database access account that the ETL jobs will use to access IDB data is available and has the required user account privileges (see Table 4 on page 64).

   The user account does not have to be the same as the owner account. For more information about the rules and recommendations that pertain to database access accounts for Genesys Info Mart, see "Database Object Owners and User IDs" on page 63.

### End of procedure

### Next Steps

- (Required for Voice details only) Procedure: Configuring Info Mart database for merge, on page 185
- Continue on to "Preparing Genesys Info Mart Database" on page 177

Chapter

# 12 Preparing Genesys Info Mart Database

This chapter describes how to prepare the target Genesys Info Mart database and predefined views. It describes how to modify and run the SQL scripts needed to create the Info Mart database and views. This chapter also describes how to tune your relational database management system (RDBMS) server for optimal performance.

This chapter contains the following sections:



The Genesys-supplied SQL scripts are provided in the `sql-scripts` folder in your Genesys Info Mart 8.0 installation package. They are also available as a separate SQL Scripts installation package. Use your database-specific tool (for example, SQL *Plus) to run the supplied SQL scripts.

**Note:** The Genesys Info Mart–provided SQL scripts do not qualify database objects by their schema or owner. When you run the SQL scripts, make sure that you use the ID of the schema or owner when you log in to the database. (You noted the schema or owner ID and password of each database in the appropriate section of the "Installation Worksheets" on page 315.)

## Overview

As Genesys Info Mart extracts source data and transforms and loads this data into the target tables, it operates with a single Genesys Info Mart database. The

Info Mart database consists of the target fact and dimension tables (Dimensional model), Global Interaction Database (GIDB) tables, Merge tables (used for voice interactions only), Control tables, Staging tables, and Temporary tables.

The following sections describe how to prepare the Genesys Info Mart database, including:

- The Info Mart database itself
- The Info Mart database read-only views

Perform the following steps for the target database:

1. Set up database access accounts and privileges.
2. Create the database schema.

The performance of the Genesys Info Mart jobs is greatly affected by the performance of the RDBMS server. Before you create the target database, tune your RDBMS server for optimal performance (see "Database Tuning").

**Note:** The Genesys-provided SQL scripts create objects without specifying tablespaces or storage parameters. Work with your database administrator or data warehousing specialist to develop a database implementation that is optimal for your environment, and make the necessary changes to the SQL scripts. See Chapter 4 on page 59 for more information.

## Task Flow for Preparing Genesys Info Mart Database

Table 14: Task Flow: Preparing the Genesys Info Mart Database summarizes the task flow to prepare the Genesys Info Mart database.

**Table 14: Task Flow: Preparing the Genesys Info Mart Database**

| Objective | Related Procedures and Actions |
|---|---|
| Set up and tune RDBMS resources to support the reporting database. | To improve ETL execution time, adjust the settings for the target database, as applicable to your RDBMS environment:<br>• On Microsoft SQL Server, Procedure: Tuning the Info Mart database on Microsoft SQL Server, on page 180<br>• On Oracle, Procedure: Tuning the Info Mart database on Oracle, on page 182 |

**Table 14: Task Flow: Preparing the Genesys Info Mart Database (Continued)**

| Objective | Related Procedures and Actions |
|---|---|
| Create and configure the Info Mart database schema to process and store detailed reporting data. | Prepare the databases by running Genesys-provided scripts:<br>• For all deployments, create the Info Mart database schema. For more information, see Procedure: Preparing the Info Mart database, on page 183.<br>• For reporting environments that require user data storage, customize the user data template script. See Chapter 17 on page 281.<br>• For deployments that include Voice details, customize the `GSYS_DNPREMOTELOCATION` table in GIDB, as required, to optimize performance of the merge operation. For more information, see Procedure: Configuring Info Mart database for merge, on page 185. |
| Prepare database links, to streamline performance. | Configure links between the IDB and Info Mart RDBMS servers. For more information, see "Creating Database Links" on page 185. |
| After you have installed Genesys Info Mart, complete database preparation. | 1. If applicable, create read-only, tenant-specific views. For more information, see Procedure: Creating Genesys Info Mart tenant views, on page 299.<br>2. (Optional) Create custom calendar dimensions. For more information, see Procedure: Configuring custom calendars, on page 297.<br>**Note:** If you plan to employ custom calendars in a deployment that includes Genesys Interactive Insights (GI2) or the Reporting and Analytics Aggregates (RAA) package, configure the custom calendars before you start aggregation. |

# Database Tuning

This section provides recommended parameter settings and tuning guidelines that you can use to improve the Info Mart ETL execution time (see "Info Mart Database" on page 180).

It also includes suggestions for your database administrator for managing the target database after it is deployed (see "Additional Considerations" on page 183).

# Info Mart Database

There are several database parameters that enable the ETL jobs to load the Info Mart database successfully. This section provides the recommended parameter settings for each RDBMS:


- Procedure: Tuning the Info Mart database on Microsoft SQL Server, on page 180
- Procedure: Tuning the Info Mart database on Oracle, on page 182


## Procedure: Tuning the Info Mart database on Microsoft SQL Server

**Purpose:** To set Microsoft SQL Server RDBMS parameters so that the ETL jobs load the Info Mart database successfully.

### Prerequisites

- Create a database instance for the Info Mart database in your RDBMS.
- Use Microsoft SQL Server Enterprise Manager to review the settings of the Microsoft SQL Server properties.

### Start of procedure

1. Allocate sufficient memory.

   The ETL jobs issue many complex SQL queries against several Info Mart database tables. The amount of memory that is allocated to the database server is critical to the performance of these SQL queries. Allocate as much memory as possible to Microsoft SQL Server without causing paging. Optimal settings for your environment depend on hardware and data volumes. As a quick approximation:

   a. Start with the total real memory on the database server.

   b. Subtract the memory that is required by the operating system and any other applications.

   c. Set the maximum memory that is allocated to Microsoft SQL Server to the result.

2. Select relevant server settings.

   Some of the SQL commands that are issued by the ETL jobs are long running. Disable `Use query governor to prevent queries exceeding specified cost` to ensure that their cost is not limited by Microsoft SQL Server.

3. Configure connections.

   The ETL jobs use many concurrent database connections. Set `Maximum concurrent user connections` to `0` (unlimited).

**Note:** Consult with your database administrator to further fine-tune these and other parameters, if you find the ETL job performance unacceptable for your environment.

4. After using SQL Server Enterprise Manager to create the Info Mart database, review the settings of the following database properties:
   - Data Files: Select `Automatically grow file` and `Unrestricted file growth`.
   - Transaction Log: Select `Automatically grow file` and `Unrestricted file growth`.
   - Options—Settings: Select `Auto update statistics` and `Auto create statistics`.
   - Options—Recovery Model: Take into account the following considerations.

     The ETL jobs generate large amounts of database activity, with a correspondingly large database log space. The amount of log space that is needed depends on the recovery mode and on the frequency of log file backups. Full recovery mode provides the most protection against data loss due to failures, but it requires the most log space. Performing daily log file backups can help limit the size of the transaction logs.

     In general, you control the size of a transaction log in one of the following ways:
     - If you are maintaining a log backup sequence for full or bulk-logged recovery modes, schedule `BACKUP LOG` statements to occur at intervals that will keep the transaction log from growing past the desired size.
     - If you are not maintaining a log backup sequence, specify the simple recovery model.

     For a more complete description of the recovery modes, and for information about managing transaction logs, see your Microsoft SQL Server documentation.

### End of procedure

### Next Steps

- Procedure: Preparing the Info Mart database, on page 183

## Procedure:
## Tuning the Info Mart database on Oracle

**Purpose:** To set Oracle RDBMS parameters so that the ETL jobs load the Info Mart database successfully.

### Prerequisites

- Create a database instance for the Info Mart database in your RDBMS.

### Start of procedure

**Initialization Parameters**

1. Set the Oracle initialization parameters, by parameter name and value:
   - `filesystemio_options = ASYNCH`
   - `processes` = at least `300`
   - `sessions` = at least `300`
   - `open_cursors` = at least `400`
   - (For use with database links) `open_links` = at least the value of `extract-data-thread-pool-size` (see page 250)

     If your deployment uses database links, configure the `open_links` parameter to allow a sufficient number of connections through the database links. For more information about configuring your deployment to use database links, see "Creating Database Links" on page 185.

**Memory**

2. Allocate sufficient memory.

   The ETL jobs issue many complex SQL queries against several Info Mart database tables. The amount of memory that you allocate to the database server buffers is critical to the performance of these SQL queries. The optimal settings for your environment depend on the hardware and data volumes.

   As a quick approximation:

   a. Start with the total real memory on the database server.
   b. Subtract the amount of memory that is required by the operating system and any other applications.
   c. Split the result between the buffer cache and the PGA aggregate target.

**Fine-Tuning**

3. Consult your database administrator to further fine-tune these and other parameters, if you find the performance of the ETL jobs in your environment unacceptable.

### End of procedure

#### Next Steps

- Procedure: Preparing the Info Mart database, on page 183

## Additional Considerations

In addition to the previously listed database tuning requirements, you might also need to do the following:

- Periodically update statistics on the Info Mart fact tables. Failure to update them periodically can have a negative impact on the performance of end-user queries. Enable the automatic gathering of statistics on Info Mart tables if your RDBMS supports this feature.
- Have database administrators actively manage Genesys Info Mart, after it is deployed.

# Preparing the Info Mart Database

The RDBMS-specific SQL scripts that are provided with Genesys Info Mart create the Info Mart database schema. This includes merge tables, which are a required part of the Info Mart database schema in any deployment. Genesys Info Mart provides separate scripts for partitioned and non-partitioned database schemas.

The Genesys Info Mart database scripts do not create the additional database objects that are required to support aggregation. For more information about database preparation for deployments that use Genesys Interactive Insights (GI2) or the separately installed Reporting and Analytics Aggregates (RAA) package, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide* and the *Genesys Interactive Insights 8.0 Deployment Guide.*

## Procedure: Preparing the Info Mart database

**Purpose:** To create the data schema for the Info Mart database.

#### Prerequisites

- Tune up your Info Mart database as appropriate for your RDBMS environment.
- (Optional) If you plan to store user-defined attached data, customize the applicable user data SQL script template, as instructed in Procedure: Customizing the user data template script, on page 283.
  - For a non-partitioned database, use `make_gim_UDE_template.sql`.

  - For a partitioned database, use `make_gim_UDE_template_partitioned.sql`.
- (Optional) If you plan to create multiple calendar dimensions to support your reporting, customize the `make_gim.sql` script to create additional calendar tables. Alternatively, create the custom calendars after you have installed Genesys Info Mart. For more information, see Procedure: Configuring custom calendars, on page 297.

### Start of procedure

1. Ensure that the database access account that you use to create the Info Mart database schema is available and has the required owner account privileges (see Table 3 on page 64).

   Refer to the "Installation Worksheets" beginning on page 315 to determine the ID to use.
2. Log in to the Info Mart database, using the Info Mart owner ID.
3. Run the applicable SQL script to create the Info Mart database schema:
   - For a non-partitioned database, use `make_gim.sql`. This script creates the Genesys Info Mart dimension and fact tables and related indexes.
   - For a partitioned database, use `make_gim_partitioned.sql`. This script creates the Genesys Info Mart dimension and fact tables and related indexes. For the tables and indexes that are partitioned, this script creates a single, outdated partition that is expected to be purged during the first run of the maintenance job.
4. (Optional) Run the modified `make_gim_UDE_template.sql` or `make_gim_UDE_template_partitioned.sql` SQL script that you have updated with required key-value pair (KVP) names. This script creates extension tables in the Info Mart database schema to store custom user data, configures user data mappings, and adds the specified dimension key fields to the `IRF_USER_DATA_KEYS` table.
5. Ensure that the database access account that the ETL jobs will use to access the Info Mart database is available and has the required user account privileges (see Table 4 on page 64).

   Refer to the "Installation Worksheets" beginning on page 315 to determine the ID to use.

   The user account does not have to be the same as the owner account. For more information about the rules and recommendations that pertain to database access accounts for Genesys Info Mart, see "Database Object Owners and User IDs" on page 63.
6. Update the `GSYS_DNPREMOTELOCATION` tables, as required, to optimize performance of the merge operation. For more information, see Procedure: Configuring Info Mart database for merge, on page 185.

### End of procedure

### Next Steps

- Procedure: Configuring Info Mart database for merge, on page 185

## Procedure: Configuring Info Mart database for merge

**Purpose:** To optimize performance of the merge operation.

### Start of procedure

1. If any switches are not monitored by ICON, store those `Switch` object names in the `GSYS_DNPREMOTELOCATION` table of the Info Mart schema. Otherwise, merging of some interswitch voice interactions will be delayed until the configured IS-Link Timeout occurs, and this delays transformation of those voice interactions.

   For example, suppose that you have four switches and two ICON instances:

   - `ICON1` monitors switch `SITE1_sw1`.
   - `ICON2` monitors switch `SITE2_sw2`.
   - `SITE3_sw3` and `SITE4_sw4` are not monitored by either ICON instance.

   To avoid delays in merging, add the following two records to the `GSYS_DNPREMOTELOCATION` table in the Info Mart schema:

   - `GSYS_DNPREMOTELOCATION.REMOTELOCATION=SITE3_sw3`
   - `GSYS_DNPREMOTELOCATION.REMOTELOCATION=SITE4_sw4`

2. Review the settings of the `max-call-duration` and `merge-chunk-size` configuration options (see pages 250 and 253), and modify them as required for your deployment.

   For more information about the role of `max-call-duration` in the merge operation, see "Delayed or Missing Information" on page 71.

### End of procedure

### Next Steps

- (Recommended, but optional) "Creating Database Links" on page 185.
- Configure the required database access points (DAPs). For more information, see Chapter 13 on page 187.

# Creating Database Links

To improve performance of the extraction job, Genesys recommends that you configure links between the RDBMS servers that host the IDB schemas and

the RDBMS server that hosts the Info Mart database schema. If database links are not configured, the extraction job first moves data from IDB into Genesys Info Mart memory, and then from Genesys Info Mart memory into the Info Mart database. When database links are configured, the extraction job can copy data directly from the IDB into the Info Mart database.

**Oracle Example**

For example, the following command configures a link between Oracle databases:

```
CREATE PUBLIC DATABASE LINK conn_user_1
connect to <IDB User Name>
identified by <IDB User Password>
USING '<IDB Connect_String>';
```

where:

- `<IDB User Name>` is the `User Name` that is specified on the `DB Info` tab of the database access point (DAP) that enables connection to the IDB.
- `<IDB User Password>` is the `Password` that is specified on the `DB Info` tab of the DAP that enables connection to the IDB.
- `<IDB Connect_String>` is the service name of the remote IDB database. For Oracle, this usually corresponds to the `DBMS Name` that is specified on the `DB Info` tab of the DAP that enables connection to the IDB (TNS name).

Execute the command on the server that hosts the Info Mart database schema. Repeat the command for each IDB from which Genesys Info Mart might need to extract data.

**Note:** If you use database links in an Oracle deployment, ensure that you configure the limit for open links to provide sufficient connections for concurrent processing. Genesys recommends that, at a minimum, you set the value of the `open_links` Oracle initialization parameter to the value of the Genesys Info Mart `extract-data-thread-pool-size` configuration option (see page 250).

### Next Steps

- Configure DAPs. For more information, see Chapter 13 on page 187.

Chapter

# 13 Configuring DAPs

This chapter describes how to configure the database access points (DAPs) that Genesys Info Mart uses to access source and target databases. It contains the following sections:



## Overview

You configure DAPs to specify the database connection parameters and other options.

You must configure DAPs to access the applicable source and target databases in your environment, in order to extract, transform, load, aggregate (if applicable), and maintain all types of data.

### Required DAPs

The number and type of DAPs that you need depends on your particular deployment topology. For a description of Genesys Info Mart–supported topologies, see Chapter 3 on page 41.

At a minimum, you must configure the following DAPs:

- DAPs to access the Interaction Databases (IDBs) from which Genesys Info Mart extracts data. In this document, these DAPs are referred to as *extraction DAPs*. You must configure one extraction DAP for each IDB.
- One DAP to access the Info Mart database. In this document, this DAP is referred to as the *Info Mart DAP*.

- One DAP to enable the Genesys Info Mart Administration Console to access the Info Mart database. In this document, this DAP is referred to as the *Administration Console DAP*.

**Note:** As you configure the DAPs, refer to the applicable worksheets (see Appendix A on page 315) that you completed earlier.

## Reusing DAPs

Genesys Info Mart Server and the jobs that extract, transform, and load (ETL) data use Java Database Connectivity (JDBC) to access all databases. The Genesys Info Mart Administration Console connects to the Info Mart database through a non-JDBC DAP that is associated with a DB Server, and it does not use any of the options on the `JDBC Info` tab of the DAP `Application` object. Similarly, the DAPs that the Interaction Concentrator server (ICON) uses to connect to IDB are non-JDBC DAPs that are associated with a DB Server.

To simplify your deployment, you can reuse the non-JDBC DAPs in your deployment and make these DAPs suitable for Genesys Info Mart to access the same databases. In particular, you can:

- Reuse the existing DAPs that enable ICON(s) to access IDB(s), to enable Genesys Info Mart to access the same IDBs.
- Use the same DAP to enable both Genesys Info Mart and the Genesys Info Mart Administration Console to access the Info Mart database.

Minimal additional configuration is required for you to reuse non-JDBC DAPs, if DB Server is running on the same host as the DBMS server; if the port of the DBMS listener is the default; and (for Oracle) if the TNS name and the SID name are identical. Otherwise, `jdbc-*` options, which you configure in the `[gim-etl]` section on the `Options` tab, enable you to specify the required JDBC connection parameters.

For more information about the JDBC options that you can configure on the non-JDBC DAPs to enable Genesys Info Mart to reuse these DAPs, see Table 15 on page 195.

For more information about reusing the ICON DAP for Genesys Info Mart, see Procedure: Configuring non-JDBC DAPs to access source databases, on page 193.

For more information about configuring a single DAP for both Genesys Info Mart and the Genesys Info Mart Administration Console to use, see Procedure: Configuring non-JDBC DAPs to access source databases, on page 193.

**Warning!** Before you decide to reuse the same DAP for more than one purpose, consult your database administration policies. Using the same DAP for multiple purposes has implications for security and access control. For example, the assigned database user needs sufficient privileges for all databases to which a given DAP provides access.

## Additional DAPs

If you have a high availability (HA) deployment topology, you will need to create additional DAPs. See “Enabling High Availability” on page 141 for more information.

# Task Flow for Enabling Database Access

Task Summary: Enabling Access to Source and Target Databases summarizes the task flow to enable Genesys Info Mart to access source and target databases.

### Task Summary: Enabling Access to Source and Target Databases

| Objective | Related Procedures and Actions |
|---|---|
| Enable access to the source databases from which Genesys Info Mart needs to extract data. | For each IDB from which Genesys Info Mart might need to extract data, configure a DAP that specifies the connection information and other options for Genesys Info Mart to access the IDB. For each IDB, do one of the following:<br>• Modify the non-JDBC DAP that you configured for ICON to access the IDB. For more information, see Procedure: Configuring non-JDBC DAPs to access source databases, on page 193.<br>• Create and configure a new JDBC DAP. For more information, see Procedure: Configuring JDBC DAPs to access source databases, on page 192.<br>**Note:** When you configure the DAP, the role that you must specify (in the `[gim-etl]` section) depends on the kind of data that is stored in the IDB and that Genesys Info Mart will extract:<br>• For Configuration details, set the `role` option to `ICON_CFG`.<br>• For Voice details, set the `role` option to `ICON_CORE`.<br>• For Multimedia details, set the `role` option to `ICON_MM`.<br>• For Outbound Contact details, set the `role` option to `ICON_OCS`.<br>Ensure that the role that you specify for Genesys Info Mart (in the `[gim-etl]` section in the DAP) is consistent with the role that is specified for ICON (in the `[callconcentrator]` section in both the ICON application and DAP). For more information about the corresponding ICON roles, see “Preparing ICON” on page 149. |

### Task Summary: Enabling Access to Source and Target Databases (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| Enable access to the target database in which Genesys Info Mart processes and stores data. | Configure a DAP that specifies the connection information and other options for Genesys Info Mart to access the Info Mart database. Do one of the following:<br>• Create and configure a new, non-JDBC DAP that will also be used by the Genesys Info Mart Administration Console. For more information, see Procedure: Configuring non-JDBC DAPs, on page 207.<br>• Create and configure a new, JDBC DAP. For more information, see Procedure: Configuring non-JDBC DAPs, on page 207.<br>For more information, see Procedure: Configuring a dedicated Info Mart DAP, on page 198.<br>**Note:** When you configure the DAP, ensure that the value of the `role` option in the `[gim-etl]` section includes `INFO_MART`. |
| Enable control and monitoring of ETL jobs. | Configure a DAP that specifies the connection information and other options for the Genesys Info Mart Administration Console to access the Info Mart database, in order to monitor ETL jobs:<br>1. Install DB Server to handle database requests from the Genesys Info Mart Administration Console. Refer to *Framework 8.0 DB Server User's Guide* for details.<br>2. Configure a DAP for Genesys Info Mart Administration Console to access the Info Mart database. Do one of the following:<br>◆ Modify the non-JDBC DAP that you created to enable Genesys Info Mart to access the Info Mart database for data processing and storage.<br>◆ Create and configure a new, non-JDBC DAP that will be used only by the Genesys Info Mart Administration Console. For more information, see Procedure: Configuring non-JDBC DAPs, on page 207.<br>**Note:** When you configure the DAP, ensure that the value of the `role` option in the `[gim-etl]` section includes `ADMIN_CONSOLE`.<br>See Procedure: Configuring a dedicated Administration Console DAP, on page 203. Set the `role` option to `ADMIN_CONSOLE`. |

# Configuring Required DAPs

Use the procedures in this section to create and configure the required DAPs:

- Administration Console DAP, page 202

Use "DAP Configuration Supporting Procedures" on page 204 when you are referred to them during the configuration.

# Extraction DAPs

A separate DAP is required for each IDB from which Genesys Info Mart will extract data. You can create and configure a new, dedicated JDBC DAP, or you can reuse the non-JDBC DAP that you have already configured for ICON to access IDB.

Use the following procedures, as applicable, to enable Genesys Info Mart to access the IDBs:

- Procedure: Configuring JDBC DAPs to access source databases
- Procedure: Configuring non-JDBC DAPs to access source databases, on page 193

## Procedure: Configuring JDBC DAPs to access source databases

**Purpose:** To configure a new, dedicated DAP that enables Genesys Info Mart to access IDB through JDBC.

### Prerequisites

- Procedure: Preparing IDBs, on page 174

### Start of procedure

1. Create a JDBC DAP, as described in Procedure: Configuring JDBC DAPs, on page 204.
2. Configure the required options in the `[gim-etl]` section on the `Options` tab:
   - `role`—Specifies which data domain Genesys Info Mart will extract through the DAP:
     - For Configuration details, `role=ICON_CFG`
     - For Voice details, `role=ICON_CORE`
     - For Multimedia details, `role=ICON_MM`
     - For Outbound Contact details, `role=ICON_OCS`
   - `default-schema`—(Optional) Specifies the database schema or owner name, if it is different from the database user ID.

   For information about creating the `[gim-etl]` section and options, see Step 8 on page 205.

   For more information about the options, including requirements and restrictions for various roles, see Table 15 on page 195.

3. Repeat this procedure for each IDB from which Genesys Info Mart will extract data and for which you are not reusing an existing Interaction Concentrator DAP.

   If your deployment topology involves HA, you must also repeat this procedure to provide a DAP for each redundant IDB.

### End of procedure

### Next Steps

- Create the Info Mart DAP. See "Info Mart DAP" on page 197.

## Procedure: Configuring non-JDBC DAPs to access source databases

**Purpose:** To modify the configuration of an existing DAP that ICON uses to access an IDB, to enable Genesys Info Mart to access the same IDB.

Repeat this procedure for each IDB from which Genesys Info Mart will extract data and for which you want to reuse an existing ICON DAP.

### Prerequisites

- Procedure: Preparing IDBs, on page 174.
- You have the required permissions to access and modify the ICON DAP(s).

### Start of procedure

1. Locate the DAP that enables ICON to access the IDB to store data for the applicable data domain.
2. On the `Options` tab, create a new configuration section, named `gim-etl`, and configure the options that are required for Genesys Info Mart:
   - `role`—Specifies which data domain Genesys Info Mart will extract through the DAP:
     - For Configuration details, `role=ICON_CFG`
     - For Voice details, `role=ICON_CORE`
     - For Multimedia details, `role=ICON_MM`
     - For Outbound Contact details, `role=ICON_OCS`
   - `default-schema`—(Optional) Specifies the database schema or owner name, if it is different from the database user ID.

- `jdbc-*` options—Specify JDBC connection parameters. You must configure the `jdbc-url` option or other `jdbc-*` options if one of the following conditions applies:
  - — DB Server is not running on the same host as the database management system (DBMS) server.
  - — The port of the DBMS listener is not the default (`1521` for Oracle or `1433` for Microsoft SQL Server).
  - — For Oracle, the SID name is not the same as the TNS name.

  For information about creating the `[gim-etl]` section and options, see Step 7 on page 208.

  For more information about the `[gim-etl]` options, including requirements and restrictions for various roles, as well as information about the `jdbc-*` options, see Table 15 on page 195.

**End of procedure**

**Next Steps**

- Verify that the `CLASSPATH` environment variable provides the correct path to the JDBC driver. For more information about modifying the `CLASSPATH` environment variable, see “Installing JDBC Drivers” on page 274.
- Create the Info Mart DAP. See “Info Mart DAP” on page 197.

## Extraction DAP Options

Table 15 describes the required configuration options that you can configure in the `[gim-etl]` section on the `Options` tab of each extraction DAP `Application` object.

**Note:** Changes to extraction DAP configuration options take effect at the next run of the extraction job for that particular data domain; no restart of Genesys Info Mart Server is required.

### Table 15: Extraction DAP Configuration Options

| Option | Description |
|---|---|
| **JDBC and non-JDBC DAPs** | |
| default-schema | Specifies the database schema or owner name, if it is different from the database user ID. If you do not specify this option, the database tables and other database objects are assumed to be owned by the user name that you specify on the `DB Info` tab.<br>Default Value: No default value<br>Valid Values: Any valid database owner or schema name<br>Changes Take Effect: At the next run of the extraction job for the particular data domain |
| role | Specifies what type of data is stored in the source database that Genesys Info Mart accesses through this DAP.<br>Default Value: No default value<br>Valid Values: Any of the following:<br>`ICON_CFG` Specifies the connection information for an IDB from which Genesys Info Mart will extract ICON Configuration details. This role must be associated with one and only one DAP, or with redundant DAPs that constitute an HA set.<br>`ICON_CORE` Specifies the connection information for an IDB from which Genesys Info Mart will extract ICON Voice details, including agent activity details. This role is optional, but you need at least one DAP with a `role` option of `ICON_CORE` or `ICON_MM`.<br>`ICON_MM` Specifies the connection information for an IDB from which Genesys Info Mart will extract ICON Multimedia details, including agent activity details. This role is optional, but you need at least one DAP with a `role` option of `ICON_CORE` or `ICON_MM`.<br>`ICON_OCS` Specifies the connection information for an IDB from which Genesys Info Mart will extract ICON OCS details.<br>**Note:** You cannot reconfigure the DAP role from `ICON_CORE` to `ICON_MM`, or vice versa, once data extraction occurs.<br>Changes Take Effect: The next time that extraction jobs are launched |

**Table 15: Extraction DAP Configuration Options (Continued)**

| Option | Description |
|---|---|
| **Non-JDBC DAPs Only** | |
| jdbc-host | Specifies the host on which the DBMS is running. Configure this option if the DBMS server for the IDB is not on the same host as the DB Server.<br>**Note:** If the `jdbc-url` option is defined, the host name that is specified in the URL overwrites the value of `jdbc-host`.<br>Default Value: No default value<br>Valid Values: Any valid host name<br>Changes Take Effect: At the next run of the extraction job for the particular data domain |
| jdbc-port | Specifies the port of the DBMS listener. Configure this option if the DBMS uses a nondefault listener port.<br>**Note:** If the `jdbc-url` option is defined, the port that is specified in the URL overwrites the value of `jdbc-port`.<br>Default Value: `1521` (for Oracle) or `1433` (for Microsoft SQL Server)<br>Valid Values: Any valid port number<br>Changes Take Effect: At the next run of the extraction job for the particular data domain |

**Table 15: Extraction DAP Configuration Options (Continued)**

| Option | Description |
|---|---|
| jdbc-SID | (For Oracle only) Specifies the SID name, which Genesys Info Mart uses as a connection parameter to connect to Oracle databases. DB Server uses the Transparent Network Substrate (TNS) name, which is specified in the `DBMS Name` field on the `DB Info` tab of the DAP `Application` object. Configure this option if the SID name is not the same as the TNS name.<br>**Note:** If the `jdbc-url` option is defined, the SID name that is specified in the URL overwrites the value of `jdbc-SID`.<br>Default Value: No default value<br>Valid Values: Any valid SID name<br>Changes Take Effect: At the next run of the extraction job for the particular data domain |
| jdbc-url | Specifies all of the connection parameters for JDBC connection to the IDB. For the required syntax for this option, consult the vendor documentation for your JDBC driver. For example:<br>• Oracle requires the following format to specify connection parameters for the Oracle thin client:<br>`jdbc:oracle:thin:@(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = <database_host_name>)(PORT = 1521))(CONNECT_DATA = (SERVER = DEDICATED)(SID = <Oracle_SID>)))`<br>• Microsoft SQL Server requires the following format to specify connection parameters for the Microsoft JDBC driver:<br>`jdbc:sqlserver://<dbserver>;DatabaseName=<dbname>;SelectMethod=cursor`<br>**Note:** If this option is defined, it overwrites the values of any other `jdbc-*` options that might be configured for this DAP.<br>Default Value: No default value<br>Valid Values: Any valid JDBC URL<br>Changes Take Effect: At the next run of the extraction job for the particular data domain |

# Info Mart DAP

To process and store data, Genesys Info Mart Server requires access to its target database. You can create and configure a dedicated JDBC DAP to enable the Genesys Info Mart Server to access the Info Mart database, or you can

create and configure a non-JDBC DAP that you can also use for the Genesys Info Mart Administration Console to access the same database.

Use the following procedures, as applicable, to create and configure the Info Mart DAP that provides access to the target database:

- Procedure: Configuring a dedicated Info Mart DAP, on page 198
- Procedure: Configuring a shared Info Mart and Administration Console DAP, on page 199

## Procedure: Configuring a dedicated Info Mart DAP

**Purpose:** To configure a new, dedicated DAP that enables Genesys Info Mart Server to access the Info Mart database.

### Prerequisites

- Procedure: Preparing the Info Mart database, on page 183

### Start of procedure

1. Create a JDBC DAP, as described in Procedure: Configuring JDBC DAPs, on page 204.
2. Configure the required options in the `[gim-etl]` section on the `Options` tab:
   - `role`—The required value is `INFO_MART`.
   - `default-schema`—(Optional) Specifies the database schema or owner name, if it is different from the database user ID.

   For information about creating the `[gim-etl]` section and options, see Step 8 on page 205.

   For more information about the options, see Table 16 on page 200.

### End of procedure

### Next Steps

- Create the Administration Console DAP. See Procedure: Configuring a dedicated Administration Console DAP, on page 203.

## Procedure: Configuring a shared Info Mart and Administration Console DAP

**Purpose:** To configure a non-JDBC DAP that enables both Genesys Info Mart and the Genesys Info Mart Administration Console to access the Info Mart database.

### Prerequisites

- Procedure: Preparing the Info Mart database, on page 183.
- Install DB Server to handle database requests that the Genesys Info Mart Administration Console submits through this DAP.

### Start of procedure

1. Create a non-JDBC DAP for the Info Mart database, as described in Procedure: Configuring non-JDBC DAPs, on page 207.
2. On the `Options` tab, create a new configuration section, named `gim-etl`, and configure the required options:
   - `role`—Specifies the connection information for Genesys Info Mart and the Genesys Info Mart Administration Console, respectively:
     - For Genesys Info Mart, the required value is `INFO_MART`.
     - For the Genesys Info Mart Administration Console, the required value is `ADMIN_CONSOLE`.

     For the shared DAP, the required value is `ADMIN_CONSOLE, INFO_MART`.
   - `default-schema`—(Optional) Specifies the database schema or owner name, if it is different from the database user ID.
   - `jdbc-*` options—Specify JDBC connection parameters for Genesys Info Mart. You must configure the `jdbc-url` option or other `jdbc-*` options, if one of the following conditions applies:
     - DB Server is not running on the same host as the DBMS server for the Info Mart database.
     - The port of the DBMS listener is not the default (`1521` for Oracle or `1433` for Microsoft SQL Server).
     - For Oracle, the SID name is not the same as the TNS name.

   For information about creating the `[gim-etl]` section and options, see Step 7 on page 208.

   For more information about all of the configuration options for the shared Info Mart DAP, see Table 16 on page 200.

### End of procedure

### Next Steps

- Verify that the CLASSPATH environment variable provides the correct path to the JDBC driver. For more information about modifying the CLASSPATH environment variable, see "Installing JDBC Drivers" on page 274.
- Configure the Genesys Info Mart Application object. For more information, see Chapter 14 on page 209.

## Info Mart DAP Options

Table 16 describes the required options that you must configure in the [gim-etl] section on the Options tab of the Info Mart DAP Application object.

**Note:** Changes to configuration options for the Info Mart DAP take effect on restart of Genesys Info Mart Server.

**Table 16: Info Mart DAP Configuration Options**

| Option | Description |
|---|---|
| **JDBC and non-JDBC DAPs** | |
| default-schema | Specifies the database schema or owner name, if it is different from the database user ID. If you do not specify this option, the database tables and other database objects are assumed to be owned by the user name that you specify on the DB Info tab.<br>Default Value: No default value<br>Valid Values: Any valid database schema or owner name |
| role | Specifies the connection information for the Info Mart database. This role is required; it can be associated with only one DAP.<br>Default Value: No default value<br>Valid Values:<br>• INFO_MART—Specifies connection information for the Genesys Info Mart Server to access the Info Mart database to read and write data. Use this value for a dedicated JDBC DAP.<br>• ADMIN_CONSOLE, INFO_MART—Specifies connection information for the Genesys Info Mart Administration Console and the Genesys Info Mart Server, respectively, to access the Info Mart database. Use this value for a shared non-JDBC DAP.<br>For more information about the ADMIN_CONSOLE role, see Table 17 on page 204. |

**Table 16: Info Mart DAP Configuration Options (Continued)**

| Option | Description |
|---|---|
| **Non-JDBC DAPs Only** | |
| jdbc-host | Specifies the host on which the DBMS is running. Configure this option if the DBMS server for the Info Mart database is not on the same host as the DB Server.<br>**Note:** If the `jdbc-url` option is defined, the host name that is specified in the URL overwrites the value of `jdbc-host`.<br>Default Value: No default value<br>Valid Values: Any valid host name |
| jdbc-port | Specifies the port of the DBMS listener. Configure this option if the DBMS uses a non-default listener port.<br>**Note:** If the `jdbc-url` option is defined, the port that is specified in the URL overwrites the value of `jdbc-port`.<br>Default Value: `1521` (for Oracle) or `1433` (for Microsoft SQL Server)<br>Valid Values: Any valid port number |

**Table 16: Info Mart DAP Configuration Options (Continued)**

| Option | Description |
|---|---|
| jdbc-SID | (For Oracle only) Specifies the SID name, which Genesys Info Mart uses as a connection parameter to connect to Oracle databases. DB Server uses the Transparent Network Substrate (TNS) name, which is specified in the `DBMS Name` field on the `DB Info` tab of the DAP `Application` object. Configure this option if the SID name is not the same as the TNS name.<br>**Note:** If the `jdbc-url` option is defined, the SID name that is specified in the URL overwrites the value of `jdbc-SID`.<br>Default Value: No default value<br>Valid Values: Any valid SID name |
| jdbc-url | Specifies all of the connection parameters for JDBC connection to the Info Mart database. For the required syntax for this option, consult the vendor documentation for your JDBC driver. For example:<br>• Oracle requires the following format to specify connection parameters for the Oracle thin client:<br>`jdbc:oracle:thin:@(DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = <database_host_name>)(PORT = 1521))(CONNECT_DATA = (SERVER = DEDICATED)(SID = <Oracle_SID>)))`<br>• Microsoft SQL Server requires the following format to specify connection parameters for the Microsoft JDBC driver:<br>`jdbc:sqlserver://<dbserver>;DatabaseName=<dbname>;SelectMethod=cursor`<br>**Note:** If this option is defined, it overwrites the values of any other `jdbc-*` options that might be configured for this DAP.<br>Default Value: No default value<br>Valid Values: Any valid host name |

# Administration Console DAP

To monitor and manage ETL jobs, the Genesys Info Mart Administration Console requires access to the Info Mart database. The Genesys Info Mart Administration Console connects to the Info Mart database through a non-JDBC DAP that is associated with a DB Server, and it does not use any of the JDBC options.

You can create and configure a dedicated non-JDBC DAP to enable the Genesys Info Mart Administration Console to access the Info Mart database, or you can configure a non-JDBC DAP that enables both Genesys Info Mart and the Genesys Info Mart Administration Console to access the Info Mart database.

- To configure a shared DAP for Genesys Info Mart and the Genesys Info Mart Administration Console, see Procedure: Configuring a shared Info Mart and Administration Console DAP, on page 199.

To configure a dedicated Administration Console DAP, use the following procedure.

**Note:** Changes to configuration options for the Administration Console DAP take effect on restart of the Genesys Info Mart Administration Console.

## Procedure: Configuring a dedicated Administration Console DAP

**Purpose:** To configure a dedicated, non-JDBC DAP that enables the Genesys Info Mart Administration Console to access the Info Mart database.

### Prerequisites

- Procedure: Preparing the Info Mart database, on page 183.
- Install DB Server to handle database requests that are submitted through this DAP.

### Start of procedure

1. Create a non-JDBC DAP for the Info Mart database, as described in Procedure: Configuring non-JDBC DAPs, on page 207.
2. On the `Options` tab, create a new configuration section, named `gim-etl`, and configure the `role` option. Set the value of this option to `ADMIN_CONSOLE`.

   For more information about the `role` option for the Administration Console DAP, see Table 17 on page 204.

   For information about creating the `[gim-etl]` section and options, see Step 7 on page 208.

### End of procedure

### Next Steps

- Verify that the `CLASSPATH` environment variable provides the correct path to the JDBC driver. For more information about modifying the `CLASSPATH` environment variable, see “Installing JDBC Drivers” on page 274.
- Configure the Genesys Info Mart `Application` object. For more information, see Chapter 14 on page 209.

**Table 17: Configuration Options for the Administration Console DAP**

| Option | Description |
|---|---|
| role | Specifies the connection information for the Info Mart database.<br>Default Value: No default value<br>Valid Values:<br>`ADMIN_CONSOLE` Specifies the read-only connection information to the Info Mart database from which the Genesys Info Mart Administration Console will retrieve ETL job status, job execution history, and job schedule data.<br>Changes Take Effect: On restart of the Genesys Info Mart Administration Console<br>**Note:** This DAP must have a DB Server associated with it. |

# DAP Configuration Supporting Procedures

This section describes how to configure the two standard types of DAPs. JDBC DAPs are configured by using JDBC DAP options, while non-JDBC DAPs do not use Java Database Connectivity.

## Configuring JDBC DAPs

### Procedure: Configuring JDBC DAPs

**Purpose:** To configure a JDBC DAP to use for access to Genesys Info Mart source and target databases.

This is a supporting procedure for any DAP configuration that involves a JDBC DAP.

#### Prerequisites

- Before you can configure the DAPs that are required for your topology, you must import the 8.0 DAP template into your environment. For information about creating new `Application` objects, refer to the *Framework 8.0 Deployment Guide*.

### Start of procedure

1. Right-click the Applications folder, and select New > Application. The Browse dialog box appears.
2. From the list, select the Database_Access_Point_800 template, and then click OK. The New Application Properties dialog box appears.

**General Tab**

3. On the General tab:
   a. In the Name text box, enter the name of this DAP (for example, GIM80_InfoMart_DAP).
   b. Select the JDBC Connection check box.
   c. Select the State Enabled check box, if it is not already selected.

**Tenants Tab**

4. No configuration of tenants is required. Proceed to the next tab.

> **Note:** If you do not have a multi-tenant environment, the Tenants tab does not appear.

**DB Info Tab**

5. On the DB Info tab:
   a. Verify that the DBMS Name text box is disabled. If it is not, return to the General tab, and select the JDBC Connection check box.
   b. From the DBMS type drop-down list, select the DBMS type. This type will correspond to the DBMS type of the database to which this DAP will connect.
   c. In the Database Name text box, enter the exact name of the database to which this DAP will connect. For example, on Oracle, this is the Transparent Network Substrate (TNS) name.
   d. In the User Name and Password text boxes, enter the user name and password of the user who has read and/or write access to the database tables.

**JDBC Info Tab**

6. On the JDBC Info tab:
   - From the Role drop-down list, select Role Main.

> **Note:** Genesys Info Mart ignores all other fields on the JDBC Info tab.

**Server Info Tab**

7. On the Server Info tab:
   a. From the Host drop-down list, select the host name of the database server. If the host name does not appear in the list, you must add it.
   b. In the Communication Port text box, enter the port number for the database server. For Microsoft SQL Server, the default port is 1433; for Oracle, it is 1521.

**Options Tab**

8. On the Options tab:
   a. Click the Create New Section/Option icon. The Add Section dialog box appears.

b. In the Section Name text box, enter gim-etl, and then click OK.
c. Double-click the gim-etl section name.
d. Click the Create New Section/Option icon. The Edit Option dialog box appears.

**Note:** If the schema or owner is different from the user ID, you must specify the default-schema option. If you do not specify this option, the schema that is used is the user ID that you specified on the DB Info tab of the DAP.

e. In the Option Name text box, enter default-schema.
f. In the Option Value text box, enter the name of the schema owner, and then click OK.

   This option specifies an owner that is different from the one that is associated with the specified user ID.
g. Click the Create New Section/Option icon again to add another option. The Edit Option dialog box appears.
h. In the Option Name text box, enter role.
i. In the Option Value text box, enter the role that corresponds to the particular database. For information about which role you should specify, see Table 15 on page 195.

**Note:** You can configure one or more roles for a single DAP by specifying all of the roles, separated by commas—for example: ICON_CFG, ICON_CORE, ICON_OCS.

9. Click Apply to save your changes, and then click OK to close the New Application Properties dialog box.
10. Repeat Step 1 through 9 for each JDBC DAP that you require.

### End of procedure

### Next Steps

- Return to the main procedure for the DAP that you have been creating.

# Configuring Non-JDBC DAPs

## Procedure: Configuring non-JDBC DAPs

**Purpose:** To configure a non-JDBC DAP so that Genesys Info Mart clients can access target databases.

This is a supporting procedure for any DAP configuration that involves a non-JDBC DAP.

### Prerequisites

- Before you can configure the DAPs that are required for your topology, you must first import the 8.0 DAP template into your environment. For information on creating new `Application` objects, refer to the *Framework 8.0 Deployment Guide.*
- Before you can configure a non-JDBC DAP, you must install the DB Server that handles database requests that are submitted through this DAP. For information about configuring and installing DB Server, refer to the *Framework 8.0 Deployment Guide.*

### Start of procedure

1. Right-click the `Applications` folder, and select `New > Application`. The `Browse` dialog box appears.
2. From the list, select the `Database_Access_Point_800` template, and then click `OK`. The `New Application Properties` dialog box appears.

**General Tab**

3. On the `General` tab:
   a. In the `Name` text box, enter the name of this DAP (for example, `GIM76_AdminConsole_DAP`).
   b. Click the `Browse` button that is next to the `DB Server` text box, and then select the DB Server that has been configured to connect to the Info Mart database.
   c. Do *not* select the `JDBC Connection` check box.
   d. Select the `State Enabled` check box, if it is not already selected.

**Tenants Tab**

4. No configuration of tenants is required. Proceed to the next tab.

**Note:** If you do not have a multi-tenant environment, the `Tenants` tab does not appear.

**DB Info Tab**

5. On the DB Info tab:
   a. In the DBMS Name text box, enter the name that is particular to the DBMS type:
      - Oracle— Enter the TNS name that the database client uses to connect to the database.
      - Microsoft SQL Server—Enter the name of the SQL Server in which the database resides.
   b. From the DBMS type drop-down list, select the DBMS type. This type will correspond to the DBMS type of the database to which this DAP will connect.
   c. In the Database Name text box, enter the exact name of the database to which this DAP will connect. For Oracle, this is the TNS name.
   d. In the User Name and Password text boxes, enter the user name and password of the user who has read and/or write access to the database tables.

**JDBC Info Tab**

6. On the JDBC Info tab, verify that all of the fields are disabled. If they are not disabled, return to the General tab, and clear the JDBC Connection check box.

**Options Tab**

7. On the Options tab:
   a. Click the Create New Section/Option icon. The Add Section dialog box appears.
   b. In the Section Name text box, enter gim-etl, and then click OK.
   c. Double-click the gim-etl section name.
   d. Click the Create New Section/Option icon. The Edit Option dialog box appears.
   e. In the Option Name text box, enter role.
   f. In the Option Value text box, enter the required role.

      For the Genesys Info Mart Administration Console DAP, enter ADMIN_CONSOLE. See Table 17 on page 204.
8. Click Apply to save your changes, and then click OK to close the New Application Properties dialog box.

### End of procedure

### Next Steps

- Return to the main procedure for the DAP that you have been creating.

Chapter

# 14 Configuring the Genesys Info Mart Application

This chapter describes how to configure Genesys Info Mart, which you must do before you install it. It contains the following sections:



## Overview

### Before You Proceed

Before you can configure Genesys Info Mart, make sure that you have:

- Prepared your data source applications and their databases.
- Prepared your Genesys Info Mart target databases.
- Configured the database access points (DAPs) that are required to access the source and target databases in your topology.

If you have not already done so, review the preceding chapters before you continue.

# Task Flow for Configuring Genesys Info Mart

The following table summarizes the task flow to configure an `Application` object and related configuration objects for Genesys Info Mart.

### Task Summary: Configuring Genesys Info Mart

| Objective | Related Procedures and Actions |
|---|---|
| Create a server application to support detailed reporting about interactions of various media types. | Create an `Application` object for Genesys Info Mart Server:<br>1. Import the `Genesys_Info_Mart_ETL_800.apd` template. For more information, see Procedure: Importing the application template.<br>2. Create the `Application` object with basic configuration. For more information, see Procedure: Creating the Genesys Info Mart application, on page 213. |
| Customize the configuration of the Genesys Info Mart `Application` object to support the functionality that you require. | 1. Review the configuration options and decide on the settings that are appropriate for your environment. See "Options Summary Charts" on page 218 and Chapter 15 on page 235.<br>2. Modify settings of configuration options, as required for your environment. For more information, see Procedure: Setting the Genesys Info Mart application options, on page 216.<br>(Optional) When you configure the Genesys Info Mart application, create custom `[date-time-*]` configuration sections to support multiple calendar dimensions. For more information, see Procedure: Setting the Genesys Info Mart application options, Step 6 on page 217. |
| Configure the other objects that are required to support detailed reporting about interactions of various media types. | Configure necessary options in individual configuration objects, for use by Genesys Info Mart Server. For more information, see:<br>1. Procedure: Setting the Annex tab to display, on page 229<br>2. Procedure: Setting Switch object options, on page 229<br>3. Procedure: Setting Media Type Business Attribute object options, on page 231<br>4. Procedure: Setting DN object options, on page 232<br>5. Procedure: Setting Script object options, on page 233 |

If you need to enable high availability (HA) in either a new or an existing Genesys Info Mart environment, see "Enabling High Availability" on page 141.

# Importing the Application Template

Before you can configure an Application object for Genesys Info Mart, you must import its application template. The application template provides a majority of the configuration options, as well as the default values for them.

The Genesys Info Mart installation package includes an application template, which is named Genesys_Info_Mart_ETL_800.apd.

**Note:** If you plan on deploying Genesys Interactive Insights (GI2) reports or the Reporting and Analytics Aggregates (RAA) package, review the information about the template for the Genesys Info Mart application and recommendations on application deployment in the *Reporting and Analytics Aggregates 8.0 Deployment Guide*.

## Procedure: Importing the application template

**Purpose:** To import an application template that you can use to create as many Application objects of the same type as you need.

**Note:** You need to import the application template only once, no matter how many Genesys Info Mart Application objects you create.

### Prerequisites

- Review "Before You Proceed" on page 209.

### Start of procedure

1. Insert the Genesys Info Mart CD into your CD-ROM drive.
2. Start Genesys Configuration Manager.
3. Navigate to Configuration > Environment.
4. Right-click the Application Templates folder, and select Import application template.
5. Navigate to the Templates directory on the Genesys Info Mart CD or in your FTP package, and select the following template to import:
   - Genesys_Info_Mart_ETL_800.apd
6. Click Open.

   The New Application Template Properties dialog box appears (Figure 11).

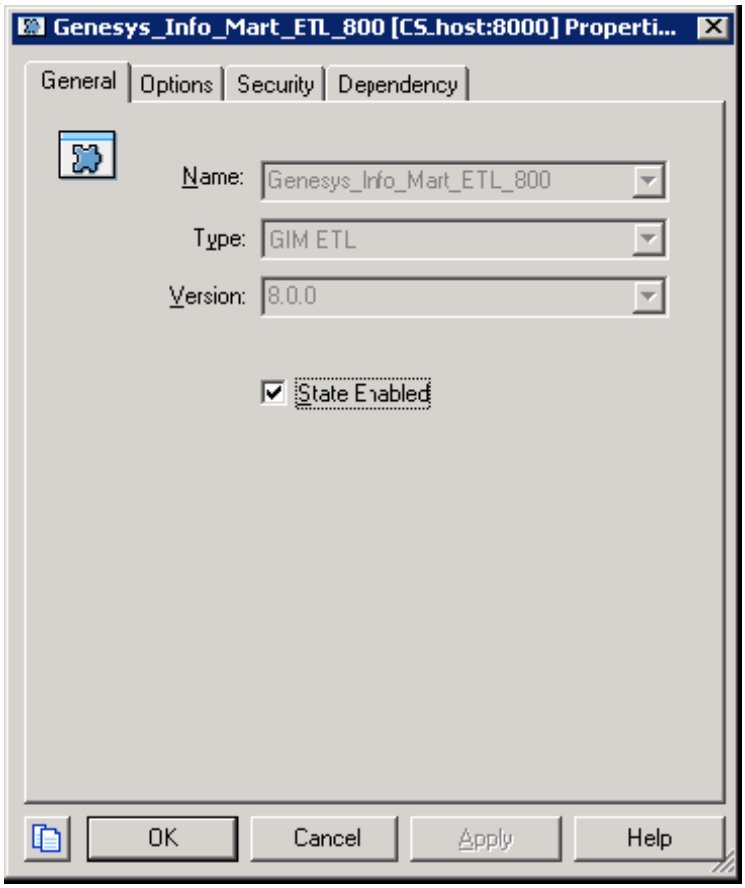


**Figure 11: New Application Template Properties Dialog Box**

7. Either enter a new name for the Genesys Info Mart template in the `Name` text box, or accept the default name.
8. Click `OK`.

### End of procedure

### Next Steps

- If you plan to deploy GI2 reports or the RAA package, modify the Genesys Info Mart application template to support aggregation, as described in the *Reporting and Analytics Aggregates 8.0 Deployment Guide*.
- Otherwise, see "Configuring the Genesys Info Mart Application" on page 213.

# Configuring the Genesys Info Mart Application

After you import the application template, you can create and configure an `Application` object for Genesys Info Mart by using Configuration Manager.

## Procedure: Creating the Genesys Info Mart application

**Purpose:** To create an application with basic configuration for your environment, by using the Genesys Info Mart 8.0 application template that you just imported.

### Prerequisites

- Procedure: Importing the Application Template, on page 211
- In an environment in which you plan to deploy GI2 reports or the RAA package, you have completed any required modifications to the Genesys Info Mart application template, as described in the *Reporting and Analytics Aggregates 8.0 Deployment Guide*.

### Start of procedure

1. In the Genesys Configuration Manager, right-click the `Applications` folder, and then select `New > Application`.

   The `Application Templates Browse` dialog box appears.

2. Select the Genesys Info Mart 8.0 template that you just created, and then click `OK`.

   The `New Application Properties` dialog box appears (Figure 12).

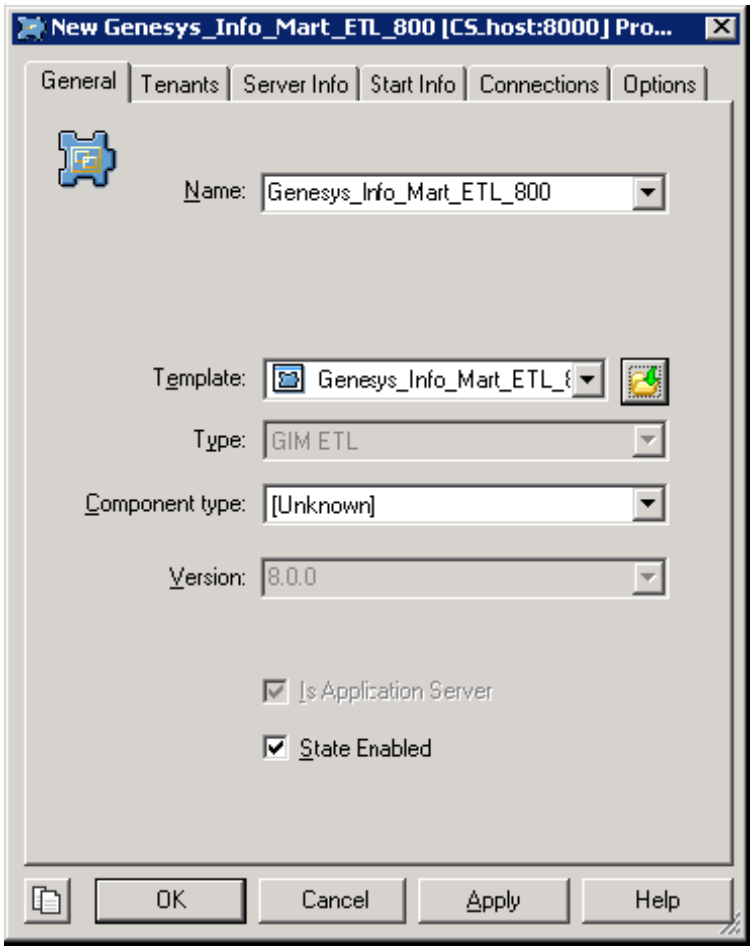


**Figure 12: New Application Properties Dialog Box**

**General Tab**

3. On the `General` tab:
   a. In the `Name` text box, enter a name for your Genesys Info Mart application, or select one from the drop-down list.
   b. Make sure that the `State Enabled` check box is selected.

**Tenants Tab**

4. No configuration of tenants is required. Proceed to the next tab.

> **Note:** If you do not have a multi-tenant environment, the `Tenants` tab does not appear.

**Server Info Tab**

5. On the `Server Info` tab:
   a. In the `Host` text box, select the host on which you will install the Genesys Info Mart Server, or click `Browse` to navigate to the host location. If the host does not appear in the list, you must add it.

**b.** In the `Communications Port` text box, enter the port number that corresponds to your host. The Genesys Info Mart Administration Console uses this port to communicate with the Genesys Info Mart Server.

**Start Info Tab**

**6.** On the `Start Info` tab, enter *any* value in each of the following text boxes:

**a.** `Working Directory`

**b.** `Command Line`

**c.** `Command Line Arguments`

**Note:** The values that you enter are merely placeholders; they are updated with actual values during the Genesys Info Mart installation process.

**Connections Tab**

**7.** On the `Connections` tab, add a connection to:

**a.** Each Interaction Concentrator (ICON) `Application` that you configured to capture data source information for Genesys Info Mart.

**b.** Each of the DAPs that you configured in "Configuring DAPs" on page 187.

**Note:** Be sure to add a connection to the Genesys Info Mart Administration Console DAP.

**c.** The `Message Server Application` object—Genesys Info Mart uses Message Server to send log messages to the Genesys Central Logger.

**d.** (Optional) The Configuration Server application (named `confserv`)—You need to configure an overt connection to Configuration Server only if you want to use Advanced Disconnect Detection Protocol (ADDP) for the connection.

To enable ADDP for the connection, specify `addp` as the `Connection Protocol`, and set the values for the `Local Timeout`, `Remote Timeout`, and `Trace Mode` properties. For more information, see the *Framework 8.0 Deployment Guide*.

**8.** Click `Apply` to save your changes, and then click `OK` to close the `New Applications Properties` dialog box.

### End of procedure

### Next Steps

- Verify that customized and required options are set correctly. See the information and instructions in "Configuring Options for Genesys Info Mart".

# Configuring Options for Genesys Info Mart

This section describes how to customize your Genesys Info Mart configuration settings to best suit your environment. Refer to this section while you install your Genesys Info Mart 8.0 application, or refer to it after the initial configuration to perform additional customization.

This section includes the following procedure that helps you set configuration options in the `Genesys Info Mart Application` object:

- Procedure: Setting the Genesys Info Mart application options, on page 216

This section includes tables that summarize the Genesys Info Mart options by area of functionality:

- Table 18, “Genesys Info Mart Data-Related Options,” on page 219
- Table 19, “Genesys Info Mart Operations-Related Options,” on page 225

This section also includes a table that lists configuration options that are provided with Genesys Info Mart for GI2 reports and the RAA package:

- Table 20, “Genesys Info Mart Options for GI2 and RAA,” on page 228

To customize data processing for certain configuration objects in your environment, you may set options in the following objects:

- `Switch` (see “Switch Object Options” on page 229)
- `Media Type Business Attribute` (see “Media Type Business Attribute Object Options” on page 231)
- `DN` (see “DN Object Options” on page 232)
- `Field` (see Procedure: Configuring the storage of OCS Record Field data, on page 165)

## Procedure: Setting the Genesys Info Mart application options

**Purpose:** To configure the settings for the Genesys Info Mart 8.0 application to better suit your environment.

You specify configuration options on the `Options` tab of the Genesys Info Mart `Application` object.

Options are specific to your application and release. They appear on the `Options` tab in sections that are devoted to specific functions. Refer to:

- “Options Summary Charts” on page 218 for information on general functional grouping.
- Chapter 15 on page 235 for a complete listing and explanation of all of the configuration options.

### Prerequisites

- Procedure: Configuring the Genesys Info Mart Application, on page 213

### Start of procedure

1. In the Genesys Configuration Manager, open the `Application` object that you configured for your Genesys Info Mart.

   The `Application Properties` dialog box appears.
2. Select the `Options` tab.
3. If you plan to use GI2 or RAA, review the options that are listed in Table 20 on page 228, and change the default settings as required for your environment.

   If you do not plan to use GI2 or RAA, ensure that these aggregation-related options retain their default values.

   **Note:** The options that are listed in Table 20 are necessary to enable aggregation in your Genesys Info Mart deployment, but not sufficient for GI2 reports. For more information about configuring Genesys Info Mart to support aggregation, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide*.
4. Configure the options that control the extract, transform, and load (ETL) process.

   Refer to Table 19 on page 225 for the list of relevant options and their default values.
5. Configure the options that affect the content and quality of data that is stored in the Info Mart database.

   Refer to Table 18 on page 219 for the list of relevant options and their default values.
6. (Optional) Customize the calendar dimensions:
   - To modify the default calendar to support the ISO 8601 standard for week numbering, modify the values of the `simple-week-numbering`, `first-day-of-week`, and `min-days-in-first-week` options in the `[date-time]` section (see page 235).
   - To provide multiple, customized calendars, create additional `[date-time-*]` sections with the same options as in the `[date-time]` section, and configure the options as required for your reporting purposes.
7. After you set all of the desired options for your environment, click `Apply` to save your changes, and then click `OK` to close the `Applications Properties` dialog box.

### End of procedure

### Next Steps

- If you are creating additional calendars for reporting purposes, modify the `make_gim.sql` script to create the custom calendar tables in the Info Mart database. For more information, see the prerequisites for the database-creation procedure on page 183.
- Otherwise, proceed to configuring the `Switch` object options. See "Switch Object Options" on page 229.

# Options Summary Charts

This section groups the Genesys Info Mart configuration options, as follows:

- Data-Processing Configuration Options, page 218
- Operations-Related Configuration Options, page 224
- Aggregation-Related Configuration Options, page 228

## Data-Processing Configuration Options

Table 18 lists the configuration options that affect the content and quality of data that is stored in the Genesys Info Mart database. The table groups the options by functional area and, within functional area, by type of data. For each functional area, the options that apply in any environment are listed first.

Review the options to identify the ones that are relevant to the reports that you are required to provide on the data types that are relevant to your environment.

For example, suppose that you would like to report on interactions and agent activity at the DN and ACD queue levels, using Genesys Info Mart pre-aggregated data, in a contact center that processes inbound voice interactions. In this case, select the necessary options from the following sections in Table 18:

- "Voice Media Interactions Data" on page 219
- "Multimedia Interactions Data" on page 219
- "Agent Activity Data Not Specific to Media Type" on page 220
- "Voice Agent Activity Data" on page 220
- "Queue Activity Data for Voice (ACD Queue or Virtual Queue)" on page 221
- "Queue Activity Data for Multimedia (Virtual Queue, Interaction Queue, or Interaction Workbin)" on page 222

Refer to Chapter 15 on page 235, as required, to understand how a particular configuration option works and what functionality it enables. Finally, review the valid values, which are documented as part of the option descriptions, and determine the values that are appropriate to your environment.

### Table 18: Genesys Info Mart Data-Related Options

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Voice Media Interactions Data** | | | |
| Genesys Info Mart Application | [gim-etl] | short-abandoned-threshold=10 | In the Application object, configure the option on the Options tab. |
| | [gim-transformation] | default-ivr-to-self-service=false | |
| (Network) Switch | [gim-etl] | network-switch=FALSE | In the Switch object, configure the option on the Annex tab. |
| **Multimedia Interactions Data** | | | |
| Genesys Info Mart Application | [gim-etl-media-<media type>]<br>where <media type> exactly matches the name of the applicable Media Type Business Attribute (for example, email). | short-abandoned-threshold=10 | Each [gim-etl-media-<media type>] section contains options that apply for the specific media type only.<br>This setting can be overridden at the tenant level.<br>In the Application object, configure the option on the Options tab. |
| Tenant Media Type Business Attribute | [gim-etl-media] | short-abandoned-threshold=10 | For the particular Media Type attribute, which is configured for a particular tenant, this setting overrides the same option that is configured at the application level.<br>In the Media Type Business Attribute object for the tenant, configure the option on the Annex tab. |

**Table 18: Genesys Info Mart Data-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Agent Activity Data Not Specific to Media Type** | | | |
| Genesys Info Mart Application | [gim-etl-populate] | populate-sm-resource-session-facts=TRUE<br>populate-sm-resource-state-facts=TRUE<br>populate-sm-resource-state-reason-facts=TRUE | In the Application object, configure the options on the Options tab. |
| | [gim-etl] | max-session-duration-in-hours=24<br>sm-resource-state-priority=ACW, NOT_READY, BUSY, READY | |
| Switch | [gim-etl] | factor-dnd-into-sm-resource-states=FALSE (for voice-handling and SIP switches)<br>factor-dnd-into-sm-resource-states=TRUE (for multimedia-handling switches) | In the Switch object, configure the option on the Annex tab. |
| **Voice Agent Activity Data** | | | |
| Genesys Info Mart Application | [gim-etl-populate] | populate-sm-voice-resource-activity=TRUE | In the Application object, configure the options on the Options tab. |
| **Multimedia Agent Activity Data** | | | |
| Genesys Info Mart Application | [gim-etl-populate] | populate-sm-email-resource-activity=TRUE<br>populate-sm-chat-resource-activity=TRUE | In the Application object, configure the options on the Options tab. |

**Table 18: Genesys Info Mart Data-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Queue Activity Data for Voice (ACD Queue or Virtual Queue)** | | | |
| Genesys Info Mart Application | [gim-etl] | q-answer-threshold-voice=60<br>q-short-abandoned-threshold-voice=10 | The q-answer-threshold-voice setting can be overridden on the Switch or DN object level.<br>In the Application object, configure the options on the Options tab. |
| DN (Virtual Queue or ACD Queue), Switch | [gim-etl] | q-answer-threshold-voice=60 | Overrides the same option that is configured at the application level.<br>In the Switch or DN object, configure the options on the Annex tab. |

**Table 18: Genesys Info Mart Data-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Queue Activity Data for Multimedia (Virtual Queue, Interaction Queue, or Interaction Workbin)** | | | |
| Genesys Info Mart Application | [gim-etl-media-<media type>]<br>where <media type> exactly matches the name of the applicable Media Type Business Attribute (for example, email) | q-answer-threshold=60<br>q-short-abandoned-threshold=10 | Each [gim-etl-media-<media type>] section contains options that apply for the specific media type only.<br>These settings at the application level can be overridden at the tenant level.<br>In addition, for each specific media type, the q-answer-threshold setting at the application level can be overridden for Virtual Queues at the Switch or DN object levels or, for Interaction Queues and Workbins, at the Script level.<br>In the Application object, configure the options on the Options tab. |
| Genesys Info Mart Application | [gim-etl-populate] | populate-mm-ixnqueue-facts=FALSE<br>populate-mm-workbin-facts=TRUE | |

**Table 18: Genesys Info Mart Data-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| Tenant Media Type Business Attribute | [gim-etl-media] | q-answer-threshold=60<br>q-short-abandoned-threshold=10 | For the particular Media Type attribute, which is configured for a particular tenant, these settings override the same options that are configured at the application level.<br>In addition, for each specific media type, the q-answer-threshold setting at the tenant level can be overridden on the DN or Script object levels.<br>In the Media Type Business Attribute object for the tenant, configure the options on the Annex tab. |
| DN (Virtual Queue), Script (Interaction Queue or Interaction Workbin), Switch | [gim-etl-media-<media type>]<br>where <media type> exactly matches the name of the applicable Media Type Business Attribute (for example, email) | q-answer-threshold=60 | Each [gim-etl-media-<media type>] section contains options that apply for the specific media type only.<br>This setting overrides the same option that is configured at the application or tenant level.<br>In the Switch or DN object for a Virtual Queue or in the Script object for an Interaction Queue or a Workbin, configure the option on the Annex tab. |

**Table 18: Genesys Info Mart Data-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| Script (Interaction Queue or Interaction Workbin) | [gim-etl-populate] | populate-mm-ixnqueue-facts=FALSE<br>populate-mm-workbin-facts=TRUE | Overrides the same option that is configured at the application level.<br>In the Script object for an Interaction Queue or a Workbin, configure the options on the Annex tab. |
| **Outbound Contact Data** | | | |
| Genesys Info Mart Application | [gim-etl] | max-camp-group-session-duration-in-hours=168<br>max-camp-group-state-duration-in-hours=168 | In the Application object, configure the options on the Options tab. |

## Operations-Related Configuration Options

Table 19 lists the configuration options, grouped by functional area, that affect the operations of the Genesys Info Mart components. These options control the ETL process, and most of them apply in any environment.

Review the options to identify the ones that are relevant to the Genesys Info Mart operation in your environment. In particular, decide:

- How you want Genesys Info Mart to schedule launching of ETL jobs. (See "Scheduling".)
- How you want Genesys Info Mart to process exceptions during data transformation. (See "Transformation Error Handling".)
- What logging level is sufficient for Genesys Info Mart Server. (See "Logging" on page 226.)
- How you want Genesys Info Mart to optimize Genesys Info Mart Server performance. (See "Performance Tuning" on page 226.)
- What data retention policies and other purge-related strategies you want to implement. (See "Database Maintenance" on page 227.)
- What calendar dimensions you need for your reports. (See "Calendar Maintenance" on page 227.)

Refer to Chapter 15 on page 235, as required, to understand how a particular configuration option works and what functionality it enables. Finally, review the valid values, which are documented as part of the option descriptions, and determine the values that are appropriate to your environment.

### Table 19: Genesys Info Mart Operations-Related Options

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Scheduling** | | | |
| Genesys Info Mart Application | [schedule] | timezone=GMT<br>run-scheduler=FALSE<br>etl-frequency=1<br>etl-start-time=06:00<br>etl-end-time=22:00<br>run-aggregates=FALSE<br>aggregate-schedule=0 1<br>aggregate-duration=05:00<br>run-maintain=TRUE<br>maintain-start-time=03:00 | In the Application object, configure the options on the Options tab. |
| **Transformation Error Handling** | | | |
| Genesys Info Mart Application | [error-policy] | error-policy-islink-dangling=exception<br>error-policy-islink-multiple-targets=exception<br>error-policy-islink-multiple-sources=exception<br>error-policy-islink-multiple-vertices=exception<br>error-policy-islink-callid=exception<br>error-policy-islink-source-party-missing=exception<br>error-policy-ipurpose-numberformat=exception<br>error-policy-party-created-missing=exception<br>error-policy-party-created-duplicated=exception<br>error-policy-party-parent-missing=exception<br>error-policy-irf-exception=log_db_resume | In the Application object, configure the options on the Options tab. |

**Table 19: Genesys Info Mart Operations-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Logging** | | | |
| Genesys Info Mart Application | [log4j] | log4j.appender.ConsoleLogger.Threshold=info<br>logging-level=info<br>log-file-name=gim_etl.log<br>max-log-file-size=50MB<br>max-backup-index=10<br>console-pattern-layout=%d{ISO8601} %-5p %-12t %m%n<br>file-pattern-layout=%d{ISO8601} %-5p %-12t %m%n | In the Application object, configure the options on the Options tab. |
| | [log] | standard=network<br>verbose=standard | |
| **Performance Tuning** | | | |
| Genesys Info Mart Application | [gim-etl] | memory-threshold=0<br>extract-data-chunk-size=900<br>extract-data-cfg-facts-chunk-size=90000<br>extract-data-max-conn=128<br>extract-data-thread-pool-size=32<br>extract-data-stuck-threshold=28860<br>extract-last-second=FALSE<br>delayed-data-threshold=900<br>user-event-data-timeout=3600<br>max-call-duration=3600<br>merge-chunk-size=1000000<br>max-chunks-per-job=10<br>max-time-deviation=30 | In the Application object, configure the options on the Options tab. |
| | [gim-transformation] | irf-io-parallelism=4 | |

**Table 19: Genesys Info Mart Operations-Related Options (Continued)**

| Configuration Object | Section Name | Option Name and Default Value | Comments |
|---|---|---|---|
| **Database Maintenance** | | | |
| Genesys Info Mart Application | [gim-etl] | days-to-keep-gidb-facts=14<br>days-to-keep-gim-facts=400<br>days-to-keep-active-facts=600<br>days-to-keep-discards-and-job-history=600<br>purge-transaction-size=100000<br>purge-thread-pool-size=32<br>For partitioned databases only:<br>partitioning-interval-size-gidb=86400<br>partitioning-interval-size-gim=604800<br>partitioning-ahead-range=14 | In the Application object, configure the options on the Options tab. |
| **Calendar Maintenance** | | | |
| Genesys Info Mart Application | [date-time]<br>For custom calendars: [date-time-*] | date-time-table-name=DATE_TIME<br>date-time-tz=GMT<br>date-time-start-year=-1<br>date-time-min-days-ahead=183<br>date-time-max-days-ahead=366<br>simple-week-numbering=true<br>first-day-of-week=1<br>min-days-in-first-week=1 | In the Application object, configure the options on the Options tab. |

### Aggregation-Related Configuration Options

Table 20 lists the configuration options that are essential to enable aggregation in your deployment, if GI2 or RAA is installed.

**Note:** There are additional aggregation-related options that are set on the Genesys Info Mart `Application` object, to control the functioning of the aggregation engine and population of the aggregate tables. GI2 has specific requirements for certain option values.

In addition to specifying the aggregation engine class name (in a configuration option), you must also modify the `gim_etl_paths` file to specify the path to the correct `.jar` file.

For more information about all of the aggregation-related options and installation steps, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide.*

**Table 20: Genesys Info Mart Options for GI2 and RAA**

| Section Name | Option Name and Recommended Value | Comments |
|---|---|---|
| `[schedule]` | `run-aggregates=TRUE`<br>`aggregate-schedule=`<as specified in the aggregation-specific template><br>`aggregate-duration=`<as specified in the aggregation-specific template> | To run aggregation continuously, set `aggregate-schedule=0 0` and `aggregate-duration=24:00`. |
| `[gim-etl]` | `aggregation-engine-class-name= "GIMAgg.GimInterfaceImpl.AggregationImpl"` | |

# Configuring Supporting Objects

Configuration settings on the following configuration objects affect Genesys Info Mart data processing:

- `Switch`
- `Media Type Business Attribute`
- `DN`
- `Field`
- `Script`

Use the instructions in this section to select the appropriate settings for your environment.

For `Field` object configuration instructions, refer to:

- Procedure: Configuring the storage of OCS Record Field data, on page 165

- Procedure: Configuring the mapping of OCS Record Fields, on page 167

### Procedure:
### Setting the Annex tab to display

**Purpose:** To display the `Annex` tab in the `Properties` dialog box for an object in Configuration Manager.

By default, the `Annex` tab for any configuration object is not displayed in Configuration Manager.

#### Start of procedure

1. Select `View > Options`.
2. Select the `Show Annex tab in Object Properties` check box.
3. Click `OK`.

#### End of procedure

## Switch Object Options

### Procedure:
### Setting Switch object options

**Purpose:** To set the options on the `Switch` configuration object.

#### Prerequisites

- Procedure: Setting the Genesys Info Mart application options, on page 216
- Procedure: Setting the Annex tab to display, on page 229

#### Start of procedure

1. Set the following options in the `gim-etl` section on the `Annex` tab of the `Switch` configuration object:
   - `network-switch`, if required (see page 230)

- `factor-dnd-into-sm-resource-states` (see page 230)

**Note:** The value that is set for an option in a specific `Switch` object will override a value that is set for the corresponding option in the Genesys Info Mart `Application` object.

### End of procedure

### Next Steps

- Procedure: Setting DN object options, on page 232

## Switch Object Options Descriptions

### network-switch

Default Value: `FALSE`
Valid Values: `TRUE, FALSE`
Changes Take Effect: At the next run of `Job_ExtractICON`

Specifies whether the switch is a network switch.

### factor-dnd-into-sm-resource-states

Default Value: `FALSE` for voice and SIP switches, `TRUE` for eServices/Multimedia switches
Valid Values: `TRUE, FALSE`
Dependencies: None
Changes Take Effect: On the next ETL cycle

**Note:** The new option value is not applied to previously loaded facts.

Specifies whether DND (do-not-disturb) status for a resource on a given switch is factored into resource states and reasons in `SM_RES_STATE_FACT` and `SM_RES_STATE_REASON_FACT` tables. When the option is set to `FALSE`, Genesys Info Mart does not factor DND into summarized resource states and reasons. When the option is set to `TRUE`, DND is factored into summarized resource states and reasons.

# Media Type Business Attribute Object Options

## Procedure: Setting Media Type Business Attribute object options

**Purpose:** To override certain application option settings to implement media-specific thresholds for multimedia interactions for a specific tenant.

**Note:** For the options that you configure in a `Media Type Business Attribute` object, changes take effect on the next ETL cycle. The new option value is not applied to previously loaded facts.

### Prerequisites

- You have the required access privileges to modify properties for `Media Type Business Attribute` objects in the Genesys Configuration Layer.
- Procedure: Setting the Annex tab to display, on page 229

### Start of procedure

1. For the media type for which you want to configure tenant-specific thresholds, display the properties for the `Media Type Business Attribute` object for that tenant.
2. Add a new section, named `gim-etl-media`, on the `Annex` tab.
3. Open the new section, and add one or more of the following options, with values that are suitable for that tenant, for the media type:
   - `q-answer-threshold` (see page 257)
   - `q-short-abandoned-threshold` (see page 258)
   - `short-abandoned-threshold` (see page 258)

   **Note:** The values that are set for these options in a specific `Media Type Business Attribute` object will override values that are set in the Genesys Info Mart `Application` object.

   The value of the `q-answer-threshold` option that is set at the tenant level can be overridden in the `Switch` or individual `DN` objects (for Virtual Queues) or in individual `Script` objects (for Interaction Queues or Interaction Workbins).

### End of procedure

### Next Steps

- Procedure: Setting DN object options

- Procedure: Setting Script object options, on page 233
- "Preparing the Genesys Info Mart Server Host" on page 273

# DN Object Options

## Procedure: Setting DN object options

**Purpose:** To override certain application-level or, for multimedia interactions, tenant-level option settings in a specific DN object, as appropriate.

**Note:** For the options that you configure in a DN object, changes take effect on the next ETL cycle. The new option value is not applied to previously loaded facts.

### Prerequisites

- Procedure: Setting the Genesys Info Mart application options, on page 216
- Procedure: Setting the Annex tab to display, on page 229

### Start of procedure

1. In Configuration Manager, display the properties for the DN object of type Virtual Queue or ACD Queue.
2. To configure thresholds for voice interactions:
   a. On a Virtual Queue or ACD Queue DN for voice interactions, add a new section, named gim-etl, on the Annex tab.
   b. Open the new section, and add the q-answer-threshold-voice option with the desired value (see page 255).

   **Note:** The value that is set for this option in a specific DN object of the Virtual Queue or ACD Queue type will override a value that is set in the Genesys Info Mart Application object.

3. To configure media-specific thresholds for multimedia interactions:
   a. For each media type for which you want to configure a custom threshold, add a new section, named gim-etl-media-<media type>, on the Annex tab of a Virtual Queue DN for multimedia interactions.

      The <media type> that you specify in the section name must match the name of the Media Type Business Attribute exactly, including case (for example, email).

**b.** Open the new section, and add the `q-answer-threshold` option with the desired value (see page 257).

**Note:** The value that is set for this option in a specific `DN` object of the `Virtual Queue` type will override a value that is set in the Genesys Info Mart `Application` object or in the tenant-specific `Media Type Business Attribute` object.

4. Add any applicable options that you configured in the `gim-etl-populate` section of the Genesys Info Mart `Application` object. Set the desired values (see page 259).

**End of procedure**

**Next Steps**

- (In a multimedia deployment) Procedure: Setting Script object options
- "Preparing the Genesys Info Mart Server Host" on page 273

# Script Object Options

## Procedure: Setting Script object options

**Purpose:** To override certain application-level or tenant-level option settings in a specific `Script` object, as appropriate.

**Note:** For the options that you configure in a `Script` object, changes take effect on the next ETL cycle. The new option value is not applied to previously loaded facts.

**Prerequisites**

- Procedure: Setting the Genesys Info Mart application options, on page 216
- Procedure: Setting the Annex tab to display, on page 229

### Start of procedure

1. In Configuration Manager, display the properties for the `Script` object that corresponds to the Interaction Queue or Workbin.
2. For each media type for which you want to configure a custom threshold:
   a. Add a new section, named `gim-etl-media-<media type>`, on the `Annex` tab.

      The `<media type>` that you specify in the section name must match the name of the `Media Type Business Attribute` exactly, including case (for example, `email`).
   b. Open the new section, and add the `q-answer-threshold` option with the desired value (see page 257).

> **Note:** The value that is set for this option in a specific `Script` object will override a value that is set in the Genesys Info Mart `Application` object or in the tenant-specific `Media Type Business Attribute` object.

3. Add a new section, named `gim-etl-populate`, on the `Annex` tab.
4. Add either of the following options, and specify the value that you want for this particular Interaction Queue or Workbin (see page 259):
   - `populate-mm-ixnqueue-facts`
   - `populate-mm-workbin-facts`

> **Note:** The value that is set for options in a specific `Script` object will override a value that is set for corresponding options in the `gim-etl-populate` section of the Genesys Info Mart `Application` object.

### End of procedure

### Next Steps

- "Preparing the Genesys Info Mart Server Host" on page 273

Chapter

# 15 Genesys Info Mart Configuration Options Reference

This chapter describes the configuration options that you can set for effective operation of your Genesys Info Mart application.

For ease of reference, the Genesys Info Mart `Application` object configuration options are listed in alphabetical order by configuration section.

This chapter contains the following sections:



## date-time Section

Use this configuration section to specify options for populating the `DATE_TIME` table. To configure a custom calendar, create a similar section that has the same options; name the section by using the prefix *`date-time-`*.

`Job_InitializeGIM` populates data in all configured calendars when it initializes the Info Mart database, and `Job_MaintainGIM` subsequently maintains

the calendars in accordance with options that are specified in the [date-time] and custom [date-time-*] configuration sections.

**Note:** Carefully consider the settings for the date-time options before the calendar dimension tables are first populated. You can subsequently change the values of the date-time-min-days-ahead and date-time-max-days-ahead options at any time. However, changing any of the other date-time options during runtime can introduce inconsistencies into the calendar data and adversely affect reporting results. For example, if you change the timezone option (date-time-tz) after Genesys Info Mart has been initialized, your reports might mix the results for different timezones within the same reporting interval.

If you want to change calendar options during runtime, see the procedure about changing calendar options in the *Genesys Info Mart 8.0 Operations Guide,* which provides information about additional steps that are required to maintain reporting consistency.

### date-time-max-days-ahead

Default Value: 366
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies, in number of days, how far ahead the calendar dimension table will be populated. The default value specifies that the calendar dimension will be populated up to a year in advance (365 days + 1 day for leap years). Genesys does not recommend populating the calendar tables more than a year in advance, in case there are changes to daylight saving time (DST) or other international time standards that might invalidate the prepopulated data.

### date-time-min-days-ahead

Default Value: 183
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies, in number of days remaining in the prepopulated calendar, when the calendar table will be updated with the next batch of days ahead. The default value specifies that the maintenance job will update this calendar approximately 6 months before it expires.

### date-time-start-year

Default Value: -1
Valid Values: Any integer
Dependencies: None

Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the year that the calendar starts, in relation to the current year at the time that the calendar table is created. In other words, the calendar starts in the year that is specified by (<current year> + date-time-start-year). A value of 0 indicates the current year; a value of -1 indicates the previous year; and a value of 1 indicates next year.

### date-time-table-name

Default Value: DATE_TIME
Valid Values: Any string that is a valid table name for your RDBMS
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the name of the table in the Info Mart database schema. You must manually modify the script that creates the custom calendar table, to specify this value as the table name.

### date-time-tz

Default Value: GMT
Valid Values: Any valid Java time zone
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the time zone for the calendar. You can use any valid time zone that is supported by the version of the Java Runtime Environment (JRE) that runs the Genesys Info Mart Server.

For more information about supported time zones, see the Java documentation about calendar time zones on the Java developer website (http://java.sun.com).

### first-day-of-week

Default Value: 1
Valid Values: 1–7 (Sunday–Saturday)
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the day of the week that is considered to be the start of the week. For example, 1 (Sunday) is usually the first day of the week in the US; for countries that use the ISO 8601 standard, 2 (Monday) is the first day of the week.

### min-days-in-first-week

Default Value: 1
Valid Values: 1–6
Dependencies: simple-week-numbering=false
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the minimum number of days from the new year that must be in the first week of the year, if simple week numbering is not used and there are no partial weeks in the calendar year. The ISO 8601 standard does not use simple week numbering.

For example, if `simple-week-numbering=false, first-day-of-week=2,` and January 1 of the new year is on a Friday, there are 3 days from the new year in the week that starts on Monday, December 28. Therefore:

- If the value of this option is set to `1`, the calendar will count the first week of the new year as starting on Monday, December 28.
- If the value of this option is set to `4`, the week that starts on Monday, December 28, will be assigned to the previous year, and the calendar will count the first week of the new year as starting on Monday, January 4.

The ISO 8601 definition of the first week in the year is the week that has the first Thursday in it. To conform to the ISO 8601 standard, set `simple-week-numbering=false, first-day-of-week=2,` and `min-days-in-first-week=4`.

### simple-week-numbering

Default Value: `TRUE`
Valid Values: `TRUE, FALSE`
Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies whether the calendar year and the week-numbering year coincide. For simple week numbering, Week 1 always begins on January 1. As a result, the first and last weeks of the year might be partial weeks, because the first week will not necessarily start with the day that is specified by the `first-day-of-week` option (see page 237). To comply with ISO 8601 week numbering, set the value of this option to `false`.

# error-policy Section

Use this configuration section to specify options that are related to error handling during transformation.

**Notes:**

- By default, all the `[error-policy]` options, except for `error-policy-irf-exception`, are set to generate an exception when the transformation job encounters data inconsistencies. Setting the value of these options to `resume` causes Genesys Info Mart to attempt to recover from inconsistencies in the source data, and will likely affect data quality. The implications for data quality depend on the particular call flow and environment. Before you change the error policies for handling specific types of data inconsistencies, Genesys recommends that you first verify behavior in a non-production environment.
- The default value for `error-policy-irf-exception` is `log_db_resume`. If you set the value of this option to `exception`, Genesys Info Mart will fail the transformation job when it encounters error policy exceptions. You can set an alarm on the error message that is generated when the job fails.

### error-policy-ipurpose-numberformat

Default Value: `exception`
Valid Values: `exception, resume`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when the `IPurpose` attached data key-value-pair (KVP) is present and the value of `IPurpose` is not a number. The error usually arises because of incorrect configuration.

- `exception`—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the `error-policy-irf-exception` option.
- `resume`—Instructs the transformation logic to process the data as if the `IPurpose` KVP were not attached. In this case, whether the IVR is treated as a handling resource or a mediation resource depends on the value that is configured for the `default-ivr-to-self-service` option (see page 262).

### error-policy-irf-exception

Default Value: `log_db_resume`
Valid Values: `log_db_resume, resume, exception`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when an exception is encountered during transformation of some interaction thread.

- log_db_resume (default)—Instructs the transformation logic to discard the problematic interaction thread, write corresponding information into the STG_TRANSFORM_DISCARDS table, and resume processing.
- resume—Instructs the transformation logic to discard the problematic interaction thread and resume processing, without writing corresponding information into the database.
- exception—Instructs the transformation logic to fail the job.

### error-policy-islink-callid

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when IS_LINK.CALLID does not match IS_LINK_HISTORY.CALLID.

### error-policy-islink-dangling

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when information for only one side of an IS_LINK is available.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.
- resume—Instructs the transformation logic to process the interaction as if the missing IS-Link information were for a remote site that is not monitored by ICON. For example, an internal transfer will be transformed as an inbound or outbound interaction.

### error-policy-islink-multiple-sources

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when there are multiple (>1) source IS_LINKs that have the same LINKID.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.

- resume—Instructs the transformation logic to choose one of the source records randomly and ignore the other source records.

### error-policy-islink-multiple-targets

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when there are multiple (>1) target IS_LINKs that have the same LINKID.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.
- resume—Instructs the transformation logic to choose one of the target records randomly and ignore the other target records.

### error-policy-islink-multiple-vertices

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when there are more than two bidirectional IS_LINKs that have the same LINKID. The option is similar to error-policy-islink-multiple-targets and error-policy-islink-multiple-sources, but it applies to bidirectional links. This data inconsistency occasionally occurs with older T-Servers.

### error-policy-islink-source-party-missing

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when the source call for the IS_LINK for a dial-out attempt does not have a remote dialed party. As a result, the transformation job does not have sufficient information to build the order for Interaction Resource Facts.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.
- resume—Instructs the transformation logic to build the order for Interaction Resource Facts randomly as it processes the interaction.

### error-policy-party-created-duplicated

Default Value: exception

Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when G_PARTY_HISTORY contains multiple records that have ChangeType=1(party_created) for some party.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.
- resume—Instructs the transformation logic to treat the first record that it reads as the party created record and to ignore the other party created records.

### error-policy-party-created-missing

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when G_PARTY_HISTORY does not contain a record that have ChangeType=1(party_created) for some party.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.
- resume—Instructs the transformation logic to construct a party created record, based on assumptions from the first party history record that it reads.

### error-policy-party-parent-missing

Default Value: exception
Valid Values: exception, resume
Dependencies: None
Changes Take Effect: On the next ETL cycle

Policy on handling the situation when the party refers to a parent, but party records that have the referenced PARTYID do not exist.

- exception—Instructs the transformation logic to interrupt transformation of the interaction with an exception, which is handled as specified by the error-policy-irf-exception option.
- resume—Instructs the transformation logic to ignore the missing data and continue processing.

# gim-etl Section

Use this configuration section to set general options.

### aggregation-engine-class-name

Default Value: `none`
Valid Values: Any string
Dependencies: None
Changes Take Effect: On restart

Specifies the class name of the aggregation package, if it is installed. If your deployment uses GI2 or the separately installed RAA package, specify the following value:

`"GIMAgg.GimInterfaceImpl.AggregationImpl"`

For more information, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide*.

### days-to-keep-active-facts

Default Value: `600`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies the maximum number of days to retain active data in GIDB and the dimensional model, including certain Staging tables. This option applies only to long-living entities.

- For the purposes of purging GIDB, long-living entities are multimedia interactions and Outbound Contact campaigns.
- For the purposes of purging the dimensional model, long-living entities are voice interactions, multimedia interactions, and Outbound Contact campaigns.

This option sets the lower boundary of the period within which both active and completed long-living facts are eligible to be purged. The earliest active fact that started between the time that is specified by this option and the applicable completed facts option (`days-to-keep-gidb-facts` or `days-to-keep-gim-facts`) determines the actual purge threshold. All facts that started earlier than the purge threshold in a group of related tables are purged, but the purge threshold itself is based on the start timestamp in a root table.

The purging algorithm uses the following logic:

1. Determine the retention timestamp for completed facts (`retentionTS`):
   - For GIDB:
     `retentionTS` = (`ExtractHWM` – `days-to-keep-gidb-facts`).
   - For the dimensional model:
     `retentionTS` = (`ExtractHWM` – `days-to-keep-gim-facts`).
2. Determine the retention timestamp for active facts (`activeTS`):
   `activeTS` = (`ExtractHWM` – `days-to-keep-active-facts`).
3. Determine the purge threshold (`purgeTS`):
   `purgeTS` = (start time of earliest active entity in the root table), where the start time is between `retentionTS` and `activeTS`.

4. For each table in the group, purge from the table in which (Start timestamp) < `purgeTS`.

   In determining the purge thresholds, Genesys Info Mart considers only the date part of timestamps, and the transition from one day to the next is considered to occur at 00:00 (midnight) GMT. For example, if the ExtractHWM is 2010-12-14 17:07:00 and `days-to-keep-gidb-facts=14`, the purge threshold for completed GIDB facts is 2010-12-01 00:00:00.

Active interactions can significantly affect when completed facts are purged. Tables 21 and 22 provide examples of different scenarios for GIDB and the dimensional model, respectively.

### Table 21: Example of GIDB Purging Options

| Scenario | | Start Time of Facts to Be Purged | |
|---|---|---|---|
| | | **Short-Living Entities** | **Long-Living Entities** |
| • `days-to-keep-gidb-facts=14`.<br>• `days-to-keep-active-facts=600`.<br>• `Job_MaintainGIM` is running on June 4, 2012, after the last ETL cycle for the day (in other words, `days-to-keep-gidb-facts` threshold is May 21, 2012; `days-to-keep-active-facts` threshold is October 12, 2010). | | | |
| 1 | The earliest active multimedia fact relates to an e-mail interaction that started on March 20, 2011.<br>There are no active Outbound Contact facts. | Voice interactions: May 21, 2012, or earlier<br>Agent activity: May 21, 2012, or earlier | Multimedia interactions: March 20, 2011, or earlier<br>Outbound Contact facts: May 21, 2012, or earlier |
| 2 | An e-mail interaction that started on October 12, 2010, or earlier remains active in a workbin. | | Multimedia interactions: October 12, 2010, or earlier |
| 3 | The earliest active fact relates to an e-mail interaction that started on May 27, 2012. | | Multimedia interactions: May 21, 2012, or earlier |

**Table 22: Example of GIM (Dimensional Model) Purging Options**

| Scenario | | Start Time of Facts to Be Purged | |
|---|---|---|---|
| | | Short-Living Entities | Long-Living Entities |
| • days-to-keep-gim-facts=400.<br>• days-to-keep-active-facts=600.<br>• Job_MaintainGIM is running on June 4, 2012, after the last ETL cycle for the day (in other words, days-to-keep-gim-facts threshold is May 1, 2011; days-to-keep-active-facts threshold is October 12, 2010). | | | |
| 1 | The earliest active fact relates to an e-mail interaction that started on March 20, 2011.<br>There are no active Outbound Contact facts. | Agent activity:<br>May 1, 2011, or earlier | Voice and Multimedia interactions:<br>March 20, 2011, or earlier<br>Outbound Contact facts:<br>May 1, 2011, or earlier |
| 2 | An e-mail interaction that started on October 12, 2010, or earlier remains active in a workbin. | | Voice and Multimedia interactions:<br>October 12, 2010, or earlier |
| 3 | The earliest active fact relates to an e-mail interaction that started on June 20, 2011. | | Voice and Multimedia interactions:<br>May 1, 2011, or earlier |

For a list of the tables in the dimensional model that contain records for long-living entities (as defined for purging purposes), including the root tables for each group of facts, see Appendix D on page 335.

For information about purging rules and guidelines to consider when you are setting the value of this option, see the section about retention policies in the *Genesys Info Mart 8.0 Operations Guide*.

### days-to-keep-discards-and-job-history

Default Value: 600
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the number of days to retain data in the discard tables and audit and history tables.

The discard tables are Staging tables that store operational data that the transformation job was unable to process—for example, voice interaction data with unresolved IS-Links, or Configuration details records with missing configuration objects. The audit and history tables are Control tables that store

information about data lineage and about ETL processing activity. Information in the discard, audit, and history tables is useful for troubleshooting.

Records in the discard, audit, and history tables are purged based on the timestamp of the ETL processing event. The purge condition is:

`ETL_TS < (NOW – days-to-keep-discards)`

For example, if `Job_MaintainGIM` is running on August 23, 2011 (day 235 of the year) and `days-to-keep-discards-and-job-history=600`, `Job_MaintainGIM` will purge all records in the discard, audit, and history tables that were written by instances of the ETL jobs that ran before January 1, 2010 (day 1 of the previous year).

For a list of the discard, audit, and history tables that are purged by `Job_MaintainGIM`, see Appendix D on page 335.

### days-to-keep-gidb-facts

Default Value: `14`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies the number of days to retain terminated data in GIDB.

- For short-living entities in GIDB (voice interactions and agent session activity), this option directly specifies the retention period. Facts that have a start time that is earlier than the retention period will be purged. The purge condition is:

  (Start timestamp) < (`ExtractHWM – days-to-keep-gidb-facts`)

- For long-living entities in GIDB (multimedia interactions and Outbound Contact campaigns), this option specifies the minimum number of days after which terminated facts might be eligible to be purged. The eligibility criterion is based on the start timestamp in a root table. However, eligible completed facts will not actually be purged until all other active facts that have the same start timestamps or later also become eligible to be purged, as described in `days-to-keep-active-facts`. If there are no active facts, then `days-to-keep-gidb-facts` specifies the retention period for long-living entities.

For a list of the GIDB tables that contain short- and long-living entities (as defined for purging purposes), including the root tables for each category of data, see Appendix D on page 335.

For information about purging rules and guidelines to consider when setting the value of this option, see the section about retention policies in the *Genesys Info Mart 8.0 Operations Guide*.

### days-to-keep-gim-facts

Default Value: `400`
Valid Values: Any positive integer

Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies the number of days to retain terminated data in the dimensional model, including certain Staging tables. `Job_MaintainGIM` does not purge dimension data or aggregate tables (if aggregation is enabled).

- For short-living entities in the dimensional model (agent session activity), this option directly specifies the retention period. Facts that have a start time that is earlier than the retention period will be purged. The purge condition is:

  (Start timestamp) < (`ExtractHWM` – `days-to-keep-gim-facts`)

- For long-living entities in the dimensional model (voice and multimedia interactions, and Outbound Contact campaigns), this option specifies the minimum number of days after which terminated facts are eligible to be purged. The eligibility criterion is based on the start timestamp in a root table. However, eligible completed facts will not actually be purged until all other active facts that have the same start timestamps or later also become eligible to be purged, as described in `days-to-keep-active-facts` (see page 243). If there are no active facts, then `days-to-keep-gim-facts` specifies the retention period for long-living entities.

  **Note:** By definition, all voice interaction data in the dimensional model relates to completed interactions. However, as Table 22 on page 245 shows, active multimedia interactions can significantly delay the purging of completed interactions. If this is not acceptable for your circumstances, and if you are not required to combine voice and multimedia for reporting purposes, consider installing separate instances of the Genesys Info Mart Server application and Info Mart database schema for Voice and Multimedia details.

For a list of the tables in the dimensional model that contain short- and long-living entities (as defined for purging purposes), including the root tables for each category of data, see Appendix D on page 335.

For information about purging rules and guidelines to consider when setting the value of this option, see the section about retention policies in the *Genesys Info Mart 8.0 Operations Guide*.

### delayed-data-threshold

Default Value: `900`
Valid Values: `60-3600`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the amount of time, in seconds, that the transformation job will wait for expected data before it logs message 55-20110.

Transformation delays occur when Genesys Info Mart cannot process a data chunk because dependent data is not available (in other words, has not been extracted yet). In these cases, the log message includes detailed information about the data sources and IDB tables from which related data was expected.

Genesys recommends that you set an alarm on this message, so that you can investigate the reasons for data delays in a timely manner and take appropriate action. For example, if the reason for the delay is that a particular data source is unavailable, and you do not want to delay transformation of data from other data sources of the same type while you investigate the problem, you can temporarily disable the unavailable data source (by clearing the `State Enabled` check box on the `General` tab of the `Application` object in Configuration Manager).

### extract-data-cfg-facts-chunk-size

Default Value: `90000`
Valid Values: Any integer
Dependencies: None
Changes Take Effect: On the next ETL cycle for the DAP with `role=ICON_CFG`

Specifies the size of the time interval, in seconds, for which configuration relationship data is committed in one transaction. The data from this period is considered to be one data chunk, for the purpose of extract and transform. For example, if you set the value of this option to `90000`, Genesys Info Mart extracts 25 hours (90,000 seconds) of available configuration relationship fact data. When a negative value is set (for example, `-1`), data for all available time intervals is extracted in one chunk. Negative values should not be used in production, but they can be useful for lab testing.

This option enables you to configure a larger extraction window for configuration relationship data than for other types of data. This increases the likelihood that all available configuration relationship data will be extracted and transformed in one extraction cycle, so that the configuration relationship data is available to support the transformation of other data.

This option does not affect extraction and transformation of configuration object data. All available configuration object data is extracted in a single extraction cycle.

### extract-data-chunk-size

Default Value: `900`
Valid Values: Any integer
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the size of the time interval, in seconds, for which data is committed in one transaction. The data from this period is considered to be one data chunk, for the purpose of extract and transform. For example, if you set the value of `extract-data-chunk-size` to `900`, Genesys Info Mart extracts 15 minutes (900 seconds) of available data.

The extraction job processes only one chunk of data during each extraction cycle. In other words, the value of this option sets the batch size for an iteration of the ETL cycle.

### extract-data-max-conn

Default Value: `128`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: On the next ETL cycle

For each DAP that Genesys Info Mart uses to extract data, specifies the maximum size of the connection pool for connections between the Genesys Info Mart Server and the IDB. Ensure that you configure your RDBMS to handle a sufficient number of concurrent connections.

For example, if Genesys Info Mart uses `DAP1` to access `IDB1` and `DAP2` to access `IDB2`, and if `extract-data-max-conn=128`, then the extraction job will open up to 128 connections through `DAP1` and up to 128 connections through `DAP2` (in other words, up to a total of 256 connections), as required, for concurrent extraction of data from both IDBs.

Increasing the value of this option reduces the amount of time that is required for the extraction job, but it increases CPU and memory requirements, especially if database links are not used. The optimal value of this option depends on the operating system, hardware (such as RAM and the number of CPUs), and the number of IDBs in the environment. You must also consider ICON requirements for RDBMS resources when you set this limit.

### extract-data-stuck-threshold

Default Value: `28860`
Valid Values: Any integer equal to or greater than `1800`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the time, in seconds, that Genesys Info Mart waits for stuck data to become available in IDB. For example, if new data is available until 3:00 PM and the value for `extract-data-stuck-threshold` is set to `28860` (8 hrs 1 min.), Genesys Info Mart extracts data that has a timestamp from 6:59 AM to 3:00 PM. IDB data from the time intervals before 6:59 AM is not, and will never be, extracted. For a more detailed example, see “Extraction Window Example” on page 68.

The value of this option sets the stuck data timeout for the extraction windows for the Voice, Multimedia, and Outbound Contact data domains. However, the actual time ranges of the extraction windows and HWMs for each data domain might be different (see “Separate Extraction Windows for Each Data Domain” on page 69).

Setting this parameter to too high a value can affect performance and cause delay of data that is available for reporting. For example, if data from one

T-Server in a multi-site deployment is not available, Genesys Info Mart does not transform data until data from that T-Server becomes available or until this timeout has expired.

### extract-data-thread-pool-size

Default Value: `32`
Valid Values: Any positive integer as appropriate for your environment
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the maximum number of worker threads that are used to extract data concurrently. This option does not set a strong limit on the total number of threads that will be used in extraction processing, because certain extraction algorithms create additional helper threads. Instead, this option specifies the maximum number of logical partitions for concurrent extraction of subsets of data. Increasing the value of this option reduces the amount of time that is required for the extraction job, but it increases CPU and memory requirements, especially if database links are not used. (At a rough estimate, each additional worker thread requires an additional 180 MB of RAM.) The optimal value of this option depends on the operating system, hardware (such as RAM and the number of CPUs), and the number of IDBs in the environment.

### extract-last-second

Default Value: `FALSE`
Valid Values: `TRUE, FALSE`
Dependencies: None
Changes Take Effect: On the next ETL cycle

**Warning!** This option *must* be set to `false` in a production environment.

Specifies whether Genesys Info Mart extracts data from the last second of the specified time interval into the extracted data chunk. In a lab environment, setting this option to `true` speeds up data validation. If you are extracting the last second of data in a lab environment, make sure that all data from the executed test scenario is stored into IDB before Genesys Info Mart runs the extraction job.

In a production environment, setting this option to `true` might result in lost data. For example, the ETL might be extracting data at time `t1` for the time interval `[t0–t1]`, while the data source is still producing events that have a timestamp of `t1`; at the next extraction, Genesys Info Mart will consider that all data that has `t1` timestamps has been extracted, and the last `t1` data will be lost.

### max-call-duration

Default Value: `3600`
Valid Values: Any positive integer
Dependencies: None

Changes Take Effect: On the next ETL cycle

Specifies the maximum duration, in seconds, of voice calls in the deployed environment. This option controls the following timeouts:

- The stuck link threshold for merge processing—The option specifies the amount of time that the merge operation will wait for IS-Link information from another site, before it considers the IS-Link to be stuck. An unpaired link is considered to be stuck if the link initiation timestamp in the `G_IS_LINK` merge table record exceeds the stuck link threshold calculated from the earliest extraction high-water mark.

  For more information about the role of the stuck link threshold in merge processing, see "Delayed or Missing Information" on page 71.

  **Note:** For voice interactions, Genesys Info Mart extracts Interaction Records (IRs) only for completed calls. Resolution of stuck calls is controlled by the ICON application.

- The limit for waiting for After Call Work (ACW) before transforming interaction data.
- The limit for looking up party activity for multimedia interactions before transforming data. (Although a multimedia interaction can be very long-lasting, Genesys Info Mart considers that the duration of activity for any one party is comparable to the duration of a voice call.)

Because this option affects a number of aspects of Genesys Info Mart functioning during extraction and transformation of both voice and multimedia interactions, be aware that there are potential data implications if you change the option value.

### max-camp-group-session-duration-in-hours

Default Value: `168`
Valid Values: `1–10000`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the amount of time, in hours, after which Genesys Info Mart ends active campaign group sessions if the transformation process encounters a campaign session row in IDB's `GO_Campaign` table that has no terminated time.

If you change the value of this option, the new option value is not applied to previously loaded facts.

### max-camp-group-state-duration-in-hours

Default Value: `168`
Valid Values: `1–10000`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the amount of time, in hours, after which Genesys Info Mart ends campaign group states if the transformation process has not extracted a stopped row that brackets a previously extracted started row from the IDB `GO_CampaignHistory` table.

If you change the value of this option, the new option value is not applied to previously loaded facts.

### max-chunks-per-job

Default Value: `10`
Valid Values: `1–99`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the number of the extracted data chunks that the transform job processes in one ETL cycle. As long as it seems practical from the performance perspective, increase the option value to transform a larger amount of data in a single cycle.

### max-session-duration-in-hours

Default Value: `24`
Valid Values: `0–10000`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the amount of time, in hours, after which Genesys Info Mart ends resource sessions if the extraction process never finds a row in IDB's `GX_SESSION_ENDPOINT` table that has an end time for a previously extracted and transformed active resource session. For migration purposes, a value of `0` will default to `24`.

If you change the value of this option, the new option value is not applied to previously loaded facts.

### max-time-deviation

Default Value: `30`
Valid Values: `0-120`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the maximum time deviation, in seconds, to take into account for time synchronization inaccuracy between host system clocks. In HA deployments, this option is used for reliable analysis of the "no data" information in IDB; (`NoData – max-time-deviation`) is considered to be reliable for all data sources for a particular ICON provider. For more information about the ICON `NoData` indicator, see the section about determining IDB availability in the *Interaction Concentrator 8.0 User's Guide*.

### memory-threshold

Default Value: `0`
Valid Values: `0–99`
Dependencies: None
Changes Take Effect: Immediately

Specifies the percentage of available memory that must be exceeded before Genesys Info Mart logs a message (55-30016) that indicates that the memory threshold has been exceeded. If the value of this option is set to `0`, the feature will be disabled.

### merge-chunk-size

Default Value: `1000000`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the maximum number of root `G_IR` rows in a chunk of merged data, for the purpose of transformation. By limiting the size of the data chunks produced by the merge process, this option enables you to manage situations in which there is a very large amount of merged data. The optimal value of this option depends on the characteristics of your deployment. Consider the following guidelines:

- The option value should be large enough that it does not require transformation of an unnecessarily large number of data chunks and, therefore, does not interfere with normal processing of one chunk of extracted data. As a rule of thumb, allow 200000 rows for a call rate of 100 calls per second (cps).
- The option value should be small enough that it protects the transformation job from running out of memory. For example, for an environment with 8 GB of RAM dedicated to Genesys Info Mart, allow a number of rows that corresponds to 1 million root `G_IR` records. (Every root `G_IR` record corresponds to one interaction fact.)

### partitioning-ahead-range

Default Value: `14`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies the number of days ahead of the extraction high-water mark (`extractHWM`) for which `Job_MaintainGIM` will create partitions for GIDB and Info Mart fact tables that are partitioned. The number of partitions that `Job_MaintainGIM` actually creates during each run depends on the partition sizes and the job frequency.

For example, if `partitioning-interval-size-gidb=86400` (1 day), `partitioning-interval-size-gim=604800` (1 week), and

`partitioning-ahead-days=14`, `Job_MaintainGIM` will create as many additional partitions as necessary to provide partitions for GIDB and Info Mart fact tables up to 14 days ahead. If `Job_MaintainGIM` runs daily, this means that:

- For GIDB tables, each run of `Job_MaintainGIM` will create one new partition of size 1 day, for the fourteenth day. (Previous runs will have created partitions for the other days.)
- For Info Mart fact tables, the maintenance job will create one new partition of size 7 days at the start of each week. (A previous run will have created a partition for the other week.)

  If the value of `partitioning-ahead-range` is not a multiple of `partitioning-interval-size-gim`, the maintenance job will create a new partition only when the last day of the partitioning ahead range falls in a week for which a partition has not yet been created. For example, if `partitioning-interval-size-gim=604800` but `partitioning-ahead-days=10`, two new partitions will be created on the very first run of `Job_MaintainGIM`, and the next partition will be created on the fifth run.

To guarantee that partitions are always available for use by the ETL, ensure that `run-maintain` (see page 268) is set to `true` (the default value).

This option applies only in deployments that use partitioning.

### partitioning-interval-size-gidb

Default Value: `86400`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies the size of partitions, in seconds, for GIDB tables that are partitioned. `Job_MaintainGIM` creates partitions of the specified size in the Info Mart database in preparation for future ETL cycles. The default size of GIDB table partitions is 24 hours (86400 seconds).

This option applies only in deployments that use partitioning.

### partitioning-interval-size-gim

Default Value: `604800`
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of `Job_MaintainGIM`

Specifies the size of partitions, in seconds, for Info Mart fact tables that are partitioned. `Job_MaintainGIM` creates partitions of the specified size in the Info Mart database in preparation for future ETL cycles. The default size of Info Mart fact table partitions is 1 week (604800 seconds).

This option applies only in deployments that use partitioning.

### purge-thread-pool-size

Default Value: 32
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the maximum number of concurrent purging transactions. The optimum value for this option depends on the characteristics and capacity of your deployment. Consider increasing the value of this option if you think that there is scope to improve performance of the purge operation.

### purge-transaction-size

Default Value: 100000
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: At the next run of Job_MaintainGIM

Specifies the number of deleted records per table that will be committed in a single transaction. For example:

- If there are 150,000 records in a particular table that are eligible for purging and purge-transaction-size=100000, Job_MaintainGIM will delete and commit 100,000 records in one transaction and 50,000 records in a separate transaction.
- If there are 90,000 records in one table, 10,000 records in another table, and purge-transaction-size=100000, Job_MaintainGIM will delete and commit 90,000 records from the first table in one transaction and 10,000 records from the second table in a separate transaction.

### q-answer-threshold-voice

Default Value: 60
Valid Values: 1 - 10000
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the default duration, in seconds, that is used on all configured queues as a target time to answer voice interactions that were distributed by virtual queues or ACD queues. Genesys Info Mart uses this value unless you configure an option that has the same name on an individual Virtual Queue or ACD Queue DN object in Configuration Manager.

To set an answer threshold on a specific Virtual Queue or ACD Queue DN object, see “DN Object Options” on page 232.

If you change the value of this option, the new option value is not applied to previously loaded facts.

For similar options that control equivalent thresholds for multimedia interactions, see the “gim-etl-media-<media type> Section” on page 257.

### q-short-abandoned-threshold-voice

Default Value: `10`
Valid Values: `1 - 1000`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the maximum duration of mediation, in seconds, that is used on all configured queues to indicate that an interaction that was abandoned while in a queue should be considered a "short" abandon. Genesys Info Mart uses this value to determine the state of `SHORT_ABANDONED_FLAG` in the `MEDIATION_SEGMENT_FACT` row for voice interactions that are abandoned in a virtual queue or ACD queue.

You cannot set this value on an individual virtual queue or ACD Queue `DN` object.

If you change the value of this option, the new option value is not applied to previously loaded facts.

For similar options that control equivalent thresholds for multimedia interactions, see the "gim-etl-media-<media type> Section" on page 257.

### short-abandoned-threshold

Default Value: `10`
Valid Values: `0–60`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the minimum duration, in seconds, of an abandoned voice interaction in order for it to be considered truly abandoned. Genesys Info Mart uses this value to determine the state of `SHORT_ABANDONED_FLAG` in the `INTERACTION_RESOURCE_FACT` row.

If you change the value of this option, the new option value is not applied to previously loaded facts.

For similar options that control equivalent thresholds for multimedia interactions, see the "gim-etl-media-<media type> Section" on page 257.

### sm-resource-state-priority

Default Value: `ACW, NOT_READY, BUSY, READY`
Valid Values: `ACW, BUSY, NOT_READY, READY` (in any order)
Dependencies: `populate-sm-resource-activity`
Changes Take Effect: On the next ETL cycle

Specifies a list of the state names—`BUSY, ACW, NOT_READY,` or `READY`—in order of decreasing priority. When an agent simultaneously has different states on different DNs for a given media type, Genesys Info Mart uses this list to determine which state has the highest priority when determining a summarized state to store in the `SM_RES_STATE_FACT` or `SM_RES_STATE_REASON_FACT` table.

If you change the value of this option, the new option value is not applied to previously loaded facts.

**Note:** The list does not include the LOGGED_IN state, which always has the lowest priority.

### user-event-data-timeout

Default Value: 3600
Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the maximum time, in seconds, after the start of a call, during which an agent who handled that call can send UserEvent-based key-value pair (KVP) data. If the call has ended and the UserEvent-based KVP data is sent after this timeout, the transformation job does not process the UserEvent-based KVP data.

# gim-etl-media-<media type> Section

Media-specific configuration sections enable you to specify separate thresholds for different types of multimedia interactions (Genesys eServices/Multimedia as well as 3rd Party Media interactions).

By default, the Genesys Info Mart Application Template includes the [gim-etl-media-email] and [gim-etl-media-chat] sections and options, for specifying thresholds for Genesys eServices/Multimedia e-mail and chat interactions.

If you want to customize thresholds for other media types, add the applicable media-specific configuration section(s) and options on the Options tab of the Genesys Info Mart Application object. The <media type> in the section name must exactly match the predefined name of the Media Type Business Attribute, including case (for example, [gim-etl-media-fax]).

Each media-specific configuration section can contain any of the following options.

### q-answer-threshold

Default Value: 60
Valid Values: 1–600000
Dependencies: None
Changes Take Effect: At the next run of Job_TransformGIM

Specifies the default duration, in seconds, that is used on all configured queues as a target time to accept a multimedia interaction that entered a queue. Genesys Info Mart uses the option setting in the Genesys Info Mart

Application object unless you override this value by configuring an option that has the same name in Configuration Manager:

- On a Media Type Business Attribute for a particular tenant, for interactions of that media type for that tenant. (For more information, see Procedure: Setting Media Type Business Attribute object options, on page 231.)
- On an individual Virtual Queue DN object, for multimedia interactions that come through that virtual queue. (For more information, see Procedure: Setting DN object options, on page 232.)
- On an individual Script object that corresponds to a particular Multimedia Interaction Queue or Multimedia Interaction Workbin, for multimedia interactions that come through an interaction queue or workbin. (For more information, see Procedure: Setting Script object options, on page 233.)

### q-short-abandoned-threshold

Default Value: 10
Valid Values: 1 - 1000
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the maximum duration of mediation, in seconds, that is used on all configured queues to indicate that an interaction that was abandoned while in a queue should be considered a "short" abandon. Genesys Info Mart uses this value to determine the state of SHORT_ABANDONED_FLAG in the MEDIATION_SEGMENT_FACT row for multimedia interactions that are abandoned in a Virtual Queue, Interaction Queue, or Workbin.

Genesys Info Mart uses the option setting in the Genesys Info Mart Application object unless you override this value by configuring an option that has the same name in Configuration Manager:

- On a Media Type Business Attribute for a particular tenant, for interactions of that media type for that tenant. (For more information, see Procedure: Setting Media Type Business Attribute object options, on page 231.)

You cannot set this value on an individual Virtual Queue, Interaction Queue, or Workbin Script object.

If you change the value of this option, the new option value is not applied to previously loaded facts.

### short-abandoned-threshold

Default Value: 10
Valid Values: 0–60
Dependencies: None

Changes Take Effect: On the next ETL cycle

**Note:** The same option in the `[gim-etl]` section controls the equivalent threshold for voice interactions.

Specifies the minimum duration, in seconds, of an abandoned multimedia interaction in order for it to be considered truly abandoned. Genesys Info Mart uses this value to determine the state of `SHORT_ABANDONED_FLAG` in the `INTERACTION_RESOURCE_FACT` row.

Genesys Info Mart uses the option setting in the Genesys Info Mart `Application` object unless you override this value by configuring an option that has the same name in Configuration Manager:

- On a `Media Type Business Attribute` for a particular tenant, for interactions of that media type for that tenant. (For more information, see Procedure: Setting Media Type Business Attribute object options, on page 231.)

If you change the value of this option, the new option value is not applied to previously loaded facts.

# gim-etl-populate Section

Use this configuration section to specify which optional Info Mart tables are populated.

Genesys Info Mart applies the following order of precedence when evaluating the configuration options in this section:

- A specific value that is configured for an ACD Queue `DN` object overrides a specific value that you configured for a `Switch` object.

  For the `DN` object options that enable or disable the population of certain activity to the corresponding tables for a specific ACD Queue `DN`, see "DN Object Options" on page 232.

- A specific value that is configured for a `Switch` object overrides the value that you configured for the Genesys Info Mart `Application` object.

  For the `Switch` object options that enable or disable the population of certain activity to the corresponding tables for a specific `Switch`, see "Switch Object Options" on page 229.

### populate-mm-ixnqueue-facts

Default Value: `FALSE`
Valid Values: `TRUE, FALSE`
Dependencies: None
Changes Take Effect: On the next intraday ETL cycle

Enables or disables the population of eServices/Multimedia Interaction Queue activity to the MEDIATION_SEGMENT_FACT table. Genesys Info Mart uses this value for all configured eServices/Multimedia Interaction Queues, unless you configure an option that has the same name on an individual Script object for a specific Interaction Queue in Configuration Manager.

When the value of this option is set to TRUE, the placement of an interaction in an Interaction Queue will be represented in the MEDIATION_SEGMENT_FACT table.

**Note:** Ideally, this option should be set to TRUE only for Interaction Queues for which mediation reporting is desired, so that the MEDIATION_SEGMENT_FACT table does not become cluttered with unnecessary information. Some Interaction Queues are not useful for reporting, such as the Interaction Queues that are associated with Interaction Workbin objects only through a configured Interaction Queue View.

### populate-mm-workbin-facts

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: None
Changes Take Effect: On the next intraday ETL cycle

Enables or disables the population of eServices/Multimedia Interaction Workbin activity to the MEDIATION_SEGMENT_FACT table. Genesys Info Mart uses this value for all configured eServices/Multimedia Interaction Workbins, unless you configure an option that has the same name on an individual Script object for a specific Interaction Workbin in Configuration Manager.

When the value of this option is set to TRUE, the placement of an interaction in an Interaction Workbin will be represented in the MEDIATION_SEGMENT_FACT table.

### populate-sm-chat-resource-activity

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: Has an effect only on the tables that are populated when the following options are set to TRUE: populate-sm-resource-session-facts, populate-sm-resource-state-facts, and populate-sm-resource-state-reason-facts.
Changes Take Effect: On the next ETL cycle

Enables or disables the population of Genesys eServices/Multimedia chat resource activity in the SM_RES_SESSION_FACT, SM_RES_STATE_FACT, and SM_RES_STATE_REASON_FACT tables. When the value is FALSE, Genesys Info Mart does not populate these tables with activity data for a Genesys eServices/Multimedia chat resource. When the value is TRUE, these tables are

populated with the activity data for a Genesys eServices/Multimedia chat resource.

### populate-sm-email-resource-activity

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: Has an effect only on the tables that are populated when the following options are set to TRUE: populate-sm-resource-session-facts, populate-sm-resource-state-facts, and populate-sm-resource-state-reason-facts.
Changes Take Effect: On the next ETL cycle

Enables or disables the population of Genesys eServices/Multimedia e-mail resource activity in the SM_RES_SESSION_FACT, SM_RES_STATE_FACT, and SM_RES_STATE_REASON_FACT tables. When the value is FALSE, Genesys Info Mart does not populate these tables with activity data for a Genesys eServices/Multimedia e-mail resource. When the value is TRUE, these tables are populated with the activity data for a Genesys eServices/Multimedia e-mail resource.

### populate-sm-resource-session-facts

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: None
Changes Take Effect: On the next intraday ETL cycle

Enables or disables population of the SM_RES_SESSION_FACT table for those media types for which you set the populate-sm-<media type>-resource-activity option to TRUE.

### populate-sm-resource-state-facts

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: populate-sm-resource-session-facts
Changes Take Effect: On the next intraday ETL cycle

Enables or disables population of the SM_RES_STATE_FACT table for those media types for which you set the populate-sm-<media type>-resource-activity option to TRUE. Because state facts cannot be populated without corresponding session facts, you must set populate-sm-resource-session-facts to TRUE in order for populate-sm-resource-state-facts to have an effect for a given media type when populate-sm-<media type>-resource-activity is set to TRUE.

### populate-sm-resource-state-reason-facts

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: populate-sm-resource-session-facts, populate-sm-resource-state-facts

Changes Take Effect: On the next intraday ETL cycle

Enables or disables population of the SM_RES_STATE_REASON_FACT table for those media types for which you set the populate-sm-<media type>-resource-activity option to TRUE. Because reason facts cannot be populated without corresponding session and state facts, you must set populate-sm-resource-session-facts and populate-sm-resource-state-facts to TRUE in order for populate-sm-resource-state-reason-facts to have an effect for a given media type when populate-sm-<media type>-resource-activity is set to TRUE.

### populate-sm-voice-resource-activity

Default Value: TRUE
Valid Values: TRUE, FALSE
Dependencies: Has an effect only on the tables that are populated when the following options are set to TRUE: populate-sm-resource-session-facts, populate-sm-resource-state-facts, and populate-sm-resource-state-reason-facts.
Changes Take Effect: On the next ETL cycle

Enables or disables the population of voice resource activity in the SM_RES_SESSION_FACT, SM_RES_STATE_FACT, and SM_RES_STATE_REASON_FACT tables. When the value is FALSE, Genesys Info Mart does not populate these tables with activity data for a voice resource. When the value is TRUE, these tables are populated with the activity data for a voice resource.

# gim-transformation Section

Use this configuration section to specify options that are related to transformation.

### default-ivr-to-self-service

Default Value: FALSE
Valid Values: TRUE, FALSE
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies how Genesys Info Mart will treat IVRs when the IPurpose attached data key-value-pair (KVP) is not defined, or when it has an incorrect value.

- false—The IVR is treated as a nonself-service IVR (in other words, as a mediation device).
- true—The IVR is treated as a self-service IVR (in other words, as a handling resource).

### irf-io-parallelism

Default Value: 4

Valid Values: Any positive integer
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the number of parallel reading processes for Interaction Resource Fact transformation. The optimal value of this option depends on DBMS tuning and available resources.

# log Section

Use this configuration section to specify the Genesys Info Mart logging options. You can use the following options to enable centralized logging.

**Note:** The following two options and their specified valid value(s) are the only common log options that Genesys Info Mart supports.

### standard

Default Value: `network`
Valid Values: `network`
Dependencies: `verbose`
Changes Take Effect: Immediately

Specifies the location of the log output.

### verbose

Default Value: `standard`
Valid Values: `none, standard, trace`
Dependencies: `standard`
Changes Take Effect: Immediately

Specifies the minimum level of logging.

# log4j Section

Use this configuration section to specify the Genesys Info Mart ETL options for logging events to a local file and to `STDOUT`. These options are separate from, and independent of, the Genesys Central Logger options that you specify in the `log` section.

**Note:** Do not change the options in this section, unless Genesys Technical Support directs you to do so.

### console-pattern-layout

Default Value: `%d{ISO8601} %-5p %-12t %m%n`

Dependencies: None
Changes Take Effect: Immediately

For information about this option, refer to the Apache logging site:
`http://logging.apache.org/index.html`

### file-pattern-layout

Default Value: `%d{ISO8601} %-5p %-12t %m%n`
Dependencies: None
Changes Take Effect: Immediately

For information about this option, refer to the Apache logging site:
`http://logging.apache.org/index.html`

### log4j.appender.ConsoleLogger.Threshold

Default Value: `info`
Dependencies: None
Changes Take Effect: Immediately

For information about this option, refer to the Apache logging site:
`http://logging.apache.org/index.html`

### log-file-name

Default Value: `gim_etl.log`
Valid Values: `filespec`
Dependencies: None
Changes Take Effect: Immediately

Specifies the path and file name of the log file. If you do not specify a path, the log files will be created in the installation directory.

### logging-level

Default Value: `INFO`
Valid Values: `DEBUG, INFO, WARN, NONE`
Dependencies: None
Changes Take Effect: Immediately

Determines whether local logging is enabled, and specifies the minimum level of events to log. The `DEBUG, INFO` and `WARN` values correspond to the Genesys Management Layer `DEBUG, TRACE,` and `STANDARD` logging values, respectively.

### max-backup-index

Default Value: `10`
Valid Values: `0` to `99`
Dependencies: None
Changes Take Effect: Immediately

Specifies the maximum number of backup log files that are kept in addition to the active log file.

### max-log-file-size

Default Value: 50MB
Valid Values: Any number, followed by a scale (KB for kilobytes, MB for megabytes, or GB for gigabytes).
Dependencies: None
Changes Take Effect: Immediately

Specifies the maximum size of the active log file before it is considered full and renamed as a backup file.

# schedule Section

This configuration section specifies the schedule that Genesys Info Mart Server uses to launch the ETL jobs. The Genesys Info Mart Server enables options to be modified while it is running. For those options that specify a time, the time format is HH:mm, where HH represent the number of hours (00–24), and mm represents the number of minutes (00–59).

### aggregate-duration

Default Value: 05:00
Valid Values: 00:00–24:00
Dependencies: run-scheduler, run-aggregates, aggregate-schedule
Changes Take Effect: Immediately

Specifies the amount of time, in 24-hour format, that Job_AggregateGIM will run after it is launched. When the run-aggregates option (see page 267) is set to TRUE, the scheduler will stop the aggregation job when this interval expires. The aggregation job is launched in accordance with a schedule defined by the aggregate-schedule option. After the aggregation job is launched, it runs continuously until the aggregation-duration interval expires.

### aggregate-schedule

Default Value: 0 1
Valid Values: A valid CRON expression
Dependencies: run-scheduler, run-aggregates
Changes Take Effect: Immediately

Specifies the daily schedule for Job_AggregateGIM to start. The job will start in accordance with this schedule when aggregation is being controlled by the scheduler (in other words, the run-aggregates option is set to TRUE). Between them, the aggregate-schedule and aggregate-duration options define daily time intervals within which Job_AggregateGIM will run continuously.

The schedule is defined in the format of a CRON expression that represents a set. The expression comprises two fields, which are separated by whitespace:

- The first field specifies minutes. Valid values are 0–59 and optional special characters (see below).

- The second field specifies hours. Valid values are `0`–`23` and allowed special characters.

**Special Characters** The following special characters are allowed in the CRON expression:

- , (comma)—Separates items in a list. For example, specifying the first field (minutes) as `0,30,45` means the 0th, 30th, and 45th minutes of the hour.
- - (hyphen)—Defines a range. For example, specifying the first field (minutes) as `30-35` means every minute between the 30th and 35th minute of the hour, inclusive; this is the same as specifying `30,31,32,33,34,35`.
- * (asterisk)—Indicates that the CRON expression will match for all values of the field. For example, specifying the second field (hours) as `*` means every hour in the day.
- / (forward slash)—Describes increments. For example, specifying the first field (minutes) as `0/10` means the 0th minute of the hour and every 10 minutes thereafter.

**Examples** The following values for `aggregate-schedule` illustrate sample schedules:

- `0 1` means that the aggregation job will be launched once a day at 01:00.
- `30 0,3/2` means that the aggregation job will be launched every day at 00:30, 03:30, and every 2 hours after that for the rest of the day.

  This schedule assumes that the value of `aggregate-duration` is `02:00` or less. The scheduler will not launch a new instance of `Job_AggregateGIM` while an existing instance is running. For aggregation to run on the specified schedule, the value of `aggregate-duration` must not exceed the intervals between scheduled start times.
- `30 *` means that the aggregation job will be launched every hour during the day on the half-hour (00:30, 01:30, 02:30, and so on), assuming that the value of `aggregate-duration` is `01:00` or less.

If you want `Job_AggregateGIM` to run continuously for 24 hours a day, without any breaks for maintenance activities, set `aggregate-schedule=0 0` and `aggregate-duration=24:00`.

### etl-end-time

Default Value: `22:00`
Valid Values: `00:00`–`23:59`
Dependencies: `run-scheduler, etl-start-time`
Changes Take Effect: Immediately

Specifies the time of day, in 24-hour format, when the last ETL cycle can start running. If the value that you specify is before the ETL start time, the end time is for the next day (past midnight).

If `etl-start-time=etl-end-time,` the ETL cycle will run continuously.

### etl-frequency

Default Value: `1`

Valid Values: `0–1440`
Dependencies: None
Changes Take Effect: On the next ETL cycle

Specifies the number of minutes that pass between the start times of each ETL cycle. If the amount of time that it takes to complete a cycle is shorter than the specified value, the next cycle is delayed until the time elapses. If the amount of time that it takes to complete a cycle is longer than the specified value, the next cycle is started immediately.

By default, the value of this option is much smaller than the value of `extract-data-chunk-size` (see page 248). Genesys recommends that you retain this relationship, to minimize data latency. For example, say that `extract-data-chunk-size=15`, `etl-frequency=1`, and all data from the last chunk has been processed; when the next ETL cycle starts 1 minute later, there is only 1 minute's worth of new data, and this can be processed very quickly. Alternatively, if there is a backlog of data and it takes less than 15 minutes to process a 15-minute chunk, the next ETL cycle starts almost immediately, to continue catching up.

### etl-start-time

Default Value: `06:00`
Valid Values: `00:00–23:59`
Dependencies: `run-scheduler`
Changes Take Effect: Immediately

Specifies the time of day, in 24-hour format, when the first ETL cycle starts running.

### maintain-start-time

Default Value: `03:00`
Valid Values: `00:00–23:59`
Dependencies: `run-scheduler, run-maintain`
Changes Take Effect: Immediately

**Note:** If the time of day represented by the new value has already passed, the new value is applied to the following day.

Specifies the time of day, in 24-hour format, when `Job_MaintainGIM` is started. This job is scheduled to start at this time when the `run-maintain` option is set to `TRUE`. The value that you specify must be outside the range that is specified by `etl-start-time` and `etl-end-time`.

### run-aggregates

Default Value: `FALSE`
Valid Values: `TRUE, FALSE`
Dependencies: `run-scheduler`

Changes Take Effect: Immediately

Specifies whether the scheduler will manage the aggregation job, to run the aggregation engine inside the Genesys Info Mart process.

When the value of this option is set to `true`, the scheduler will start `Job_AggregateGIM` at the scheduled time, as specified by the `aggregate-schedule` option (see page 265); `Job_AggregateGIM` will then run continuously until the scheduler stops the job after the scheduled interval, as specified by the `aggregate-duration` option (see page 265). The scheduler will not allow a second aggregation process to be launched while the job is running. The scheduler will also not allow any other aggregation process to be launched outside the intervals that are defined by the `aggregate-schedule` and `aggregate-duration` options.

For example, if `run-aggregates=true`, `aggregate-schedule=0 1`, and `aggregate-duration=05:00`, the aggregation job will run continuously between 01:00 AM and 06:00 AM daily. The scheduler will not allow you to launch a second instance of `Job_AggregateGIM` manually from the Genesys Info Mart Administration Console within that time period. Furthermore, if you try to launch an instance of `Job_AggregateGIM` manually from the Genesys Info Mart Administration Console outside that time period (for example, at 08:00 AM), the scheduler will identify that the job is not supposed to be running at that time and will stop it. If you want to run `Job_AggregateGIM` manually from the Genesys Info Mart Administration Console outside the scheduled times, you must first set `run-aggregates` to false.

For more information about starting `Job_AggregateGIM` and managing the aggregation job from the Genesys Info Mart Administration Console, see the *Genesys Info Mart 8.0 Operations Guide*.

### run-maintain

Default Value: `TRUE`
Valid Values: `TRUE`,`FALSE`
Dependencies: `run-scheduler`
Changes Take Effect: Immediately

Specifies whether to run `Job_MaintainGIM` at the scheduled time, as specified by the `maintain-start-time` option (see page 267).

### run-scheduler

Default Value: `FALSE`
Valid Values: `TRUE`, `FALSE`
Dependencies: None
Changes Take Effect: Immediately

Specifies whether to stop or start the scheduler. If the value of this option was set to `true`, so that the scheduler is currently scheduling jobs, and you change the value of this option to `FALSE`, the scheduler pauses, with no effect on any

jobs that might already be running. If you then reset the value to `TRUE`, the scheduler resumes at the point at which it stopped.

### timezone

Default Value: `GMT`
Valid Values: Any valid Java time zone
Dependencies: None
Changes Take Effect: Immediately

Specifies the time zone in which the schedule is defined. Internally, Genesys Info Mart maintains the schedule in UTC time. For convenience, you can use this option to specify a local time zone that makes it easier for you to plan and manage the schedule. You can use any valid time zone that is supported by the version of the Java Runtime Environment (JRE) that runs the Genesys Info Mart Server.

For more information about supported time zones, see the Java documentation about calendar time zones on the Java developer website (`http://java.sun.com`).

Chapter

# 16 Installing Genesys Info Mart Components

This chapter includes all the information that you need in order to prepare the Genesys Info Mart Server host for installation. It also describes how to install the Genesys Info Mart application and the Genesys Info Mart Administration Console.

This chapter contains the following sections:



## Overview

### Before You Proceed

Before you can install Genesys Info Mart components, make sure that you have:

- Configured the `Application` object for Genesys Info Mart Server.
- Set any Genesys Info Mart–related options in the `Tenant`, `Switch`, and `DN` configuration objects.

If you have not already done so, follow the instructions in Chapter 14 on page 209 before you continue.

# Task Flow for Installing Genesys Info Mart Components

Table 23: Task Flow: Installing Genesys Info Mart Components summarizes the task flow to install Genesys Info Mart Server and the Genesys Info Mart Administration Console.

**Table 23: Task Flow: Installing Genesys Info Mart Components**

| Objective | Related Procedures and Actions |
|---|---|
| 1. Prepare the Genesys Info Mart Server host. | Verify and, if necessary, install or modify system information about the following supporting software components:<br>• Genesys Local Control Agent (LCA)<br>• Java Development Kit (JDK), including the `PATH` and `JAVA_HOME` environment variables<br>• The Java Database Connectivity (JDBC) driver, including the `CLASSPATH` environment variable and the Genesys Info Mart `gim_cfg_checkup.properties` file<br>For more information, see "Preparing the Genesys Info Mart Server Host" on page 273. |
| 2. Install the Genesys Info Mart Server application. | Install the Genesys Info Mart Server application, as follows:<br>1. Review and follow recommendations in "Preparing the Genesys Info Mart Server Host" on page 273.<br>2. Install Genesys Info Mart Server, using instructions that are appropriate to your environment:<br>◆ Procedure: Installing the Genesys Info Mart application (Windows), on page 276<br>◆ Procedure: Installing the Genesys Info Mart application (UNIX), on page 277<br>3. If necessary, follow the recommendations in "Modifying the Genesys Info Mart Default Arguments" on page 278. |
| 3. Install a graphical user interface (GUI) application for monitoring and controlling ETL jobs. | Install the Genesys Info Mart Administration Console, and open it as instructed in:<br>1. Procedure: Installing the Genesys Info Mart Administration Console (Windows), on page 279.<br>2. Procedure: Accessing the Genesys Info Mart Administration Console, on page 292. |
| 4. Ensure time synchronization in the deployment. | Verify that the system times are synchronized on all hosts on which Genesys applications are running. Otherwise, Genesys Info Mart might report inaccurate data. |

# Preparing the Genesys Info Mart Server Host

To prepare the Genesys Info Mart Server host for the Genesys Info Mart installation, perform the following tasks, which are described in detail in this chapter:

- If you want to use the Genesys Solution Control Interface (SCI) to control the operation of the Genesys Info Mart Server, install, or verify the installation of, Genesys Local Control Agent (LCA).
- Install Java 1.6 Java Development Kit (JDK) and modify, or verify the content of, the `PATH` and the `JAVA_HOME` environment variables. Note that Genesys Info Mart supports the 32-bit and 64-bit versions of Java JDK.
- Install, or verify the installation of, a Java Database Connectivity (JDBC) driver for each RDBMS that Genesys Info Mart Server will access (Oracle and Microsoft SQL Server). Modify, or verify the content of, the `CLASSPATH` environment variable.

## Installing LCA

If you plan to monitor or control Genesys Info Mart through the Management Layer, you must also configure and install Management Layer components—in particular, LCA.

To monitor the status of Genesys Info Mart components through the Management Layer, you must load an LCA instance on every host that is running Info Mart and DB Server instances. Without LCA, the Management Layer cannot monitor the status of these components.

If you do not use the Management Layer, you do not need LCA.

You will need a Genesys Management Framework product CD in order to install the components of the Management Layer. For more information about these Framework components, including deployment instructions, see the *Framework Deployment Guide* and the *Framework Management Layer User's Guide*.

## Installing Java 1.6 JDK

**Windows**

If you plan to run Genesys Info Mart Server on Windows:

- If you will use Genesys Solution Control (SCI) to start and stop Genesys Info Mart Server, you must modify the `PATH` and the `JAVA_HOME` environment variables for either the system account or the user account under which you plan to start the LCA service.

- If you will run the Genesys Info Server as a Windows service, you must modify the PATH and the JAVA_HOME environment variables for either the system account or the user account under which you plan to start the Genesys Info Mart Server Windows service.

To modify the PATH environment variable, add <JDK-install-dir>\bin to the path (where <JDK-install-dir> is the path where you installed the JDK), so that it appears earlier in the path than any other reference to Java.

**UNIX**

If you plan to run Genesys Info Mart Server on UNIX:

- If you will use LCA to start and stop Genesys Info Mart Server, you must modify the PATH and the JAVA_HOME environment variables for the user account under which you plan to start the LCA service.
- If you will not use LCA, you must modify the PATH and the JAVA_HOME environment variables for the user account under which you plan to start Genesys Info Mart Server.

To modify the PATH environment variable, add <JDK-install-dir>/bin to the path (where <JDK-install-dir> is the path where you installed the JDK), so that it appears earlier in the path than any other reference to Java.

**gim_etl_paths.bat File**

After the installation, verify that the path in the gim_etl_paths.bat file correctly points to the Java executable. For example:

```
set JAVACMD=java.exe
```

Update the path in the gim_etl_paths.bat file, if necessary.

# Installing JDBC Drivers

## JDBC Driver for Oracle

You must use Oracle Thin Driver version 11.2.0.1.0 or later, regardless of the Oracle RDBMS version that you are using. The required Type 4 JDBC thin client driver ships with the Oracle client, or you can download it from the Oracle website. The class name of the driver that Genesys Info Mart uses for Oracle is oracle.jdbc.driver.OracleDriver. This class is from the ojdbc6.jar file.

You must also modify your CLASSPATH environment variable, so that Genesys Info Mart can locate the JDBC driver. The specific CLASSPATH environment variable that you modify depends on the operating system and user account under which the Genesys Info Mart Server runs.

**Windows**

If you plan to run Genesys Info Mart Server on Windows:

- If you will use Genesys Solution Control to start and stop Genesys Info Mart Server, you must modify the CLASSPATH environment variable for either the system account or the user account under which you plan to start the LCA service.

- If you will run Genesys Info Mart Server as a Windows service, you must modify the `CLASSPATH` environment variable for either the system account or the user account under which you plan to start the Genesys Info Mart Server Windows service.

To modify the `CLASSPATH` environment variable, add `<Oracle-jdbc-driver-dir>\ojdbc6.jar` (where `<Oracle-jdbc-driver-dir>` is the path where you installed the Oracle JDBC driver), so that it appears earlier in the class path than any other reference to an Oracle JDBC driver.

**UNIX** If you plan to run Genesys Info Mart Server on UNIX:

- If you will use Genesys Solution Control to start and stop Genesys Info Mart Server, you must modify the `CLASSPATH` environment variable for the user account under which you plan to start LCA.
- If you will not use Genesys Solution Control, you must modify the `CLASSPATH` environment variable for the user account under which you plan to start Genesys Info Mart Server.

To modify the `CLASSPATH` environment variable, add `<Oracle-jdbc-driver-dir>/ojdbc6.jar` (where `<Oracle-jdbc-driver-dir>` is the path where you installed the Oracle JDBC driver), so that it appears earlier in the class path than any other reference to an Oracle JDBC driver.

## JDBC Driver for Microsoft SQL Server

The Microsoft SQL Server Client is not shipped with a JDBC driver. Therefore, you must download and install the driver separately. The required driver is available from the Microsoft Download Center website, under the title "SQL Server 2005 JDBC Driver." Genesys Info Mart requires JDBC Driver 1.2 or later.

Install the driver by following the installation instructions that are supplied with it. Although you can install the JDBC driver on a UNIX operating system, Genesys Info Mart supports accessing Microsoft SQL Server databases only from Windows operating systems.

The name of the `.jar` file that contains the driver is `sqljdbc4.jar`. After the installation, you must update the `CLASSPATH` environment variable to include the path to the folder that contains this `.jar` file.

The class name of the driver that Genesys Info Mart uses for Microsoft SQL Server is `com.microsoft.sqlserver.jdbc.SQLServerDriver`.

## Modifying the Configuration Checkup Properties File

On startup, or whenever the configuration of the Genesys Info Mart application changes, the Genesys Info Mart Server automatically performs a configuration check, which includes verification that the correct JDBC driver version is available. If the available version is not as specified in a properties file

(`gim_cfg_checkup.properties`), the configuration check logs an error, and the Genesys Info Mart Server will not run any jobs until the error has been fixed.

By default, the properties file specifies the required Oracle Thin Driver (`oracle.jdbc.driver.OracleDriver=11.2.0.1.0`). If your deployment uses a different driver, you must modify the properties file to specify the installed version of the driver for Genesys Info Mart to use. After installation, the `gim_cfg_checkup.properties` file is available in the `resources` subfolder in the Genesys Info Mart installation folder.

# Installing the Genesys Info Mart Application

You can install the Genesys Info Mart application on either a Windows or a UNIX operating system.

## Windows Installation

### Procedure: Installing the Genesys Info Mart application (Windows)

**Purpose:** To install the Genesys Info Mart 8.0 application on a host that is running a Windows operating system.

When you install Genesys Info Mart on a Windows operating system, Genesys Info Mart is also installed as a Windows service with a startup type of `Automatic`. This means that if the host machine is restarted, the Windows service will start Genesys Info Mart automatically.

**Note:** You can install more than one Genesys Info Mart application in Configuration Manager.

#### Prerequisites

- The host has been prepared, as described in "Preparing the Genesys Info Mart Server Host" on page 273.

#### Start of procedure

1. Insert the Genesys Info Mart CD into the CD-ROM drive of the machine on which you want to install Genesys Info Mart.
2. Navigate to, and open, the `genesys-info-mart\windows` directory.

3. Double-click the `setup.exe` file, and then follow the directions in the installation wizard.

**Warning!** If you are installing on a 64-bit operating system, Genesys recommends that you specify an installation folder under `/gcti/gim_etl/`. There must not be any parentheses in the path name. For example, if you specify an installation folder under `/Program Files (x86)/`, the installation will fail.

**Note:** The following error message may appear. If it does, it should be ignored:

```
Unable to find configuration information. Either you have not
used configuration wizards and the GCTISetup.ini file was not
created or the file is corrupted.
```

#### End of procedure

#### Next Steps

- Verify the Genesys Info Mart installation. See Task Summary: Post-Installation Activities, on page 289 for details.

# UNIX Installation

## Procedure: Installing the Genesys Info Mart application (UNIX)

**Purpose:** To install the Genesys Info Mart 8.0 application on a host that is running a UNIX operating system.

#### Prerequisites

- The host has been prepared, as described in "Preparing the Genesys Info Mart Server Host" on page 273.

#### Start of procedure

1. Insert the Genesys Info Mart CD into the CD-ROM drive of the machine on which you want to install Genesys Info Mart.
2. Locate the correct installation directory for your platform—for example, `genesys_info_mart/gim_etl/solaris`.
3. Save the contents of this directory to a local folder.

4. Locate and run the `install.sh` shell script. Enter requested information when you are prompted to do so.

**End of procedure**

**Next Steps**

- Verify the Genesys Info Mart installation. See Task Summary: Post-Installation Activities, on page 289 for details.

## Modifying the Genesys Info Mart Default Arguments

You might want to change the Genesys Info Mart application's default arguments—for example, change the host on which Configuration Server is running.

To modify the Genesys Info Mart default arguments:

**From Configuration Manager**

- If you will run Genesys Info Mart Server on Windows, and you plan to use Genesys Solution Control to start and stop Genesys Info Mart Server, you can edit the default command-line arguments directly on the `Start Info` tab of the Genesys Info Mart `Application` object in the Configuration Manager. These changes will take effect when you use Genesys Solution Control to start the application.

  The following example (provided for a Windows operating system) shows the command-line arguments that are created under the `Start Info` tab of the Genesys Info Mart `Application` object in Configuration Manager after the installation is complete:

  ```
  -host<lhostname> -port <port_number> -app InfoMart
  -service InfoMart
  ```

**Note:** The Windows service name of the Genesys Info Mart application is identified by the `-service` parameter. If Genesys Info Mart is installed multiple times, there will be a Windows service for each installation, in which the value of the parameter `-service` will be the service name of the corresponding Genesys Info Mart application in the Windows service. Genesys recommends that you *not* change the value of this parameter.

# Installing the Genesys Info Mart Administration Console

The Genesys Info Mart Administration Console is a graphical user interface that enables the monitoring and real-time administration of some aspects of the

Genesys Info Mart jobs. It is included as a separate installation package on the Genesys Info Mart CD. You install it on the same host as your Genesys Configuration Manager.

The Genesys Info Mart Administration Console is implemented by using the existing Genesys Framework. It interfaces with Genesys Info Mart Server in order to start, schedule, and stop ETL jobs on an ad-hoc basis.

### Before You Proceed

Before you install the Genesys Info Mart Administration Console, you must complete the following tasks:

1. Install and configure a DB Server, to enable the Genesys Info Mart Administration Console to access the Info Mart database.

   For complete instructions, see Appendix A, "Standard Configuration Procedure," in the *Framework 8.0 Deployment Guide.*
2. Create and configure a Genesys Info Mart Administration Console DAP. For complete instructions, see Procedure: Configuring a dedicated Administration Console DAP, on page 203.
3. Add the Genesys Info Mart Administration Console DAP to the `Connections` tab of the Genesys Info Mart `Application` object. See Step 7 on page 215.

## Windows Installation

### Procedure: Installing the Genesys Info Mart Administration Console (Windows)

**Purpose:** To install the Genesys Info Mart Administration Console on a host that is running a Windows operating system.

**Note:** The Genesys Info Mart Administration Console is not supported on UNIX operating systems.

#### Prerequisites

- Genesys recommends that you close Configuration Manager before you install the Genesys Info Mart Administration Console.

### Start of procedure

1. Insert the Genesys Info Mart CD into the CD-ROM drive of the machine on which you want to install the Genesys Info Mart Administration Console.
2. Navigate to the `genesys-info-mart\Admin-Console\windows` directory, and open it.
3. Double-click the `setup.exe` file, and then follow the directions in the installation wizard.

### End of procedure

### Next Steps

- Procedure: Accessing the Genesys Info Mart Administration Console, on page 292

Chapter

# 17 User Data

This chapter describes how to configure and activate population of user data in an environment that includes Genesys Info Mart 8.0. It contains the following sections:



## Overview

Genesys Info Mart 8.0 provides a flexible storage mechanism for a potentially very large number of key-value pairs (KVPs) that are attached by Genesys solutions. Setting up the storage begins with careful evaluation of user data requirements (as discussed in "Genesys Info Mart and Attached Data" on page 101) and results in changes to the Info Mart database to accommodate your requirements.

The Info Mart database schema contains two mapping tables that are required to process and store user data:

- `CTL_UD_TO_UDE_MAPPING`
- `CTL_UDE_KEYS_TO_DIM_MAPPING`

The mapping tables instruct Genesys Info Mart on how to populate the user data KVPs and where in the Info Mart database to store them.

Figure 13 is a snapshot of a sample populated mapping table. For detailed descriptions of the table columns, refer to the *Genesys Info Mart 8.0 Reference Manual* for your particular RDMBS type.

| KEY_NAME | TABLE_NAME | COLUMN_NAME | PROPAGATION_RULE | DEFAULT_VALUE | ACTIVE_FLAG |
|---|---|---|---|---|---|
| CUSTOMER_SEGMENT | INTERACTION_DESCRIPTOR | CUSTOMER_SEGMENT | CALL | | 1 |
| SERVICE_TYPE | INTERACTION_DESCRIPTOR | SERVICE_TYPE | CALL | | 1 |
| SERVICE_SUBTYPE | INTERACTION_DESCRIPTOR | SERVICE_SUBTYPE | CALL | | 1 |
| BUSINESS_RESULT | INTERACTION_DESCRIPTOR | BUSINESS_RESULT | CALL | | 1 |
| CASE_ID | IRF_USER_DATA_GEN_1 | CASE_ID | CALL | | 1 |
| CUSTOMER_ID | IRF_USER_DATA_GEN_1 | CUSTOMER_ID | CALL | | 1 |
| CUSTOM_DATA_1..16 | IRF_USER_DATA_CUST_1 | CUSTOM_DATA_1_1..16 | PARTY | | 0 |
| DIM_ATTRIBUTE_1_1..5 | USER_DATA_CUST_DIM_1 | DIM_ATTRIBUTE_1_1..5 | PARTY | | 0 |

**Figure 13: Example of Populated Mapping Table**

To use user data in your reports, you must configure Interaction Concentrator to store this data in the IDB; modify a Genesys-provided user data script to work for your preferred KVP names; adjust the Info Mart database to be able to store this data; and specify mapping rules for Genesys Info Mart to extract and process this data.

The following section describes the necessary steps for the initial deployment of Genesys Info Mart. Later, you can similarly add more custom tables to the Info Mart database to store new user data KVPs, as your reporting needs evolve.

# Customizing the User Data Template

Genesys Info Mart 8.0 provides two SQL scripts as a template for modifications you can make to the Info Mart database schema to customize user data reporting:

- `make_gim_UDE_template.sql`—For use with non-partitioned databases
- `make_gim_UDE_template_partitioned.sql`—For use with partitioned databases

You modify the applicable user data template script as required to create custom user data extension tables and columns and to specify storage of custom KVPs.

You can define the names of the custom tables and columns as you choose to see them in the Info Mart database. To make the best use of the flexible user data storage that Genesys Info Mart release 8.0 provides, Genesys recommends that you use table and column names that reflect the meaning of the user data KVPs in your deployment. Meaningful names of columns in recognizable user data extension tables makes it easier to write unambiguous reporting queries.

## Procedure:
## Customizing the user data template script

**Purpose:** To customize the Genesys-provided user data script in order to specify user-defined KVP names and to define custom user data extension tables.

You can modify the user data script and use it to customize the user data tables in the Info Mart database schema at any time.

### Prerequisites

- The worksheet for mapping user data keys that are used for reporting in your environment is complete. For the mapping worksheet, see page 320.
- The ICON application has been configured to store the required user data KVPs.

### Start of procedure

1. Locate a copy of the applicable template script (`make_gim_UDE_template.sql` or `make_gim_UDE_template_partitioned.sql`) in the RDBMS-specific scripts folder on the Genesys Info Mart 8.0 product CD.
2. Save a copy of the script to a local machine.

**Create a User Data Fact Table**

3. Modify your copy of the script to provide columns in a user data fact table to store high-cardinality KVPs that you will use in your reports. By default, the script creates a table named `IRF_USER_DATA_CUST_1`.

   You can change the name of the `IRF_USER_DATA_CUST_1` table to any name that you want to see in the Info Mart database. However, if you change the name, ensure that you change all instances in the script, including the parts of the script that are described in Steps 4 and 5.
   - If you are modifying the script to prepare for the initial deployment, simply replace default column names, such as `CUSTOM_DATA_1`, with names that are more meaningful in your deployment. Genesys recommends that you use the actual names of the high-cardinality KVPs.
   - If you are modifying the script to update the database schema after Genesys Info Mart has already been deployed, you must:
     — Delete the SQL statement to first drop the table.
     — Change the `CREATE TABLE` SQL statement to an `ALTER TABLE` one.

**Warning!** Do not modify the data types for the fields.

**Map User Data Keys to User Data Fact Table Columns**

4. For each column that you define in Step 3, modify the script to add to the `CTL_UD_TO_UDE_MAPPING` table the mapping between user data keys and the user data fact table columns. Use the worksheet that you prepared for user data mapping (see page 320) to identify the required script changes.

   The script includes the following placeholders:

   - `CustomData`*N*—The key name (as stored by ICON)
   - `IRF_USER_DATA_CUST_1`—The user data fact table name (which you defined in Step 3)
   - `CUSTOM_DATA_`*N*—The column name (which you defined in Step 3)

**Create an Index on the User Data Fact Table**

5. Modify the script as required to create an index for the user data fact table that you created in Step 3.

**Create Additional User Data Fact Tables**

6. If necessary, repeat Steps 3 through 5 to add SQL commands to create additional custom user data fact tables.

**Create a User Data Dimension Table**

7. Continue modifying your copy of the script to provide columns in a user data dimension table to store low-cardinality KVPs that you will use in your reports. By default, the script creates a table named `USER_DATA_CUST_DIM_1`.

   You can change the name of the `USER_DATA_CUST_DIM_1` table to any name that you want to see in the Info Mart database. However, if you change the name, ensure that you change all instances in the script, including the parts of the script described in Steps 8 through 12.

   - If you are modifying the script to prepare for the initial deployment, simply replace default column names, such as `DIM_ATTRIBUTE_1`, with names that are more meaningful in your deployment. Genesys recommends that you use the actual names of the low-cardinality KVPs.
   - If you are modifying the script to update the database schema after Genesys Info Mart has already been deployed, you must:
     — Delete the SQL statement to first drop the table.
     — Change the `CREATE TABLE` SQL statement to an `ALTER TABLE` one.

   **Warning!** Do not modify the data types for the fields.

**Add Initial Records to the User Data Dimension Table**

8. Modify the script as required to populate the user data dimension table that you created in Step 7 with mandatory values for predefined keys (for example, `UNKNOWN`). By default, the script inserts the required values into a table named `USER_DATA_CUST_DIM_1`.

**Add a Foreign Key Reference in the `IRF_USER_DATA_KEYS` Table**

9. Modify the script as required to create a foreign key reference for the user data dimension table in the `IRF_USER_DATA_KEYS` table.

   The script includes the following placeholder:

- CUSTOM_KEY_1—The name of the foreign key that Genesys Info Mart will use to reference the user data dimension table that you created in Step 7. Genesys recommends that you use a key name that provides an obvious association with the table name. You map this key to the referenced table later (Step 10).

**Warning!** Do not change the data type, the mandatory status, or the default value of the fields that you add. (The default value -2 indicates NO_VALUE.)

**Note:** Adding columns to a big IRF_USER_DATA_KEYS table can consume significant DBMS resources and time. If you are modifying the script to prepare for the initial deployment, consider adding redundant columns in advance. Later, you can map new user data dimensions to existing IRF_USER_DATA_KEYS columns, as required.

**Map the User Data Dimension Table to the Foreign Key**

10. Modify the script to add to the CTL_UDE_KEYS_TO_DIM_MAPPING table the mapping between the user data dimension table and the foreign key that you added to the IRF_USER_DATA_KEYS table. The script includes the following placeholders:
    - USER_DATA_CUST_DIM_1—The user data dimension table name (which you defined in Step 7)
    - ID—The primary key for the user data dimension table
    - CUSTOM_KEY_1—The foreign key for the user data dimension table (which you specified in the IRF_USER_DATA_KEYS table in Step 9)

**Map User Data Keys to User Data Dimension Table Columns**

11. For each column that you define in Step 7, modify the script to add to the CTL_UD_TO_UDE_MAPPING table the mapping between user data keys and the user data dimension table columns. Use the worksheet that you prepared for user data mapping (see page 320) to identify the required script changes.

    The script includes the following placeholders:
    - CustomAttribute*N*—The key name (as stored by ICON)
    - USER_DATA_CUST_DIM_1—The user data dimension table name (which you defined in Step 7)
    - DIM_ATTRIBUTE_*N*—The column name (which you defined in Step 7)

    The script also requires you to specify the propagation rule, default value, and activity status for each KVP. For more information about values for these fields, see the column descriptions for the CTL_UD_TO_UDE_MAPPING table in the *Genesys Info Mart 8.0 Reference Manual* for your RDBMS.

**Create an Index on the User Data Dimension Table**

12. Modify the script as required to create an index for the user data dimension table that you created in Step 7.

**Create Additional User Data Dimension Tables**

13. If necessary, repeat Steps 7 through 12 to add SQL commands to create additional custom user data dimension tables.

**Save the Script**

14. Save the modified copy of the script.

### End of procedure

### Next Steps

- Execute the modified script when you create the Info Mart database schema (see Step 4 on page 184) or as required to update an existing database schema.

  **Note:** Before you execute the script to update an existing database schema, Genesys recommends that you back up the Info Mart database.

- If you update an existing database schema that uses read-only tenant views to access Info Mart data for reports, you must re-create the read-only tenant views. For more information, see Procedure: Creating Genesys Info Mart tenant views, on page 299.

Part

# 3 Post-Deployment Activities

Part 3 of this document provides information about required and optional activities after you have installed the Genesys Info Mart application.

This information appears in the following chapters:

- Chapter 18, “Post-Installation Activities,” on page 289
- Chapter 19, “Starting and Stopping Genesys Info Mart Server,” on page 303

Chapter

# 18 Post-Installation Activities

This chapter describes the tasks that you must complete after you finish configuring and installing Genesys Info Mart and the Genesys Info Mart Administration Console. It contains the following sections:



## Task Flow for Post-Installation Activities

Task Summary: Post-Installation Activities summarizes the task flow for activities that are required to complete the Genesys Info Mart deployment.

### Task Summary: Post-Installation Activities

| Objective | Related Procedures and Actions |
|---|---|
| 1. Initialize Genesys Info Mart. | Start the Genesys Info Mart Server application. On startup, Genesys Info Mart automatically performs a configuration check and runs `Job_InitializeGIM`, which initializes the Info Mart database.<br>For more information about starting and stopping Genesys Info Mart, see Chapter 19 on page 303. |
| 2. Access the Genesys Info Mart Administration Console. | See Procedure: Accessing the Genesys Info Mart Administration Console, on page 292. |

### Task Summary: Post-Installation Activities (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 3. Verify the deployment. | 1. Review the `gim_etl` log file to confirm the results of the configuration check. If necessary, modify the configuration option settings or connections in the Genesys Info Mart, Interaction Concentrator (ICON), or data source `Application` objects in your deployment, to ensure that they have been configured for correct Genesys Info Mart functioning.<br>For more information about the configuration check, see "Deployment Verification" on page 78.<br>For more information about configuring the required applications for Genesys Info Mart, see Part 2 on page 123.<br>**Note:** After Genesys Info Mart checks the configuration, the console and the `gim_etl` log file might report results for configuration options that you cannot modify. Any options that are not documented in Chapter 15 on page 235 are not configurable.<br>2. Review the status of `Job_InitializeGIM` on the `Status` tab of the Genesys Info Mart Administration Console, to verify successful completion. Completion of the job indicates successful initialization of the database.<br>**Note:** If `Job_InitializeGIM` fails, the `Status` column in the Genesys Info Mart Administration Console will display `FAILED` to the right of the job. To determine the nature of the error, refer to the `gim_etl` log file. |
| 4. (Optional) Define online media types for 3rd Party Media interactions. | Execute an `INSERT` command to add a record for each online media type to the `MEDIA_TYPE` dimension table, with the `IS_ONLINE` flag set to `1` (online). Otherwise, when Genesys Info Mart encounters the unknown media type during transformation, it will dynamically add the media type to the `MEDIA_TYPE` table, but with the `IS_ONLINE` flag set to `0` (offline). Therefore, you do not need to add offline media types in advance.<br>For more information about adding the media type to the `MEDIA_TYPE` table, see Procedure: Setting up media types for online interactions, on page 294.<br>For more information about online and offline media types in Genesys Info Mart, see "Online and Offline Interactions" on page 98. |

### Task Summary: Post-Installation Activities (Continued)

| Objective | Related Procedures and Actions |
|---|---|
| 5. Run the first ETL cycle. | 1. If you did not set scheduling options when you configured the Genesys Info Mart `Application` object, review the configuration options in the `[schedule]` section and, if necessary, modify them to suit your deployment.<br>For more information about the scheduling options, see "schedule Section" on page 265.<br>2. Wait for the first scheduled ETL cycle to run, or run the ETL jobs manually for the first time.<br>3. Review the `Status` tab of the Genesys Info Mart Administration Console and the logs to verify that the jobs completed successfully.<br>For more information about scheduling considerations and about running ETL jobs, see the chapter about working with ETL jobs in the *Genesys Info Mart 8.0 Operations Guide*. |
| 6. Complete deployment of the Info Mart database, to prepare it for reporting queries. | 1. (Optional) Create custom calendars. For more information, see "Creating Custom Calendars" on page 297.<br>2. Using your prepared RDBMS user accounts, which have been configured with the proper privileges, run the scripts to create Genesys Info Mart read-only views. This procedure is strictly required only if you have a multi-tenant deployment, but Genesys recommends this for all deployments. See Procedure: Creating Genesys Info Mart Read-Only Tenant Views, on page 298.<br>**Note:** You cannot create the read-only views until the first ETL cycle has completed and the `TENANT` dimension has been populated. |
| 7. (Optional) Disable processing of unwanted interaction subtypes. | Execute an `ALTER TABLE` command to set the `IGNORE` flag to `1` (ignore) in the `INTERACTION_TYPE` record for each unwanted interaction subtype.<br>You can change the `IGNORE` flag for a particular interaction subtype during runtime. |

# Accessing the Genesys Info Mart Administration Console

In Genesys Info Mart 8.0, the Genesys Info Mart Administration Console is implemented as an extension to Genesys Configuration Manager by using the existing Wizard Framework.

Multiple instances of the Genesys Info Mart Administration Console can be running at the same time, each associated with the same instance of the Genesys Info Mart Server.

## Procedure: Accessing the Genesys Info Mart Administration Console

**Purpose:** To access the Genesys Info Mart Administration Console to manage Genesys Info Mart jobs.

### Prerequisites

- The Genesys Info Mart Administration Console has been installed, as described in "Installing the Genesys Info Mart Administration Console" on page 278.
- You must start the Genesys Info Mart Server application before you start the Genesys Info Mart Administration Console.

### Start of procedure

1. Open Configuration Manager.
2. Select the `Application` object for the Genesys Info Mart ETL that you want to manage.
3. Right-click the Genesys Info Mart ETL `Application`, and then select `Wizard > Configure` (see Figure 14).

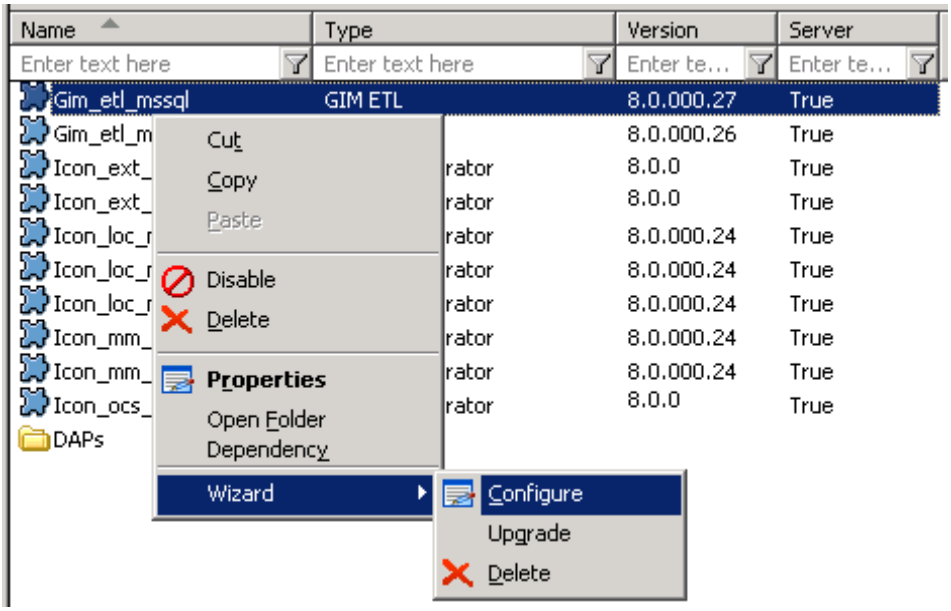


**Figure 14: Accessing the Genesys Info Mart Administration Console from the Configuration Manager**

The `GIM Admin Console` dialog box appears, displaying the status of the Genesys Info Mart ETL jobs (see Figure 15).

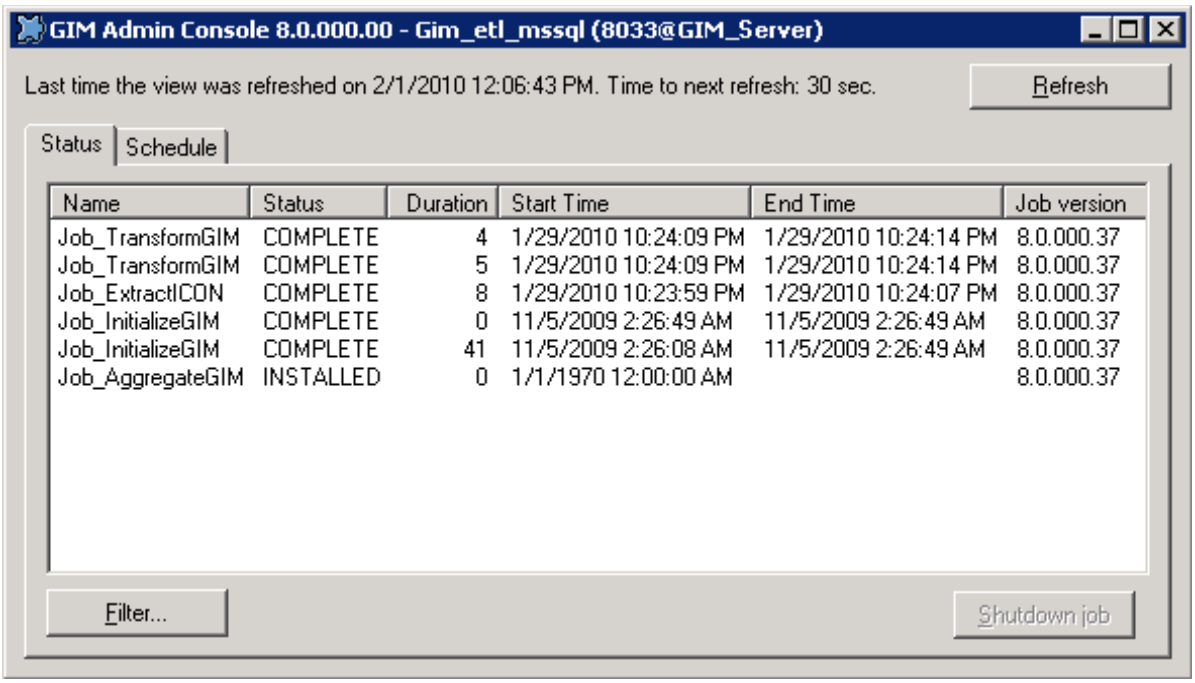


**Figure 15: GIM Admin Console Dialog Box**

**End of procedure**

### Next Steps

- For more information about using the Genesys Info Mart Administration Console to start and stop jobs, and to view job status, see the *Genesys Info Mart 8.0 Operations Guide*.
- Perform additional post-installation activities, as required. For an overview of post-installation tasks, see "Task Flow for Post-Installation Activities" on page 289.

# Preparing the Info Mart Database for 3rd Party Media

The Genesys Info Mart transformation job processes online and offline interactions differently. (For definitions of *online* and *offline* as used in Genesys Info Mart, see page 98.) The `IS_ONLINE` field in the `MEDIA_TYPE` dimension table identifies whether a particular media type will be associated with online interactions or with offline interactions.

Genesys Info Mart will dynamically add to the `MEDIA_TYPE` table any unknown media types that it encounters during transformation, but it identifies them as media types for offline interactions (`IS_ONLINE=0`, by default). Genesys recommends specifying new online media types in advance, to ensure that they are represented correctly in interaction data from the start.

**Note:** It is only new *online* media types that Genesys recommends manually adding in advance, because *offline* media types that are dynamically added by Genesys Info Mart will correctly be identified as offline from the start.

The following procedure describes how to set up the Info Mart database to handle online 3rd Party Media interactions.

## Procedure: Setting up media types for online interactions

**Purpose:** To prepopulate the `MEDIA_TYPE` dimension table with media types that Genesys Info Mart might encounter in 3rd Party Media interactions, so that they will be processed as online interactions.

You can perform this procedure at any time after the Info Mart database schema has been initialized.

### Prerequisites

- The Info Mart database has been initialized (see Step 1 on page 289).
- You have the required permissions to alter the Info Mart database.

### Start of procedure

1. Log in to the Info Mart database as any user with `INSERT` and `ALTER` permissions.
2. Check the current contents of the `MEDIA_TYPE` table to identify the last `MEDIA_TYPE_KEY` value. Media types for 3rd Party Media interactions have values of 1001 or higher.
3. Execute an SQL `INSERT` command to add the desired media types to the `MEDIA_TYPE` table. For each new media type, specify values for the following fields:
   - `MEDIA_TYPE_KEY`—The unique primary key. Using the information from Step 2, specify the next available value greater than `1000` (`1001` or higher).
   - `MEDIA_NAME`—Any name, up to 64 characters, that you want to use to identify the media type.
   - `MEDIA_NAME_CODE`—The name of the media type that Genesys Info Mart uses internally. The code name can be up to 32 characters, must be unique, and must exactly match the name of the corresponding `Media Type Business Attribute`, including case.
   - `IS_ONLINE`—The online/offline flag. For online media types, specify a value of `1`.
   - `CREATE_AUDIT_KEY`—The lineage for data creation. Specify a value of `-1`, which indicates that the row was not inserted by Genesys Info Mart.
   - `UPDATE_AUDIT_KEY`—The lineage for data update. Specify a value of `-1`, which indicates that the row was not updated by Genesys Info Mart.

   Figure 16 shows the contents of a sample `MEDIA_TYPE` table in which:
   - `None`, `Voice`, `Email`, and `Chat` are the default media type dimensions.
   - `SampleOnlineMedia1` is an online 3rd Party Media media type that was added manually in advance.
   - `SampleOfflineMedia` is an offline 3rd Party Media media type that was added dynamically by Genesys Info Mart during runtime.
   - `SampleOnlineMedia2` is an online 3rd Party Media media type that was not added in advance (for example, because the user forgot or because it is new to the deployment). The media type was added dynamically by Genesys Info Mart (as an offline media type) during runtime, and then the `IS_ONLINE` field in the record was manually altered to indicate that it is an online media type.

| MEDIA_TYPE_KEY | MEDIA_NAME | MEDIA_NAME_CODE | IS_ONLINE | CREATE_AUDIT_KEY | UPDATE_AUDIT_KEY |
|---|---|---|---|---|---|
| 0 | None | NONE | 1 | 2 | 0 |
| 1 | Voice | VOICE | 1 | 2 | 0 |
| 2 | Email | EMAIL | 0 | 2 | 0 |
| 3 | Chat | CHAT | 1 | 2 | 0 |
| 1001 | SampleOnlineMedia1 | SampleOnlineMedia1 | 1 | -1 | -1 |
| 1002 | SampleOfflineMedia | SampleOfflineMedia | 0 | 5 | 0 |
| → 1003 | SampleOnlineMedia2 | SampleOnlineMedia2 | 1 | 5 | -1 |

**Figure 16: Sample MEDIA_TYPE Table**

For more information about the required data types and the meaning of the fields, see the *Genesys Info Mart 8.0 Reference Manual* for your RDBMS.

If you are executing this procedure during runtime and you encounter a constraint violation, go to Step 4. Otherwise, go to Step 5 on page 297.

4. Constraint violations, if they occur, are most likely to occur if you are manually adding media types while the transformation job is running.
   - You might encounter a constraint violation when you execute the INSERT command if:
     - The media type has already been added. Check the contents of the MEDIA_TYPE table to identify if a record with that MEDIA_NAME_CODE already exists, and verify the value of the IS_ONLINE flag. If the record exists because Genesys Info Mart added it dynamically during transformation, execute an ALTER TABLE command to change the value of the IS_ONLINE flag to 1.
     - Genesys Info Mart dynamically added a media type to the MEDIA_TYPE table and used a MEDIA_TYPE_KEY value that you were planning to use. Repeat Steps 2 and 3 to add the desired media type with a different MEDIA_TYPE_KEY value.
   - Genesys Info Mart might encounter a constraint violation if the transformation job was coincidentally trying to add an unknown media type at the exact time that you were manually adding it or using the same MEDIA_NAME_KEY to add another media type, and your insert took effect first. In this case, no action is required.
     - The transformation job will complete unsuccessfully.
     - In the next ETL cycle, the transformation job will take the appropriate action—either recognizing the media type that you inserted, or else using a different MEDIA_TYPE_KEY to insert the new media type.

5. Commit the change to the database.

**End of procedure**

# Creating Custom Calendars

To enable you to customize the calendars that you use in your reporting, Genesys Info Mart supports multiple custom calendar dimensions. The following procedure describes the steps to create a custom calendar.

## Procedure: Configuring custom calendars

**Purpose:** To modify the Genesys Info Mart `Application` object and Info Mart database schema to provide additional calendar dimensions for use in reports.

### Prerequisites

- You have the required permissions to access and modify the Genesys Info Mart `Application` object, if required (see Step 1).
- The database access account that you use to create the Info Mart database schema is available and has the required owner account privileges (see Table 3 on page 64).

  Refer to the "Installation Worksheets" beginning on page 315 to determine the ID to use.

### Start of procedure

1. Configure the Genesys Info Mart application to support the required custom calendars, if you did not configure the required options before installing the application.
   a. On the `Options` tab of the Genesys Info Mart `Application` object, create a new section that has a section name that starts with the prefix *date-time-* (for example, `[date-time-emea]`).
   b. Create new options that have the same names as the options in the default `[date-time]` section, and configure the options as required for your reporting purposes.

      For more information about the `[date-time]` options, see "date-time Section" on page 235.

2. Prepare the script to create the custom dimension tables in the Info Mart database schema:
   a. Locate the `make_gim.sql` script in the `sql-scripts` folder in your Genesys Info Mart 8.0 installation package. (The `make_gim.sql` script is the script that you ran to create the Info Mart database schema.)
   b. Copy the SQL statements that create the default `DATE_TIME` table, and use them as the basis for a custom script to create additional calendar table(s), with the same structure and column names as the default `DATE_TIME` table.

      The table name must match the value of the `date-time-table-name` option that you specified in the custom `[date-time-*]` configuration section (see Step 1).
3. Log in to the Info Mart database by using the Info Mart owner ID.
4. Execute the script that you created in Step 2.

### End of procedure

### Next Steps

- Verify that the custom dimension tables have been populated.

  If you configure the custom calendars before you start Genesys Info Mart for the first time, `Job_InitializeGIM` will populate the custom calendar dimension tables. If you configure the custom calendars after `Job_InitializeGIM` has run, the custom calendar dimension tables will be populated at the next run of `Job_MaintainGIM`.
- If you have not already done so, create read-only views for your reporting application to query. See Procedure: Creating Genesys Info Mart tenant views.

# Creating Genesys Info Mart Read-Only Tenant Views

Read-only views allow you to control end-user access to Info Mart data.

Creating read-only, tenant-specific views is strictly required only for multi-tenant deployments. However, even in single-tenant deployments, Genesys recommends that you consider setting up a tenant-specific, read-only view for security reasons: a read-only view helps protect the data, because your queries do not work directly on the database tables.

The Genesys Info Mart 8.0 installation package includes a script, `make_gim_view_for_tenant.sql`, that you run in order to create tenant-specific, read-only views on the Genesys Info Mart tables.

Figure 17 illustrates how the tenant-specific, read-only Genesys Info Mart Views function in a Genesys Info Mart deployment.

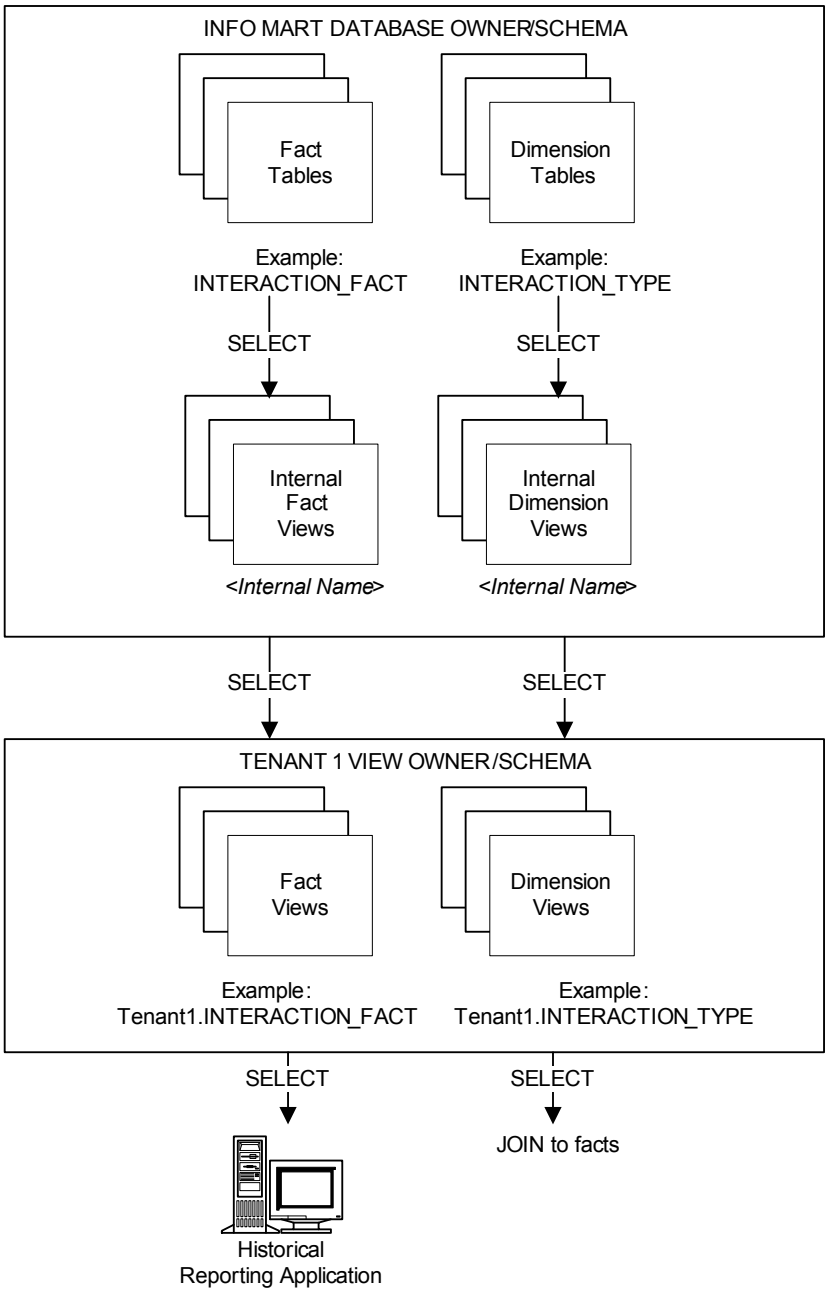


**Figure 17: Multi-Tenant Filtered Views or Single-Tenant Read-Only View**

## Procedure: Creating Genesys Info Mart tenant views

**Purpose:** To create tenant-specific, read-only views on the Info Mart database tables and predefined views.

Repeat this procedure for each tenant in your Genesys Info Mart configuration.

The script that creates each tenant view first drops the view, so the script can be rerun if necessary (for example, if you add new custom user data tables to the Info Mart database schema).

### Prerequisites

- You are logged in to the Info Mart database as the database user with full DBA access to the Info Mart database schema and the Tenant Views user schema.

  If you repeat the procedure to create separate read-only views for multiple tenants, you must log in separately for each tenant.

  Use the "Installation Worksheets" in Appendix A, beginning on page 315, to identify the RDBMS-specific database connection parameters for each database.
- You have successfully run the first ETL cycle, so that the `TENANT` dimension has been populated.

### Start of procedure

1. Query the `TENANT` dimension table in the view that is named `TENANT`, to obtain the `TENANT_KEY`. The `TENANT` view was created by the `make_gim.sql` script when you created the Info Mart database schema.

   For more information about creating the Info Mart database schema, including the predefined views, see "Preparing the Info Mart Database" on page 183.
2. In a text editor, modify the `make_gim_view_for_tenant.sql` script to provide the required parameters.

**Oracle**

For Oracle, make the following modifications:

- `&&1`—Replace all instances of *&&1* with the name of the Genesys Info Mart Tenant Views user.
- `&&2`—Replace all instances of *&&2* with the name of the Genesys Info Mart user.
- `&&3`—Replace all instances of *&&3* with the number of the Genesys Info Mart Tenant key that you obtained in Step 1.

**Microsoft SQL Server**

For Microsoft SQL Server, make the following modifications:

- `&&1`—Replace all instances of *&&1* with the name of the Genesys Info Mart Tenant Views schema.
- `&&2`—Replace all instances of *&&2* with the name of the Genesys Info Mart schema.
- `&&3`—Replace all instances of *&&3* with the number of the Genesys Info Mart Tenant key that you obtained in Step 1.
- `&&4`—Replace all instances of *&&4* with the name of the Genesys Info Mart Tenant Views user.

3. Run the modified `make_gim_view_for_tenant.sql` script.
4. Ensure that the database access account that end-users will use to access the tenant view is available and has the required user account privileges (see Table 4 on page 64).

   Refer to the "Installation Worksheets" in Appendix A, beginning on page 315, to determine the ID to use.

   The user account does not have to be the same as the owner account. For more information about the rules and recommendations that pertain to database access accounts for Genesys Info Mart, see "Database Object Owners and User IDs" on page 63.

### End of procedure

### Next Steps

- If you are enabling optional functionality, see the task summaries that are provided in "Enabling Specific Functionality" on page 129. Otherwise, your Genesys Info Mart deployment process is complete.

Chapter

# 19 Starting and Stopping Genesys Info Mart Server

This chapter describes the prerequisites for Genesys Info Mart Server startup and provides instructions for starting and stopping Genesys Info Mart Server. It contains the following sections:



## Overview

You can start and shut down Genesys Info Mart Server by using the Management Layer, a startup file, a manual procedure, or Services Manager.

All of these methods usually require command-line parameters for a server application, as well as an executable file name. This chapter includes information about the command-line parameters that are common to most Genesys server applications. It also describes various methods of starting and stopping the Genesys Info Mart Server application.

**Note:** For information about using the Management Layer, startup files, and Services Manager for startup, see the *Framework 8.0 Deployment Guide.*

# Before You Begin

The following issues are important for you to consider before you attempt to start Genesys Info Mart Server.

## Verifying Genesys Info Mart Connections and Configuration

Before you attempt to start Genesys Info Mart Server, confirm that the connections and configuration options that have been configured for your Genesys Info Mart `Application` object are correct for your deployment.

**Connections**

In general, do not change any connections on the `Connections` tab of the Genesys Info Mart `Application` object during startup. For more information about configuring connections, see the step about configuring the "Connections Tab" on page 215, in the procedure to configure the Genesys Info Mart `Application` object.

**Configuration Options**

Do not make changes to Genesys Info Mart configuration options during startup. You can make changes to Genesys Info Mart configuration options during runtime; in almost all cases, you do not need to restart Genesys Info Mart for the changes to take effect. For more information, see "Configuring Options for Genesys Info Mart" on page 216.

## Other Applications

Genesys recommends that the following applications be running before you start Genesys Info Mart Server:

- Configuration Server
- Message Server
- The relational database management system (RDBMS)
- The data sources and Interaction Concentrator (ICON) applications from which Genesys Info Mart obtains data

If your deployment includes attached data, ensure that there is a proper attached data specification file in the ICON working directory, suitably modified for use with Genesys Info Mart. (By default, ICON uses the `ccon_adata_spec.xml` file.) For more information about modifying the attached data specification file, see "Customizing Your ICON Attached Data Specification File" on page 172.

For detailed instructions about starting the Genesys components on which Genesys Info Mart depends, see the:

- *Framework 8.0 Deployment Guide*
- *Framework 8.0 T-Server Deployment Guide* for your particular T-Server type
- *Framework 8.0 DB Server User's Guide*

- *Interaction Concentrator 8.0 Deployment Guide*
- *Outbound Contact 8.0 Deployment Guide*
- *eServices (Multimedia) 8.0 Deployment Guide*

# Command-Line Parameters

The following startup command-line parameters are supported by Genesys Info Mart:

| | |
|---|---|
| `-host` | The name of the host on which Configuration Server is running. |
| `-port` | The communication port that client applications must use to connect to Configuration Server. |
| `-app` | The exact name of an application as configured in the Configuration Database. |

# Starting Genesys Info Mart Server

You can start Genesys Info Mart Server in any of the following ways:

- From SCI (see page 305)
- Manually on UNIX (see page 306)
- Manually on Windows (see page 307)

## Starting Genesys Info Mart Server with Solution Control Interface

Complete the following procedure to start Genesys Info Mart Server by using Solution Control Interface (SCI).

### Procedure: Starting Genesys Info Mart Server by using SCI

**Start of procedure**

1. On the list pane in the SCI `Applications` view, select your Genesys Info Mart Server.
2. Do one of the following:
   - On the toolbar, click the `Start` button.
   - From the `Action` menu, select `Start`.

- Right-click the `Application` object to access the shortcut menu, and then select `Start`.

3. In the confirmation box that appears, click `Yes`.

   SCI starts your Genesys Info Mart Server.

**End of procedure**

# Starting Genesys Info Mart Server on UNIX

The following procedure describes how to start Genesys Info Mart Server manually on a UNIX system.

## Procedure: Starting Genesys Info Mart Server manually (UNIX)

**Start of procedure**

1. Open a console window.
2. Go to the directory in which you have installed Genesys Info Mart.
3. Enter the name of the Genesys Info Mart executable, followed by the appropriate command-line parameters. Use the following syntax:

   `./gim_etl_server -host <hostname> -port <portno> -app <application>`

   where:

   - *`hostname`* is the name of the host on which Configuration Server is running.
   - *`portno`* is the communication port that client applications must use to connect to Configuration Server.
   - *`application`* is the name of the Genesys Info Mart `Application` object, as defined for Configuration Server.

**Note:** If the host name or application name contains spaces or hyphens (-), enclose the name in double quotation marks.

For example, to start Genesys Info Mart Server by using command-line parameters that specify the host as `cs-host`, the port as `2020`, and the name as `Genesys_Info_Mart_80`, enter the following:

```
./gim_etl_server -host "cs-host" -port 2020 -app
"Genesys_Info_Mart_80"
```

**End of procedure**

# Starting Genesys Info Mart Server on Windows

Use one of the following procedures to start Genesys Info Mart Server manually on Windows:

- Procedure: Starting Genesys Info Mart Server from the Start menu (Windows)
- Procedure: Starting Genesys Info Mart Server from the console window (Windows), on page 307
- Procedure: Starting Genesys Info Mart Server as a Windows service

**Note:** On Microsoft Windows platforms, by default, the installation process installs Genesys Info Mart Server as a Windows Service.

## Procedure: Starting Genesys Info Mart Server from the Start menu (Windows)

**Purpose:** To start Genesys Info Mart Server manually from the `Start` menu.

### Start of procedure

1. Go to `Start > Programs > Genesys Solutions > Genesys Info Mart (<Application Name>) > ETL Server`.
2. Select `ETL Server`.

   The Genesys Info Mart Server application starts.

### End of procedure

## Procedure: Starting Genesys Info Mart Server from the console window (Windows)

**Purpose:** To start Genesys Info Mart Server manually from the console window.

### Start of procedure

1. Open a console window.
2. Go to the directory in which you installed Genesys Info Mart.

3. Enter the following command line:

   ```
   gim_etl_server.exe -host <hostname> -port <portno> -app
   <application>
   ```

   where:

   - *hostname* is the name of the host on which Configuration Server is running.
   - *portno* is the communication port that client applications must use to connect to Configuration Server.
   - *application* is the name of the Genesys Info Mart `Application` object, as defined for Configuration Server.

   **Note:** If the host name or application name contains spaces or hyphens (-), enclose the name in double quotation marks.

   For example, to start Genesys Info Mart by using command-line parameters that specify the host as `cs-host`, the port as `2020`, and the name as `Genesys_Info_Mart_80`, enter the following:

   ```
   gim_etl_server.exe -host "cs-host" -port 2020 -app
   "Genesys_Info_Mart_80"
   ```

**End of procedure**

## Procedure: Starting Genesys Info Mart Server as a Windows service

On Microsoft Windows platforms, by default, the installation process installs Genesys Info Mart Server as a Windows Service. If you stopped Genesys Info Mart Server from running as a Windows Service and need to start it again as a Windows Service, complete this procedure.

**Start of procedure**

1. Open the Windows `Control Panel`, and then double-click the `Services` icon. The `Services` dialog box opens.
2. In the `Services` list box, select your Genesys Info Mart Server service, and then click `Start`. (If you disabled Genesys Info Mart Server from operating as a Windows Service, the `Start` option for this application will not be available.)

**Note:** You can install the Local Control Agent (LCA) as a Windows Service with the user interface disabled. In this case, all servers that are started through SCI are started without a console, unless you specifically select the `Allow Service to Interact with Desktop` check box for both LCA and Genesys Info Mart Server.

**End of procedure**

# Stopping Genesys Info Mart Server

You can stop Genesys Info Mart Server in any of the following ways:

- From SCI (see page 309). (This is the recommended method.)
- Manually on UNIX (see page 310).
- Manually on Windows (see page 310).

**Note:** To prevent Genesys Info Mart Server from self-starting, make sure that you clear the `autorestart` property in the Genesys Info Mart `Application` object in Configuration Manager.

## Stopping Genesys Info Mart Server with Solution Control Interface

If you are using LCA and Solution Control Server (SCS), complete the following procedure to stop Genesys Info Mart by using SCI.

### Procedure: Stopping Genesys Info Mart Server by using SCI

**Start of procedure**

1. On the list pane in the SCI `Applications` view, select your Genesys Info Mart Server.
2. Do one of the following:
   - On the toolbar, click `Stop`.
   - From the `Action` menu, select `Stop`.
   - Right-click the `Application` object to access the shortcut menu, and then select `Stop`.

3. In the confirmation box that appears, click `Yes`.

   SCI stops your Genesys Info Mart Server.

**End of procedure**

# Stopping Genesys Info Mart Server on UNIX

The following procedure describes two methods for stopping Genesys Info Mart Server manually on UNIX: from the command line and from a console window.

**Note:** If you are using LCA and SCS, you can also use SCI to stop Genesys Info Mart Server (see "Stopping Genesys Info Mart Server with Solution Control Interface").

## Procedure: Stopping Genesys Info Mart Server manually (UNIX)

**Purpose:** To stop Genesys Info Mart Server manually on a UNIX system from the command line or a console window.

**Start of procedure**

1. Do one of the following:
   - On the command line, enter the following command:

     `kill -SIGTERM <processid>`

     where `<processid>` is the UNIX process ID of the application.
   - In the active console window, press `CTRL+C`.

**End of procedure**

# Stopping Genesys Info Mart Server on Windows

Use one of the following procedures to stop Genesys Info Mart manually on Windows:

- If Genesys Info Mart Server is running as an application (not as a Windows Service), Procedure: Stopping Genesys Info Mart Server from the console window (Windows).
- If Genesys Info Mart Server is running as a Windows Service, Procedure: Stopping Genesys Info Mart Server running as a Windows service, on page 311.

## Procedure: Stopping Genesys Info Mart Server from the console window (Windows)

### Start of procedure

1. In the application's console window, press `CTRL+C`.

### End of procedure

## Procedure: Stopping Genesys Info Mart Server running as a Windows service

If you are running Genesys Info Mart Server as a Windows Service, you should stop it only from the Services Control Manager, as described in this procedure.

### Start of procedure

1. Open the `Control Panel`, and then double-click the `Services` icon. The `Services` dialog box opens.
2. In the `Services` list box, select your Genesys Info Mart Server service, and then click `Stop`.

### End of procedure

Part

# 4 Appendixes

Part 4 of this document provides the following appendixes:

- Appendix A, “Installation Worksheets,” on page 315
- Appendix B, “Example ICON Attached Data Specification,” on page 327
- Appendix C, “IDB Tables Accessed by Genesys Info Mart,” on page 331
- Appendix D, “Info Mart Tables Purged by the Maintenance Job,” on page 335
- Appendix E, “Functional Changes in Genesys Info Mart Release 8.0.0,” on page 341

Appendix

# A Installation Worksheets

This appendix contains worksheets that you can use to note configuration information for your environment, including relational database management system (RDBMS)–specific database connection parameters for each database that Genesys Info Mart accesses, and the mapping of Outbound Contact Server (OCS) record fields to Info Mart tables. Keep this information, so that you can refer to it during deployment and when you need to re-install or upgrade Genesys Info Mart.

This appendix contains the following worksheets:

# Worksheet for Oracle Databases

| Oracle Databases | |
|---|---|
| For Oracle, the Database Name is the name that the database client software uses to connect to the database—for example, TNS name or Oracle Name Server name. The Owner ID and Owner Password specify the schema in which the database tables reside. The User ID and User Password are used to connect to the database. | |
| **Interaction Concentrator Database** | |
| Use to run SQL scripts during deployment of the Interaction Database (IDB), and to configure a DAP to extract Interaction Concentrator data. If you have multiple Interaction Concentrator databases, note the connection information for each database. | |
| Database Name | |
| System ID (SID) | |
| Service Name | |
| Host Name | |
| Communication Port | |
| Owner ID | |
| Owner Password | |
| User ID | |
| User Password | |
| **Genesys Info Mart Database** | |
| Use to run SQL scripts during deployment of the Info Mart database, and to configure a DAP to connect to the Genesys Info Mart database. | |
| Database Name | |
| System ID (SID) | |
| Service Name | |
| Host Name | |
| Communication Port | |
| Owner ID | |
| Owner Password | |
| User ID | |
| User Password | |

| **Genesys Info Mart View** | |
|---|---|
| Use to run SQL scripts during deployment of the Info Mart database to create read-only views of Genesys Info Mart tables. | |
| Database Name | |
| Owner ID | |
| Owner Password | |
| **Genesys Info Mart Tenant 1 View** | |
| Use to run SQL scripts during deployment of the Info Mart database to create read-only tenant views of Genesys Info Mart tables. If you have multiple tenants, note the connection information separately for each tenant. | |
| Database Name | |
| Owner ID | |
| Owner Password | |

# Worksheet for Microsoft SQL Databases

| Microsoft SQL Databases | |
|---|---|
| For Microsoft SQL databases, the Database Name is the name of the Microsoft SQL Server database. The Owner ID and Owner Password specify the owner of the tables in the database. (The Owner ID is either the login that created the database tables or `dbo`, if the login that created the tables created the database that contains the tables or if it is a member of the `System Administrators` server role.) When in doubt, use the SQL Server Enterprise Manager to verify the owner of the tables. The User ID and User Password are used to connect to the database server. | |
| **Interaction Concentrator Database** | |
| Use to run SQL scripts during deployment of the Interaction Database (IDB), and to configure a DAP to extract Interaction Concentrator data. If you have multiple Interaction Concentrator databases, note the connection information for each database. | |
| Database Name | |
| Host Name | |
| Communication Port | |
| Owner ID | |
| Owner Password | |
| User ID | |
| User Password | |
| **Genesys Info Mart Database** | |
| Use to run SQL scripts during deployment of the Info Mart database, and to configure a DAP to connect to the Genesys Info Mart database. | |
| Database Name | |
| Host Name | |
| Communication Port | |
| Owner ID | |
| Owner Password | |
| User ID | |
| User Password | |

| **Genesys Info Mart View** | |
|---|---|
| Use to run SQL scripts during deployment of the Info Mart database to create read-only views of Genesys Info Mart tables. | |
| Database Name | |
| Owner ID | |
| Owner Password | |
| **Genesys Info Mart Tenant 1 view** | |
| Use to run SQL scripts during deployment of the Info Mart database to create read-only tenant views of Genesys Info Mart tables. If you have multiple tenants, note the connection information separately for each tenant. | |
| Database Name | |
| Owner ID | |
| Owner Password | |

# Worksheet for Mapping User Data

Use the following worksheet to map key-value pairs (KVPs) to predefined or custom user data fact or dimension tables in the Info Mart schema.

In the following worksheet:

- All the KVP names that are identified as Genesys-defined are predefined names for data that is attached by Genesys solutions—such as Enterprise Routing and Outbound Contact—and should *not* be changed.
- For the KVPs that are listed in the "Genesys-Defined KVPs That Are Mapped by Default" section, the mapping to Genesys Info Mart user data tables is specified by default.
- For the KVPs that are listed in the "Genesys-Defined KVPs That Are Not Mapped by Default" section, you must specify the mapping to user data fact or dimension tables if you want Genesys Info Mart to store these KVPs for your reporting.
- You can add other KVPs that are generated in your contact center environment if you require them for your reports—either instead of, or in addition to, the listed KVPs. The "Other KVPs That Are Not Mapped by Default" section provides room for you to record custom mappings. The placeholder entries in this section have been provided to help you to match information to equivalent placeholders in the user data template script, which you use to customize the Info Mart database schema (see Procedure: Customizing the user data template script, on page 283).
- Genesys Info Mart does not require the mapping of KVPs to user data tables to be one-to-one. You can supplement default mappings or further customize custom mappings by mapping a particular KVP to more than one user data fact or dimension table.
- Because Genesys Info Mart uses special logic to process certain KVPs that are attached by Universal Routing Server (URS), a separate section groups the relevant keys ("Genesys-Defined Routing KVPs").

**Notes:**

- If you provide customized mapping of KVPs to user data dimension tables, be aware of possible RDBMS-related limitations regarding the length of KVP values. For more information, see "RDBMS Considerations" on page 113.
- You must configure Interaction Concentrator to store the `IApplication` KVP, even if you do not choose to map `IApplication` to a user data table for your reporting purposes.

- In your deployment, if the value of the `Business Result` KVP can be changed after the interaction is completed, change the `Business Result` propagation rule that is stored in the Info Mart database to `PARTY`. Otherwise, Genesys Info Mart will ignore `Business Result` values that are defined during after call work (ACW).

| KVP Name | Propagation Rule | Target Genesys Info Mart Table and Column Name |
|---|---|---|
| **Genesys-Defined KVPs That Are Mapped by Default** | | |
| CaseID | CALL | IRF_USER_DATA_GEN_1.CASE_ID |
| CustomerID | CALL | IRF_USER_DATA_GEN_1.CUSTOMER_ID |
| GSW_CALL_ATTEMPT_GUID | CALL | IRF_USER_DATA_GEN_1.GSW_CALL_ATTEMPT_GUID |
| IPurpose | IRF | IRF_USER_DATA_GEN_1.IPURPOSE |
| Revenue | CALL | IRF_USER_DATA_GEN_1.REVENUE |
| Satisfaction | CALL | IRF_USER_DATA_GEN_1.SATISFACTION |
| ServiceObjective | CALL | IRF_USER_DATA_GEN_1.SERVICE_OBJECTIVE |
| Business Result | CALL | INTERACTION_DESCRIPTOR.BUSINESS_RESULT |
| CustomerSegment | CALL | INTERACTION_DESCRIPTOR.CUSTOMER_SEGMENT |
| ServiceType | CALL | INTERACTION_DESCRIPTOR.SERVICE_TYPE |
| ServiceSubtype | CALL | INTERACTION_DESCRIPTOR.SERVICE_SUBTYPE |
| **Genesys-Defined Routing KVPs** | | |
| RRequestedSkillCombination | | REQUESTED_SKILL (all columns), REQUESTED_SKILL_COMBINATION.SKILL_COMBINATION_STRING |
| RStrategyName | | STRATEGY.STRATEGY_NAME |
| RTargetObjectSelected | | ROUTING_TARGET.AGENT_GROUP_NAME |
| RTargetObjectSelected | | ROUTING_TARGET.PLACE_GROUP_NAME |
| RTargetObjectSelected | | ROUTING_TARGET.SKILL_EXPRESSION |
| RTargetObjectSelected | | ROUTING_TARGET.TARGET_OBJECT_SELECTED |
| RTargetTypeSelected | | ROUTING_TARGET.ROUTING_TARGET_TYPE |

| KVP Name | Propagation Rule | Target Genesys Info Mart Table and Column Name |
|---|---|---|
| **Genesys-Defined KVPs That Are Not Mapped by Default** | | |
| IApplication | | |
| IResult | | |
| IResultReason | | |
| ISpeechRecognition | | |
| ITextToSpeech | | |
| **Other KVPs That Are Not Mapped by Default** | | |
| Custom User Data Fact Table (for high-cardinality KVPs): <IRF_USER_DATA_CUST_1><br>User Data Columns: <CUSTOM_DATA_*N*> | | |
| <CustomData*N*> | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Custom User Data Dimension Table (for low-cardinality KVPs): <USER_DATA_CUST_DIM_1><br>User Data Columns: <DIM_ATTRIBUTE_*N*> Primary Key: <ID> Foreign Key: <CUSTOM_KEY_1> | | |
| <CustomAttribute*N*> | | |
| | | |
| | | |
| | | |
| | | |

# Worksheet for Mapping OCS Record Fields

Use the three checklists in this section to plan how to map Outbound Contact Server (OCS) record fields to the following Info Mart database tables:

- CONTACT_ATTEMPT_FACT
- RECORD_FIELD_GROUP_1
- RECORD_FIELD_GROUP_2

| OCS Record Fields to CONTACT_ATTEMPT_FACT Table Mapping | | | | |
|---|---|---|---|---|
| **Genesys Info Mart Column Name** | **Field Object Name** | **Tenant Name (if applicable)** | **Attached Data Key** | **Is Secure** |
| Genesys Info Mart stores nonmandatory record field data that is defined in OCS calling lists in the RECORD_FIELD_1 through RECORD_FIELD_40 columns of the CONTACT_ATTEMPT_FACT table.<br>Use the following rows to list the nonmandatory fields that you need to map from OCS to the CONTACT_ATTEMPT_FACT table.<br>The first row contains an example for RECORD_FIELD_1. In the OCS calling list, the name of the record field is Region. This field maps to a column that is named RECORD_FIELD_1 in the CONTACT_ATTEMPT_FACT table.<br>**Note:** Make sure that the data type of the field matches the data type of the target CONTACT_ATTEMPT_FACT column. Unless otherwise indicated, the data type of the columns is *string* (varchar). | | | | |
| **Example:** ***RECORD_FIELD_1 (numeric)*** | Region | HQ | Region_Field | ✓ |
| RECORD_FIELD_1 (numeric) | | | | |
| RECORD_FIELD_2 (numeric) | | | | |
| RECORD_FIELD_3 (numeric) | | | | |
| RECORD_FIELD_4 (numeric) | | | | |
| RECORD_FIELD_5 (numeric) | | | | |
| RECORD_FIELD_6 (numeric) | | | | |
| RECORD_FIELD_7 (numeric) | | | | |
| RECORD_FIELD_8 (numeric) | | | | |

| OCS Record Fields to CONTACT_ATTEMPT_FACT Table Mapping (Continued) | | | | |
|---|---|---|---|---|
| **Genesys Info Mart Column Name** | **Field Object Name** | **Tenant Name (if applicable)** | **Attached Data Key** | **Is Secure** |
| RECORD_FIELD_9 (numeric) | | | | |
| RECORD_FIELD_10 (numeric) | | | | |
| RECORD_FIELD_11 (int) | | | | |
| RECORD_FIELD_12 (int) | | | | |
| RECORD_FIELD_13 (int) | | | | |
| RECORD_FIELD_14 (int) | | | | |
| RECORD_FIELD_15 (int) | | | | |
| RECORD_FIELD_16 (int) | | | | |
| RECORD_FIELD_17 (int) | | | | |
| RECORD_FIELD_18 (int) | | | | |
| RECORD_FIELD_19 (int) | | | | |
| RECORD_FIELD_20 (int) | | | | |
| RECORD_FIELD_21 (int) | | | | |
| RECORD_FIELD_22 (int) | | | | |
| RECORD_FIELD_23 (int) | | | | |
| RECORD_FIELD_24 (int) | | | | |
| RECORD_FIELD_25 (int) | | | | |

| OCS Record Fields to CONTACT_ATTEMPT_FACT Table Mapping (Continued) | | | | |
|---|---|---|---|---|
| **Genesys Info Mart Column Name** | **Field Object Name** | **Tenant Name (if applicable)** | **Attached Data Key** | **Is Secure** |
| RECORD_FIELD_26 (int) | | | | |
| RECORD_FIELD_27 (int) | | | | |
| RECORD_FIELD_28 (int) | | | | |
| RECORD_FIELD_29 (int) | | | | |
| RECORD_FIELD_30 (int) | | | | |
| RECORD_FIELD_31 | | | | |
| RECORD_FIELD_32 | | | | |
| RECORD_FIELD_33 | | | | |
| RECORD_FIELD_34 | | | | |
| RECORD_FIELD_35 | | | | |
| RECORD_FIELD_36 | | | | |
| RECORD_FIELD_37 | | | | |
| RECORD_FIELD_38 | | | | |
| RECORD_FIELD_39 | | | | |
| RECORD_FIELD_40 | | | | |

| OCS Record Fields to RECORD_FIELD_GROUP_1 Table Mapping | |
|---|---|
| **Genesys Info Mart Column Name** | **Field Object Name** |
| Genesys Info Mart stores nonmandatory record field data that is defined in OCS calling lists in the RECORD_FIELD_1_STRING_1 through RECORD_FIELD_1_STRING_10 columns of the RECORD_FIELD_GROUP_1 table.<br>Use the following rows to list the nonmandatory fields that you need to map from OCS to the RECORD_FIELD_GROUP_1 table.<br>**Note:** Make sure that the data type of the field matches the data type of the target RECORD_FIELD_GROUP_1 column. | |
| RECORD_FIELD_1_STRING_1 | |
| RECORD_FIELD_1_STRING_2 | |

| OCS Record Fields to RECORD_FIELD_GROUP_1 Table Mapping (Continued) | |
|---|---|
| **Genesys Info Mart Column Name** | **Field Object Name** |
| RECORD_FIELD_1_STRING_3 | |
| RECORD_FIELD_1_STRING_4 | |
| RECORD_FIELD_1_STRING_5 | |
| RECORD_FIELD_1_STRING_6 | |
| RECORD_FIELD_1_STRING_7 | |
| RECORD_FIELD_1_STRING_8 | |
| RECORD_FIELD_1_STRING_9 | |
| RECORD_FIELD_1_STRING_10 | |

| OCS Record Fields to RECORD_FIELD_GROUP_2 Table Mapping | |
|---|---|
| **Genesys Info Mart Column Name** | **Field Object Name** |
| Genesys Info Mart stores nonmandatory record field data that is defined in OCS calling lists in the RECORD_FIELD_2_STRING_1 through RECORD_FIELD_2_STRING_10 columns of the RECORD_FIELD_GROUP_2 table.<br>Use the following rows to list the nonmandatory fields that you need to map from OCS to the RECORD_FIELD_GROUP_2 table.<br>**Note:** Make sure that the data type of the field matches the data type of the target RECORD_FIELD_GROUP_2 column. | |
| RECORD_FIELD_2_STRING_1 | |
| RECORD_FIELD_2_STRING_2 | |
| RECORD_FIELD_2_STRING_3 | |
| RECORD_FIELD_2_STRING_4 | |
| RECORD_FIELD_2_STRING_5 | |
| RECORD_FIELD_2_STRING_6 | |
| RECORD_FIELD_2_STRING_7 | |
| RECORD_FIELD_2_STRING_8 | |
| RECORD_FIELD_2_STRING_9 | |
| RECORD_FIELD_2_STRING_10 | |

Appendix

# B Example ICON Attached Data Specification

This appendix provides an example of the `ccon_adata_spec_GIM_example.xml` file that is included in the `sql_scripts` folder in your Genesys Info Mart 8.0 installation package. This file is also available in the `sql_scripts` folder on the Genesys Info Mart product CD.

**Note:** When you are customizing the XML file for an Interaction Concentrator (ICON) application that will serve as a data source for Genesys Info Mart, you must specify a value of `all` for the history attribute.

```
<?xml version="1.0" encoding="utf-8" ?>
<!--
   This xml contains the customizable mapping of Attached User Data for use in Genesys
   Info Mart 8.0. The only sections which GIM will use are "public" and "secure".  A
   "key name" can only be specified once, either in the "public" section or the "secure"
   section, if duplicated the second and subsequent entries will be ignored by ICON.
 -->
<adata_spec>
    <public>
        <!--
            Predefined keys mapped to INTERACTION_DESCRIPTOR table, CUSTOMER_SEGMENT,
   SERVICE_TYPE, SERVICE_SUBTYPE, and BUSINESS_RESULT columns respectively.
         -->
        <key name="CustomerSegment"       source="userdata" history="all"/>
        <key name="ServiceType"           source="userdata" history="all"/>
        <key name="ServiceSubType"        source="userdata" history="all"/>
        <key name="Business Result"       source="userdata" history="all"/>
       <!--
            Predefined keys mapped to IRF_USER_DATA_GEN_1 table, CASE_ID, CUSTOMER_ID,
   SERVICE_OBJECTIVE, REVENUE, and SATISFACTION columns respectively.
         -->
```

```
<key name="CaseID"                source="userdata" history="all"/>
<key name="CustomerID"            source="userdata" history="all"/>
<key name="ServiceObjective"      source="userdata" history="all"/>
<key name="Revenue"               source="userdata" history="all"/>
<key name="Satisfaction"          source="userdata" history="all"/>
<!--
    Predefined IApplication key.
    It is used internally by GIM to create resources of type IVR Application.
 -->
<key name="IApplication"          source="userdata" history="all"/>
<!--
    Predefined IPurpose key.
    It is used internally by GIM to process self-service IVRs.
 -->
<key name="IPurpose"              source="userdata" history="all"/>
<!--
    Predefined GSW_CALL_ATTEMPT_GUID key.
    It is used internally by GIM to process OCS data.
 -->
<key name="GSW_CALL_ATTEMPT_GUID" source="userdata" history="all"/>

<!--
    Custom keys for high cardinality user data (facts).
    For example, for IRF_USER_DATA_CUST_1 table.
 -->
<key name="CustomData1"           source="userdata" history="all"/>
<key name="CustomData2"           source="userdata" history="all"/>
<key name="CustomData3"           source="userdata" history="all"/>
<key name="CustomData4"           source="userdata" history="all"/>
<key name="CustomData5"           source="userdata" history="all"/>
<key name="CustomData6"           source="userdata" history="all"/>
<key name="CustomData7"           source="userdata" history="all"/>
<key name="CustomData8"           source="userdata" history="all"/>
<key name="CustomData9"           source="userdata" history="all"/>
<key name="CustomData10"          source="userdata" history="all"/>
<key name="CustomData11"          source="userdata" history="all"/>
<key name="CustomData12"          source="userdata" history="all"/>
<key name="CustomData13"          source="userdata" history="all"/>
<key name="CustomData14"          source="userdata" history="all"/>
<key name="CustomData15"          source="userdata" history="all"/>
<key name="CustomData16"          source="userdata" history="all"/>

<!--
    Custom keys for low cardinality user data (dimensions).
    For example, for USER_DATA_CUST_DIM_1 table.
 -->
<key name="CustomAttribute1"      source="userdata" history="all"/>
<key name="CustomAttribute2"      source="userdata" history="all"/>
<key name="CustomAttribute3"      source="userdata" history="all"/>
<key name="CustomAttribute4"      source="userdata" history="all"/>
<key name="CustomAttribute5"      source="userdata" history="all"/>
```

```
    </public>
    <secure>
    </secure>
    <call>
    </call>
    <call-cust>
    </call-cust>
    <call-cust1>
    </call-cust1>
    <call-cust2>
    </call-cust2>
    <!--
            The following are only required by ICON to record multi media userdata in
   the ICON db, and are included here for completeness only. If multi media is not
   required, these may be removed.  For detail please refer to the ICON documentation.
    -->
    <mcr-l>
            <key name = "ContactId"           source="userdata"  history ="last"
   field="mcr-ucs-contact-id"/>
            <key name = "SuggestedResponseID" source="userdata"  history ="last"
   field="mcr-suggested-response"/>
            <key name = "AutoResponseID"      source="userdata"  history ="last"
   field="mcr-auto-response"/>
            <key name = "AutoACKID"           source="userdata"  history ="last"
   field="mcr-auto-ack"/>
    </mcr-l>
    <mcr-f>
            <key name = "FromAddress"         source="userdata"  history ="first"
   field="mcr-from-address"/>
            <key name = "FromPersonal"        source="userdata"  history ="first"
   field="mcr-from-name"/>
            <key name = "IsCalledBack"        source="userdata"  history ="first"
   field="mcr-called-back"/>
            <key name = "Subject"             source="userdata"  history ="first"
   field="mcr-subject"/>
            <key name = "Origination_Source"  source="userdata"  history ="first"
   field="mcr-origin-source"/>
    </mcr-f>
</adata_spec>
```

Appendix

# C IDB Tables Accessed by Genesys Info Mart

This appendix lists the Interaction Database (IDB) tables that the Genesys Info Mart extraction jobs access (see Table 24). The type of data that is extracted depends on the role that is configured for the database access point (DAP).

**Table 24: IDB Tables Extracted by Genesys Info Mart**

| DAP Role | Type of Data | Tables Extracted |
|---|---|---|
| ICON_CFG | Configuration details<br>Data source: Configuration Server | GCX_AGENT_PLACE<br>GCX_CAMPGROUP_INFO<br>GCX_ENDPOINT_PLACE<br>GCX_GROUP_AGENT<br>GCX_GROUP_PLACE<br>GCX_GROUP_ROUTEDN<br>GCX_LOGIN_INFO<br>GCX_SKILL_LEVEL<br>GC_AGENT<br>GC_CALLING_LIST<br>GC_CAMPAIGN<br>GC_ENDPOINT<br>GC_GROUP<br>GC_IVR<br>GC_IVRPORT<br>GC_LOGIN<br>GC_PLACE<br>GC_SCRIPT<br>GC_SKILL<br>GC_SWITCH<br>GC_TENANT<br>GC_TIME_ZONE<br>G_DSS_CFG_PROVIDER |

**Table 24: IDB Tables Extracted by Genesys Info Mart (Continued)**

| DAP Role | Type of Data | Tables Extracted |
|---|---|---|
| ICON_CORE | Voice details (including voice interaction, voice agent activity, user data, and virtual queue activity)<br>Data source: T-Server | GSYS_SYSPROCINFO<br>G_IR<br>G_IS_LINK_HISTORY<br>G_CALL<br>G_CALL_STAT<br>G_PARTY<br>G_PARTY_HISTORY<br>GX_SESSION_ENDPOINT<br>G_VIRTUAL_QUEUE<br>G_ROUTE_RESULT<br>G_USERDATA_HISTORY<br>G_SECURE_USERDATA_HISTORY<br>G_LOGIN_SESSION<br>G_AGENT_STATE_HISTORY<br>G_AGENT_STATE_RC<br>G_AGENT_STATE_RC_A<br>G_DND_HISTORY<br>G_CUSTOM_DATA_S<br>G_DSS_GCC_PROVIDER<br>G_DSS_GLS_PROVIDER |
| ICON_OCS | Outbound Contact details<br>Data source: Outbound Contact Server | GO_CHAIN<br>GO_CHAINREC_HIST<br>GO_FIELDHIST<br>GO_SEC_FIELDHIST<br>GO_METRICS<br>GO_CAMPAIGN<br>GO_CAMPAIGNHISTORY<br>G_DSS_GOS_PROVIDER |

**Table 24: IDB Tables Extracted by Genesys Info Mart (Continued)**

| DAP Role | Type of Data | Tables Extracted |
|---|---|---|
| ICON_MM | Multimedia details (including multimedia interactions, attached data, virtual queue, interaction queue, interaction workbin, and agent login, and state and reasons activity)<br>Data source: Interaction Server | G_IR<br>G_CALL<br>G_PARTY<br>G_PARTY_HISTORY<br>GX_SESSION_ENDPOINT<br>G_AGENT_STATE_HISTORY<br>G_AGENT_STATE_RC<br>G_AGENT_STATE_RC_A<br>G_VIRTUAL_QUEUE<br>G_ROUTE_RESULT<br>G_USERDATA_HISTORY<br>G_SECURE_USERDATA_HISTORY<br>GM_F_USERDATA<br>GM_L_USERDATA<br>G_LOGIN_SESSION<br>G_DND_HISTORY<br>G_DSS_GCC_PROVIDER<br>G_DSS_GLS_PROVIDER |

Appendix

# D Info Mart Tables Purged by the Maintenance Job

This appendix lists the tables in the Info Mart database schema that the Genesys Info Mart maintenance job purges. The maintenance job automatically purges all data that it determines is eligible to be purged, based on configurable retention policies. The maintenance job can be scheduled to run daily, or it can be run manually from the Genesys Info Mart Administration Console.

This appendix contains the following sections:



For more information about the configuration options that specify the data retention policies, see the information about the `days-to-keep-*` options in "gim-etl Section" on page 242.

For more information about the purging algorithms and data retention policies, as well as scheduling and running the maintenance job, see the chapters about understanding and working with ETL jobs in the *Genesys Info Mart 8.0 Operations Guide*.

## Dimensional Model Fact Tables

Table 25 lists the fact tables in the dimensional model that are purged by `Job_MaintainGIM`.

### Table 25: Dimensional Model Tables Purged by Job_MaintainGIM

| Type of Data | Tables Purged | Purge Condition |
|---|---|---|
| **Short-Living Entities** | | |
| Agent activity | • SM_RES_SESSION_FACT<br>• SM_RES_STATE_FACT<br>• SM_RES_STATE_REASON_FACT | (Start timestamp) < (ExtractHWM – days-to-keep-gim-facts) |
| **Long-Living Entities** | | |
| Voice and Multimedia interactions | • STG_ACTIVE_IF<br>• STG_ACTIVE_IRF<br>• STG_ACTIVE_MSF<br>• STG_ACTIVE_IRF_REPLIES<br>• INTERACTION_FACT<br>• INTERACTION_RESOURCE_FACT<br>• IXN_RESOURCE_STATE_FACT<br>• IRF_USER_DATA_KEYS and custom high-cardinality user data tables (IRF_CUST_* in the make_gim_UDE_template.sql script)<br>• MEDIATION_SEGMENT_FACT | (Start timestamp) < purgeTS,<br>where purgeTS = (ExtractHWM – days-to-keep-active-facts) < ((Start timestamp of the earliest active fact in the STG_ACTIVE_IF table) < (ExtractHWM – days-to-keep-gim-facts)<br>If there are no active facts in the time interval between days-to-keep-active-facts and days-to-keep-gim-facts, the effective condition is:<br>(Start timestamp) < (ExtractHWM – days-to-keep-gim-facts) |
| Outbound Contact activity | • CAMPAIGN_GROUP_SESSION_FACT<br>• CALLING_LIST_METRIC_FACT<br>• CAMPAIGN_GROUP_STATE_FACT<br>• CONTACT_ATTEMPT_FACT | (Start timestamp) < purgeTS,<br>where purgeTS = (ExtractHWM – days-to-keep-active-facts) < (Start timestamp of the earliest active fact in the CAMPAIGN_GROUP_SESSION_FACT table) < (ExtractHWM – days-to-keep-gim-facts)<br>If there are no active facts in the time interval between days-to-keep-active-facts and days-to-keep-gim-facts, the effective condition is:<br>(Start timestamp) < (ExtractHWM – days-to-keep-gim-facts) |

# GIDB Fact Tables

Table 26 lists the fact tables in GIDB that are purged by `Job_MaintainGIM`.

**Table 26: GIDB Tables Purged by Job_MaintainGIM**

| Type of Data | Tables Purged | Purge Condition |
|---|---|---|
| **Short-Living Entities** | | |
| Voice interactions | • GIDB_G_IR_V<br>• GIDB_G_IR_HISTORY_V<br>• GIDB_G_CALL_V<br>• GIDB_G_VIRTUAL_QUEUE_V<br>• GIDB_G_CALL_HISTORY_V<br>• GIDB_G_CALL_STAT_V<br>• GIDB_G_ROUTE_RESULT_V<br>• GIDB_G_SECURE_UD_HISTORY_V<br>• GIDB_G_USERDATA_HISTORY_V<br>• GIDB_G_CUSTOM_DATA_S_V<br>• GIDB_G_IS_LINK_V<br>• GIDB_G_IS_LINK_HISTORY_V<br>• GIDB_G_PARTY_V<br>• GIDB_G_PARTY_HISTORY_V | (Start timestamp) < (ExtractHWM – days-to-keep-gidb-facts) |
| Agent activity | • GIDB_G_AGENT_STATE_HISTORY_V<br>• GIDB_G_AGENT_STATE_RC_V<br>• GIDB_G_DND_HISTORY_V<br>• GIDB_G_LOGIN_SESSION_V<br>• GIDB_GX_SESSION_ENDPOINT_V<br>• GIDB_G_AGENT_STATE_HISTORY_MM<br>• GIDB_G_AGENT_STATE_RC_MM<br>• GIDB_G_DND_HISTORY_MM<br>• GIDB_G_LOGIN_SESSION_MM<br>• GIDB_GX_SESSION_ENDPOINT_MM | (Start timestamp) < (ExtractHWM – days-to-keep-gidb-facts) |

**Table 26: GIDB Tables Purged by Job_MaintainGIM (Continued)**

| Type of Data | Tables Purged | Purge Condition |
|---|---|---|
| **Long-Living Entities** | | |
| Multimedia interactions | • GIDB_G_IR_MM<br>• GIDB_G_IR_HISTORY_MM<br>• GIDB_G_CALL_MM<br>• GIDB_G_VIRTUAL_QUEUE_MM<br>• GIDB_G_CALL_HISTORY_MM<br>• GIDB_G_ROUTE_RESULT_MM<br>• GIDB_G_SECURE_UD_HISTORY_MM<br>• GIDB_G_USERDATA_HISTORY_MM<br>• GIDB_G_CUSTOM_DATA_S_MM<br>• GIDB_GM_F_USERDATA<br>• GIDB_GM_L_USERDATA<br>• GIDB_G_PARTY_MM<br>• GIDB_G_PARTY_HISTORY_MM | (Start timestamp) < purgeTS,<br>where purgeTS = (ExtractHWM – days-to-keep-active-facts) < (Start timestamp of the earliest active fact in the GIDB_G_IR_MM table) < (ExtractHWM – days-to-keep-gidb-facts)<br>If there are no active facts in the time interval between days-to-keep-active-facts and days-to-keep-gidb-facts, the effective condition is:<br>(Start timestamp) < (ExtractHWM – days-to-keep-gidb-facts) |
| Outbound Contact activity | • GIDB_GO_CAMPAIGN<br>• GIDB_GO_CAMPAIGNHISTORY<br>• GIDB_GO_METRICS<br>• GIDB_GO_CHAIN<br>• GIDB_GO_CHAINREC_HIST<br>• GIDB_GO_FIELDHIST<br>• GIDB_GO_RECORD<br>• GIDB_GO_SEC_FIELDHIST<br>• GIDB_GOX_CHAIN_CALL | (Start timestamp) < purgeTS,<br>where purgeTS = (ExtractHWM – days-to-keep-active-facts) < ((Start timestamp of the earliest active fact in the GIDB_GO_CAMPAIGN table) < (ExtractHWM – days-to-keep-gidb-facts)<br>If there are no active facts in the time interval between days-to-keep-active-facts and days-to-keep-gidb-facts, the effective condition is:<br>(Start timestamp) < (ExtractHWM – days-to-keep-gidb-facts) |

# Discard and Control Tables

- Job_MaintainGIM purges discarded operational data from the following Staging tables:
  - STG_TRANSFORM_DISCARDS
  - STG_IDB_FK_VIOLATION

- Job_MaintainGIM purges data lineage and ETL history data from the following Control tables:
  - CTL_AUDIT_LOG
  - CTL_ETL_HISTORY
  - CTL_EXTRACT_HISTORY
  - CTL_PURGE_HISTORY
  - CTL_TRANSFORM_HISTORY

  The purge condition is:

  ETL_TS < (Now – days-to-keep-discards-and-job-history)

Appendix

# E Functional Changes in Genesys Info Mart Release 8.0.0

This appendix lists changes in functionality and behavior between Genesys Info Mart release 7.6 and the initial release of Genesys Info Mart 8.0.0. It contains the following sections:



For information about changes in functionality and behavior between the initial release of Genesys Info Mart 8.0.0 and subsequent 8.0.x releases, see "New in This Release" on page 28.

## Functionality Changes

**Data Lineage/ Audit Logging**

- The new CTL_AUDIT_LOG dimension table contains data for all transactions that are committed by Genesys Info Mart. This table replaces the AUDIT_ dimension. Previously, audit data appeared in all tables (as service fields, such as ROW_CREATED and ROW_UPDATED). Now, the CTL_AUDIT_LOG table contains these fields and more audit information for all records that are committed in the same transaction. Also, all fact table records now contain foreign keys (CREATE_AUDIT_KEY and UPDATE_AUDIT_KEY) to the relevant CTL_AUDIT_LOG table rows.

**Simplified Database Model**

- A simplified database model in release 8.0 eliminates the representation of the lowest level of data details in two different models (the party model in Interaction Concentrator and the segment model in Genesys Info Mart).
- The lowest level of data details that Genesys Info Mart provides in release 8.0 is better aligned with the Interaction Concentrator model.

- Global Interaction Database (GIDB) within the Genesys Info Mart database schema represents a subset of Interaction Database (IDB) tables that consolidates data from any number of IDBs.
- The data in the new model requires a less resource-consuming transformation.
- The usability of the Info Mart database is improved by eliminating obsolete and prohibitively expensive tables and fields, among other modifications. For more information, see the *Genesys Info Mart 8.0 Reference Manual* for your particular RDBMS.
- The processing of Outbound Contact–related data is improved by removing dependency between interaction data and Outbound Contact Server (OCS) tables in the Info Mart schema. Certain interaction-related fields have been removed from OCS-related tables; you can obtain the corresponding attributes and metrics from the interaction tables, such as `INTERACTION_RESOURCE_FACT`. For more information, see the *Genesys Info Mart 8.0 Reference Manual* for your particular RDBMS.

**ETL Redesign**

- `Job_InitializeGIM` starts automatically when Genesys Info Mart Server 8.0 starts successfully for the first time, and when the Info Mart database is not yet initialized.
- To define the data that is available for extraction, the extraction job relies on timestamps instead of on sequence IDs that are assigned by ICON.
- Intra-IDB and inter-IDB merges are replaced with a single merge operation that `Job_ExtractICON` performs for voice interactions in merge tables—a special area within the Info Mart database schema.
- `Job_ExtractSS` is no longer available, because Genesys Info Mart 8.0 does not support Stat Server as a data source. Reports that require agent state information should be based on ICON-provided data.
- `Job_ExtractGVP` is not available, because Genesys Info Mart does not support reporting of Genesys Voice Platform (GVP) Voice Application Reporting (VAR) data in release 8.0.
- `Job_LoadRecent` and `Job_LoadGIM` no longer exist as separate jobs. `Job_TransformGIM` populates dimensions and loads data directly into the fact tables as the final steps of the transformation process.

**Aggregation**

- Former aggregation functionality is now provided by the Reporting and Analytics Aggregates (RAA) package, which is delivered with Genesys Info Mart. This software is also bundled with the Genesys Interactive Insights (GI2) product.
- `Job_AggregateGIM` is available only in deployments in which either GI2 or RAA is installed on top of Genesys Info Mart 8.0.
- If enabled, the aggregation process now runs in parallel with the ETL. Within configurable daily time intervals, the aggregation job runs continuously, processing new or updated data as it becomes available. By

default, the aggregation job stops on a scheduled basis for maintenance activities. However, you have the option to configure the job schedule so that the aggregation job runs continuously without stopping.

- The default Info Mart schema no longer includes aggregation tables. Aggregation tables are added to the Info Mart schema if you deploy GI2 or RAA. Support for Genesys Info Mart 7.6 aggregation tables starting with `AG_*` is discontinued in Genesys Info Mart 8.0. Refer to the *Reporting and Analytics Aggregates 8.0 Reference Manual* and the *Genesys Interactive Insights 8.0 Deployment Guide* for more information.

**Purging and Maintenance**

- The maintenance job automatically purges data from the Info Mart database, in accordance with configurable data retention policies. The job also maintains the default and custom calendars and, in partitioned databases, the database partitions.

**User Data Handling**

- The `USER_DATA` and `USER_DATA2` tables that existed in Genesys Info Mart release 7.x are replaced with a configurable number of custom tables in the Info Mart database.

**High Availability**

- This release of Genesys Info Mart supports high availability (HA) for Configuration, Voice, Multimedia, and Outbound Contact details.

  The implementation of HA support has been changed. Genesys Info Mart no longer relies on configuration to identify primary and secondary IDB data sources. Instead, Genesys Info Mart relies on session control information that is provided by redundant Interaction Concentrator 8.0 applications that operate in parallel, to identify which instance of IDB contains the most complete and accurate set of data for a particular timeframe. Genesys Info Mart then switches over from one IDB to another, as required, to extract data from the IDB that contains the more reliable set of data for that timeframe.

**Multiple Calendars and Storage of Date-Time Information**

- Genesys Info Mart 7.x provided a single calendar dimension that was referenced by multiple date-time fields in the fact tables—one field for each alternative time zone (for example, enterprise time zone, tenant time zone). By contrast, this release of Genesys Info Mart uses a single date-time field for the start time and end time of interaction and relationship fact data, respectively. Genesys Info Mart stores date-time data in Coordinated Universal Time (UTC) time, and it supports multiple calendar dimensions to enable fact data to be expressed in different time-zone or calendar formats.
- Customizable calendar configuration enables Genesys Info Mart to support ISO 8601 standards for date and time representation.

**Genesys Voice Platform Support**

- Genesys Info Mart no longer supports reporting on voice application usage in Genesys Voice Platform (GVP), and GVP-specific tables have been removed from the Info Mart database schema. Genesys Info Mart continues to support reporting on the interaction aspect of GVP 8.x activity, provided that GVP has been configured for computer-telephony integration (CTI) through IVR Server.

**Database Support**

- Genesys Info Mart 8.0 does not support IBM DB2.
- Genesys Info Mart supports range partitioning of the Info Mart database in Oracle 10g and 11g deployments.

# New Configuration Sections and Options

**Error Handling**

- A new `[error-policy]` configuration section contains options that control error handling during extraction and transformation.

  For more information about the `[error-policy]` options, see "error-policy Section" on page 239.

**Date_Time Dimensions**

- A new `[date-time]` configuration section contains calendar-related options that enable you to customize time zone and week-numbering formats and to control maintenance of the calendar dimensions.
- The default `[date-time]` section is a model for additional custom `[date-time-*]` sections that you can create to provide multiple calendars for reporting purposes.

  For more information about the `[date-time]` options, see "date-time Section" on page 235.

**Purging**

- New `days-to-keep-*` options in the `[gim-etl]` section enable you to configure data retention policies to control purging of data in the dimensional model, GIDB, and discard, audit, and history tables in the Info Mart database.

**Partitioning**

- For deployments that use partitioning, new `partitioning-*` options in the `[gim-etl]` section enable you to configure the size of range partitions for partitioned fact tables in GIDB and the dimensional model, as well as the number of days ahead for which the maintenance job will create partitions, in preparation for future ETL cycles.

**DAP Configuration**

- New `jdbc-*` options in the `[gim-etl]` section of the database access point (DAP) `Application` object enable you to specify JDBC connection information in non-JDBC DAPs. Therefore, you can reuse non-JDBC DAPs in your deployment (for example, Interaction Concentrator DAPs to access IDB, or the Genesys Info Mart Administration Console DAP to access the Info Mart database) to enable Genesys Info Mart to access the same databases. For more information, see "Reusing DAPs" on page 188.

**Aggregation**

- A number of aggregation-related options have been moved to new configuration sections and, in some cases, renamed. For more information about all the aggregation-related options, see the *Reporting and Analytics Aggregates 8.0 Deployment Guide*.

# Related Documentation Resources

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

## Framework

- The *Framework 8.0 Management Layer User's Guide* provides information about the concepts, terminology, and procedures that apply to this layer of the Genesys Framework.
- The *Framework 8.0 Configuration Options Reference Manual* provides information about configuration options for Framework components.
- The *Framework 8.0 Configuration Manager Help* provides information about using Configuration Manager in either an enterprise or a multi-tenant environment.
- The *Framework 8.0 Deployment Guide* provides information about configuring, installing, starting, and stopping Framework components.
- The *Framework 8.0 Combined Log Events Help* describes log events that Genesys server applications generate and that Solution Control Interface displays. The *Framework 8.0 Combined Log Events Help* includes descriptions of Genesys Info Mart log events.

## Interaction Concentrator

- The *Interaction Concentrator 8.0 Deployment Guide* provides information about architecture, configuration requirements, and installation steps for Interaction Concentrator, and it describes how to make data from the Genesys Outbound Contact solution available in Interaction Database (IDB).

- The *Interaction Concentrator 8.0 User's Guide* provides basic information about IDB architecture and detailed information about Interaction Concentrator features and functionality, including attached data processing, available stored procedures, and integration with other Genesys products.
- The *Interaction Concentrator 8.0 Physical Data Model* for your relational database management system (RDBMS) provides information about the IDB schemas.

## Genesys Info Mart

- The *Genesys Info Mart 8.0 Operations Guide* provides information about the Genesys Info Mart jobs. The jobs extract, transform, and load (ETL) data, maintain the Info Mart database, and migrate the database schema as required. The guide also explains how to use the Genesys Info Mart Administration Console to monitor and administer the jobs and how to purge the Info Mart database.
- The *Genesys Info Mart 8.0 User's Guide* provides information about how to use data that is stored by Genesys Info Mart for contact center historical reporting.
- The *Genesys Info Mart 8.0 Reference Manual* for your RDBMS provides information about the Info Mart database schema.
- The *Genesys Info Mart 8.0 Database Size Estimator* helps you estimate the size of your Info Mart database when you are planning your deployment. The estimator is a Microsoft Office Excel 2007 spreadsheet that is available from the Genesys Technical Support website.
- Release Notes and Product Advisories for this product, which are available on the Genesys Technical Support website at http://genesyslab.com/support.

## Reporting and Analytics Aggregates

- The *Reporting and Analytics Aggregates 8.0 Deployment Guide* describes how to deploy the Reporting and Analytics Aggregates (RAA) package provided with Genesys Info Mart.
- The *Reporting and Analytics Aggregates 8.0 Reference Manual* describes the aggregate tables that are available to Genesys Info Mart customers with deployment of RAA.
- The *Reporting and Analytics Aggregates 8.0 User's Guide* describes the aggregation process, provides the aggregation hierarchy, and explains how to enable aggregation of user data.

## Genesys Interactive Insights

- The *Genesys Interactive Insights 8.0 Deployment Guide* describes how to install Genesys Interactive Insights (GI2) and set up the environment required in order to run the GI2 reports.
- The *Genesys Interactive Insights 8.0 Universe Guide* describes, in detail, the reports and measures that are provided in the GI2 release.
- The *Genesys Interactive Insights 8.0 User's Guide* summarizes how to operate GI2 reports and provides basic instructions for customizing your own reports.

## Genesys

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

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 the following additional resources as necessary:

- The *Genesys Migration Guide*, which ships on the Genesys Documentation Library DVD, provides documented migration strategies for Genesys product releases. Contact Genesys Technical Support for more information.
- The *Genesys Hardware Sizing Guide* provides information about Genesys hardware sizing guidelines for the Genesys 8.x releases.
- The *Genesys Interoperability Guide* provides information on the compatibility of Genesys products with various Configuration Layer Environments; Interoperability of Reporting Templates and Solutions; and *Gplus* Adapters Interoperability.
- The *Genesys Licensing Guide* introduces you to the concepts, terminology, and procedures that are relevant to the Genesys licensing system.
- The *Genesys Database Sizing Estimator 8.0 Worksheets* provides a range of expected database sizes for various Genesys products.

For additional system-wide planning tools and information, see the release-specific listings of System Level Documents on the Genesys Technical Support website. These documents are 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. Here is a sample version number:

80gim_dep_09-2010_v8.0.001.00

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 accompanying and explaining 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 27 describes and illustrates the type conventions that are used in this document.

### Table 27: Type Styles

| Type Style | Used For | Examples |
|---|---|---|
| Italic | • Document titles<br>• Emphasis<br>• Definitions of (or first references to) unfamiliar terms<br>• Mathematical variables<br>Also used to indicate placeholder text within code samples or commands, in the special case where angle brackets are a required part of the syntax (see the note about angle brackets on page 350). | Please consult the *Genesys Migration Guide* for more information.<br>Do *not* use this value for this option.<br>A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession.<br>The formula, $x + 1 = 7$<br>where $x$ stands for . . . |
| Monospace font<br>(Looks like `teletype` or `typewriter text`) | All programming identifiers and GUI elements. This convention includes:<br>• 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.<br>• The values of options.<br>• Logical arguments and command syntax.<br>• Code samples.<br>Also used 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.<br>In the `Operand` text box, enter your formula.<br>Click `OK` to exit the `Properties` dialog box.<br>T-Server distributes the error messages in `EventError` events.<br>If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls.<br>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 specific to your enterprise.<br>**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>` |

# Index

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