Genesys Info Mart 8.1

Operations Guide

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List of Procedures

Preface

Welcome to the *Genesys Info Mart 8.1 Operations Guide*. This guide describes the procedures that you must follow to schedule and monitor the Genesys Info Mart jobs that extract, transform, and load (ETL) data. It is intended for system administrators and is valid only for Genesys Info Mart release 8.1.

Note: For versions of this document created for other releases of this product, visit the Genesys Documentation website, or request the Documentation Library DVD, which you can order by e-mail from Genesys Order Management at orderman@genesys.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 91.

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

Intended Audience

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

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

You should also be familiar with:

- Relational database management systems (RDBMSs)
- Data extraction
- Data warehousing
- Data integration
- SQL (Structured Query Language)

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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 v8.1.401.00

The document has been updated to support Genesys Info Mart release 8.1.4. The following topics have been added or changed since the previous release of this document:

Documentation Updates to Support New 8.1.4 Functionality

- Information throughout the document has been updated as required to include Genesys Info Mart Manager, a new graphical user interface (GUI) that you can use to manage Genesys Info Mart jobs. Significant changes include information about:
  - "Using the Genesys Info Mart Manager" on page 36
  - "Managing Jobs with Genesys Info Mart Manager" on page 53

  The generic term *management GUI* replaces previous references to the Genesys Info Mart Administration Console in contexts where the specific UI is not significant.
- The section about managing jobs with the Genesys Info Mart Administration Console has been updated to include a new procedure, "Re-Aggregating Data with Genesys Info Mart Administration Console" on page 64.
- "Job_AggregateGIM" on page 26 has been updated to note new purge functionality introduced in Reporting and Analytics Aggregates (RAA) release 8.1.4.
- In "Job_MaintainGIM" on page 27 and elsewhere, the new `*_ANNEX` dimension tables have been included in descriptions of the types of data that `Job_MaintainGIM` purges.

Documentation Enhancements and Corrections

- The aggregation-scheduling options illustrated in "Sample Schedule" on page 52 have been revised to present a more realistic schedule. (Previously, the sample schedule illustrated aggregation running continuously for 24 hours, without a break for the maintenance job, which is not recommended.)

- In the Troubleshooting chapter:
  - In "Recovering from a Prolonged ETL Outage" on page 85, information about the recommended maximum chunk size (two hours) has been added.
  - "Standby and Disaster Recovery" on page 88 combines previously separate sections and includes information about an additional supported topology, *active-active* Info Marts.

New in Document Version v8.1.301.00

The document has been updated to support Genesys Info Mart releases 8.1.2 and 8.1.3. The following topics have been added or changed since the previous release of this document:

Documentation Updates to Support New 8.1.3 Functionality

- The new job, `Job_UpdateStats`, which was introduced to perform supplementary maintenance on PostgreSQL databases, is described in "Job_UpdateStats" on page 29. Significant related updates include:
  - Schedule considerations in "Job Sequencing Rules" on page 47
  - Information about configuring the job schedule in "Scheduling" on page 30 and Step 8 on page 50
- "Customizing the Genesys Info Mart Administration Console Display" on page 44 has been updated to include changed filtering options in the user interface provided by Genesys Info Mart Administration Console release 8.1.3.

Documentation Updates to Support New 8.1.2 Functionality

- The descriptions of `Job_InitializeGIM` on page 21 and `Job_MigrateGIM` on page 30 have been updated to include new 8.1.2 functionality about automatic execution of the scripts to upgrade IDBs when required.

Documentation Enhancements and Corrections

- "Job Sequencing Rules" on page 47 has been revised to correct and clarify the job-management rules when jobs are run from the Genesys Info Mart Administration Console.
- In Procedure: Setting up the Genesys Info Mart jobs schedule, an incorrect statement in Step 6 on page 50—that setting `etl-start-time=etl-end-time` schedules the ETL cycle to run continuously—has been deleted.
- In "Determining the Retention Period" on page 77, additional guidance has been provided for determining the retention period for Multimedia data in IDB.
- "Recovering from Data-Source Unavailability" on page 85 has been extensively revised and enhanced.
- "High Availability Recommendations" on page 87 has been enhanced to describe additional situations in which extraction might fail.
- Statements about Genesys Info Mart support for *disaster recovery* have been modified as required to distinguish between *standby* functionality (for example, in "Standby and Disaster Recovery" on page 88) and *disaster*

recovery. “Standby and Disaster Recovery” on page 88 describes Genesys Info Mart support, which was introduced in release 8.1.2, for database replication with Oracle GoldenGate.

New in Document Version v8.1.101.00

The document has been updated to support Genesys Info Mart release 8.1.1. The following topics have been added or changed since the previous release of this document:

- In “Purging the Info Mart Database” on page 27, the description of the kind of data that `Job_MaintainGIM` purges has been modified to reflect changes in Genesys Info Mart purge behavior.
- In Chapter 5 on page 81, particularly in “Error Recovery” on page 84, there have been minor terminology changes to reflect changes in Genesys Info Mart extraction behavior—for example, references to “configured data sources” or “available data sources” have been changed to “active data sources.”

Chapter

1 Introducing Genesys Info Mart 8.1

This chapter introduces you to Genesys Info Mart 8.1. It contains the following sections:

About Genesys Info Mart 8.1

Genesys Info Mart 8.1 extracts data from one or more Genesys Interaction Concentrator databases to produce the Info Mart database, your data store for contact center historical reporting.

In the release 8.x model, Genesys Info Mart consolidates data from multiple Interaction Databases (IDBs) in Global Interaction Database (GIDB), which is part of the Info Mart schema. Voice data, which might be extracted from one or more IDBs, first passes through Merge tables (within the Info Mart database), where the merge operation combines related interactions before moving the data into the GIDB tables. Genesys Info Mart further processes the data in GIDB, and then stores the data in the Info Mart fact and dimension tables (*dimensional model*).

Figure 1 on page 16 duplicates a diagram from the *Genesys Info Mart 8.1 Deployment Guide*, to illustrate the Genesys Info Mart 8.x 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.)

For more information about the Genesys Info Mart architecture, see the architecture section in the Overview chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

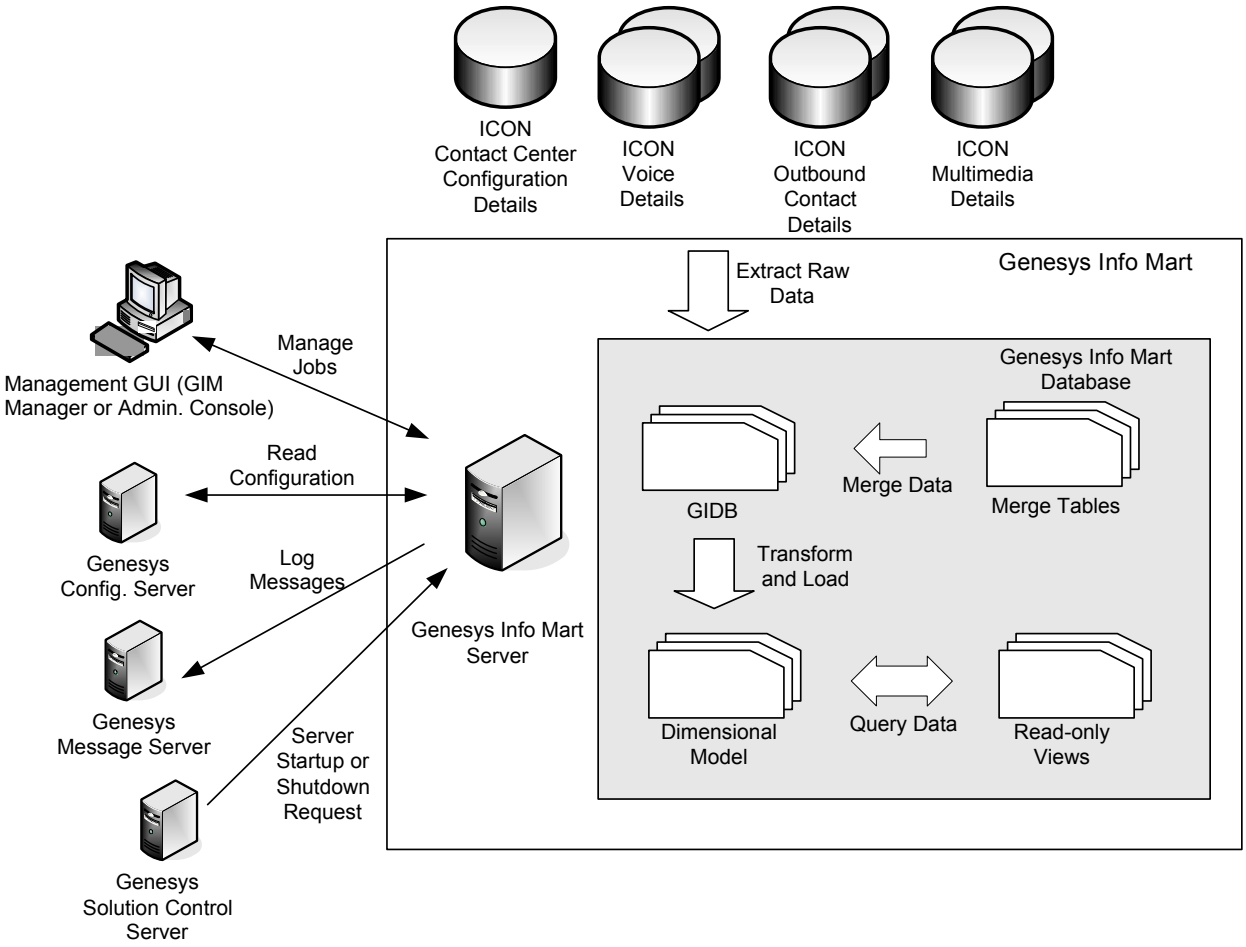

Figure 1: Genesys Info Mart Architecture and Data Flow Diagram

Terminology: ICON Details

In Figure 1, the various types of *ICON details* refer to the type of reporting data that Genesys Info Mart extracts from one or more IDBs, which are populated by one or more Interaction Concentrator (ICON) applications.

Depending on the way that it is configured, Genesys Info Mart stores the following types of ICON details:

- Configuration details—Configuration object and configuration object relationship data, which ICON obtains from Configuration Server.
- Voice details—Voice interaction-related and agent-related data, which ICON obtains from T-Server.

- Multimedia details—Multimedia interaction-related and agent-related data, which ICON obtains from Interaction Server.

  Note: The term *multimedia interactions* refers collectively to all interactions that are processed through Genesys eServices/Multimedia solution, including eServices/Multimedia interactions (for example, `e-mail` and `chat` media types) and 3rd Party Media interactions (formerly referred to as *Open Media*—for example, the `Workitem` media type).

- Outbound Contact details—Historical Outbound Contact object and Outbound Contact object relationship data, as well as precalculated Outbound Contact metrics, which ICON obtains from Outbound Contact Server (OCS).

  For more information about the kinds of data that are included in the various types of ICON details, see the subsection about types of reporting data in the Overview chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

  For information about the meaning of other terms, such as *data domains,* see the section about terminology conventions in the Overview chapter of the *Genesys Info Mart 8.1 Deployment Guide*.

Components and Functions

The Genesys Info Mart operational environment consists of the following components:

- Genesys Info Mart Server—A Java-based server component that is configured with the Genesys Info Mart application. Jobs, which run under the Genesys Info Mart Server, perform extract, transform, and load (ETL) processes and other functions.
- Genesys Info Mart Administration Console or, starting with release 8.1.4, Genesys Info Mart Manager—A graphical user interface (GUI) for managing jobs (hereafter referred to as the *management GUI*).
- Info Mart Database—A database that is organized into a multi-level data model and contains data that was processed by Genesys Info Mart Server.

More Information

For more information about:

- The Genesys Info Mart components, see the section about components and functions in the Overview chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

- The Info Mart database schema, see the *Genesys Info Mart 8.1 Reference Manual* for your RDBMS type.
- The Genesys Info Mart jobs and their functioning, see Chapter 2 on page 19. See also the part about how Genesys Info Mart works in the *Genesys Info Mart 8.1 Deployment Guide*.
- Managing Genesys Info Mart operations, see Chapter 3 on page 33.

Chapter

2 Understanding Genesys Info Mart Jobs

This chapter describes the jobs that ship with Genesys Info Mart. It contains the following sections:

Jobs Summary

Genesys Info Mart jobs perform the following functions on a routine basis:

- Extract data from your source databases.
- Cleanse and transform the data.
- Load the data into the fact and dimension tables of the Info Mart dimensional model.
- Optionally, calculate and load aggregated data into the Aggregate tables.
- Purge old data from the Info Mart database.
- Maintain calendar dimension tables.
- Add and delete partitions for partitioned tables.

Genesys Info Mart also provides jobs to perform the following special-purpose functions:

- Initialize the Info Mart database.

- Migrate your existing version 8.x Info Mart database so that it is ready for use by the current 8.x release of Genesys Info Mart.
- In PostgreSQL deployments, perform supplementary database maintenance.

Table 1 on page 20 lists the jobs that are provided with Genesys Info Mart. Review the information in this chapter to familiarize yourself with the job functions. For more detailed information about how the Genesys Info Mart jobs function, see the part about how Genesys Info Mart works in the *Genesys Info Mart 8.1 Deployment Guide*. For information about using the jobs to extract and transform data, job interdependencies, and a sample schedule, see Chapter 3 on page 33.

Table 1: Genesys Info Mart Jobs Summary

Name	Function	Frequency	Notes
Job_InitializeGIM	Populates many of the dimension tables in the Info Mart database with fixed information. Adds partitions to partitioned tables for partitioned databases. In release 8.1.2 and later, automatically executes the scripts to update IDB(s) for use with Genesys Info Mart.	Once	This job automatically executes once during the first run of Genesys Info Mart after the initial deployment. For more information, see page 21.
Job_ExtractICON	Extracts new and changed records from one or more Interaction Databases (IDBs), and stores those records in Global Interaction Database (GIDB) tables in the Info Mart database.	Intraday, as scheduled	For more information, see page 22.
Job_TransformGIM	Transforms and loads previously extracted data into the fact and dimension tables of the Info Mart database.	Intraday, depending on `Job_ExtractICON`	For more information, see page 25.
Job_AggregateGIM	Aggregates or re-aggregates the facts based on data that was added or changed during the last transformation job. Stores the data in historical Aggregate tables.	Continuous, within a configured daily time period	This job is available in deployments with either Genesys Interactive Insights (GI2) reports or Reporting and Analytics Aggregates (RAA) package. For more information, see page 26.

Table 1: Genesys Info Mart Jobs Summary (Continued)

Name	Function	Frequency	Notes
Job_MaintainGIM	Maintains the Info Mart database.	Daily, with parts of the job running as configured or as needed	For more information, see page 27.
Job_UpdateStats	In PostgreSQL deployments, performs supplementary maintenance on the Info Mart database.	Intraday, as scheduled	This job cannot be run from the management GUI (Genesys Info Mart Manager or the Genesys Info Mart Administration Console). For more information, see page 29.
Job_MigrateGIM	Runs all scripts and makes any other updates necessary to prepare your Info Mart database for the new release of Genesys Info Mart. In release 8.1.2 and later, also automatically executes the scripts to update IDB(s) for use with Genesys Info Mart, if required.	Once during the process of moving from an earlier 8.x release to the current one	This job must be run from the management GUI. For more information, see page 30.

Job_InitializeGIM

This job performs the following functions:

- Populates the following dimensions with fixed information:
  - ATTEMPT_DISPOSITION
  - CALL_RESULT
  - CAMPAIGN_GROUP_STATE
  - CONTACT_INFO_TYPE
  - DATE_TIME
  - DIALING_MODE
  - INTERACTION_RESOURCE_STATE
  - INTERACTION_TYPE
  - MEDIA_TYPE
  - RECORD_STATUS
  - RECORD_TYPE
  - RESOURCE_STATE
  - TECHNICAL_DESCRIPTOR
- In a partitioned database, creates the first set of partitions to be populated during the first extract, transform, and load (ETL) cycle.

- Starting with release 8.1.2, automatically executes the scripts to modify the IDB schema(s) for use with Genesys Info Mart. In earlier Genesys Info Mart 8.1.x releases, you had to run the scripts manually as part of preparing IDBs for use with Genesys Info Mart.

Genesys Info Mart Server automatically launches `Job_InitializeGIM` to initialize the Info Mart database during the first run of Genesys Info Mart after the initial deployment.

Job_ExtractICON

`Job_ExtractICON` extracts data from one or more IDBs in discrete chunks and stores it either directly in the Global Interaction Database (GIDB) tables or, for voice interaction data, initially in the Merge tables within GIDB. As part of the extraction process for Voice details, `Job_ExtractICON` merges related data in the Merge tables, and then moves the data to the GIDB tables.

In particular, `Job_ExtractICON`:

- Populates the `START_DATE_TIME_KEY` field in the GIDB and Merge tables.
- Merges call data in the Merge tables.
- Creates audit log records in the `CTL_AUDIT_LOG` table for each chunk.

In high availability (HA) deployments, the extraction job also analyzes the Interaction Concentrator (ICON)–provided session information in the redundant Interaction Databases (IDBs) that store the same type of data (Configuration, Voice, Outbound Contact, or Multimedia details), to evaluate which IDB to use for data extraction in a particular extraction cycle. This analysis occurs prior to data extraction in a particular extraction cycle.

After the successful completion of the extraction job, the Genesys Info Mart Server launches the job that transforms all the extracted ICON data.

Note: By default, all time dimension data is calculated in Coordinated Universal Time (UTC) format.

Extraction Roles

The algorithm that `Job_ExtractICON` uses to extract data depends on the extraction role that you configured in the database access point (DAP) that enables Genesys Info Mart to access IDB. The extraction roles are:

- `ICON_CFG`
- `ICON_CORE` (see page 23)
- `ICON_OCS` (see page 24)
- `ICON_MM` (see page 24)

The extraction algorithms use high-water mark (HWM) timestamps, configured chunk sizes, and configured stuck thresholds to determine an *extraction window* (in other words, a time span for which data will be extracted) for each data domain during a particular ETL cycle. For more information about the extraction algorithms, see the section about extraction in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*.

ICON_CFG

For the `ICON_CFG` role, `Job_ExtractICON` extracts:

- All new and changed data from IDB tables that store the contact center configuration history, and stores the data in the GIDB tables of the Genesys Info Mart database. The job extracts all available configuration data in one extraction cycle so that the transformation of other data can proceed.
- Object relationship records from IDB tables. New relationship fact records are inserted into GIDB, and updates are simply merged into existing historical records.

For more information about how the extraction job processes configuration data, see the chapter about extraction processing in the *Genesys Info Mart 8.1 Deployment Guide*.

ICON_CORE

For the `ICON_CORE` role, `Job_ExtractICON` extracts:

- Completed virtual queue details
- Completed voice interaction details, such as calls and user data (including call-based attached data and UserEvent-based key-value pair [KVP] data)
- Both active and completed voice agent login session details
- Both active and completed voice agent states
- Completed voice agent state reason codes
- Both active and completed voice do-not-disturb (DND) modes

The job stores the information in the GIDB tables of the Genesys Info Mart database. The job also merges voice data in the Merge tables before transformation.

For more information about how the extraction job processes Voice-related data, including information about the merge operation, see the chapter about extraction processing in the *Genesys Info Mart 8.1 Deployment Guide*.

ICON_OCS

For the `ICON_OCS` role, `Job_ExtractICON` extracts all new and changed data from IDB tables that store OCS data, and stores the data in GIDB.

For more information about how the extraction job processes Outbound Contact data, see the chapter about extraction processing in the *Genesys Info Mart 8.1 Deployment Guide*.

ICON_MM

For the `ICON_MM` role, `Job_ExtractICON` extracts:

- All new and changed data from IDB tables that store multimedia interactions. Both active and completed multimedia interactions are extracted along with user data (including interaction-based attached data and eServices/Multimedia-specific attributes). These interactions do not need to be merged.
- Both active and completed virtual queue details.
- Both active and completed multimedia agent login session details.
- Both active and completed multimedia agent states.
- Completed multimedia agent state reason codes.
- Both active and completed multimedia do-not-disturb (DND) modes.

The job stores the extracted multimedia data in the GIDB tables of Genesys Info Mart database.

For more information about how the extraction job processes Multimedia-related data, see the chapter about extraction processing in the *Genesys Info Mart 8.1 Deployment Guide*.

Determining Data Availability

At the start of each extraction job, Genesys Info Mart verifies the availability of configured data sources. If the same data source is present in the connections list of more than one ICON application, HA mode is automatically in effect.

During extraction processing, Genesys Info Mart uses information in the `G_DSS_*_PROVIDER` tables in IDB to monitor activity on each data source session.

If Genesys Info Mart identifies that data from a configured data source (or HA pair) is not available in any IDB during an extraction cycle, Genesys Info Mart logs an error and does not proceed with the extraction job.

For more information, see the subsection about determining data availability in the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.

Controlling Extraction Job Functioning

Genesys Info Mart uses a number of configurable application and database settings to control `Job_ExtractICON`.

Controlling the Volume of Data Extraction

- Except in the case of configuration object data, you can configure Genesys Info Mart to control how much data should be extracted from an IDB within one extraction cycle. For example, you can configure the chunk size.

Optimizing Extraction

- You can control the level of concurrency, to optimize the use of available hardware resources and minimize the time required for extraction.

For more information about the options that control data extraction, see the configuration recommendations in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide.*

Streamlining Merge Operation Functioning

Various application and database-related settings affect the merge operation, which, in turn, affects ETL processing performance. To streamline the functioning of the merge operation, you must identify unmonitored switches and ensure that merge-related configuration option settings are appropriate for your deployment. For more information, see the procedure about configuring the Info Mart database for merge in the *Genesys Info Mart 8.1 Deployment Guide*.

Job_TransformGIM

`Job_TransformGIM` transforms the data that has been extracted from all IDBs. The Genesys Info Mart Server launches this job during each ETL cycle after it has extracted data from all IDBs. `Job_TransformGIM` transforms GIDB data and then loads it into the Info Mart database as the last step of the transformation process.

The transformation logic implements a dependency between the data in primary and secondary tables. This concept is referred to as *horizontal transform.* For more discussion of horizontal transform, including transformation behavior when there is delayed or missing data, see the section about data transformation in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*.

Error Handling

The Genesys Info Mart server handles errors differently, depending on the type of data and the reasons for the error.

The main categories of error that the transformation job might encounter are:

- Missing configuration data
- Partially merged voice interactions
- Data inconsistencies

For more information, see Chapter 5 on page 81.

For more information about the behavior of the transformation job when it encounters errors, see the section about error handling in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*.

Job_AggregateGIM

In deployments that include GI2 or the separately installed RAA package, `Job_AggregateGIM` calculates or recalculates the historical Aggregate tables in the Info Mart database based on:

- Data that changed since the last load of the historical fact tables
- New settings for configuration options that control aggregation

In release 8.x, `Job_AggregateGIM` runs continuously within a time window that you specify.

During ETL processing, 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.

Starting with RAA release 8.1.4, the aggregation job also purges aggregate data, based on purge rules and a schedule you specify. For more information, see the *Reporting and Analytics Aggregates 8.1 User's Guide*.

For more information about the aggregation package and running the aggregation process, see the *Reporting and Analytics Aggregates 8.x Deployment Guide.* For information about managing the aggregation job through the management GUI, see "Managing Jobs with Genesys Info Mart Manager" on page 53 (for release 8.1.4 and later) or "Managing Jobs with Genesys Info Mart Administration Console" on page 60 (for all 8.1 releases).

Scheduling

`Job_AggregateGIM` is an optional job. You can run `Job_AggregateGIM` from the management GUI (in integrated mode) if you plan to use GI2 reports.You can also aggregate directly from GI2 in autonomous aggregation mode. For more information about these aggregation modes, see the RAA documentation set.

Aggregation Scheduling Configuration Options

Configuration options enable you to specify:

- Whether `Job_AggregateGIM` will run the aggregation engine within the Genesys Info Mart server process, under the control of the scheduler.
- The start times and duration of the daily intervals within which `Job_AggregateGIM` will run. Within these intervals, `Job_AggregateGIM` will run continuously.

For more information about the scheduling options, see the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

Starting with Genesys Info Mart release 8.1.4, you can request the calculation of aggregates for a certain time span, using either Genesys Info Mart Manager (see page 57) or Genesys Info Mart Administration Console (see page 64). For releases earlier than 8.1.4, this capability is available outside of the Genesys Info Mart management GUIs. Refer to the RAA documentation set for instructions.

Job_MaintainGIM

`Job_MaintainGIM` performs the following tasks:

- Purges the Info Mart database in accordance with configurable data retention policies. For more information, see "Purging the Info Mart Database".
- Populates the calendar table(s) for future reports. For more information, see "Maintaining Calendar Tables" on page 28.
- If you are using partitions in a partitioned database, adds partitions as necessary to process incoming data. For more information, see "Maintaining Database Partitions" on page 29.

Purging the Info Mart Database

`Job_MaintainGIM` purges:

- Completed and artificially terminated fact data from GIDB.
- Completed and artificially terminated fact data from the dimensional model.
- Starting with release 8.1.4, deleted records from the `GROUP_ANNEX` and `RESOURCE_ANNEX` dimension tables.
- Discarded operational data from discard tables.
- Outdated information from the `AUDIT_LOG` and History tables.
- For partitioned tables, partitions that contain only completed and artificially terminated fact data that is eligible to be purged.

`Job_MaintainGIM` uses different algorithms to purge different categories of data from various areas of the Info Mart schema. Separate configuration options

enable you to configure different retention policies for the different categories of data.

For more information about data retention policies, the retention policy options, and the purging algorithms that Job_MaintainGIM uses, see the section about purging Info Mart data in the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.

Note: Job_MaintainGIM does *not* purge old aggregate data, dimension data or configuration data (except for the *_ANNEX tables in release 8.1.4 and later).

Purging Mechanism

The actual SQL commands that Job_MaintainGIM issues depend on whether the tables are partitioned.

- When Job_MaintainGIM deletes rows in nonpartitioned tables, the job issues SQL DELETE operations against the tables. Running this job daily results in a small percentage of the table being deleted, which minimizes the time that it takes the RDBMS server to find the rows, delete them, and make index adjustments.
- When Job_MaintainGIM purges partitioned tables, the job issues the appropriate SQL commands against the tables, as required by the RDBMS implementation, to drop partitions.

Scheduling

To use Job_MaintainGIM to purge data, configure the time of day that you want Genesys Info Mart Server to launch this job. The job is run once a day.

For more information about enabling or disabling a purging schedule, see "Setting Scheduling Options for Genesys Info Mart Server", particularly Step 10 on page 52.

Maintaining Calendar Tables

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, 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.

For information about:

- The configuration options that control population of the calendar dimensions, see the description of the maintenance job in the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.
- Creating custom calendars, see the chapter about post-installation activities in the *Genesys Info Mart 8.1 Deployment Guide*.
- Modifying existing calendar dimensions, see "Changing Calendar Dimensions" on page 68.

Maintaining Database Partitions

You can use partitioning on Oracle (range partitioning only), Microsoft SQL Server, and PostgreSQL databases. Fact tables and associated indexes in GIDB and the dimensional model are partitioned. Configuration object tables, configuration relationship fact tables, and dimension tables are not partitioned.

During initialization, `Job_InitializeGIM` creates the first set of partitions, and `Job_MaintainGIM` subsequently creates additional partitions as required to be populated during ETL cycles.

You can configure Genesys Info Mart to specify the size of the partitions in GIDB and the dimensional model and to control how far ahead the Genesys Info Mart jobs (`Job_InitializeGIM` in the first instance, then `Job_MaintainGIM` on an ongoing basis) will create partitions, in preparation for future ETL cycles. For more information, see the descriptions of the `partitioning-*` options in the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide.*

Job_UpdateStats

`Job_UpdateStats`, which was introduced in release 8.1.3, performs important aspects of database maintenance to improve query performance in PostgreSQL deployments. The job uses a combination of Genesys Info Mart and default PostgreSQL functionality to:

- Detect tables for which statistics are out of date and update them
- Run a vacuum process, which supplements autovacuum, to reclaim storage space from updated or deleted rows

Terminology Note

Although `Job_UpdateStats` performs maintenance activities, in the Genesys Info Mart documentation, the term *maintenance job* refers to `Job_MaintainGIM` only.

Scheduling

Genesys recommends that you configure the Genesys Info Mart Server to run `Job_UpdateStats` frequently throughout the day. You must use configuration options to schedule the job; you cannot schedule or run the job manually from the Genesys Info Mart Manager or Genesys Info Mart Administration Console.

For more information about enabling or disabling the schedule for `Job_UpdateStats`, see "Routine Maintenance for PostgreSQL" on page 50, For more information about the scheduling options, see the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

Job_MigrateGIM

When you need to migrate from an existing Genesys Info Mart 8.x deployment to the most recent 8.x release of Genesys Info Mart, you will run `Job_MigrateGIM` as a part of the transition process. `Job_MigrateGIM` automatically runs all of the scripts necessary to prepare your existing Info Mart database for use with the current release of Genesys Info Mart 8.x.

Starting with release 8.1.2, `Job_MigrateGIM` also automatically runs the scripts to modify the IDB schema(s) for use with the upgraded Genesys Info Mart, if required. In earlier Genesys Info Mart 8.1.x releases, you had to run the scripts manually.

- When you restart an upgraded Genesys Info Mart Server application with an unmigrated Info Mart database, Genesys Info Mart automatically detects an out-of-date Info Mart database schema version and puts the Genesys Info Mart Server into migration state. In this state, you cannot run any jobs other than `Job_MigrateGIM`.
- Starting with release 8.1.2, `Job_MigrateGIM` automatically executes the scripts to update the IDB(s).
- Starting with release 8.1.2, when Genesys Info Mart checks the deployment configuration before the start of the extraction job during normal functioning, it detects any IDBs in the Genesys Info Mart application connections that are not the correct version for Genesys Info Mart. This situation might arise when you upgrade Interaction Concentrator or when you add a new IDB to an existing deployment, if you did not follow the Genesys recommendation to manually run the scripts to update the IDB(s) at the time. In this situation, Genesys Info Mart Server goes into the migration state and will not run any jobs until you manually run `Job_MigrateGIM`, which automatically executes the required scripts to update the IDB(s).

Scheduling Considerations

Ensure that no queries or other activities are performed against the Info Mart database while `Job_MigrateGIM` runs. Be sure to take this into account when you plan migration.

Starting with release 8.1.2, because `Job_MigrateGIM` might be required to execute the scripts to update IDB(s), consider all ways in which you can minimize or prevent contention between Genesys Info Mart and ICON activity on IDB while `Job_MigrateGIM` runs. For more information, see "Preventing Deadlocks on IDB During Genesys Info Mart Migration" in the "Genesys Info Mart 8.x Migration Procedures" chapter in the *Genesys Migration Guide.*

Note: `Job_MigrateGIM` migrates only existing 8.x deployments to the most recent 8.x release of Genesys Info Mart. There is no migration path from 7.x to 8.x.

For complete migration preparations and procedures, see the Genesys Info Mart 8.x section of the *Genesys Migration Guide*.

Chapter

3 Working with Jobs

This chapter describes how to execute the Genesys Info Mart jobs, either automatically or manually, using Genesys Info Mart Server and Genesys Info Mart Manager or Genesys Info Mart Administration Console.

This chapter contains the following sections:

For descriptions of the Genesys Info Mart jobs, see Chapter 2 on page 19. For information about how Genesys Info Mart handles errors that it might encounter during job execution, see Chapter 5 on page 81.

Notes:

- Before you can execute any job, you must complete the tasks in the *Genesys Info Mart 8.1 Deployment Guide*.
- The Genesys Info Mart Server checks the integrity of the Genesys Info Mart deployment and prevents any new job from starting if the configuration check encounters errors in the items that it validates. For more information about when Genesys Info Mart performs the configuration check and which items it checks, see the section about deployment verification in the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.

Managing Genesys Info Mart

This section describes various methods for starting, stopping, and monitoring the Genesys Info Mart Server and jobs.

Starting and Stopping Genesys Info Mart Server

You can start and shut down Genesys Info Mart Server by using the Management Layer, a startup file, a manual procedure, or Services Manager. Specifically, you can start and stop Genesys Info Mart Server:

- From the Genesys Solution Control Interface (SCI)
- Manually on Windows:
  - (For starting only) From the `Start` menu
  - From the console window
  - As a Windows Service
- Manually on UNIX:
  - From the console window
  - (For stopping only) From the command line

Note: When Genesys Info Mart is installed on the Windows platform, it is installed as a Windows service. The startup type for the Windows service is `Automatic`. If the machine is restarted, the Windows service automatically launches Genesys Info Mart.

The startup methods usually require command-line parameters that are common to most Genesys server applications, as well as an executable file name.

For detailed information about starting and stopping the Genesys Info Mart Server, including information about the command-line parameters that Genesys Info Mart supports, see the chapter about starting and stopping Genesys Info Mart in the *Genesys Info Mart 8.1 Deployment Guide*.

Monitoring Genesys Info Mart Activity

Viewing Genesys Info Mart Server Status

You can use SCI to monitor the status of Genesys Info Mart Server.

- When you start Genesys Info Mart Server by using SCI, the Genesys Info Mart application status reflects the status of the Genesys Info Mart Server itself, and not the status of any jobs. In other words, the `STARTED` status that is reported by Solution Control Server (SCS) indicates that Genesys Info Mart Server is operational, but it does not indicate whether jobs are currently running or whether a job has failed.

- When you stop Genesys Info Mart Server by using SCI, the server shuts down all currently running jobs and terminates gracefully. The `STOPPED` status that is reported by SCS indicates that Genesys Info Mart Server has stopped, but it does not indicate the status of jobs.

Viewing Job Status

To learn the job status, you can:

- Use one of the management GUIs—Genesys Info Mart Manager (starting with release 8.1.4) or the Genesys Info Mart Administration Console (all 8.1 releases). For more information about using the management GUIs to monitor Genesys Info Mart jobs, see "Managing Jobs with Genesys Info Mart Manager" on page 53 or "Managing Jobs with Genesys Info Mart Administration Console" on page 60.
- View the job status in the `ADMIN_ETL_JOB_HISTORY` and `ADMIN_ETL_JOB_STATUS` database views.
- Check the logs (for example, in the Centralized Log Database) for the job status messages.

Connecting to Configuration Server

Genesys Info Mart Server keeps an active connection to Configuration Server. This enables it to receive notification of any configuration changes that affect its operation. The Genesys Info Mart Server adjusts to any dynamic changes to the configuration options in the corresponding Genesys Info Mart Server `Application` object. Configuration changes that affect the operation of a currently running job take effect the next time the job starts.

If Genesys Info Mart Server cannot connect to Configuration Server on startup, it reads the values of configuration options previously stored in a local file and re-attempts to make a connection every 30 seconds.

Note: When the Genesys Info Mart Server cannot connect to Configuration Server because the Genesys Info Mart application in SCI is already connected, the Genesys Info Mart Server exits immediately. This situation may occur when the Genesys Info Mart Server is currently running and an attempt is made to start it from another location.

If the Genesys Info Mart Server is able to connect to Configuration Server, it retrieves the backup Configuration Server information from the `Server Info` tab. If Genesys Info Mart Server later loses its connection to Configuration Server, Genesys Info Mart Server repeats the following process until a connection is established. Genesys Info Mart Server:

1. Attempts to connect to Configuration Server.
2. Attempts to connect to the backup Configuration Server, if configured.
3. Waits 30 seconds, the time specified for the reconnection timeout.

Using the Genesys Info Mart Manager

This section applies to release 8.1.4 and later. For earlier releases, see "Using the Genesys Info Mart Administration Console" on page 41.

Genesys Info Mart Manager is a GUI you can use to monitor job status and, when necessary, manually start or stop a job (outside of the normal schedule).

To support management of Genesys Info Mart jobs, the Genesys Info Mart Manager:

- Displays the current job execution status.
- Displays a history of job execution, such as start time, stop time, duration, and final status.
- Enables you to filter the jobs based on time, status, and other factors.

The following subsections describe the mechanics of using the GUI. For information about using the Genesys Info Mart Manager to manage jobs, see "Managing Jobs with Genesys Info Mart Manager" on page 53.

Accessing Genesys Info Mart Manager

For convenience, the following procedure partially duplicates information from the *Genesys Info Mart 8.1 Deployment Guide*. For more detailed instructions about accessing the Genesys Info Mart Manager, see the chapter about post-installation activities in the *Genesys Info Mart 8.1 Deployment Guide*.

Procedure:
Accessing Genesys Info Mart Manager

Purpose: To access the Genesys Info Mart Manager to manage Genesys Info Mart jobs.

Prerequisites

- Genesys Administrator Extension (GAX) and Genesys Info Mart Manager have been installed.
- A Genesys user account with the appropriate permissions and role privileges to access plug-ins and the Genesys Info Mart application has been provisioned. For more information about the required permissions and privileges, see the prerequisites for installing the Genesys Info Mart Manager plug-in in the *Genesys Info Mart 8.1 Deployment Guide*.
- The Genesys Info Mart Server application is started.

Start of procedure

1. Use a web browser to log in to GAX.
2. Select `Administration > GIM Manager`.

   The `GIM Manager` screen appears, displaying the status of the Genesys Info Mart jobs for a particular Genesys Info Mart Server (see Figure 2).
3. If there is more than one Genesys Info Mart Server in your deployment, use the drop-down list box to choose a server to manage.

End of procedure

Monitoring Jobs with Genesys Info Mart Manager

For any job in your environment, you can monitor the overall job status or the statistics that are associated with the job, as shown in Figure 2.

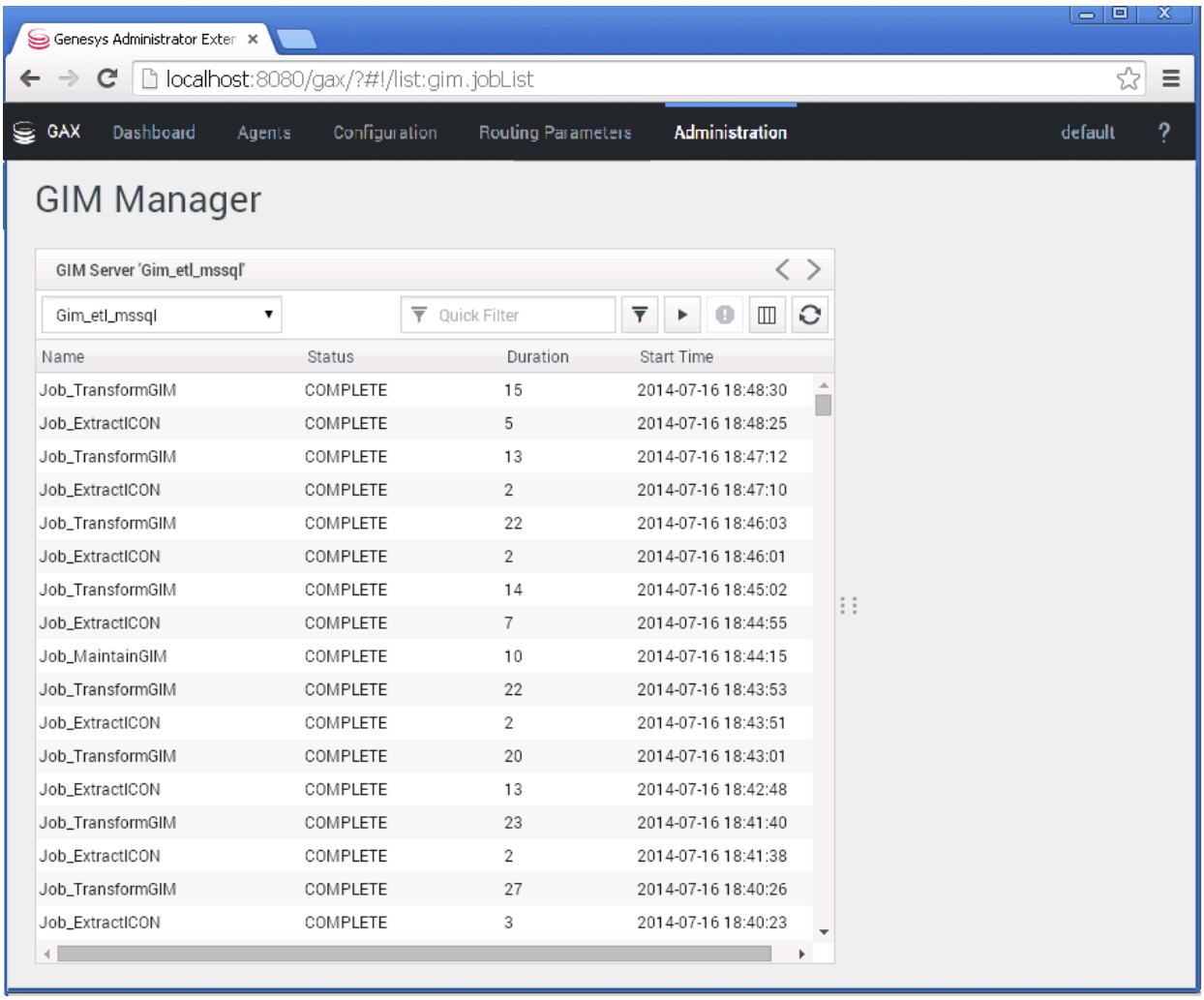

Figure 2: Genesys Info Mart Manager

Visible Columns

The columns visible in your Genesys Info Mart Manager view may be different from those visible in Figure 2 on page 37. To control what columns are visible, click the Select Columns button ( ).

Information Displayed

For each job, Genesys Info Mart Manager displays identifying information, plus the following:

- The most recently retrieved status for the job. Values for status include:
  - Running
  - Complete
  - Scheduled
  - Failed
- The time when the job started running, and the time when it completed.

> **Note:** Genesys Info Mart Manager displays timestamps in the time zone selected in GAX (Preferences > System Preferences > Locale or Preferences > User Preferences > Locale).

Error Messages

Genesys Info Mart Manager displays an error message if it is not able to connect to the specified Genesys Info Mart Server application, as well as a limited number of error messages it might receive from Genesys Info Mart Server—for example, if the specified Genesys Info Mart Server cannot acquire a master lock on the Info Mart database.

Display Refreshed

Genesys Info Mart Manager refreshes the information shown in this view:

- When you click the Refresh button ( )
- When you start or stop a job

Customizing the Genesys Info Mart Manager Display

You can customize the way Genesys Info Mart Manager displays information, as follows:

- You can select the language used by the GUI, provided that the applicable language pack has been installed. For links to more information about installing language packs, see the Genesys Info Mart Manager Help. See also the "Next Steps" in the procedure about installing Genesys Info Mart Manager in the *Genesys Info Mart 8.1 Deployment Guide*.

  In addition to selecting the language, you can use Locale settings (Preferences > System Preferences > Locale or Preferences > User Preferences > Locale) to change the time zone, date format, and number format in which Genesys Info Mart Manager displays information.
- You can resize columns in the Genesys Info Mart Manager window view by clicking and dragging the column heading.
- You can select which columns are visible by clicking the Select Columns button ( ).

- You can sort the jobs alphabetically or numerically by clicking any column heading.
- You can filter the list of jobs. Two options are available:
  - A `Quick Filter` field. As you type in this field, the list of jobs automatically updates to show only those jobs that contain the text you type. This filter checks all visible columns, so you can easily filter by job name, status, duration, job ID, or start/end times.
  - A `Filter` button ( ), which opens the `Filter` dialog box, allowing you to filter the list of jobs on a variety of criteria. For more information, see Procedure: Filtering the Genesys Info Mart Manager view.

Note: The `Quick Filter` and `Filter` features interact with each other. Thus, if you set options in the `Filter` dialog box, you can further refine the filter by entering a value in the `Quick Filter` field.

Procedure: Filtering the Genesys Info Mart Manager view

Purpose: To filter the Genesys Info Mart Manager view to customize which jobs appear in the list.

Start of procedure

1. In Genesys Info Mart Manager, click the `Filter` button ( ). The `Filter` dialog box appears, as shown in Figure 3 on page 40.

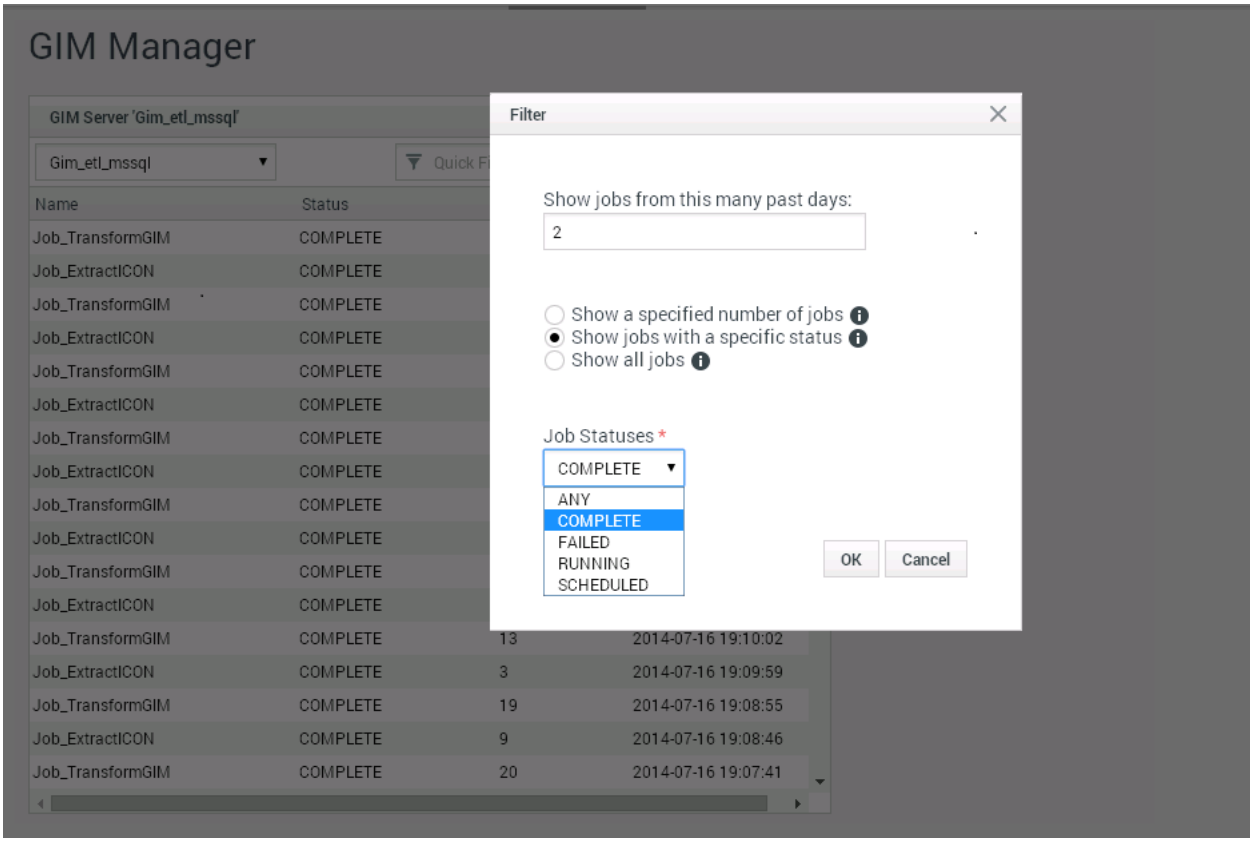

Figure 3: Filtering Options for Genesys Info Mart Manager

2. In the `Show jobs from this many past days` field, select the number of days' worth of jobs you want to view.
3. Choose one of the following methods of filtering:
   - Click `Show a specified number of jobs`, and enter the number of jobs to display.
   - Click `Show jobs with a specific status`, and choose a status. Available status options are:
     - `ANY`
     - `Complete`
     - `Failed`
     - `Running`
     - `Scheduled` (see Step 3 on page 57 for the meaning of this status)
   - Click `Show all jobs` to view all the jobs that have run in your environment during the specified past number of days.

4. Click OK to set the filter. The jobs that are visible in the Genesys Info Mart Manager view change accordingly.

Note: Once you have set a filter in Genesys Info Mart Manager, the filter preference is saved in your browser using a cookie (if cookies are enabled in your browser). The next time that you use Genesys Info Mart Manager, the filter options will be preset to the last settings that you used.

End of procedure

Using the Genesys Info Mart Administration Console

Genesys Info Mart Administration Console is a GUI that, by using the Wizard Framework, functions as an extension to Configuration Manager.

You can use the Genesys Info Mart Administration Console to monitor job status and, when necessary, manually start or stop a job (outside of the normal schedule).

Beginning in release 8.1.4, a new management GUI, Genesys Info Mart Manager, is provided. Genesys recommends using Genesys Info Mart Manager to view and manage jobs, instead of using the Genesys Info Mart Administration Console. For more information, see "Using the Genesys Info Mart Manager" on page 36,

To support management of Genesys Info Mart jobs, the Genesys Info Mart Administration Console:

- Displays the current job execution status.
- Displays a history of job execution, such as start time, stop time, duration, and final status.
- Enables you to filter the jobs based on time and status.

This subsection describes the mechanics of using the GUI. For information about using the Genesys Info Mart Administration Console to manage jobs, see "Managing Jobs with Genesys Info Mart Administration Console" on page 60.

Accessing Genesys Info Mart Administration Console

For convenience, the following procedure partially duplicates information from the *Genesys Info Mart 8.1 Deployment Guide*. For more detailed instructions about accessing the Genesys Info Mart Administration Console, see the chapter about post-installation activities in the *Genesys Info Mart 8.1 Deployment Guide*.

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.
- 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`.

   The `GIM Admin Console` dialog box appears, displaying the status of the Genesys Info Mart ETL jobs (see Figure 4).

End of procedure

Monitoring Jobs with Genesys Info Mart Administration Console

You can monitor any job in your environment. You can monitor the overall status of jobs or the statistics that are associated with a job.

To monitor your jobs, view the `Status` tab window in the Genesys Info Mart Administration Console. Figure 4 on page 43 shows the `Status` tab window.

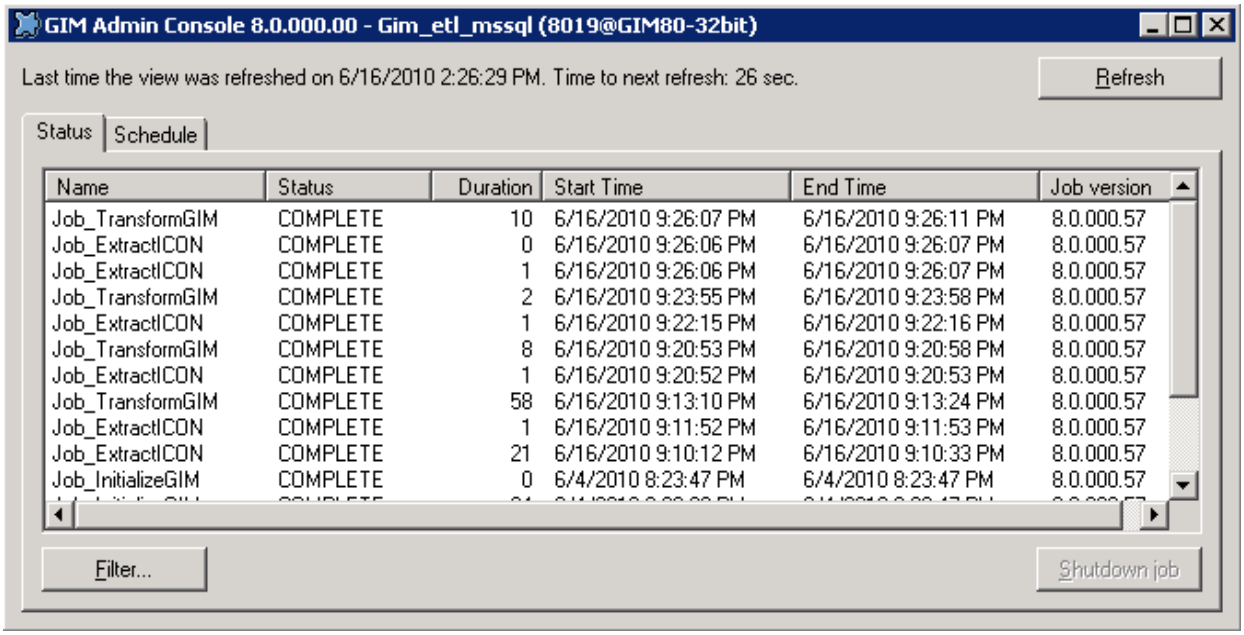

Figure 4: Genesys Info Mart Administration Console Status Tab

The Genesys Info Mart Administration Console refreshes the information shown in the list:

- Automatically every minute
- When the `Refresh` button is clicked
- After a job is shut down with the `Shutdown Job` button

For each job, the Genesys Info Mart Administration Console `Status` tab displays identifying information for each job, plus the following information:

- The current state of the job on each refresh cycle. The status for each job is listed under the `Status` column. Values for status include:
  - `Running`
  - `Complete`
  - `Shutdown`
  - `Waiting`
  - `Failed`
- The time when the job started running, and the time when it completed.

> **Note:** The Genesys Info Mart Administration Console displays timestamps in the time zone of the host on which the Genesys Info Mart Administration Console is installed.

Customizing the Genesys Info Mart Administration Console Display

You can customize the way the Genesys Info Mart Administration Console displays information:

- You can resize columns in the Genesys Info Mart Administration Console window view by clicking and dragging the column heading.
- You can sort the jobs alphabetically or numerically by clicking the column heading.
- You can filter the view to determine which jobs will appear. For more information, see Procedure: Filtering the Genesys Info Mart Administration Console view.

Procedure: Filtering the Genesys Info Mart Administration Console view

Purpose: To filter the view of the Genesys Info Mart Administration Console to customize which jobs will appear on the tabs.

Start of procedure

1. In the Genesys Info Mart Administration Console, select the `Status` tab. The window displays the status of current and completed jobs (see Figure 4 on page 43).
2. Click the `Filter...` button. The `Filter` dialog box appears (see Figure 5, which shows the `Filter` dialog box in Genesys Info Mart Administration Console release 8.1.3).

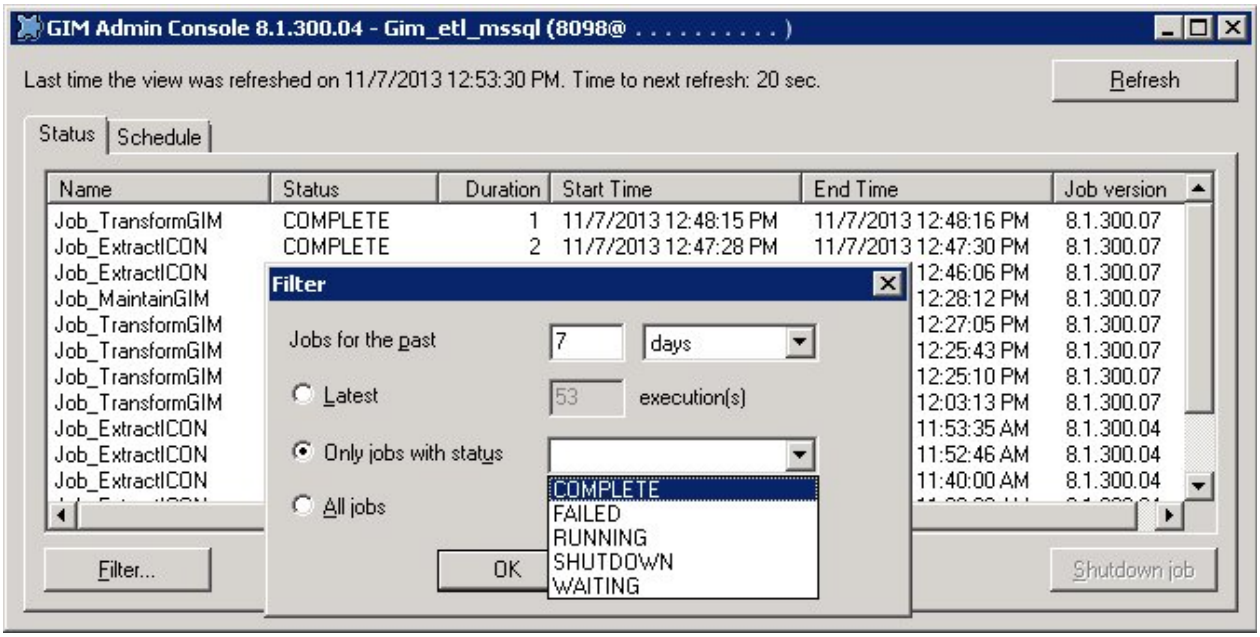

Figure 5: Filtering Options for Administration Console

3. Select the filtering options that you want. Filters can be set to show:
   - Jobs that have run in the past over a specified interval prior to the current time.
   - A specified number of recent jobs that have run
   - Jobs that have a specified status. Available status options are:
     - `Complete`
     - `Failed`
     - `Running`
     - `Shutdown`
     - `Waiting`
   - All jobs in your environment.

   Starting with Genesys Info Mart release 8.1.3, Genesys Info Mart no longer uses `Waiting` or `Shutdown` status.

   Starting with Genesys Info Mart Administration Console release 8.1.3 (which operates with Genesys Info Mart releases 8.1.2 and later), the `Jobs for the past` filter is applied on top of any other selected filter. For example, if you select the `All jobs` filter when `Jobs for the past` is set to `7 days`, the `Status` tab will display the execution history for all jobs over the past week.

   In Genesys Info Mart Administration Console releases earlier than 8.1.3, `Jobs for the past` is a selectable filter that is applied separately. The `Filter` dialog box includes an `All jobs started since` filter. For example, to display the execution history for all jobs over the past week, set the `All jobs started since` filter to specify the date and time a week ago. If you select the `All jobs` filter, then the `Status` tab will display the execution

history for all jobs for which Genesys Info Mart still retains history (by default, all jobs for the past 600 days); this filter selection can significantly compromise Genesys Info Mart performance.

4. Click `OK` to set the filter. The jobs that are visible in the Genesys Info Mart Administration Console view change accordingly.

Note: Once you have set a filter in the Genesys Info Mart Administration Console, the filter preference is saved. The next time that you use the `Filter...` option on the `Status` tab, the filter options will be preset to the last settings that you used.

End of procedure

Scheduling Jobs with Genesys Info Mart Server

The Genesys Info Mart Server launches jobs based on the scheduling options that you configure in the Genesys Info Mart application, with any necessary adjustments to accommodate logical rules that guide scheduling. (For convenience, this function is called the Scheduler.)

The basic unit of scheduling is the ETL cycle. The ETL cycle performs the following functions:

- Extracts data from each data source.
- Transforms the extracted data, and loads the transformed data into the Dimension tables and the Fact tables.

Additional jobs run on a scheduled basis to perform the following functions:

- An optional aggregation process, which runs in parallel with the ETL cycle, runs continuously within configured time intervals to populate Aggregate tables, in an environment where either Genesys Interactive Insights (GI2) reports or Reporting and Analytics Aggregates (RAA) package are deployed.
- `Job_MaintainGIM`, which runs outside the ETL cycle, purges data from the Info Mart database, in accordance with configurable data retention policies. The job also maintains the default and custom calendars. In partitioned databases, the job also maintains the partitions.
- In PostgreSQL deployments, `Job_UpdateStats`, which runs in parallel with the ETL cycle, performs supplementary database maintenance.

Scheduling the ETL Cycle

ETL Cycle Configuration Options

The options that control the ETL cycle enable you to specify the:

- Time of day that the first ETL cycle should begin
- Time of day that the final ETL cycle should begin
- Frequency of the ETL cycle

Non–ETL-Related Scheduling Options

You configure additional options to specify:

- Whether calculation of aggregates occurs in parallel with the ETL cycle
- The times of day when the purging of old Info Mart data should start and end
- In PostgreSQL deployments, whether and when `Job_UpdateStats` will run
- The time zone in which the schedule will be defined

The configuration options also enable you to:

- Temporarily stop Genesys Info Mart Server from launching scheduled jobs
- Stop Genesys Info Mart Server from launching the job that calculates the Aggregate tables
- Stop Genesys Info Mart from launching the job that purges old data from the Info Mart database

Job Sequencing Rules

Genesys expects that jobs will usually follow an orderly sequence in accordance with a configured schedule: `Job_ExtractICON` followed by `Job_TransformGIM` in repeated ETL cycles, with `Job_AggregateGIM` (in deployments with Genesys-provided aggregation) and `Job_UpdateStats` (in PostgreSQL deployments) running in parallel with the ETL cycle, followed by a daily run of `Job_MaintainGIM` in a maintenance window during which no other jobs are running.

You can start a job manually at any time from the management GUI—for example, you might need to run `Job_MaintainGIM` in order to populate a reconfigured calendar or, if your Info Mart database is partitioned, in order to create new partitions before the next extraction.

`Job_TransformGIM` has a logical dependence on `Job_ExtractICON`, and `Job_AggregateGIM` has a logical dependence on `Job_TransformGIM`. That is, until you perform an extraction, there is nothing to transform, and until you have performed extraction and transformation, there is no data to aggregate. Genesys Info Mart does not enforce any rules regarding logical dependence. If you manually run a job before the logically prior job has completed, the “later” job will simply not process any data.

To prevent deadlocks, it is important that no other jobs run while `Job_MaintainGIM` is running. Genesys Info Mart enforces this rule against

parallel execution when jobs are run by the Scheduler (see "Scheduler-Run Jobs").

Scheduler-Run Jobs

When you have Scheduler run jobs on a configured schedule (see "Setting Scheduling Options for Genesys Info Mart Server" on page 49), Scheduler manages jobs automatically according to the following rules:

- The Genesys Info Mart Server does not start a job if there is another instance of that job already running.
- During a scheduled ETL cycle, Scheduler launches the transformation job after the extraction job completes.
- Scheduler ensures that the extraction and transformation jobs do not run at the same time as the maintenance job, which purges Info Mart data. If the last cycle of the extraction and transformation jobs is still running when the maintenance window starts, Scheduler waits for the extraction and transformation jobs to complete before it allows the maintenance job to start.

  If a scheduled ETL cycle is set to begin before a maintenance job is finished, Scheduler stops the maintenance job and starts the ETL cycle.
- In PostgreSQL deployments, Scheduler allows `Job_UpdateStats` to run in conjunction with the ETL jobs. Scheduler will not wait for `Job_UpdateStats` to complete before it allows the maintenance job to start. However, once the maintenance job has started as part of the configured schedule, Scheduler suspends the schedule for `Job_UpdateStats` until the maintenance job finishes.

Jobs Run from the Management GUI

When you start a job from Genesys Info Mart Manager (see "Managing Jobs with Genesys Info Mart Manager" on page 53) or start or schedule a job from the Genesys Info Mart Administration Console (see "Managing Jobs with Genesys Info Mart Administration Console" on page 60), the Genesys Info Mart Server manages the jobs according to the following rules:

- The Genesys Info Mart Server does not start a job if there is another instance of that job already running.
- You can launch the transformation job manually from the management GUIwhile an extraction job is running, but the transformation job will not do anything if no data has been extracted.
- The Genesys Info Mart Server does not prevent other jobs from running at the same time as the maintenance job. To prevent deadlocks that can lead to job failures, ensure that you suspend the ETL schedule and, in PostgreSQL deployments, the `Job_UpdateStats` schedule, before you run `Job_MaintainGIM` from the management GUI.

- In the case of the aggregation job, Genesys Info Mart Server does not allow an instance of the job to run outside the regularly scheduled intervals within which `Job_AggregateGIM` has been configured to run. For example, if `Job_AggregateGIM` has been configured to run every day between 01:00 AM and 06:00 AM, you will not be able to launch `Job_AggregateGIM` manually from the management GUI at any time outside that time period (for example, at 08:00 AM).

Setting Scheduling Options for Genesys Info Mart Server

The information in this subsection supplements information in the *Genesys Info Mart 8.1 Deployment Guide* about configuring the Genesys Info Mart `Application`.

Use the following procedure to configure the Genesys Info Mart Server `[schedule]` options. Genesys Info Mart Server uses these options to launch the ETL, aggregation, maintenance, and, in PostgreSQL deployments, supplementary maintenance jobs. Each configuration option is related to one or more of the jobs.

The schedules for the ETL and maintenance jobs are defined in 24-hour time spans in the format `HH:mm`, where `HH` is the number of hours (00–23), and `mm` represents the number of minutes (00–59). The 24-hour schedule can span two calendar days. For example, if the `etl-start-time` is defined as `18:00` and the `etl-end-time` is defined as `06:00`, the start time is 6:00 PM one day and the end time is 6:00 AM the following day.

For information about the functions of the jobs, see Chapter 2 on page 19. For information on job interdependencies, see "Job Sequencing Rules" on page 47.

Procedure: Setting up the Genesys Info Mart jobs schedule

Purpose: To create or modify the schedule for running Genesys Info Mart jobs.

You can perform this procedure at any time, even while Genesys Info Mart jobs are running. Changes take effect immediately.

Start of procedure

1. In Configuration Manager, navigate to the `Options` tab of the Genesys Info Mart `Application` object.
2. Navigate to the `[schedule]` section.

Time Zone

3. (Optional) Enter a value for `timezone` to specify a local time zone in which you want to define 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. The default time zone is `GMT`.

   For links to more information about supported time zones, see the description of the `timezone` option in the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

ETL Schedule

4. Enter a value for `etl-start-time` to specify the time of day that the first ETL cycle begins.
5. Enter a value for `etl-end-time` to specify the time of day that the final ETL cycle begins. The `etl-end-time` value should be a time of day when no other ETL cycles will begin.
6. Enter a value for `etl-frequency` to specify the number of minutes between the start times of adjacent ETL cycles.

   If the time that it takes to complete a cycle is shorter than the ETL frequency, the next cycle is delayed until the time interval is met. If the time that it takes to complete a cycle is greater than this value, the next cycle starts immediately.

   Note: Various `extract-*` options in the `[gim-etl]` section control aspects of extraction and transformation job functioning that significantly affect ETL cycle performance. When you set the ETL scheduling options, consider the values of these related options as well. For more information, see the configuration recommendations in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*. See also the option descriptions in the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

7. To start or resume the ETL schedule, set `run-scheduler` to `true`. You can set this option to `false` to temporarily stop Genesys Info Mart Server launching jobs.

Routine Maintenance for PostgreSQL

8. In PostgreSQL deployments, configure Genesys Info Mart to update statistics regularly and perform additional supplementary maintenance:
   a. Set `run-update-stats` to `true`. This option specifies whether the Genesys Info Mart Server launches the supplementary maintenance job, `Job_UpdateStats`, as scheduled.

b. Set `update-stats-schedule` to the start time and time intervals at which you want the job to run every day. The value must be expressed as a valid CRON expression—a string, which in this case uses only two fields, minute and hour, separated by whitespace.

The default value (`0/10 *`) schedules the job to run every 10 minutes throughout the day. You do not need to consider the ETL and maintenance schedules when setting the `Job_UpdateStats` schedule, for reasons that are described in "Job Sequencing Rules" on page 47.

For a detailed description of this option, see the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

Aggregation Schedule

9. If you plan to use the Info Mart historical Aggregate tables:

a. Set `run-aggregates` to `true`. This option specifies whether the Genesys Info Mart Server launches the job, `Job_AggregateGIM`. This job calculates the Aggregate tables based on newly added or changed data in the fact tables.

b. Set `aggregate-schedule` to the time that you want the aggregation job to start (as long as it is not currently running, such as following the initial deployment of the aggregates). The value must be expressed as a valid CRON expression—a string, which in this case uses only two fields, minute and hour, separated by whitespace.

For example, to set the aggregation start time to 2:30 AM, enter the value `30 2`. For another example, see "Sample Schedule" on page 52. For a detailed description of this option, see the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.

c. Set `aggregate-duration` to the length of the period, in `HH:mm` format, during which the aggregation job will run after each launch. Within the time intervals defined by the `aggregate-schedule` and `aggregate-duration` options, the aggregation job runs continuously.

For example, to have aggregation run for the twelve hours following the start time, set the value for the duration option to `12:00`. For another example, see "Sample Schedule" on page 52.

d. Set `aggregation-engine-class-name` as described in the *Genesys Info Mart 8.1 Deployment Guide.* This option specifies the class name of the aggregation package.

Note: You must deploy either Genesys Interactive Insights (GI2) or RAA, in order for Aggregate tables to be created and populated in the Info Mart database.

If you do *not* plan to use the Info Mart Aggregate tables, keep the default value of the `run-aggregates` option (`false`). This setting ensures that the Genesys Info Mart Server does not launch `Job_AggregateGIM` in deployments where the Genesys-provided aggregation engine is not deployed.

Maintenance Schedule

10. If you plan to run the maintenance job daily, configure the maintenance job schedule:
    a. Set `run-maintain` to `true`. This option specifies whether the Genesys Info Mart Server launches the maintenance job, `Job_MaintainGIM`, as scheduled.
    b. Set `maintain-start-time` to the time of day that you want Genesys Info Mart to launch `Job_MaintainGIM`. The time of day must be outside the range that is specified by `etl-start-time` and `etl-end-time`. The Genesys Info Mart Server will not start `Job_MaintainGIM` until the `maintain-start-time` has been reached or when other jobs are running.

Note: You must run the maintenance job regularly if your Info Mart database is partitioned. Genesys strongly recommends that you configure a schedule for the maintenance job if your Info Mart database is partitioned, if you plan to purge eligible data from the Info Mart database, or if your deployment uses custom calendars.

For information about setting the retention policy options that determine what data will be purged when `Job_MaintainGIM` executes, see the section about purging the Info Mart database in the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.

End of procedure

Sample Schedule

Figure 6 on page 53 depicts a sample Genesys Info Mart Server job schedule that runs repeated ETL cycles throughout the day. The deployment includes aggregation, and the aggregation job has been scheduled to run for 23 hours out of each day, leaving one hour each day when `Job_AggregateGIM` is stopped, providing an opportunity for `Job_MaintainGIM` to run.

The schedule options are set as follows:

• `etl-start-time` = `06:30` • `etl-end-time` = `00:30` • `etl-frequency` = `30` minutes	• `maintain-start-time = 03:00` • `aggregate-schedule` = `0 4` • `aggregate-duration` = `23:00` • `timezone = <business user local time zone>`

The schedule has been defined in the local time zone of the business user that will query the Info Mart data. Therefore, from the perspective of the business user, the Genesys Info Mart Server is in the same time zone, and the final extraction cycle, which begins at 00:30, contains all the reporting data from the previous day.

Note: Midnight in local time is considered to be the end of the reporting day for a particular time zone.

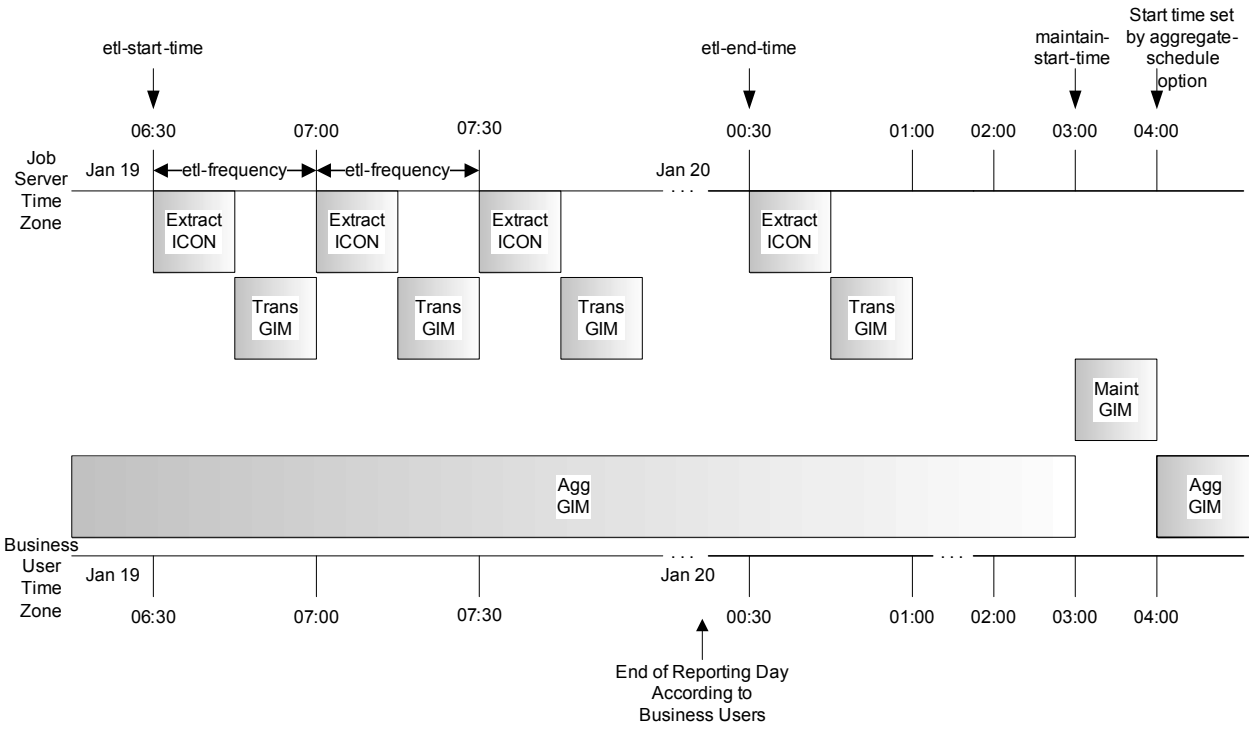

Figure 6: Sample Genesys Info Mart Server Schedule

Managing Jobs with Genesys Info Mart Manager

This section applies to release 8.1.4 and later. For earlier releases, see "Managing Jobs with Genesys Info Mart Administration Console" on page 60.

Normally, the Genesys Info Mart Server launches scheduled jobs automatically. However, you can use the Genesys Info Mart Manager to:

- Execute a single job as needed.
- Cancel a job that is in `Scheduled` status (see Step 3 on page 57 for the meaning of `Scheduled`).
- Stop a running job.

For example, you can use this functionality in Genesys Info Mart Manager to:

- Execute one or more jobs to recover from job failures.

- Execute `Job_ExtractICON` following the update of configuration data in Interaction Database (IDB) with the Interaction Concentrator (ICON) on-demand resynchronization feature.
- Manually run the job that aggregates Info Mart data (`Job_AggregateGIM`), provided that Genesys Info Mart has not been configured to run the aggregation job on a schedule. (In other words, you can start or stop `Job_AggregateGIM` from the Genesys Info Mart Administration Console only if the `run-aggregates` configuration option, in the `[schedule]` section, has been set to `false`.)
- Manually run `Job_AggregateGIM` to re-aggregate Info Mart data.
- Run the maintenance job outside the scheduled time, provided that no instances of other jobs are running.
- Execute a single job as needed.
- Selectively shut down a running job.

Note: You cannot use Genesys Info Mart Manager to run `Job_UpdateStats`.

The following subsections describe how to use Genesys Info Mart Manager to manage jobs:

- "Running Jobs One-by-One with Genesys Info Mart Manager"
- "Running a Job Immediately with Genesys Info Mart Manager" on page 56
- "Re-Aggregating Data with Genesys Info Mart Manager" on page 57
- "Canceling a Scheduled Job with Genesys Info Mart Manager" on page 59
- "Stopping a Running Job with Genesys Info Mart Manager" on page 59

Running Jobs One-by-One with Genesys Info Mart Manager

Initially after deploying Genesys Info Mart, you may want to run the jobs one-by-one to test the best values for various configuration options, rather than immediately scheduling them to run routinely. Or, rarely, you may need to run jobs one-by-one while troubleshooting. In these special situations, use the following procedure to run the jobs one-by-one.

Procedure: Running jobs individually with Genesys Info Mart Manager

Purpose: To run jobs manually, one by one, for testing or troubleshooting purposes.

Start of procedure

ETL Cycle Jobs

1. Set the `run-scheduler` configuration option (in the `[schedule]` section on the Genesys Info Mart `Options` tab) to `false`.
2. Follow the steps in "Running a Job Immediately with Genesys Info Mart Manager" on page 56 to run the jobs that perform ETL processing.

   Run the jobs in the following order:
   - `Job_ExtractICON` (see the following Note)
   - `Job_TransformGIM`

> **Note:** The extraction job extracts data from all available IDBs, for all extraction roles. When you have completed your trial runs or troubleshooting, restore normal running conditions by setting the `run-scheduler` configuration option to `true` to have the Genesys Info Mart Server launch jobs based on a schedule you configure in the Genesys Info Mart application. For more information, see "Setting Scheduling Options for Genesys Info Mart Server" on page 49.

Aggregation Job

3. If your deployment includes aggregation and you want to run `Job_AggregateGIM` as a non-scheduled job, set the `run-aggregates` configuration option (in the `[schedule]` section on the Genesys Info Mart `Options` tab) to `false`.
4. Follow the steps in "Running a Job Immediately with Genesys Info Mart Manager" on page 56 to start `Job_AggregateGIM`. The job will run continuously until you manually stop it, or until you reset the `run-aggregates` configuration option from `false` to `true` and the configured daily schedule comes into effect.

Maintenance Job

5. Set the `run-maintain` configuration option (in the `[schedule]` section on the Genesys Info Mart `Options` tab) to `false`.
6. In the job list of the Genesys Info Mart Manager, verify that no other jobs are running.
7. Follow the steps in "Running a Job Immediately with Genesys Info Mart Manager" on page 56 to start `Job_MaintainGIM`.

   After the initial run, you can set the `run-maintain` configuration option to `true`, so that the Genesys Info Mart Server launches the maintenance job based on the schedule you configured in the Genesys Info Mart application. For more information, see "Setting Scheduling Options for Genesys Info Mart Server" on page 49.

End of procedure

Running a Job Immediately with Genesys Info Mart Manager

The following procedure describes how you can use Genesys Info Mart Manager to run a job immediately.

Procedure: Running a job with Genesys Info Mart Manager

Start of procedure

1. In Genesys Info Mart Manager, click the `Run Job` button ( ). The `Run Job` dialog box appears, as shown in Figure 7.

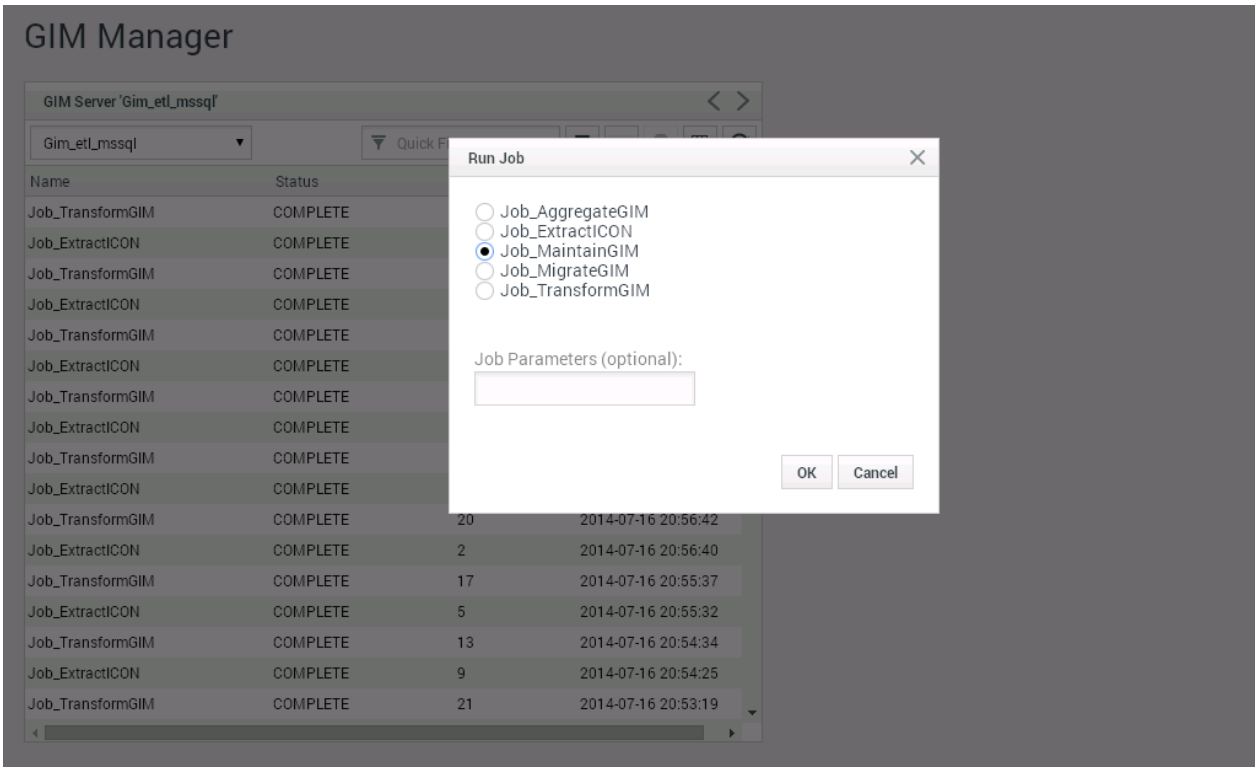

Figure 7: Genesys Info Mart Manager Run Job Dialog Box

2. From the list, select the job that you wish to execute.

Note: Only `Job_AggregateGIM` supports parameters. For all other jobs, leave the `Job Parameters` field blank. For more information, see "Re-Aggregating Data with Genesys Info Mart Manager" on page 57.

3. Click OK.
   The job you have started appears in the job list. You can find it more easily by sorting the list (for example, by Start Time, or by Status). The job you ran will have one of the following status values:
   - Running
   - Scheduled—This indicates that the job did not start immediately (for example because it cannot run while another job is running, and another job was already running), but it will start later.
   - Failed—This indicates that an error occurred when the job tried to run.

   Note: Job status is not automatically updated. To see the current status of a job (for instance, to see if a Running job has completed) click the Refresh button ( ).

End of procedure

Re-Aggregating Data with Genesys Info Mart Manager

The following procedure describes how you can use Genesys Info Mart Manager to re-aggregate data.

Warning! A request to re-aggregate data for a specific time range first deletes aggregated data from that time range (to prevent duplicate data from being written to Info Mart). Before you issue a re-aggregation command, make sure that facts for your selected time range exist in the Info Mart database and have not been purged. Otherwise, you could be left with no aggregates at all for that time range.

Procedure: Re-Aggregating data with Genesys Info Mart Manager

Prerequisites

- Job_AggregateGIM is running, either in accordance with the configured job schedule or else because you started it manually. If necessary, follow the steps in Procedure: Running a job with Genesys Info Mart Manager, on page 56, to start Job_AggregateGIM.

Start of procedure

1. In Genesys Info Mart Manager, click the Run Job button ( ). The Run Job dialog box appears (see Figure 7 on page 56).
2. In the Run Job list, select Job_AggregateGIM.

3. In the Job Parameters field, enter:
   -insertPendingAgg <AGR_SET>:<START>:<END>

   where:

   - <AGR_SET> indicates what set to aggregate (ALLSETS, or an aggregate set name). Aggregate set name is formatted as follows:
     <HIERARCHY_NAME>-<AGG_LEVEL>[.Flavour]

     where:

     — <HIERARCHY_NAME> is a comma-separated list that contains one or more of the following RAA hierarchies, or no value at all:

H_AGENT	H_I_SESS_STATE	H_QUEUE_GRP
H_AGENT_GRP	H_I_STATE_RSN	H_AGENT_CAMPAIGN
H_AGENT_QUEUE	H_QUEUE	H_CAMPAIGN
H_ID	H_QUEUE_ABN	
H_I_AGENT	H_QUEUE_ACC_AGENT	

     — <AGG_LEVEL> is the aggregation level (SUBHOUR, HOUR, DAY, MONTH, QUARTER, YEAR).

     — [.Flavour] is an optional parameter indicating whether to include only online or offline data (Online or Offline).
   - <START> is a value (YYYY-MM-DD) from the DATE_TIME table that indicates the beginning of the reporting interval.
   - <END> is a value (YYYY-MM-DD) from the DATE_TIME table that indicates the end of the reporting interval.

Re-Aggregation Parameter Examples

For example, to re-aggregate:

- All aggregates for a one-month period:
  -insertPendingAgg ALLSETS:2014-05-01:2014-05-31
- A particular hierarchy for a specific day:
  -insertPendingAgg H_QUEUE-HOUR:2014-05-01:2014-05-02
- Only one flavour of aggregate for a specific day:
  -insertPendingAgg H_I_AGENT-SUBHOUR.Offline:2014-05-01:2014-05-02

4. Click OK.

   Use the Genesys Info Mart log to monitor the status of re-aggregation.

Note: Re-aggregation is possible only if aggregation is already running. If you attempt to run Job_AggregateGIM with the re-aggregation job parameters when aggregation is not running, Genesys Info Mart starts aggregation, ignoring the job parameters. In this case, you can re-aggregate by running the job, with the re-aggregation parameters, a second time.

End of procedure

Canceling a Scheduled Job with Genesys Info Mart Manager

The following procedure describes how to cancel the `Run Job` command for a job that has not yet begun to run (in other words, that has a status of `Scheduled`, as described in Step 3 on page 57).

Procedure: Canceling a scheduled job with Genesys Info Mart Manager

Start of procedure

1. In Genesys Info Mart Manager, select the job with the status `Scheduled` that you want to cancel.
2. Click the `Stop Job` button ( ).

   The job disappears from the list.

End of procedure

Stopping a Running Job with Genesys Info Mart Manager

The following procedure describes how you can use the Genesys Info Mart Manager to stop a running job.

Procedure: Stopping a job with Genesys Info Mart Manager

Start of procedure

1. If you want to stop `Job_AggregateGIM`, first set the `run-aggregates` configuration option in the Genesys Info Mart `Application` to `false`.

   Note: If `run-aggregates` is set to `true`, the scheduler ensures that `Job_AggregateGIM` runs continuously during the interval specified by the configured start time and duration. Thus, if `Job_AggregateGIM` is running under the control of the scheduler and you try to stop the job during the interval in which it has been configured to run, the scheduler automatically restarts the job almost immediately.

2. In Genesys Info Mart Manager, select the job that you want to stop. You can stop jobs that have a status of `Running` or `Scheduled`.

3. Click the `Stop Job` button, as shown in Figure 8.

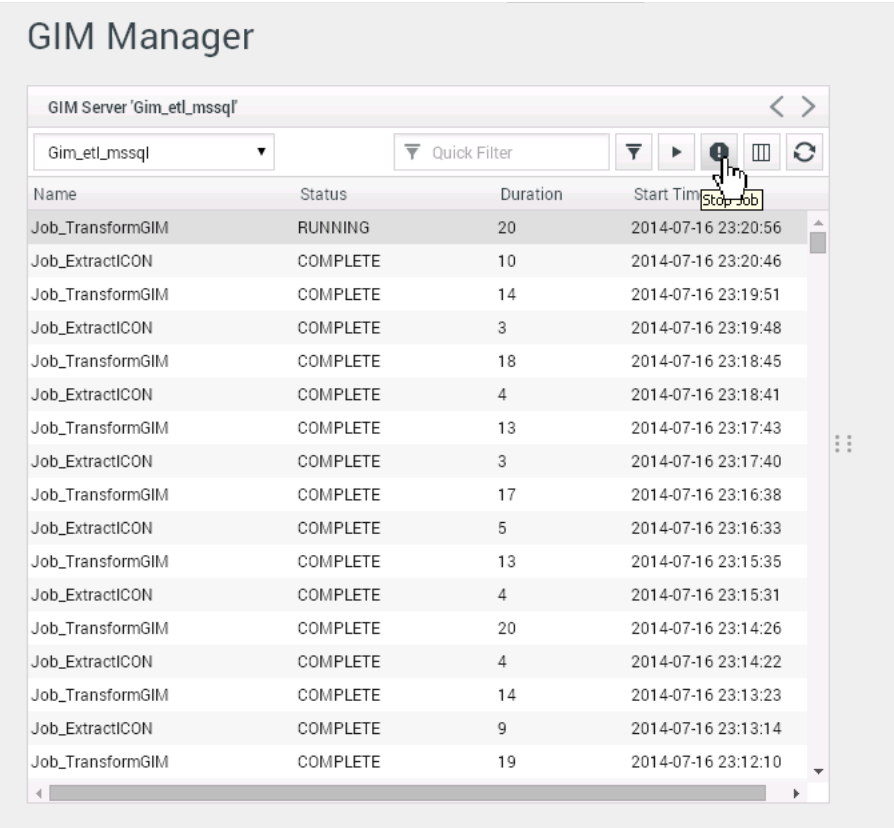

Figure 8: Stop Job

It may take a few moments for the job to stop.

End of procedure

Managing Jobs with Genesys Info Mart Administration Console

Starting with Genesys Info Mart release 8.1.4, Genesys Info Mart provides a new management GUI, Genesys Info Mart Manager. Genesys recommends using Genesys Info Mart Manager to view and manage jobs, instead of using the Genesys Info Mart Administration Console. For more information, see “Managing Jobs with Genesys Info Mart Manager” on page 53.

Normally, the Genesys Info Mart Server launches scheduled jobs automatically. However, you can use the Genesys Info Mart Administration Console to:

- Execute or schedule one or more jobs to recover from job failures.

- Execute or schedule `Job_ExtractICON` following the update of configuration data in Interaction Database (IDB) with the ICON on-demand resynchronization feature.
- Manually run the job that aggregates Info Mart data (`Job_AggregateGIM`), provided that Genesys Info Mart has not been configured to run the aggregation job on a schedule. (In other words, you can start or stop `Job_AggregateGIM` from the Genesys Info Mart Administration Console only if the `run-aggregates` configuration option, in the `[schedule]` section, has been set to `false`.)
- Manually run `Job_AggregateGIM` to re-aggregate Info Mart data.
- Run the maintenance job outside the scheduled time, provided that no instances of other jobs are running.
- Execute a single job as needed (either now or at some future specified time and date).
- Remove a scheduled job.
- Selectively shut down a running job.

Note: You cannot use the Genesys Info Mart Administration Console to execute or schedule `Job_UpdateStats`.

The following subsections describe how to use the Genesys Info Mart Administration Console to manage jobs:

- "Running Jobs One-by-One with Genesys Info Mart Administration Console" on page 61
- "Re-Aggregating Data with Genesys Info Mart Administration Console" on page 64
- "Running a Job Immediately with Genesys Info Mart Administration Console" on page 63
- "Scheduling a Job to Run Later" on page 66
- "Canceling a Scheduled Job" on page 66
- "Shutting Down a Job" on page 67

Running Jobs One-by-One with Genesys Info Mart Administration Console

Initially after deploying Genesys Info Mart, you may want to run the jobs one-by-one to test the best values for various configuration options, rather than immediately scheduling them to run routinely. Or, rarely, you may need to run

the jobs one-by-one while troubleshooting. In these special situations, use the following procedure to run the jobs one-by-one.

Procedure: Running jobs individually with Genesys Info Mart Administration Console

Purpose: To run jobs manually, one by one, for testing or troubleshooting purposes.

Start of procedure

ETL Cycle Jobs

1. Set the `run-scheduler` configuration option (in the `[schedule]` section on the Genesys Info Mart `Options` tab) to `false`.
2. Follow the steps in "Running a Job Immediately with Genesys Info Mart Administration Console" on page 63 to run the jobs that perform ETL processing.

   Run the jobs in the following order:
   - `Job_ExtractICON` (see the following Note)
   - `Job_TransformGIM`

   Note: The extraction job extracts data from all available IDBs, for all extraction roles. When you have completed your trial runs or troubleshooting, restore normal running conditions by setting the `run-scheduler` configuration option to `true` to have the Genesys Info Mart Server launch jobs based on a schedule you configure in the Genesys Info Mart application. For more information, see "Setting Scheduling Options for Genesys Info Mart Server" on page 49.

Aggregation Job

3. If your deployment includes aggregation and you want to run `Job_AggregateGIM` as a non-scheduled job, set the `run-aggregates` configuration option (in the `[schedule]` section on the Genesys Info Mart `Options` tab) to `false`.
4. Follow the steps in "Running a Job Immediately with Genesys Info Mart Administration Console" on page 63 to start `Job_AggregateGIM`. The job will run continuously until you manually stop it, or until you reset the `run-aggregates` configuration option from `false` to `true` and the configured daily schedule comes into effect.

Maintenance Job

5. Set the `run-maintain` configuration option (in the `[schedule]` section on the Genesys Info Mart `Options` tab) to `false`.
6. On the `Status` tab of the Genesys Info Mart Administration Console, verify that no other jobs are running.

7. Follow the steps in "Running a Job Immediately with Genesys Info Mart Administration Console" on page 63 to start `Job_MaintainGIM`.

   After the initial run, you can set the `run-maintain` configuration option to `true`, so that the Genesys Info Mart Server will launch the maintenance job based on the schedule you configured in the Genesys Info Mart application. For more information, see "Setting Scheduling Options for Genesys Info Mart Server" on page 49.

End of procedure

Running a Job Immediately with Genesys Info Mart Administration Console

The following procedure describes how you can use the Genesys Info Mart Administration Console to run a job immediately, on an unscheduled basis.

Procedure: Running an unscheduled job immediately with Genesys Info Mart Administration Console

Start of procedure

1. In the Genesys Info Mart Administration Console, select the `Schedule` tab. The window displays any scheduled jobs that have not started yet.
2. Click the `Run Job` button at the bottom of the window. The `Run Job` window appears, as shown in Figure 9 on page 63.

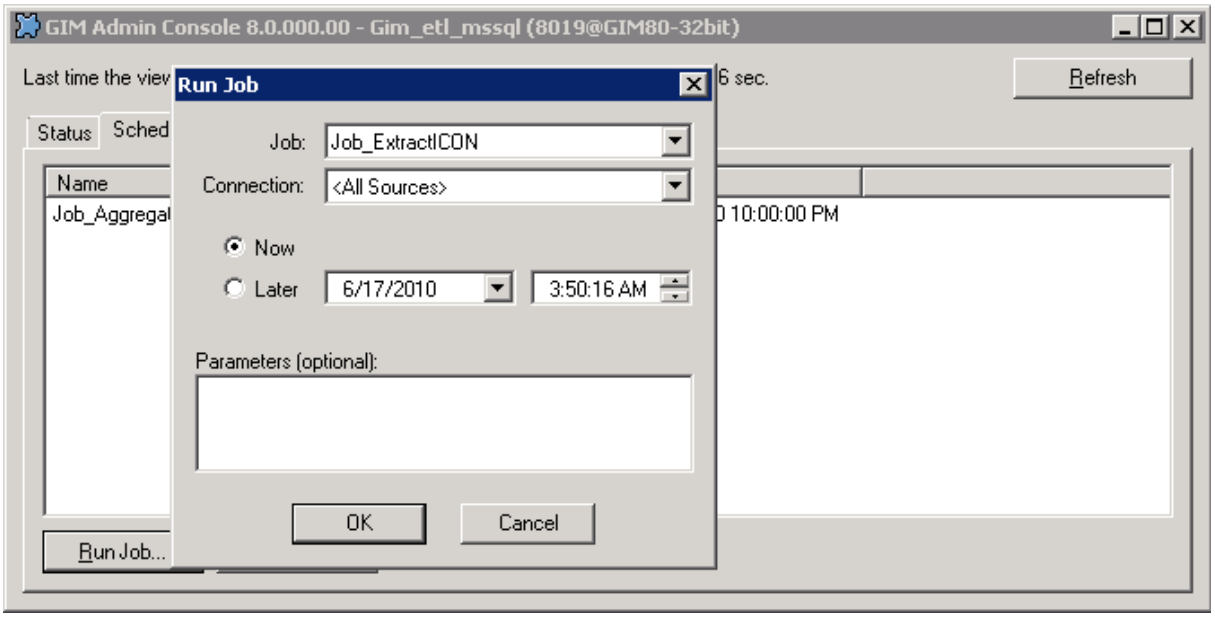

Figure 9: Administration Console Run Job Window

3. From the Job drop-down list, select the job that you wish to execute..

Note: Only Job_AggregateGIM supports job parameters. For all other jobs, leave the Parameters (optional) field blank. For more information, see "Re-Aggregating Data with Genesys Info Mart Administration Console".

4. Select the option to run the job Now.
5. Click the OK button.
6. Click the Status tab to see the job that you have just started.

Note: Jobs that are scheduled to run immediately appear on the Status bar, but not on the Schedule tab. These jobs will be in a Waiting or Running state. If an error occurred during job startup, the status will be Failed.

End of procedure

Re-Aggregating Data with Genesys Info Mart Administration Console

The following procedure describes how you can use the Genesys Info Mart Administration Console to re-aggregate data.

Warning! A request to re-aggregate data for a specific time range first deletes aggregated data from that time range (to prevent duplicate data from being written to Info Mart). Before you issue a re-aggregation command, make sure that facts for your selected time range exist in the Info Mart database and have not been purged. Otherwise, you could be left with no aggregates at all for that time range.

Procedure: Re-Aggregating data with Genesys Info Mart Administration Console

Prerequisites

- Job_AggregateGIM is running, either in accordance with the configured job schedule or else because you started it manually. If necessary, follow the steps in Procedure: Running jobs individually with Genesys Info Mart Administration Console, on page 62, to start Job_AggregateGIM.

Start of procedure

1. On the Schedule tab of the Genesys Info Mart Administration Console, click the Run Job button at the bottom of the window.
2. From the Job drop-down list in the Run Job window, select Job_AggregateGIM.
3. Select the option to run the job Now.
4. In the Parameters (optional) field, enter:
   -insertPendingAgg <AGR_SET>:<START>:<END>
   where:
   - <AGR_SET> indicates what set to aggregate (ALLSETS, or an aggregate set name). Aggregate set name is formatted as follows:
     <HIERARCHY_NAME>-<AGG_LEVEL>[.Flavour]
     where:
     — <HIERARCHY_NAME> is a comma-separated list that contains one or more of the following RAA hierarchies, or no value at all:

H_AGENT	H_I_SESS_STATE	H_QUEUE_GRP
H_AGENT_GRP	H_I_STATE_RSN	H_AGENT_CAMPAIGN
H_AGENT_QUEUE	H_QUEUE	H_CAMPAIGN
H_ID	H_QUEUE_ABN	
H_I_AGENT	H_QUEUE_ACC_AGENT	

     — <AGG_LEVEL> is the aggregation level (SUBHOUR, HOUR, DAY, MONTH, QUARTER, YEAR).
     — [.Flavour] is an optional parameter indicating whether to include only online or offline data (Online or Offline).
   - <START> is a value (YYYY-MM-DD) from the DATE_TIME table that indicates the beginning of the reporting interval.
   - <END> is a value (YYYY-MM-DD) from the DATE_TIME table that indicates the end of the reporting interval.

Re-Aggregation Parameter Examples

For example, to re-aggregate:

- All aggregates for a one-month period:
  -insertPendingAgg ALLSETS:2014-05-01:2014-05-31
- A particular hierarchy for a specific day:
  -insertPendingAgg H_QUEUE-HOUR:2014-05-01:2014-05-02
- Only one flavour of aggregate for a specific day:
  -insertPendingAgg H_I_AGENT-SUBHOUR.Offline:2014-05-01:2014-05-02

5. Click OK.

   Use the Genesys Info Mart log to monitor the status of re-aggregation.

> **Note:** Re-aggregation is possible only if aggregation is already running. If you attempt to run Job_AggregateGIM with the re-aggregation job parameters when aggregation is not running, Genesys Info Mart starts aggregation, ignoring the job parameters. In this case, you can re-aggregate by running the job, with the re-aggregation parameters, a second time.

End of procedure

Scheduling a Job to Run Later

Rather than executing a job immediately, you can use Genesys Info Mart Administration Console to schedule the job to run at a future time.

Procedure: Scheduling a job to run at a future time

Purpose: To schedule a job to run once at a future time.

Start of procedure

1. In the Genesys Info Mart Administration Console, select the Schedule tab. The window displays any scheduled jobs that have not started yet.
2. Click the Run Job button at the bottom of the window. The Run Job window appears, as shown in Figure 9 on page 63.
3. From the Job drop-down list, select the job that you wish to execute.
4. Select the option to run the job Later. From the applicable drop-down lists, select the date and time that you want the job to run.
5. Click the OK button.

   Jobs that are scheduled to run in the future appear on the Schedule tab until the scheduled time has been reached. At that point, the job is removed from the Schedule tab and appears on the Status tab, with a status of Waiting or Running.

End of procedure

Canceling a Scheduled Job

The following procedure describes how to cancel a previously scheduled job.

Procedure:
Canceling a scheduled job

Start of procedure

1. In the Genesys Info Mart Administration Console, select the `Schedule` tab. The window displays any scheduled jobs that have not started yet.
2. Select the job from the `Scheduled` list and click the `Cancel Scheduled Job` button.

   A message appears to confirm that the job has been canceled.

End of procedure

Shutting Down a Job

The following procedure describes how you can use the Genesys Info Mart Administration Console to shut down a running job.

Procedure:
Shutting down a running job

Start of procedure

1. If you want to stop Job_AggregateGIM, first set the `run-aggregates` configuration option in the Genesys Info Mart Application to `false`.

   Note: If `run-aggregates` is set to `true`, the scheduler ensures that `Job_AggregateGIM` runs continuously during the interval specified by the scheduled start time and duration. If `Job_AggregateGIM` is running under the control of the scheduler and you try to stop the job during the interval in which it has been configured to run, the scheduler will automatically restart the job almost immediately.

2. In the Genesys Info Mart Administration Console, select the `Status` tab. The window displays the status of current and completed jobs (see Figure 4 on page 43).
3. Select the job that you want to stop. You can stop jobs that have a status of `Running` or `Waiting`.
4. Click the `Shutdown Job` button at the bottom of the window.

   A confirmation window appears (see Figure 10).

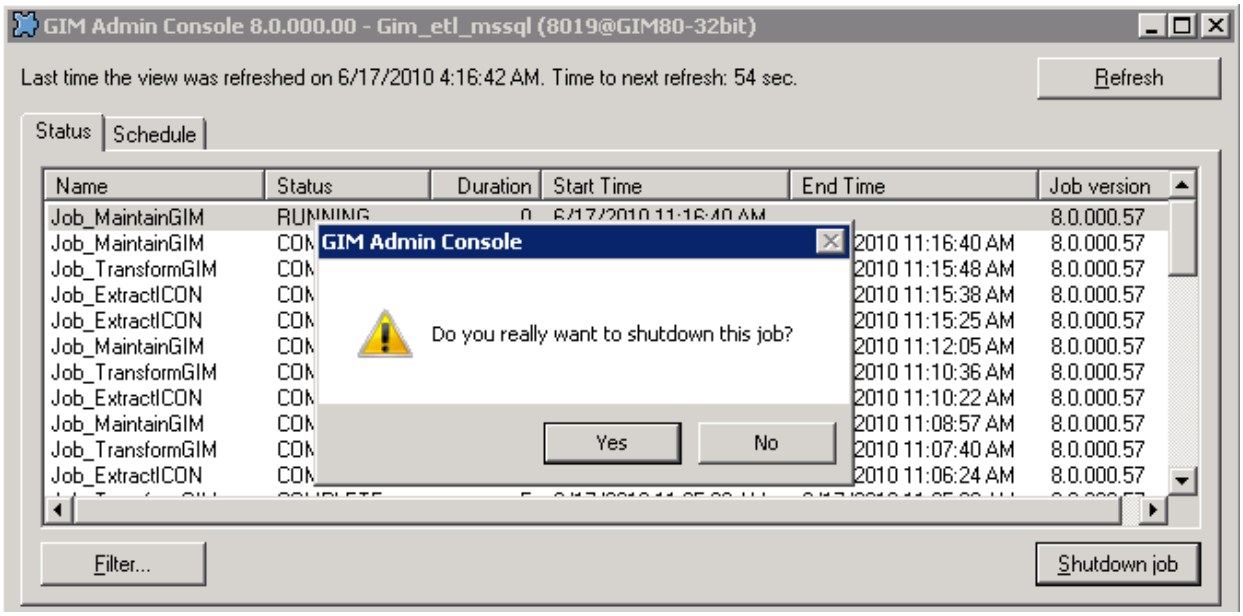

Figure 10: Shutdown Job Confirmation

5. Click `Yes` to confirm shutdown or `No` to cancel the shutdown.

   After the `Shutdown Job` command is confirmed, it may take a few moments for the job to shut down.

End of procedure

Changing Calendar Dimensions

After the default or custom calendar dimension tables have been populated, you can safely change the values of the options in the `[date-time]` or custom `[date-time-*]` configuration section that control when `Job_MaintainGIM` populates the table with the next batch of calendar dimensions (`date-time-min-days-ahead`) and how far ahead the table will be populated (`date-time-max-days-ahead`).

However, if you want to change the values of any of the other `date-time` options during runtime, you must perform additional steps to avoid compromising the consistency of calendar data, which can adversely affect your reporting results. For example, if you change the time zone option (`date-time-tz`) without performing the additional steps, your reports might mix the results for different time zones within the same reporting interval.

The following procedure describes how you can safely modify the settings that control the content of existing calendar dimension tables.

Procedure:
Changing calendar settings during runtime

Purpose: To change the values of the options that control population of an existing calendar dimension table without introducing inconsistencies into calendar data.

Start of procedure

1. If your deployment includes aggregation, stop aggregation. For information about stopping the aggregation process, see the *Reporting and Analytics Aggregates 8.x User's Guide.*
2. In Configuration Manager, change the settings for the `date-time` options in the Genesys Info Mart `Application` object, as required. For information about the available options and valid values, see the configuration options reference chapter in the *Genesys Info Mart 8.1 Deployment Guide*.
3. Manually truncate the corresponding calendar table in the Info Mart database.
4. Run `Job_MaintainGIM`. For information about running the job manually, see "Running a Job Immediately with Genesys Info Mart Manager" on page 56 or "Running a Job Immediately with Genesys Info Mart Administration Console" on page 63.
5. If your deployment includes aggregation:
   a. Restart aggregation.
   b. Re-aggregate your data. Starting with Genesys Info Mart release 8.1.4, you can issue the re-aggregation request from the management GUI—see "Re-Aggregating Data with Genesys Info Mart Manager" on page 57 or "Re-Aggregating Data with Genesys Info Mart Administration Console" on page 64. For more information about re-aggregating data over a certain time range, see the *Reporting and Analytics Aggregates 8.x User's Guide.*

End of procedure

About Voice of Process

Voice of process functionality provides administrators with information related to the processing history of Genesys Info Mart jobs. In particular, voice of process functionality enables administrators to:

- Quickly check the state of Genesys Info Mart jobs.
- Track the data extraction progress of each extraction job cycle.
- Track the data transformation progress of each transformation cycle.

- Identify the job that inserted a particular row of data or made the most recent update to it.

The Genesys Info Mart database provides several service control tables, which in addition to existing administrative views, store the ETL processing history details.

Checking the State of ETL Processing

The ADMIN_ETL_JOB_HISTORY administrative view is updated each time a job is executed. By monitoring this view, administrators can quickly assess the current state of all jobs.

The ADMIN_ETL_JOB_HISTORY administrative view provides the following information related to the jobs:

- Name of the job
- Time of execution
- Time of completion
- Duration
- Status (success or failure)

Tracking the Progress of Data Extraction

A row is added to the ADMIN_EXTRACT_HISTORY administrative view when Job_ExtractICON successfully completes extracting a source data table. Administrators can closely track the progress of the data extract cycle by monitoring this view.

The ADMIN_EXTRACT_HISTORY provides the following information related to the data extraction job, including:

- Name of the source table
- Number of records extracted
- Start and end time of each extraction job cycle

Tracking the Progress of Data Transformation

Administrators can closely track the progress of the data transform cycle by viewing the contents of the CTL_TRANSFORM_HISTORY table.

The CTL_TRANSFORM_HISTORY provides the following information related to the data transformation job:

- Name of the destination table
- Number of records transformed
- Start and end time of each transformation job cycle

Identifying the Job Inserting or Updating Data

In Info Mart's dimensional model, every table that receives inserts has a `CREATE_AUDIT_KEY` service field. Every table that can also receive updates has an additional `UPDATE_AUDIT_KEY` service field. Both these fields contain a reference to a row in the `CTL_AUDIT_LOG` table.

By linking fact data to the `CTL_AUDIT_LOG` table, administrators can determine:

- The identifier of the job that inserted/updated the data. This information can be used to quickly locate relevant portions of the log file when troubleshooting data quality issues.
- The total number of records processed by the job.
- The range of partitions (when using partitioning) that received the new/updated data.

Additionally, fields `CREATE_AUDIT_KEY` and `UPDATE_AUDIT_KEY` can be used to identify newly arriving data for subsequent aggregation or other processing.

For more information about any of the Info Mart tables, views, and fields, see the *Genesys Info Mart 8.1 Reference Manual* for your RDBMS.

Chapter

4 Managing Interaction Concentrator and Data Sources

The immediate sources of data for Genesys Info Mart are Interaction Databases (IDBs), which are populated by Interaction Concentrator (ICON) applications. Depending on their configured role, the ICON instances get their data from Configuration Server, T-Server, Interaction Server, or Outbound Contact Server (OCS). In this chapter, the term *data source* refers to the upstream data provider—the source of data for ICON.

This chapter provides information about managing the Interaction Concentrator instances and the data source applications that provide data to Genesys Info Mart. It contains the following sections:

For additional information about managing ICON and data sources to work around extraction or transformation problems caused by data-source unavailability, see “Recovering from Data-Source Unavailability” on page 85.

Restarting ICON

This section describes data-quality considerations that relate to interrupted ICON processing.

Special Considerations for Multimedia

Genesys Info Mart requires that the ICON `calls-in-the-past` and `om-force-adata` options be set to `true`. This means that, if multimedia interactions begin while ICON is down or has no connection to Interaction

Server, ICON reconstructs operational data and stores a user data snapshot for multimedia interactions that are already in progress, beginning with the next party that ICON sees being added to the interaction. The ETL extracts the reconstructed data in the usual way, based on a comparison of the extraction high-water mark against the record-creation timestamp. However, be aware that, in these situations, information about previous parties and first values of user data keys might be missing or inaccurate.

The consequences may include:

- If Interaction Server continues to run, multimedia interactions that end while the Multimedia details ICON is down are forever reported as active. Since ICON did not see these interactions end, Info Mart cannot report them as ended.
- ICON records interaction-related data (`IR, CALL, PARTY`) for a never-before-seen multimedia interaction beginning when ICON sees a party being added to the interaction.
- End times are shown for a party only if the party was created and ended within the same ICON session.
- If ICON sees an interaction end, but the interaction is neither currently known nor known from a previous ICON session, then ICON does not record anything about this interaction.

Avoiding Data Quality Issues

As noted above, some data quality issues regarding multimedia interactions can occur when the interaction data was recorded during different ICON sessions, and the high availability (HA) architecture is *not* in use. Some information can be lost between the sessions. However, sometimes it is necessary to stop an ICON to apply upgrades, or so that it can become aware of configuration changes when it restarts. It is possible to avoid nearly all of these data quality issues across a planned ICON outage by using the following procedure.

Procedure: Restarting a Multimedia details ICON

Purpose: To minimize data quality issues following a planned outage and restart of a Multimedia details ICON.

Genesys recommends that you perform this procedure during a period of agent inactivity (for example, at the end of one shift and before the next shift starts) to minimize disruption to the agents. When Interaction Server is stopped, all agents are logged out of Interaction Server, and any interactions that were actively on their desktops are returned to Interaction Queues or Workbins, so it

is best to follow the procedure when agents are not in the middle of handling interactions.

Start of procedure

1. Use the Solution Control Interface (SCI) to stop Interaction Server.

   Stopping Interaction Server moves active interactions to a "home" state, returning them to Interaction Queues or Workbins, and ICON will be aware of this.
2. Stop the Multimedia details ICON.
3. When you have completed the ICON maintenance, restart the Multimedia details ICON.
4. Use SCI to restart Interaction Server.

End of procedure

Residual Virtual Queue Considerations

Following Procedure: Restarting a Multimedia details ICON eliminates nearly all data quality issues that can occur when a multimedia interaction spans more than one ICON session. However, there are still some issues related to reporting on virtual queues:

- It is possible that some virtual queue activity that occurs during the time frame of the procedure will be lost, for the following reason: Interactions that were in virtual queues when Interaction Server was stopped are returned to Interaction Queues. The events that Universal Routing Server (URS) sends to indicate that the interactions were cleared from virtual queues may not reach Interaction Server before Interaction Server stops its connection to URS. Therefore, ICON data may not show that the interaction left the virtual queue.
- When Interaction Server is restarted, some interactions may be placed in virtual queues before ICON has successfully re-established its connection to Interaction Server. However, ICON will have established its connection to Interaction Server by the time agents begin logging in, so no agent activity is lost, not even from agents who receive interactions from those virtual queues.

High Availability Recommendation

To avoid data quality issues if a scheduled restart of ICON cannot be performed without affecting multimedia interaction-handling, or if ICON stops unexpectedly, Genesys recommends that you use an HA architecture for multimedia. For more information about HA in Genesys Info Mart, see the chapter about HA in the *Genesys Info Mart 8.1 Deployment Guide*.

Purging IDB

The size of Interaction Database (IDB) is one of the important factors that affects Interaction Concentrator (ICON) and Genesys Info Mart operational performance. You should periodically purge old data from the IDBs that Genesys Info Mart uses as sources of data.

This appendix provides recommendations and considerations relevant to Genesys Info Mart data source requirements, to prevent accidental purging of IDB data before Genesys Info Mart has an opportunity to extract it. In particular, this appendix provides guidance for selecting the smallest safe value to specify for retaining IDB data.

This appendix provides information about the following:

- Interaction Concentrator Purge Procedures, page 76
- IDB Data Retention, page 77

For detailed information about purging IDB, see the chapter about using special stored procedures in the *Interaction Concentrator 8.x User's Guide*.

For more information about purging the Info Mart database, see the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.

Interaction Concentrator Purge Procedures

Genesys Info Mart does not provide automated purging of old IDB data. However, various releases of Interaction Concentrator provide several stored procedures that purge old IDB data. Use your RDBMS utility, or write your own program or stored procedure, to invoke the Interaction Concentrator functionality to purge IDB data in a way that:

- Avoids deleting data that Genesys Info Mart has not yet extracted.
- Retains enough historical data to allow for error recovery and problem determination.

IDB Purge Frequency

Genesys Info Mart recommends that you run the Interaction Concentrator stored procedure(s) to purge old IDB data once a day, during off-peak hours, when contact center activity is low, and when Genesys Info Mart is not accessing IDB. This means you should run the stored procedures at the same time that the Genesys Info Mart runs its daily maintenance job, `Job_MaintainGIM`. Interaction Concentrator stored procedures may take some time to finish, so run them as early as possible to allow them to complete before Genesys Info Mart starts the next extract, transform, and load (ETL) cycle.

IDB Data Retention

The amount of historical data you are able to retain in IDB depends on the database server's hardware resources, such as memory and disk space, and disk subsystem performance. Because Genesys Info Mart initially copies almost all data from IDB into Global Interaction Database (GIDB) tables in the Info Mart schema, it is not necessary to retain IDB data for long periods. Nevertheless, for prudence, you should retain as much IDB data as possible, without impacting either ICON's operational performance or Genesys Info Mart's data extraction performance.

The following scenarios require special consideration when determining the number of days to retain IDB data:

- A new Genesys Info Mart deployment—In a new Genesys Info Mart deployment, where ICON stores data prior to Genesys Info Mart's first ETL cycle, there is a backlog of IDB data waiting to be processed. By default, Genesys Info Mart limits the amount of data extracted during each ETL cycle. While Genesys Info Mart works through a backlog of data, you might need to temporarily increase the IDB data retention period to take this backlog into account. You may also choose to suspend purging IDB data until Genesys Info Mart has had an opportunity to extract the backlog of data.
- ETL failure—If some network, hardware, or software outage occurs that prevents Genesys Info Mart from maintaining its regular ETL schedule, consider temporarily increasing the IDB data retention period to account for the time that Genesys Info Mart has not been able to extract IDB data. You may also choose to suspend purging IDB data until Genesys Info Mart has had an opportunity to extract the backlog of data.
- IDB data archiving—If your environment requires long-term storage of IDB data (longer than ICON's operational performance or Genesys Info Mart's data extraction performance permits), consider archiving IDB data. This allows the operational data store used by ICON and Genesys Info Mart to be small enough to allow acceptable and predictable performance, while providing an alternate data store for long-term archiving of IDB data. Work with your Database Administrator to determine an appropriate archival strategy.

Determining the Retention Period

The sample procedure documented below gives an estimate for the data retention threshold for IDB data. This procedure takes into account the last time that Genesys Info Mart successfully extracted all of the data for an ETL cycle, and whether Genesys Info Mart is limiting the amount of data it extracts while it processes a backlog of data. This procedure also includes a safety buffer of seven days.

In an environment where Genesys Info Mart is maintaining a regular schedule of ETL cycles that run every 60 minutes or less, Genesys recommends that the number of days to retain IDB data is:

- For Voice and Outbound Contact details, between `7` and `30` days.
- For Multimedia details, the maximum number of days for which Genesys Info Mart maintains memory of inactive interaction threads. This value is specified by the `max-thread-duration-after-inactive-in-days` configuration option, which has a default value of 31 days (`30` in release 8.1.1).

The procedure documented below will never return fewer than 7 days. If you are able to store more than 7 days of IDB data, you may choose to use a value larger than what is returned.

Note: If the Genesys Info Mart ETL cycles have not yet begun, this procedure returns a large value to prevent the accidental purging of data that has not yet been extracted.

Run an RDBMS-specific SQL statement against your Info Mart database to return the minimum value for the data retention threshold you will provide as an input parameter for the Interaction Concentrator purge procedure. To ensure an accurate calculation, issue the SQL statements prior to running each purge procedure. Also, make sure to log in using the Genesys Info Mart database Owner account before issuing the statements.

Example SQL Query

The following SQL query shows how to run a query against a Microsoft SQL Server–based Info Mart database. If you are using a different RDBMS, convert this query as appropriate.

Note: If you have performed only one ETL cycle, this query returns the result `999`. However, if you have run more than one ETL cycle, it functions correctly.

```
select cast(max(x) as decimal) as MINIMUM_DAYS from (
/* number of days since 1st extract preceding last completed transformation */
/* (and following the prior completed transformation) or 999, if none */
   select coalesce((
      select round(datediff(second, min(start_time),
                  CURRENT_TIMESTAMP)/86400.0, 0) + 7
         from admin_etl_job_history
         where job_name like '%Extract%'
         and start_time <
             (select max(start_time)
                 from admin_etl_job_history
```

```
                        where job_name = 'Job_TransformGIM' and status = 'COMPLETE')
                and start_time >
                    (select max(start_time)
                        from admin_etl_job_history
                        where job_name = 'Job_TransformGIM' and status = 'COMPLETE'
                        and start_time <
                            (select max(start_time)
                                from admin_etl_job_history
                                where job_name = 'Job_TransformGIM'
                                 and status = 'COMPLETE'))
            ), 999) as x

    ) z;
```

Chapter

5 Troubleshooting Genesys Info Mart

This chapter describes errors that Genesys Info Mart jobs encounter. Some of the errors cause jobs to fail, while others result in incorrectly processed data.

This chapter also provides recommendations for situations in which the extract, transform, and load (ETL) cycle has not run for an extended period of time. These recommendations help you process the backlog of source data in a way that leads to the best ETL performance.

Finally, this chapter provides information about resources for related information, including information about a standby Genesys Info Mart.

This chapter contains the following sections:

Job Failures

The jobs that Genesys Info Mart Server launches, or that you execute or schedule, may encounter errors that cause them to fail. Some job failures are caused by an error that the job encounters directly. These are called *single-job failures*. Because of the job interdependencies that are described in "Job Sequencing Rules" on page 47, some job failures are caused by an error that some other job encounters. These are called *job-interdependency job failures*.

When you use Genesys Info Mart Server to launch jobs, you likely will not see job-interdependency job failures, because Genesys Info Mart Server will not launch a job until all interdependent jobs have completed successfully.

If the jobs are run automatically by Scheduler, jobs are recovered automatically in cases of failures that are caused by environment situations. For example, if a database shutdown or Genesys Info Mart Server failure occurs during transformation and then the database or Genesys Info Mart Server is restarted, the next instance of `Job_TransformGIM` resumes processing from the point where the interrupted instance left off.

Types of Errors

Several types of errors can cause a job to fail or to produce incomplete data:

Configuration Errors

If Genesys Info Mart Server reports a configuration error, refer to the log messages to identify the issue so that you can correct it.

For additional information on the configuration checking process, including information on when Genesys Info Mart performs the check, what it checks for, and how it responds when it finds errors, see the section about deployment verification in the "Data Processing" chapter of the *Genesys Info Mart 8.1 Deployment Guide*.

In addition to the items Configuration Checker reviews, other possible configuration errors include the following:

- `Job_TransformGIM` encountered errors in the configuration of either Outbound Contact Server (OCS) record fields in Configuration Database or Outbound Contact–related user data fields in the Info Mart database. In either case, the job does not process the incorrectly configured fields and/or user data. `Job_TransformGIM` depends on this configuration for Outbound Contact data transformation. Although the job does not fail when these errors are encountered, the resulting data in the Info Mart database would be missing certain information about Outbound Contact–related interactions.

  You should monitor the Genesys Info Mart local log for messages that indicate configuration errors and take action to resolve them promptly to avoid incomplete data. Genesys recommends that you use the Solution Control Interface (SCI) to set up an alarm condition. Refer to the *Framework 8.x Solution Control Interface Help* for information about how to use the Alarm Condition Wizard to create alarm conditions.

- `Job_TransformGIM` encountered missing configuration data during transformation of Configuration details or data from other domains. For more information about how `Job_TransformGIM` handles configuration data errors, see the error-handling subsection about missing configuration data in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*.

  In the case of missing configuration data during transformation of data from other domains, you can often resolve the error by forcing ICON to perform a resynchronization of the configuration data between the Configuration Database and the IDB from which Genesys Info Mart extracts the configuration history. When the resynchronized configuration data is extracted, the incomplete Genesys Info Mart data that `Job_TransformGIM` created about the resources is updated.

Database Connection Errors

- The extraction job could not connect to a source database from which it extracts data because the database is not running or the network connection between the Genesys Info Mart Server and the database is down.
- The Genesys Info Mart job could not connect to a target database because the database is not running or the network connection between the Genesys Info Mart Server and the database is down.
- The Genesys Info Mart job or Genesys Info Mart Server could not connect to a source or target database because of a `JDBC Driver class not found:` exception. Ensure that the `CLASSPATH` environment variable has been updated to include the JDBC-specific jar files needed for the appropriate database type. Restart the Genesys Info Mart Server after the classpath is updated.
- In a high availability (HA) configuration, `Job_ExtractICON` could not connect to one of the HA Interaction Databases (IDBs) because the database is not running or the network connection between the Genesys Info Mart Server and the database is down.

At the start of each extraction job, the Genesys Info Mart Server automatically checks connectivity for each database access point (DAP) to which the Genesys Info Mart `Application` has a configured connection. If it determines that a configured data source or IDB is not available, Genesys Info Mart logs an error and does not proceed with the extract.

You should always check the logs to obtain additional detailed information about any possible connection errors.

SQL Error

- The job encountered a Structured Query Language (SQL) error that caused the failure. For example, there may be insufficient resources, such as memory or physical storage, on the database.

- As a special case in deployments that use 3rd Party Media, the transformation job might encounter a unique constraint violation error if you were trying to add media types to the `MEDIA_TYPE` dimension table at the exact moment that the transformation job was dynamically adding an unknown media type to the `MEDIA_TYPE` dimension.

  If the transformation job fails for this reason, no action is required. During the next ETL cycle, the transformation job will take the appropriate action with regard to the interaction and the associated media type.

  For more information, see the section about preparing the Info Mart database for online interactions in the *Genesys Info Mart 8.1 Deployment Guide*.
- Genesys Info Mart is not able to access a Microsoft SQL database. In order for the connection to be made, Microsoft SQL JDBC driver version 1.1 or higher must be installed.

Genesys Info Mart Job Error

- The job encountered a critical error that caused the failure. For example, there may be insufficient operating system resources or a software defect.
- Genesys Info Mart determined that data from an active data source is not available. Genesys Info Mart logs an error, and `Job_ExtractICON` does not proceed in this situation. For more information, see the section about determining data availability in the chapter about maintenance and other activities in the *Genesys Info Mart 8.1 Deployment Guide*.
- `Job_TransformGIM` has been configured to fail when errors are encountered, and the job encountered a data inconsistency for which the applicable interaction-level error policy generated an exception. For more information about the configurable error policy options and the situations that might give rise to data inconsistency errors, see the section about error handling in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*.

Error Recovery

In the following sections, Genesys provides several recommendations to consider when Genesys Info Mart jobs fail:

General Recommendations

When the Genesys Central Logger, Genesys Info Mart Manager, or Genesys Info Mart Administration Console indicates that a job failed, the cause of the failure dictates the recovery steps. Messages in the Genesys Info Mart local log or Genesys Central Logger will indicate the error that caused the failure. Correct the cause of the failure before attempting to restart any job.

If a job continues to fail and it takes a long time to resolve the issue, follow the suggestions provided in "Recovering from a Prolonged ETL Outage" on page 85 for the time period that the ETL is not running.

Recovering from a Prolonged ETL Outage

If certain circumstances (such as a failure of a particular job) prevent you from running ETL for an extended period of time, no special steps are required to process the backlog when normal processing resumes. However, carefully review settings for the options that control transaction size and limit data extraction. They might be set too large for the situation in which you are running normal ETL cycles to catch up a large backlog. In all circumstances, Genesys recommends that you never set the transaction size (`extract-data-chunk-size`) to more than two hours (7200 seconds).

Recovering from Data-Source Unavailability

Data from a particular data source might become unavailable because of problems with the data source itself, the ICON monitoring it, the DAP that ICON uses to write to the IDB, the DAP that Genesys Info Mart uses to extract from the IDB (the *extraction DAP*), or any of the connections between these objects.

The extraction algorithm will fail the extraction job when an ICON session from a particular active data source is not available. In an HA environment, this means that the extraction algorithm will fail the extraction job when all of the IDBs from a redundant set are not available; as long as data from the active data source is available through one of the Interaction Concentrator instances in the Genesys Info Mart connections, the extraction job will not fail.

Alternatively, you might be alerted by an alarm on log message 55-20110 that data has been delayed. (For information about the conditions under which the log message is generated, see the information about delayed data in the chapter about ETL processing in the *Genesys Info Mart 8.1 Deployment Guide*.)

If Job_ExtractICON fails or Job_TransformGIM is held up because of missing data:

1. Examine the Genesys Info Mart logs to determine the reason for the failure and identify the data source whose data is no longer available.
2. Evaluate whether it is worth continuing to extract data from remaining data sources for that data domain, under the risk of permanently losing data from the unavailable data source. For example, if the Genesys Info Mart connection to a non-HA IDB experiences frequent connectivity problems for a certain period of time, there might be little risk that the extraction window will advance past data from the intermittently available data source, if you continue to extract data from the remaining data sources.

   If you decide that you cannot risk continuing to extract data from remaining data sources, suspend the ETL schedule by setting the run-scheduler configuration option in the [schedule] section of the Genesys Info Mart Application to false. Resume the ETL schedule when the data availability problem is resolved.
3. If you make the decision to proceed with the ETL process, consider temporarily excluding the problematic data source from extraction by doing one of the following:
   - Remove the applicable ICON and extraction DAP from the Genesys Info Mart Application connections. Starting with release 8.1.2, instead of physically removing the connections, you can temporarily disable the ICON and DAP by clearing the State Enabled check box on the General tab of the ICON and DAP Application objects. This approach is suitable if the delayed data is from a data source that is monitored by a dedicated ICON or if you identify that the problem is with the Genesys Info Mart connection to the ICON or IDB, so that there is no IDB data that would otherwise be available that Genesys Info Mart will skip.

     Disabling the ICON and DAP, like removing them from the Genesys Info Mart Application connections, does not interfere with their functioning. If you use a shared DAP for ICON and Genesys Info Mart to access the IDB, disabling the DAP does not prevent ICON from continuing to write to the IDB.

     For short-term data unavailability in release 8.1.2 and later, Genesys recommends temporarily disabling the ICON and DAP applications, because it is easier and less error-prone than removing and then reconfiguring the connections. Remove the connections when you do not want a data source to be considered part of the deployment for the long term.
   - Remove the applicable data-source application from the ICON Application connections. This approach is suitable if the associated ICON monitors more than one data source, particularly if you identify

that the problem is with the data source itself, so that suspending ICON monitoring of the unavailable data source does not affect data availability from available data sources.

Removing the connections or disabling the ICON and DAP applications means that Genesys Info Mart will no longer consider them or the applicable data source to be part of the deployment.

- The configuration check will no longer identify the data source as one that is supposed to be active, so `Job_ExtractICON` will proceed to extract data from available data sources.
- `Job_TransformGIM` will not delay transformation of data from other data sources in the same data domain.

Note: In earlier versions of this document, Genesys recommended disabling the data-source application, so that Genesys Info Mart would no longer consider the data source to be active and, therefore, would not wait for data from it. Genesys no longer recommends this approach, because disabling the data source can interfere with its functioning.

Warning! Extracting data from a limited number of data sources impacts the data quality in the Info Mart database and, therefore, undermines the accuracy of contact center reports. To ensure that the accuracy of reports is not compromised on a permanent basis, reverse the steps to suspend the ETL schedule or to exclude a data source from extraction as soon as the data-source availability issue is resolved.

High Availability Recommendations

In a high availability (HA) deployment, the IDB redundancy provides an additional layer of failure prevention for the extraction job. Nevertheless, you will experience a failure of `Job_ExtractICON` in a situation when it cannot access any IDBs in a redundant set.

You might also experience a failure of `Job_ExtractICON` in a situation when, because of environmental or non–Genesys Info Mart configuration conditions, the extraction job effectively times out. For example, if connection-opening timeouts are very long, the cumulative delay while Genesys Info Mart waits to identify available and unavailable data sources might amount to hours; in these situations, the Genesys Info Mart job scheduler terminates the instance of `Job_ExtractICON` after one hour.

In these cases, follow the guidelines in "Recovering from Data-Source Unavailability" to decide whether you want the extraction job to ignore the missing data sources and, hence, compromise the completeness or accuracy of the reporting data.

Standby and Disaster Recovery

Genesys Info Mart Server Redundancy

To protect against the Genesys Info Mart Server being unavailable for an extended period of time or to enable quick substitution (for example, for server maintenance), you can deploy a second instance of the Genesys Info Mart Server to act as a standby.

If you deploy a second instance of the Genesys Info Mart Server as a standby for operation against the same Info Mart database,it is important to ensure that only one instance of Genesys Info Mart Server accesses the Info Mart database at a time. In Oracle deployments, a locking mechanism prevents a second instance from connecting to the database by mistake. In non-Oracle deployments, ensure that there is no connection to the Info Mart DAP from the standby Genesys Info Mart application.

Info Mart Database Redundancy

To protect against the Info Mart database being lost, you can also deploy a second instance of the Info Mart database. There are two types of architecture:

- *Active-active*—Two full instances of Genesys Info Mart (Genesys Info Mart Server and Info Mart database) operate in parallel, extracting data from the same IDBs and independently populating their respective Info Mart databases.
- *Active-standby*—Two full instances of Genesys Info Mart are deployed. With one instance of Genesys Info Mart active, you replicate data to the second instance of the Info Mart database.

The active-active topology can be used to provide both disaster-recovery protection and protection against the Info Mart database being unavailable for an extended period of time because of, for example, network connectivity problems between the other Genesys Info Mart Server and Info Mart database hosts; for disaster recovery, the second Genesys Info Mart, at a different site, protects against the Info Mart database being lost because of a site failure.

The active-standby topology provides disaster-recovery protection. Starting with release 8.1.2, in Oracle deployments you can use Oracle GoldenGate to replicate data to the second database instance. The replicated Info Mart database, in combination with a redundant Genesys Info Mart Server application and Info Mart DAP, protects against Genesys Info Mart being unavailable for an extended period of time and minimizes data loss in the event of catastrophic failure of the primary site.

More Information

For more information about configuring redundant Genesys Info Mart `Applications` and connections, see the section about a standby Genesys Info Mart Server in the chapter about supported topologies in the *Genesys Info Mart 8.1 Deployment Guide*.

For more information about the architecture, deployment, and operation of redundant Genesys Info Marts in the active-active and active-standby configurations, including information about GoldenGate setup and procedures

for disaster recovery, see the *Genesys Info Mart 8.1 Business Continuity Deployment Guide*, which is provided as wiki pages.

Resources to Consult for Additional Information

Consult the following resources for information that will help you resolve problems:

- *Genesys Info Mart 8.1 Deployment Guide*—Contains information to help you tune performance parameters for your Info Mart database and correct errors in Genesys Info Mart configuration parameters. This guide also contains information that you can use to configure the ICON applications that populate the databases from which you want to extract data.
- *Genesys Info Mart 8.1 Operations Guide* (this document)—Contains information that you can use to correct errors in the job configuration. This guide also contains information about how to execute or schedule jobs and job interdependencies.
- Genesys Central Logger—Contains events that are logged by jobs. The logs indicate configuration errors, when a job begins, when a job ends, and whether it ends successfully or unsuccessfully. When a job fails, use one of the following methods to obtain detailed information about the failure.
  - Use a log file in the Genesys Info Mart Server's local directory to view log messages.
  - Use SCI to view log messages that are received by Message Server, provided that the Genesys Info Mart application has been configured with a connection to the Genesys Message Server.
- Genesys Info Mart local log—Contains detailed events that are logged to the local log file on the Genesys Info Mart Server host by Genesys Info Mart Server and some of the jobs. When a job fails, view these logs to obtain detailed information about the failure.
- Voice of Process—Provides administrators with information related to the processing history of jobs. You can use this information to quickly check the state of all jobs, to track the data extraction or data transformation progress of each data extraction or data transformation job cycle, to detect new and/or updated data for subsequent aggregation or other processing, and to diagnose ETL problems. See "About Voice of Process" on page 69 for more information.
- Publications for your database—Contain information for your specific RDBMS about database connections, SQL errors, configuration parameter settings that affect database performance, and the usage of operating system resources on the database server.

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.x 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.x Configuration Options Reference Manual* provides information about configuration options for Framework components.
- The *Framework 8.x Configuration Manager Help* provides information about using Configuration Manager in either an enterprise or a multi-tenant environment.
- The *Framework 8.x Deployment Guide* provides information about configuring, installing, starting, and stopping Framework components.
- The *Framework 8.x Combined Log Events Help* describes log events that Genesys server applications generate and that Solution Control Interface displays. The *Framework 8.x Combined Log Events Help* includes descriptions of Genesys Info Mart log events.

Interaction Concentrator

- The *Interaction Concentrator 8.x 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.x 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.x Physical Data Model* for your relational database management system (RDBMS) provides information about the IDB schemas.

Genesys Info Mart

- The *Genesys Info Mart 8.1 Deployment Guide* provides information about architecture, configuration requirements, and installation steps for Genesys Info Mart, Genesys Info Mart Manager, and the Genesys Info Mart Administration Console. This guide also provides in-depth information about data processing, maintenance, and purging.
- The *Genesys Info Mart 8.1 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 8.1 Reference Manual* for your RDBMS provides information about the Info Mart database schema.
- The *Genesys Info Mart 8.1 Business Continuity Deployment Guide*, which is available as wiki pages, provides information and procedures that are relevant to Genesys Info Mart deployment in an environment that requires support for Business Continuity.
- The *Genesys Info Mart 8.1 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 Documentation website.
- The *Genesys Info Mart Database Compatibility Reference* includes compatibility information for database tables and fields that existed in the Genesys Info Mart database schema in release 7.6. This document, which is available as wiki pages, provides guidelines for mapping Info Mart 7.6 database SQL queries for use with an Info Mart 8.x database.
- Release Notes and Product Advisories for this product, which are available on the Genesys Customer Care website at http://genesys.com/customer-care.

Reporting and Analytics Aggregates

- The *Reporting and Analytics Aggregates 8.1 Deployment Guide* describes how to deploy the Reporting and Analytics Aggregates (RAA) package provided with Genesys Info Mart.

- The *Reporting and Analytics Aggregates 8.1 Reference Manual* describes the aggregate tables that are available to Genesys Info Mart customers with deployment of RAA.
- The *Reporting and Analytics Aggregates 8.1 User's Guide* describes the aggregation process, provides the aggregation hierarchies, and explains how to enable aggregation of user data.

Genesys Interactive Insights

- The *Genesys Interactive Insights 8.1 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 8.1 Universe Guide* describes, in detail, the reports and measures that are provided in the GI2 release.
- The *Genesys Interactive Insights 8.1 User's Guide* summarizes how to operate GI2 reports, provides basic instructions for customizing your own reports, and provides information about the report upgrade utility.

Genesys

- The *Genesys Technical Publications Glossary,* which is available on the Genesys Documentation website, provides a comprehensive list of the Genesys and computer-telephony integration (CTI) terminology and acronyms used in this document.
- The *Genesys Migration Guide*, which ships on the Genesys Documentation Library DVD, provides documented migration strategies for Genesys product releases. The Genesys Info Mart 8.x part of the guide includes instructions on how to migrate Genesys Info Mart from release 8.0.x to release 8.1. Contact Genesys Customer Care for more information.

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

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

Consult the following additional resources as necessary:

- 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.x 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 Documentation website (docs.genesys.com).

Genesys product documentation is available on the:

- Genesys Customer Care website at http://genesys.com/customer-care.
- Genesys Documentation site at http://docs.genesys.com/.
- Genesys Documentation Library DVD, which you can order by e-mail from Genesys Order Management at orderman@genesys.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:

80fr_ref_06-2008_v8.0.001.00

You will need this number when you are talking with Genesys Customer Care 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 2 describes and illustrates the type conventions that are used in this document.

Table 2: Type Styles

Type Style	Used For	Examples
Italic	• Document titles • Emphasis • Definitions of (or first references to) unfamiliar terms • Mathematical variables 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 96).	Please consult the *Genesys Migration Guide* for more information. Do *not* use this value for this option. A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession. The formula, $x + 1 = 7$ where x stands for . . .

Table 2: Type Styles (Continued)

Type Style	Used For	Examples
Monospace font (Looks like `teletype` or `typewriter text`)	All programming identifiers and GUI elements. This convention includes: • The *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, fields, text and list boxes, operational modes, all buttons (including radio buttons), check boxes, commands, tabs, CTI events, and error messages. • The values of options. • Logical arguments and command syntax. • Code samples. 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. In the `Operand` text box, enter your formula. Click `OK` to exit the `Properties` dialog box. T-Server distributes the error messages in `EventError` events. If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls. Enter `exit` on the command line.
Square brackets ([ ])	A particular 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. **Note:** In some cases, angle brackets are required characters in code syntax (for example, in XML schemas). In these cases, italic text is used for placeholder values.	`smcp_server -host <confighost>`

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