## Reporting 8.1

# Deployment Guide

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# Table of Contents

# Preface

Welcome to the *Reporting 8.1 Deployment Guide*. This guide provides detailed instructions for configuring, installing, and setting up Historical and Real-Time Reporting. It also includes the following information:

- An overview of the Data Collection, Data Mart, and Information Delivery Services, including a description of their supporting components
- Deployment planning checklists for configuration and installation
- Database preparations, and sizing and scaling guidelines
- General system requirements
- Starting, stopping, and uninstall procedures

This guide is valid only for the 8.1 release of Solution Reporting, which consists of 8.1 Real-Time Reporting components and 8.1 Historical Reporting components.

**Note:** For versions of this document created for other releases of this product, visit the Genesys Customer Care 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 97.

# Intended Audience

This document is primarily intended for [list primary and secondary audience for this document]. 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 own network configurations

You should also be familiar with .

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# Document Change History

This is the first release of the Reporting 8.1 Deployment Guide. In the future, this section will list topics that are new or have changed significantly since the first release of this document.

Chapter

# 1 Reporting Overview

This chapter introduces Genesys Reporting and explains the data collection and organization components that deliver contact center data to CCPulse+ and Contact Center Analyzer (CC Analyzer). These applications provide real-time and historical reporting.

This chapter contains the following sections:



## What Is Reporting?

Genesys Reporting is a powerful tool for viewing and analyzing contact center performance, enabling you to improve enterprise efficiency. It consists of two products, CC Analyzer and CCPulse+, which draw on much of the same data but provide different functional capabilities.

High availability (HA) of historical reporting data—a new feature provided since the Reporting 7.2 release—is intended to minimize the chance of loss of historical reporting data in the event of a single hardware component failure. Refer to Chapter 3, "High-Availability Architecture," on page 39 for information about how to implement this feature.

A number of components support CC Analyzer and CCPulse+ in their historical reporting functions. These components are organized into two services: the Data Collection Services and the Data Mart Services. A third service, Information Delivery Services, consists of:

- CC Analyzer with SAP Crystal Reports and, if desired, other third-party report-generation tools.
- CCPulse+, which enables users to create real-time and, if desired, historical views. These views can be printed.

The following sections describe the functions and components of these services.

# Reporting Architecture

CC Analyzer and CCPulse+ rely on information and processes managed by the Genesys Framework layers depicted in Figure 1.

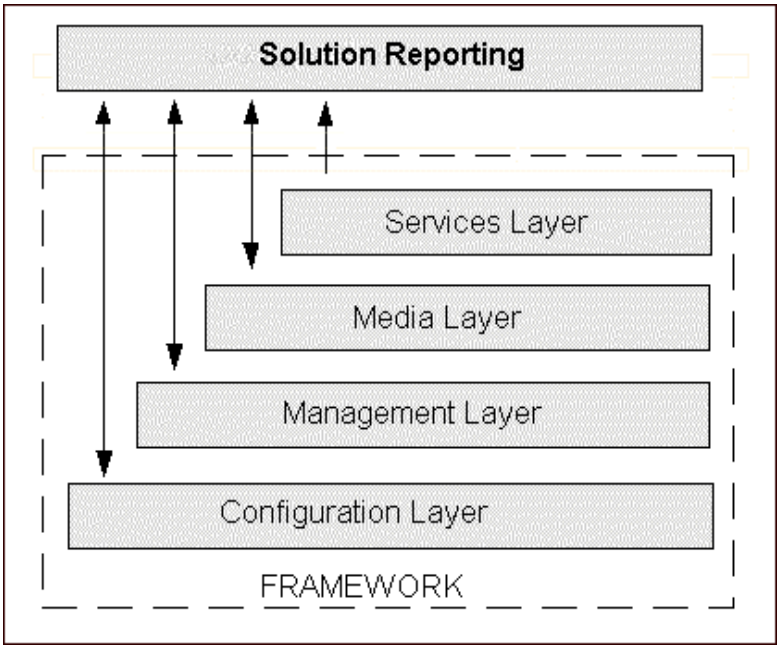


**Figure 1: Genesys Framework Architecture**

- The Configuration Layer provides information about configuration objects for which statistics are collected.
- CC Analyzer integrates with the Management Layer, where you centrally manage Genesys applications via the Solution Control Interface.
- The Media Layer, the most important component of which is the Genesys T-Server, supplies TEvent information used by other Framework components, such as Stat Server, that then supply data to CC Analyzer and CCPulse+.
- The Services Layer defines statistical parameters and provides the statistical information requested by CC Analyzer and CCPulse+. The Services Layer consists of Stat Server.

Starting with release 7.0, CC Analyzer and CCPulse+ also serve as part of the Customer Interaction Management (CIM) platform, which includes the Genesys Framework, Real-Time Routing via the Genesys Universal Routing Server, and open media interaction handling abilities. Figure 2 illustrates CIM platform components.

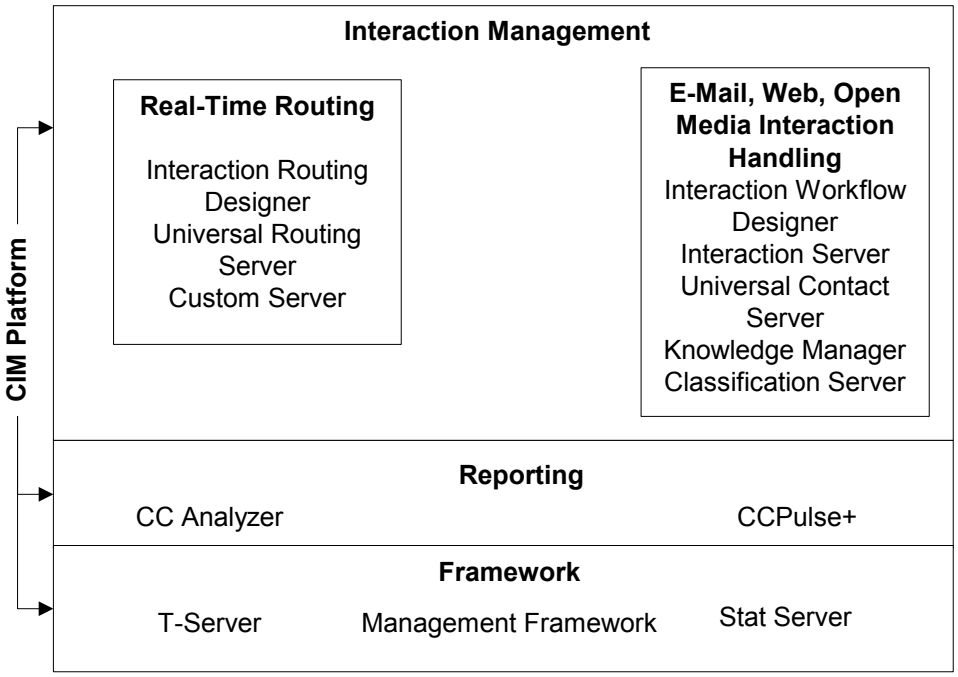


**Figure 2: Reporting as Part of the CIM Platform**

For information on the Reporting architecture including high availability, refer to "HA Architecture" on page 41.

# The Reporting Services

Reporting functionality can be conveniently broken down into three services:

- The *Data Collection Services* collect the data.
- The *Data Mart Services* then transfer, organize, and store this data.
- The *Information Delivery Services* request data from the Data Mart and use that data to generate reports that summarize your contact center's activities.

Each service consists of several components that work together to perform its functions. Figure 3 illustrates Reporting components and their relationships.

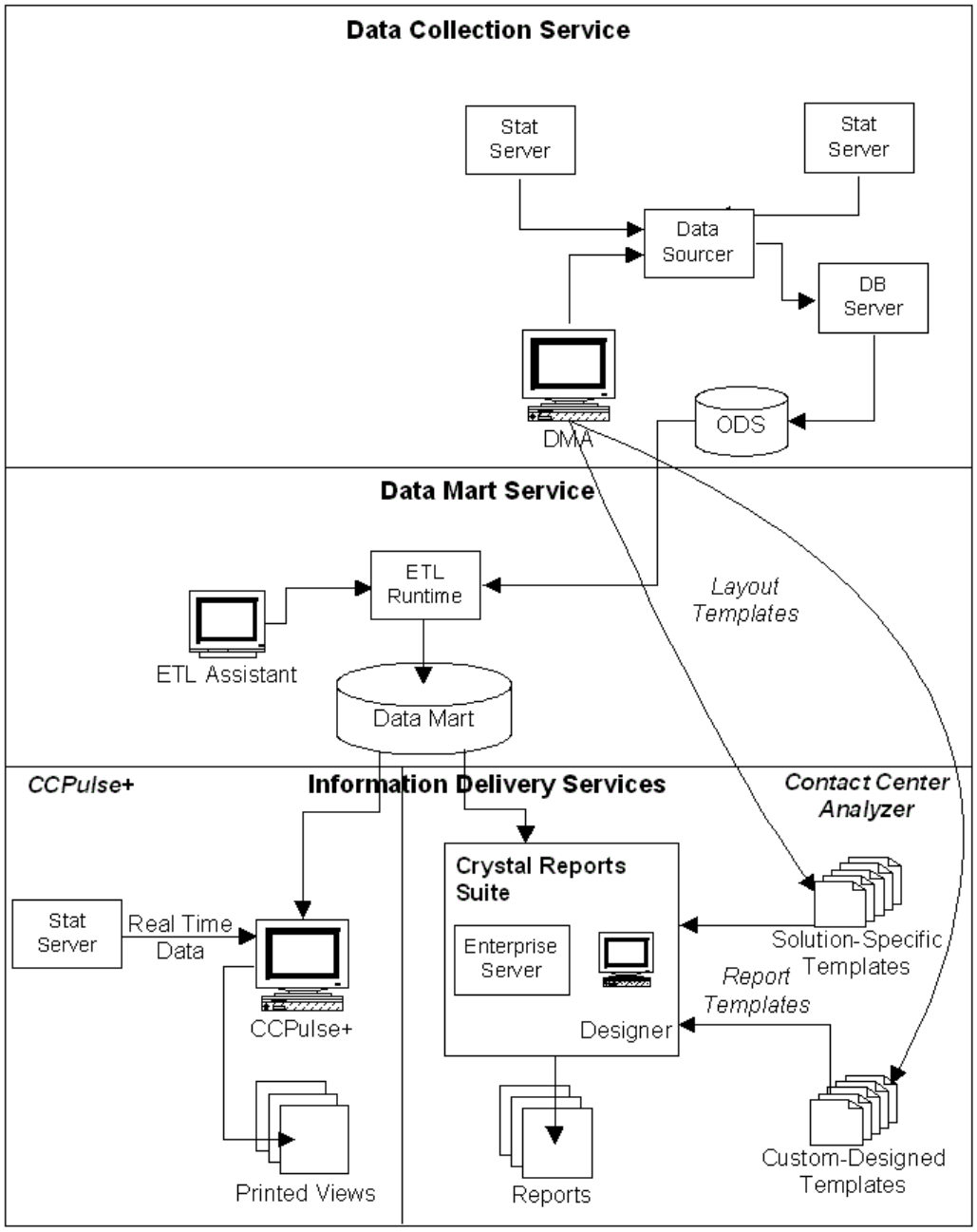


**Figure 3: Reporting Architecture**

## Data Collection Services

This section focuses primarily on the Data Sourcer component of the Data Collection Services and its relationship with Stat Server, DB Server, and ODS (Operational Data Storage).

The Data Collection Services include:

- **Data Sourcer**—Collects statistical data from Stat Server and writes it to ODS.

- **Data Modeling Assistant (DMA)**—A GUI application that you can use to import, export, edit, create, and delete layout templates (defined on page 14).
- **ODS**—A relational database that serves as the staging area for the Data Mart Services.

The Data Collection Services use these other Genesys components:

- **Stat Server**—Supplies statistical information to Data Sourcer about interactions and the objects that handle them, such as queues or agents.
- **DB Server**—DB Server handles database requests from multiple clients. It provides a single interface from its clients to a variety of database engines including Oracle, Microsoft SQL Server, and DB2. As a client of DB Server, Data Sourcer reads information about activated report layouts and writes statistics received from Stat Server to the ODS.

**Note:** See the *Framework Stat Server User's Guide* for information on Stat Server, the *Framework DB Server User's Guide* for information on DB Server.

### What Is a Collection Unit?

The Data Collection Services are the foundation for the Historical Reporting functionality of both CC Analyzer and CCPulse+. These services consist of one or more *collection units*—groupings of servers and databases that collect and store data specifically for use by the Data Mart Services.

For contact centers using a Genesys Stat Server to track interactions, each collection unit consists of a Stat Server, Data Sourcer, DB Server, and an ODS located on one of four industry-standard RDBMS servers (see Figure 4). Starting with release 7.2, a collection unit may also be comprised of backup Data Sourcer and Stat Server applications.

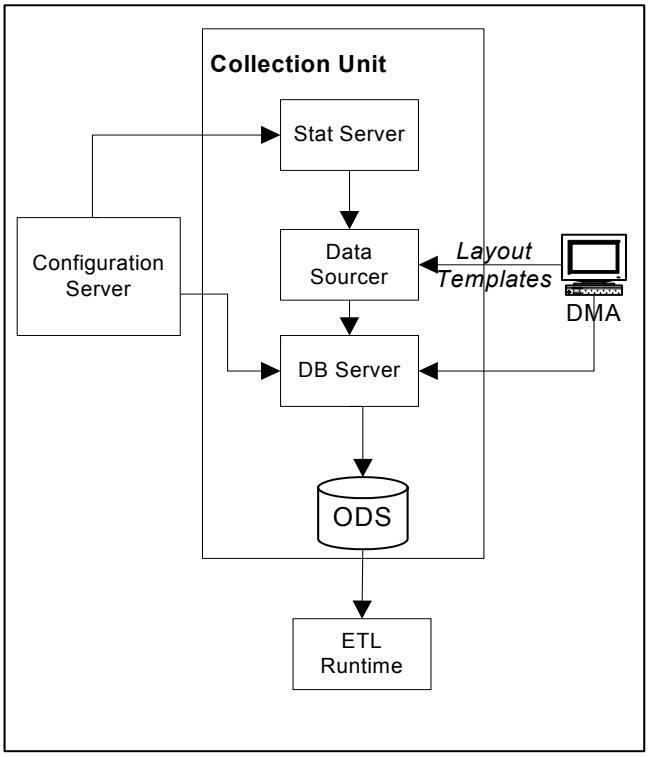


**Figure 4: Data Collection Unit**

**Note:** Because Data Sourcer handles a very heavy volume of data, Genesys recommends that you dedicate a Stat Server to each Data Sourcer application in your environment.

### Layout Templates

Data Sourcer uses *layout templates* to store statistics that are to be collected for selected contact center objects. Each layout template is stored in ODS and specifies:

- Statistics to be included in each new report layout.
- Stat type parameters.
- Time profiles for the schedules to be created.
- A default name for report layouts.
- A default description.

These layout templates control Data Sourcer's data collection parameters—which statistics to collect, for which objects, on which schedule, and so on.

### Data Modeling Assistant

To import, export, edit, create, and delete layout templates, use Data Modeling Assistant. You use DMA to manage layout templates specific to your solution. Layout templates for Genesys Outbound Contact, for instance, contain a set of

statistics that include outbound-specific activities. These include indicators for campaign performance such as the number of callbacks completed, the number of unsuccessful dial attempts, how long a campaign was active, and so forth.

DMA performs the following functions:

- Connects to DB Server to read data from, and write data to, the ODS specified by the server's database access point, which is defined in Data Sourcer's configuration.
- Reads information from Configuration Server about all configured `Data Sourcer Application` objects and their corresponding database access points, as well as all configured objects within the tenant(s), such as agent queues, routing points, and places.
- Updates information about statistical types, time profiles, time ranges, and filters, and sends it to the Configuration Server. Configuration Server then updates the configuration of the corresponding Stat Server application.
- Sends information to Data Sourcer about the activation and deactivation of report layouts.

### Report Layouts

Data Sourcer uses the layout templates to create *report layouts* for tenants within your contact center. You must create and activate report layouts before data collection or the reporting interval begins.

Layouts are automatically created if you enter `true` as the value for the `auto-create-new-tenant-layouts` option; and layouts are automatically activated if you enter `true` as the value for the `activate-new-layouts` option when you configure the Data Sourcer application. If you set both the `auto-create-new-tenant-layouts and activate-new-layouts` options to `false`, create and activate the layouts using Data Modeling Assistant.

Report layouts specify:

- Which contact center objects are to be monitored.
- What statistics are to be collected for these objects.
- How often statistical data is to be collected.

**Note:** When report layouts are first created and a new tenant is connected to Data Sourcer (option `auto-create-new-tenant-layouts` is set to `true`), Data Sourcer automatically activates the new report layouts for each new tenant if you have set the Data Sourcer `activate-new-layouts` configuration option to `true`. Data Sourcer collects statistical data only for activated report layouts. You can activate or deactivate report layouts at any time using the DMA.

The number of report layouts Data Sourcer can create is bound by database limitations and Data Sourcer performance considerations. Chapter 2 on page 23 shows you how to calculate this number.

### Time Profile

Data Sourcer collects statistical information about contact center objects on a periodic basis, as specified by a *time profile* associated with the report layout. This time profile defines the timing and frequency, in consecutive time intervals of constant duration, that Data Sourcer must use to send requests for statistics to Stat Server. For instance, the default time profile, named `CollectorDefault`, has Data Sourcer sending requests to Stat Server every 15 minutes, starting at midnight (`0:00+0:15`).

### Operational Data Storage

ODS is the staging area for statistical data about objects in Configuration Server. This data is aggregated over the time period (the time profile) you specify, which is every 15 minutes by default. Data Sourcer draws this data from Stat Server and deposits it into ODS.

ODS is a relational database:

- Into which Data Sourcer writes, organizes, and stores this data.
- From which ETL Runtime extracts and, if desired, purges data.

Data Sourcer can use the Genesys DB Server to access an ODS on the following DBMS types:

- DB2
- Microsoft SQL Server
- Oracle

**Note:** The ODS schema is proprietary. Genesys reserves the right to alter it from release to release.

### Component Interconnectivity for the Data Collection Services

Data Sourcer, a server itself, is a client of:

- DB Server
- Configuration Server
- Stat Server

DMA is a client of:

- Data Sourcer
- DB Server
- Configuration Server

The sections below present more detailed information about these components.

**Configuration Server**

As a client of Configuration Server, primary and backup Data Sourcer receives information about configuration objects for which statistics are collected. Configuration Server provides information about contact center objects (agents, tenants, places, calling lists, campaigns, and so on), statistical

parameters (time ranges, time profiles, filters, and statistical types), as well as information about changes to contact center objects. Data Sourcer uses this delta information for ODS upkeep and for creating appropriate report layouts. The "Tracking Configuration Server Objects" chapter in the *Reporting 7.6 Data Sourcer User's Guide* discusses in detail what information Data Sourcer collects about your environment.

**Stat Server**

Stat Server tracks information about customer interaction networks that consist of one or more contact centers in conjunction with one or more computer networks. Stat Server receives information from one or more T-Servers and converts the accumulated data for directory numbers, agents, agent groups, and so on, into statistical information.

As a client of Stat Server, Data Sourcer requests historical statistics for objects belonging to particular report layouts and periodically receives statistical values, calculated metrics, and information about whether the reported values are valid.

The statistics measure quantities associated with time intervals rather than single moments of time. These time intervals are specified by the report layout's time profile (`CollectorDefault`, by default). For example, Data Sourcer might issue the following request:

*How many calls were answered in the past 15 minutes?*

but not:

*How many calls are currently in queue?*

**Note:** Data Sourcer does not track individual calls but rather collects aggregated predefined statistics from Stat Server.

The statistics that Data Sourcer requests from Stat Server for groups of intervals must be calculable from the values for the individual intervals in the group. For example, you can request statistics for an hour, based on four 15-minute collection intervals. You cannot request statistics for a 20-minute period if your collection time profile is every 15 minutes.

Also, you can request statistics for categories, such as `TotalTime` and `TotalNumber`, that produce meaningful values when added together. However, some statistical categories, such as `AverageTime`, are not additive.

**Note:** In Stat Server, such additive statistics are referred to as `cumulative` and the categories to which they belong are called *cumulative categories*.

Data Sourcer uses only the statistical types defined in Stat Server. As additional statistical types are developed, Data Sourcer inherits the ability to use them.

**DB Server**

DB Server is the Genesys component that handles database requests from multiple client processes. DB Server provides a single interface from the

clients to a variety of database engines, including Oracle, Microsoft SQL Server, and DB2. As a client of DB Server, Data Sourcer reads information about activated report layouts and writes statistics received from Stat Server to ODS. Also, when operating in a high-availability environment, Data Sourcer uses the DB Server connection to track its current ODS access mode.

**Data Modeling Assistant**

Data Modeling Assistant (DMA) enables you to use layout templates to choose which standard operational statistics to collect, on what objects, and how often. Additionally, DMA supports the creation of custom business statistics, such as the number of calls received concerning Product X or revenue generated by Agent Group A.

Data Sourcer acts as a server for DMA. Data Sourcer receives commands from DMA on the activation and deactivation of report layouts. When you activate a report layout within DMA, DMA notifies Data Sourcer, which starts collecting data for that report layout. When you deactivate a report layout, DMA notifies Data Sourcer to stop collecting data for that report layout.

## Data Mart Services

The components of a collection unit work together to collect and provide temporary storage for historical data until ETL Runtime (Extraction, Transformation, and Loading Runtime) transforms the data and transfers it to the Data Mart, the database where data is permanently housed.

ETL Runtime, ETL Assistant, and the Data Mart are the components of the Data Mart Services.

You can view results of ETL Runtime transformation using ETL Assistant, which manages the metadata in the Data Mart.

This section describes the Data Mart Services as they relate to CC Analyzer and CCPulse+ as a whole, focusing particularly on ETL Runtime.

**Note:** *Reporting 7.6 ETL Assistant Help* describes ETL Assistant functionality, and the *Reporting 7.6 Physical Data Model* describes the table and field structure of the Data Mart for the supported RDBMS types.

### Component Interrelationships

ETL Runtime is the workhorse of the Data Mart Services as it interacts with the following components to read, write, aggregate, and delete data:

- ODS
- Configuration Server
- ETL Assistant
- Data Mart

Figure 5 illustrates this connectivity.

**ODS** ODS, the final component of the Data Collection Services, holds historical data until ETL Runtime transfers it to the Data Mart. Furthermore, if the ETL Runtime `dropTransferredTables` parameter is used, ETL Runtime deletes the corresponding tables from ODS after it confirms that the data transfer has successfully completed.

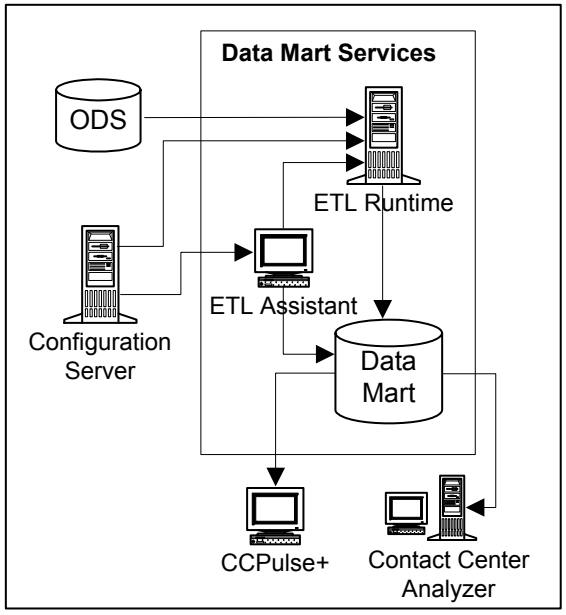


**Figure 5: Components of the Data Mart Services**

**ETL Assistant** ETL Assistant is the front-end interface you use to communicate with the ETL Runtime server. Using ETL Assistant, you:

- Specify the ODSs from which ETL Runtime is to read data.
- Establish a purge schedule for Data Mart elements.
- Discover the names of the Data Mart tables to which data has been transferred.
- Review Data Mart content.

ETL Assistant accesses the Data Mart using a JDBC driver.

**Data Mart** The Data Mart is the target database where data is permanently stored for retrieval using report-generation tools such as CCPulse+, SAP Crystal Reports Designer, or other third-party tools. Data is organized in report folders by aggregation level, for quick access. Genesys Reporting supports four DBMS types for your Data Mart: Oracle, Microsoft SQL Server, and DB2.

**Configuration Server**

Although Configuration Server is not a part of the Data Mart Services, ETL Runtime connects to this server to:

- Register itself as a Genesys component (all Genesys software is registered in the Configuration Server).
- Track tenant changes, such as tenant additions or deletions.
- Track group changes, such as when new members are added to, or deleted from, a group.

ETL Runtime tracks only those objects, groups, and tenants that you have assigned it to monitor using ETL Assistant.

**The Genesys ETL Service Starter**

Create an `ETL Service Starter Application` object that you can view and edit using Configuration Manager. When you run the Starter, it schedules the following processes to run:

- Transformation Module
- Aggregation Module
- Configuration–Object Tracking Module

All three processes run continuously until stopped. You can add other modules, such as the Purging module, at your discretion.

You can configure this application to run other ETL Runtime processes on a daily basis. If, however, you want to schedule processes to run beyond today (such as every Sunday at 2:00 AM or on the first day of each month), you must use a third-party scheduler.

## Information Delivery Services–CCPulse+

CCPulse+ enables both real-time and historical monitoring of contact center activity. CCPulse+ monitors the status and statistics related to contact center objects (such as agents, queues, routing points, and interaction queues) and displays them on the user's desktop. Using CCPulse+ you can:

- Customize real-time, historical, and query-based views of contact center objects.
- Monitor the current state and activity of objects throughout the contact center, to help make decisions about staffing, scheduling, and call-routing strategies.
- Create threshold/action associations that generate some kind of notification when a specified activity reaches the threshold level you set.
- Print views, which can then function as basic reports of contact center activity.

CCPulse+ interfaces with the Services and Configuration Layers of the Genesys Framework (refer to Figure 1 on page 10) to monitor agent performance of one or more tenants from one or more sites.

If you are using Historical Reporting, CCPulse+ also connects to the Reporting Data Mart Services.

Figure 6 illustrates the architecture delivering these capabilities. For detailed information on CCPulse+, refer to *Reporting 8.1 CCPulse+ Help* and the *Reporting 8.1 CCPulse+ Administrator's Guide*.

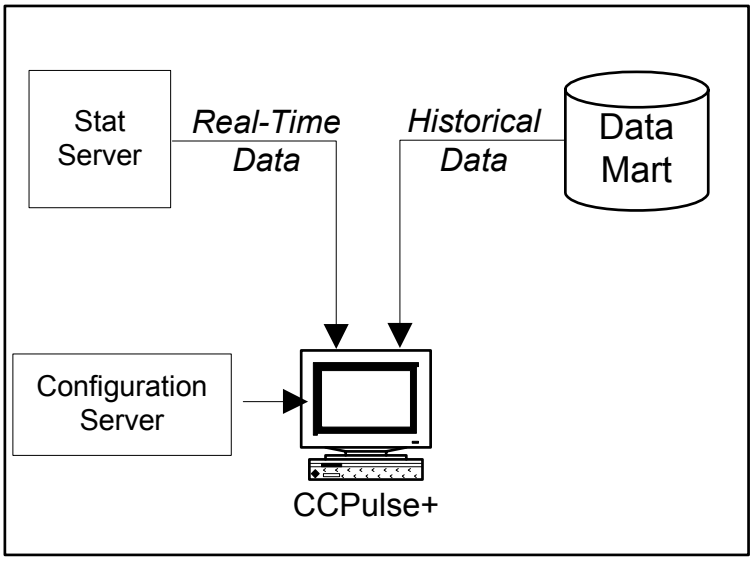


**Figure 6: CCPulse+ Architecture**

## Information Delivery Services—CC Analyzer

CC Analyzer is a powerful and flexible tool for generating historical reports. CC Analyzer is comprised of a Reporting component powered by the SAP Crystal Reports.

### Crystal Reports

SAP provides Crystal Reports products that enable the design and delivery of reports by means of client-server connections, the Web, e-mail and more. Genesys Reporting supplies SAP Crystal Reports products that provide powerful Historical Reporting tools. These tools, which draw upon the data stored in the Data Mart, enable you to create a wide range of report types and to customize the data presentation to suit your reporting needs.

**Note:** For detailed information about SAP Crystal Reports', refer to the provided Crystal Reports documentation.

# New In This Release

This section describes the new or changed functionality that was introduced in release 8.1.0.

- For a better management of the CCPulse+ workspaces:
  - CCPulse+ can add new objects (for example, agent group) to an existing workspace without creating a new workspace.
  - CCPulse+ can associate different workspaces to users sharing the same application via use of environment variables in storage path.
  - CCPulse+ offers additional enhancements for the Import/Export wizard (resizable dialog, multi-object selection).
- For a better usability of the CCPulse+ workspaces:
  - CCPulse+ can display information in table views in unsorted mode.
  - CCPulse+ can adjust and manage column width of the grid with keyboard shortcut.
- For security constraints, CCPulse+ now hides the IP address of servers.
- For performance reasons, CCPulse+ offers the possibility to disable and hide peek statistics button.
- Reporting 8.1 requires JRE 1.6 or JRE 1.7 to be installed.
- Support for the MS SQL Server 2012.

Chapter

# 2 Predeployment Measures

This chapter describes preparatory steps you should perform before configuring and installing the Genesys Reporting 8.1 components. Be sure to read through this chapter and understand the requirements for each component.

This chapter contains the following sections:



To successfully install any Reporting 8.1 component, you must first:

- Have the Reporting and Reporting Templates CDs at hand.
- Have a current 8.5 version of Configuration Server running in your environment.

> **Note:** You can use Reporting 8.1 with Configuration Server 7.6-8.1.

- Have administrator privileges to create `Application` objects in Configuration Server. (User privileges are set using Configuration Manager.)
- Install JRE 1.6 or JRE 1.7 on the same machine on which the Reporting applications run. Supported Operating Systems

Refer to the *Genesys Supported Operating Environment Reference Guide* for the list of operating systems and database systems supported in Genesys releases 6.x, 7.x, and 8.x. You can find this document on the Genesys Documentation website at http://www.genesyslab.info/wiki/index.php?title=Genesys_Supported_Operating_Environment_Reference_Guide.

For UNIX-based (UNIX) operating systems, also review the list of patches Genesys uses for software product builds, and upgrade your patch configuration if necessary. A description of patch configuration is linked to

installation `read_me.html` files for the Genesys applications that operate on UNIX, and is available within the installation packages.

# Prerequisites for Each Reporting Component

Before deploying either the CC Analyzer or CCPulse+, review the requirements for each Reporting component listed in the following sections to verify that you have correctly prepared your environment for installation.

## Data Sourcer

The following are required to install Data Sourcer:

- You must have administrative privileges on the target host.
- A database prepared by your database administrator for Data Sourcer (ODS). See "Preparing the Databases" on page 25 for details on preparing the database.
- The user name and password for ODS.
- A running DB Server for Data Sourcer to access the ODS.
- Database user privileges to create, update, and delete tables, and to create procedures and triggers. This database user should *not* have administrator privileges.
- The DB Server `tran_batch_mode` configuration option set to `OFF`.

**Note:** For 7.6 Data Sourcer to operate properly, DB Server version 7.6.000.09 or later is required.

## Data Modeling Assistant

Before installing Data Modeling Assistant, ensure that:

- You have administrator privileges on your Windows platform.

  **Note:** Administrative privileges are required to register Object Linking and Embedding (OLE) Custom Controls (OCXs) to the system registry; DMA cannot operate without the registered OCXs.

- Microsoft Internet Explorer 6+ is installed on the host machine which will run DMA.

## Data Mart/ETL Runtime

Before launching the setup program to install the Data Mart, ensure that:

- JRE 1.6 or JRE 1.7 is installed.
- A supported database is available for the Data Mart. See "Preparing the Databases" on page 25 for details.
- A RDBMS user account for the Data Mart has been created with privileges to create tables, views, and indexes. This account, however, should *not* be granted DBA privileges.

## Crystal Reports Suite

The report-generation tools that you can use with CC Analyzer are offered in cooperation with SAP. The Crystal Reports tool set comes with its own documentation to which you should refer for complete installation requirements.

## CCPulse+

Before launching the setup program to install CCPulse+ reporting, ensure that:

- You have administrator privileges on your Windows platform.

> **Note:** Administrator privileges are required to register OCXs to the system registry; CCPulse+ cannot run without the registered OCXs. CCPulse+ users must have access to jscript.dll.

- Microsoft Internet Explorer 6+ is installed on the host machine which will run CCPulse+.
- All prior versions of CCPulse+ have been completely uninstalled.

If you intend to use Historical Reporting in CCPulse+, also review the component-specific requirements for Data Sourcer, DMA, and ETL Runtime, which are described on pages 24 and 25.

# Preparing the Databases

Historical Reporting, whether delivered by CC Analyzer or CCPulse+, requires two databases: ODS and the Data Mart. Both databases must use the same relational database management system.

Refer to the *Reporting 7.6 Physical Data Model* for your specific RDBMS type to understand Data Mart structure and to the *Standard PDM Report* for your RDBMS type to understand ODS structure. The standard PDM reports are available in the database directory where Data Sourcer is installed.

In preparing these databases, you complete several preparatory steps including:

- Ensuring that you are using a supported RDBMS.
- Ensuring that database capacity requirements are met.
- Ensuring that a dedicated number of threads exist for Data Sourcer and ETL Runtime.
- Preparing the database environment.
- Appropriately sizing the ODS and Data Mart databases.

## Supported RDBMSs

For information on supported relational database management systems see the Solution Reporting page in *Genesys Supported Environment Reference Guide*, which contains the most recent information.

**Notes:** Ensure that you are using an appropriate version of DB Server that supports your version of DBMS and meets a minimum DB Server version requirement for Data Sourcer to operate properly.

For CC Analyzer to support DB2 9.7, you must use DB Server 8.1.

## Calculating Database Capacity

Develop database-capacity requirements as they relate to your system by answering the following questions.

**Note:** See pages 29 through 36 for information about estimating the correct size for each database.

- How much space is needed for the database?
- How much space is to be added in the future?
- How powerful should the database be?
- How will this database be used? (to generate operational reports? analytical reports?)
- When and how often will loading and transformation occur?
- When will aggregation occur?
- How will indexes be managed? For example, do you require separate tablespaces for indexes?

# Calculating the Number of Threads

The Data Collection and Data Mart Services use numerous threads to run many functions in parallel. Use this optional procedure if you are using an operating system that has a low limit for the number of threads.

You can calculate the number of threads used by the various components as follows:

- 11 for each Data Sourcer application (primary and backup).
- 17 + (3 x *NODSs*) for ETL Runtime's Transformation and Aggregation modules, where *NODSs* denotes the number of data sources defined to ETL Runtime.

This calculation represents the maximum number of threads ETL Runtime uses. The number of threads ETL Runtime uses decreases in direct relation to the number of writers defined by the `numberOfWriters` ETL Runtime parameter. (ETL Runtime modules and parameters are described in the *Reporting 7.6 ETL Runtime User's Guide.*)

# Preparing Your Database Environment

Prior to installation, the requisite database environment *must* be prepared by a database administrator. Because working with both the Data Collection and the Data Mart Services is database intensive, Genesys also recommends DBA participation during the installation process.

## Example: The Oracle Database Environment

The Oracle database environment, for example, is composed of the following:

- A tablespace for ODS (refer to sizing information on page 29 to estimate database size).
- A tablespace for the Data Mart (refer to sizing information on page 33 to estimate database size).
- An additional tablespace for each collection unit, if you plan to operate a second or third Data Sourcer. These additional tablespaces might not be required depending on your level of resource usage. (Refer to page 36 to determine the number of collection units your environment requires.)

**Note:** During the configuration process, you are prompted for the user name and password of each user created, as well as the RDBMS host and port. For the Oracle database, a system identification number (SID) is required. If you do not have this information, you cannot proceed with the configuration.

## Preparatory Steps

After developing capacity requirements, prepare databases for ODS and Data Mart using the following procedure.

During the configuration process, you are prompted for the user name and password of each user created, as well as the RDBMS host and port.

**Note:** The Data Collection and Data Mart Services support only single-byte database names.

1. Create accounts for Data Sourcer and for ETL Runtime. (You must have DBA privileges to create accounts). Consult the documentation for your database and/or your DBA for the procedure.

   **Note:** The accounts for Data Mart and Data Sourcer *must not* have administrator privileges.

2. Ensure that the following initialization parameters allow all clients, including Data Sourcer and ETL Runtime, to work with this database instance:
   - `open_cursors` (default: `49`; recommended: `200`)
   - `dm1_locks` (default: `100`; recommended: `200`)
3. Ensure that the `COMPATIBLE` parameter for an Oracle ODS and Data Mart reflects the current version of your RDBMS. For example, `COMPATIBLE=9.0.1`.

## DB2 Database Requirements

If you are using a DB2 database, verify that it meets these requirements:

- A buffer pool has been created with page size of at least `16 KB`.
- A tablespace is associated with that buffer pool.
- Rights to the tablespace associated with the buffer pool are assigned to the Data Mart owner.
- Given that, in most cases, the default value of the DB2 `applheapsz` configuration parameter is too low, increase this value as needed.

### Microsoft SQL Server Database Recommendation

**Note:** Data Sourcer does not support case-sensitive collation for ODS database on MS SQL server.

**Setup Steps**

If you are using Microsoft SQL 2005 for your ODS database, Genesys recommends that you perform the following setup steps:

1. Create a login, or choose an existing one, for Data Sourcer to use to connect to your ODS database.
2. Create a database.
3. Create a new schema in the database; for example, `genesys` or `ods`.
4. Create a new user for this database. The user must have the same name as the schema created in Step 3. Map the new user to the login created for Data Sourcer in Step 1, and set the ownership of the new schema to this new user.
5. Grant the required database privileges to the new user.

**Modify the DAP Application**

To enable Data Sourcer to retrieve needed configuration parameters, Genesys also recommends modifying the DAP application used to access the ODS database, if:

- You are using a Microsoft SQL Server database for your ODS.
- Your Data Sourcer application is release 7.6.x.

For more information, see the chapter about fine-tuning your Data Sourcer configuration in the *Reporting 7.6 Data Sourcer User's Guide*.

## Estimating ODS Size

Genesys recommends reserving enough space in ODS for at least two additional days of data collection, in the event data is not removed from ODS as you anticipate. Determining an appropriate size for ODS depends on the number of requests, the time profiles, the average size of record requests, and how often you plan to purge the database.

Use the following formula to estimate the minimum ODS size:

*ODSSize* = *NRequests* x *NTimesPerDay* x *RequestsRecordSize* x *(NDays* + 2)

where:

- *ODSSize* is the size of the Operational Data Storage in bytes.
- *NRequests* is the number of requests made to Stat Server.
- *NTimesPerDay* is the number of `Collection Time Profiles` per day.
- *RequestsRecordSize* is the request record length in bytes.
- *NDays* is the number of days data is stored in the ODS.

Data Sourcer stores the data it requests from Stat Server in `OL_DATA`*n* tables in ODS. This table's record length depends on your relational database management system and its storage parameters. Table 1 provides record length estimates for the supported RDBMSs.

The actual record length in your `OL_DATA`*n* tables may differ.

**Table 1: Estimated Length of Request Records by RDBMS**

| | Microsoft SQL | Oracle | DB2 |
|---|---|---|---|
| Record length | 66 bytes | 42 bytes | 58 bytes |

You can calculate the number of requests made to Stat Server as follows:

$$NRequests = \sum_{i=1}^{NLayouts} NObjects_i \times NStatistics_i$$

where:

- *NObjects* is the number of objects in your report layout.
- *NStatistics* is the number of statistics collected by each report layout.
- *NLayouts* is the number of active report layouts in Data Sourcer.

**Note:** DMA shows the number of requests for all active report layouts in the `Status` bar when the topmost report folder (the default name is `Report Layouts`) is selected on the `Folder` pane. DMA displays the total number of statistics for a particular report layout when that report layout is selected on the `Folder` pane.

## Example

Assume the following: 100,000 requests, a 15-minute time profile, an Oracle RDBMS, and ODS is cleared once daily.

- *NRequests* = 100,000
- *NDays* = 1
- *NTimesPerDay* = 4 collections/1 hr x 24 hrs/day = 96 collections/day

An appropriate database size for this scenario is ~1.2 GB (100,000 x 96 x 42 x [1+2]). And it is a good idea to factor in some extra space.

## Calculating the Number of Requests

Table 2 shows some examples of solution-specific layout templates.You can use these templates as starting points for creating report layouts that measure the status and performance of specific contact center objects. The table also

shows the number of statistics collected. For a complete list of templates, please refer to the *Reporting Technical Reference Guide.*

**Note:** See "ODS Layout Templates" in the *Reporting Technical Reference Guide* for more information about the statistics gathered.

**Table 2: Solution Layout Templates**

| Outbound Contact Layout Templates | | Enterprise Routing Layout Templates | | Multimedia Solution Email Layout Templates | |
|---|---|---|---|---|---|
| **Template Name** | **Number of Statistics Collected** | **Template Name** | **Number of Statistics Collected** | **Template Name** | **Number of Statistics Collected** |
| CALL_LS | 24 | AGENT | 28 | EMAIL_AG | 11 |
| CMP | 25 | GROFAGS | 28 | EMAIL_GAG | 11 |
| CMP_CALL_L | 24 | GROFPLS | 28 | EMAIL_GPL | 11 |
| CMP_GR | 7 | GROQUEUES | 11 | EMAIL_IQ | 5 |
| GROFPLS | 28 | PLACE | 28 | EMAIL_PL | 11 |
| GROFQUEUES | 11 | QUEUE | 11 | EMAIL_TEN | 11 |
| O_AGENT | 32 | ROUTEPOINT | 11 | | |
| O_AGENT_GR | 32 | | | | |
| PLACE | 28 | | | | |
| QUEUE | 11 | | | | |
| ROUTEPOINT | 11 | | | | |

**Table 2: Solution Layout Templates (Continued)**

| Multimedia Solution Email Layout Templates | | Multimedia Solution Voice Layout Templates | | Multimedia Solution Live Web Layout Templates | |
|---|---|---|---|---|---|
| **Template Name** | **Number of Statistics Collected** | **Template Name** | **Number of Statistics Collected** | **Template Name** | **Number of Statistics Collected** |
| EMAIL_AG | 11 | VOICE_A | 22 | CHAT_A | 13 |
| EMAIL_GAG | 11 | VOICE_AG | 22 | CHAT_GA | 13 |
| EMAIL_GPL | 11 | VOICE_GQ | 12 | CHAT_GH | 7 |
| EMAIL_IQ | 5 | VOICE_P | 22 | CHAT_GP | 13 |
| EMAIL_PL | 11 | VOICE_PG | 22 | CHAP_P | 13 |
| EMAIL_TEN | 11 | VOICE_Q | 15 | | |
| | | VOICE_RP | 15 | | |
| | | VOICE_T | 16 | | |

| VCB Email Layout Templates | |
|---|---|
| **Template Name** | **Number of Statistics Collected** |
| VCB_GQ_EV | 9 |
| VCB_GQUEUE | 12 |
| VCB_Q_EV | 9 |
| VCB_QUEUE | 12 |
| VCB_RP | 12 |
| VCB_TENANT | 21 |

Use the following formula to calculate the number of requests generated for an ODS containing all seven layout templates for Enterprise Routing:

*NRequests* = (*NAGENTs* x 28) + (*NGROFAGSs* x 28) + (*NPLACEs* x 28) + (*NGROFPLS* x 28) + (*NQUEUEs* x 11) + (*NROUTEPOINTs* x 11) + (*NGROFQUEUES* x 11)

## Example

Consider the following sample environment:

**Tenant 1**

1,000 agents
50 agent groups
500 places
25 place groups
10 queues
20 routing points
5 queue groups
15-min time profile (*NTimesPerDay*=96)
Oracle RDBMS
ODS cleared once daily

**Tenant 2**

2,000 agents
100 agent groups
500 places
25 place groups
10 queues
100 routing points
5 queue groups
15-min time profile (*NTimesPerDay*=96)
Oracle RDBMS
ODS cleared once daily

Using these figures in the equation on page 30, you calculate the number of requests and ODS size as follows:

*NRequests* = [(1000 x 28) + (50 x 28) + (500 x 28) + (25 x 28) + (10 x 11) + (20 x 11) + (5 x 11)] +
[(2000 x 28) + (100 x 28) + (500 x 28) + (25 x 28) + (10 x11) + (100 x 11) + (5 x 11)]
= 44,485 + 74,765
= 119,250

*ODSSize* = 119,250 x 96 x 42 x (1 + 2)
= ~1.4 GB

# Estimating Data Mart Size

The appropriate size for Data Mart depends on the number of objects stored, the number of statistics gathered, and how long data is kept. This database is much larger than ODS because:

- It maintains a much longer history of contact center statistics; typically, it stores statistics for one year.
- Presummarized data is generated for several aggregation levels, to improve reporting performance.

To calculate the Data Mart size, you must calculate its raw data size and then factor in whatever amount of overhead is appropriate for your enterprise. Overhead size includes the space required for such things as indexes and metadata and highly variable. Steps for calculating the minimum size for the Data Mart appear in the next section.

As a guideline, note that in addition to storage requirements for raw data, you must also store three default indexes:

- One composite index for the `Fact` table on the `Object` and `Time` foreign keys.
- Two indexes, one each on the primary key indexes for the `Dimension` tables.

Refer to the Standard PDM documents for your RDBMS for information on these and other Data Mart tables. These three indexes and the two `Dimension` tables consume approximately one-third again as much space, so the total minimum space required for the Data Mart is calculated as follows:

$$DMSize = RawDataSize \times 1.33$$

## Calculating Data Mart Size

Calculating the raw data size requires that you first calculate the number of aggregations you are using, and then use this figure in the equation for raw data size.

### Calculating Number of Aggregations

Each report layout star schema contains two `dimension` tables (`object` and `time`) and one `Fact` table for each aggregation level. `Fact` tables affect database size more than `dimension` tables do. All `Fact` tables hold the number of aggregation periods maintained for each aggregation level.

For example, at the 15-minute aggregation level, Data Mart maintains 35,040 aggregation periods for a one-year period (365 days/year x 24 hours/day x 4 aggregations/hour), while at the one-year aggregation level, the Data Mart maintains just one aggregation period.

The total of all aggregation periods can be represented as follows:

$$TotalAggs = \sum_{i=1}^{NLevels} NAggregations_i$$

where *i* represents one of seven default aggregation levels: 15-minute, hour, day, week, month, quarter, and year. The total number of aggregations for these seven aggregation levels is:

$$TotalAggs = 35040 + 8760 + 365 + 52 + 12 + 4 + 1 = 44234$$

### Calculating Raw Data Size

For each report layout schema:

- The number of objects multiplied by the total number of aggregation periods translates into the number of rows.
- The number of statistics translates into the number of columns.

In addition, two keys in each row, the `Object` and `Time` foreign keys, point to the `Dimension` tables. Each statistic and the two keys occupy four bytes of space.

To calculate the total size of the raw data in the Data Mart, sum the star schema sizes for each report layout:

$$RawDataSize = TotalAggs \sum_{j=1}^{NLayouts} NObjects_j \times \langle \langle NStatistics_j \times 4 \rangle + \eta \rangle$$

where $\eta$ is the size of the row key (that is, the size of the `TIME_KEY` and `OBJECT_ID` fields).

### Example

To calculate Data Mart size, assume the following:

- The Data Mart is loaded daily.
- You are using the default aggregation levels.
- You are maintaining a one-year history in the Data Mart.

Tenant characteristics are as follows:

| Tenant 1 | Tenant 2 |
|---|---|
| 1,000 agents | 2,000 agents |
| 50 agent groups | 100 agent groups |
| 500 places | 500 places |
| 25 place groups | 25 place groups |
| 10 queues | 10 queues |
| 20 routing points | 100 routing points |
| 5 queue groups | 5 queue groups |
| Oracle row-key size = 30 | Oracle row-key size = 30 |

As shown above, the equation is as follows:

$$RawDataSize = TotalAggs \sum_{j=1}^{NLayouts} NObjects_j \times \langle \langle NStatistics_j \times 4 \rangle + \eta \rangle$$

You must perform the calculation separately for each layout, using the correct number of objects and number of statistics for each layout. Add these results together to obtain the raw data size.

*Total Aggs* = 44234 (See the calculation in "Calculating Number of Aggregations" on page 34.)

*NLayouts* = 7 (Agent, Agent Group, Place, Place Group, Queue, Queue Group, Routing Point)

$NObjects_j$ 3000 agents, 150 agent groups, 1000 places, 50 place groups 20 queues, 120 routing points, and 10 queue groups.

$NStatistics_j$ The number of statistics for each layout as shown in Table 2 on page 31.

$\eta$ = 30 (Row key size)

Using these figures, the raw data size comes to 25.02664458 GB.

The minimum recommended Data Mart size is as follows:

Raw Data Size x 1.33 = 25.02664458 x 1.33 = 33.28543729 GB

### Example—Alternative Calculation of Data Mart Size

You can also calculate the minimum Data Mart size as follows:

*DMSize* = (*NRequests* x *NTimesPerDay* x *NDays* x 8) + 20,000

where:

- *DMSize* is the size of the Data Mart in bytes.
- *NRequests* is the total number of requests from all Data Sourcers connected to the Data Mart.
- *NTimesPerDay* is the number of `Collection Time Profiles` per day.
- *NDays* is the number of days data is stored in the Data Mart.

Using the same number and types of objects as in the previous example, this is calculated as:

*DMSize* = (119,250 x 96 x 365 x 8) + 20,000 = 33,428,180,000 bytes

To convert the answer to GB, divide by 1,073,741,824. This gives an appropriate database size for this scenario of ~32 GB. And it is a good idea to factor in some extra space.

**Note:** *NRequests* is calculated as follows:

[(1,000 x 28) + (50 x 28) + (500 x 28) + (25 x 28) + (10 x 11) + (20 x 11) + (5 x 11)] + [(2,000 x 28) + (100 x 28) + (500 x 28) + (25 x 28) + (10 x 11) + (100 x 11) + (5 x 11)]
= 44,485 + 74,765 = 119,250

# Distributed Architecture

In estimating database- and hardware-sizing requirements, first determine the implementation architecture for the Data Collection Services. In most cases, a centralized configuration easily accommodates interaction volume. For large volumes—more than 30 interactions per second—Genesys recommends a distributed configuration.

# Calculating the Number of Collection Units

Because Stat Server tracks and maintains statistics in memory, Stat Server can handle only a limited number of statistics. This limitation depends on call volume, RDBMS throughput, CPU speed, and available memory. To scale beyond these limitations, distribute the monitoring and collection of statistics across multiple collection units. Refer to Figure 4 on page 14 for an illustration of collection unit components.

Determining how many collection units to configure requires site-specific information on contact center volume, interaction complexity, and hardware and software environments. In general, configure one collection unit for every contact center or for every tenant in a multi-tenant environment. For a more precise determination of initial distribution, use the following procedure.

**Note:** The procedure is only a guideline because accurate scaling of collection units requires ongoing monitoring and tuning.

1. Determine the number of calls per second each T-Server handles.
2. Organize the T-Servers into groups whose total call volume adds up to no more than approximately 30 contacts per second:

$$GroupCV \leq 30$$

3. For each group of T-Servers, calculate the number of requests for all report layouts associated with each T-Server:

$$NRequests = \sum_{i=1}^{NLayouts} NObjects_i \times NStatistics_i$$

4. Calculate the number of collection units for each T-Server group by multiplying its number of requests by its total call volume. Then, divide the result by the product of the tested limits for call volume per second and requests for the hardware on which the collection unit will run:

$$NCollectionUnits = \frac{NRequests_T \times GroupCV}{CVMax \times NRequests_H}$$

5. Add the sum of collection units for each T-Server group to get the total number of collection units:

$$TotalCollectionUnits = \sum_{i=1}^{NGroups} NCollectionUnits_i$$

6. In the event of fractional results, round up the number of collection units as a cushion for increasing volumes.

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**Note:** The value for the maximum number of requests per collection unit ($NRequests_H$) is based on the performance of both Stat Server and Data Sourcer. Performance, in turn, is based on a number of factors including disk space, memory, and whether binding is used, to mention a few. Refer to "Stat Server Performance" and "Data Sourcer Performance" in the "Performance Measurements" chapter of the *Reporting 8.0 Reference Manual* for more information.

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### Example

Adding to the previous example on page 30, Tenant 1 is serviced out of two equally sized contact centers, each with a T-Server handling contact volume of approximately 10 contacts per second. Tenant 2 is also serviced out of two equally sized sites, each with a T-Server handling 20 contacts per second. The total contact volume is 60 contacts per second, which would overload a single collection unit.

This example is based on a Windows Server environment running on computers with Pentium 400 processors and 256 MB of RAM, which tests have shown to be capable of handling:

- Approximately 30 contacts per second.
- Approximately 50,000 requests per second.

These numbers depend heavily on call complexity, which can vary widely. The tests used contacts of average complexity (for example, few transfers, few conferences, typical amounts of attached data, and so forth).

| Tenant 1 (Each Contact Center) | | Tenant 2 (Each Contact Center) | |
|---|---|---|---|
| 500 agents | 5 queue groups | 1,000 agents | 5 queue groups |
| 25 agent groups | 15-min time profile | 50 agent groups | 15-min time profile |
| 250 places | 70-bit record size | 250 places | 70-bit record size |
| 12 place groups | 2 T-Servers | 12 place groups | 2 T-Servers |
| 5 queues | 10 contacts per second | 25 queues | 20 contacts per second |
| 10 route points | | 50 route points | |

In making the collection-unit calculation, you could distribute four collection units, one each to the four sites. However, you can optimize the distribution by following this process:

1. The T-Server contact volumes are:
   - T-Server 1: 10 contacts per second.
   - T-Server 2: 10 contacts per second.
   - T-Server 3: 20 contacts per second.
   - T-Server 4: 20 contacts per second.
2. You can pair each Tenant 1 site with a Tenant 2 site:
   - T-Server 1 + T-Server 3: 30 contacts per second
   - T-Server 2 + T-Server 4: 30 contacts per second
3. Since each of the paired sites has the same characteristics, the number of requests is identical:

   *NRequests*

   = [(500 x 28) + (25 x 28) + (250 x 28) + (12 x 28) + (5 x 11) + (10 x 11) + (5 x 11)] + [(1000 x 28) + (50 x 28) + (250 x 28) + (12 x 28) + (25 x 11) + (50 x 11) + (5 x 11)]

   = 22,256 + 37,616

   = 59,872
4. The number of collection units for each T-Server group is calculated as follows:

   $$NCollectionUnits = \frac{59872 \times 30}{1500000} = 1.2$$
5. The total number of collection units for the two T-Server groups is calculated as follows:

   $$TotalCollectionUnits = 1.2 + 1.2 = 2.4$$

If 2.4 is rounded up, you would distribute three collection units. In this case, instead of the two pairs of sites above, you could, alternatively, configure one collection unit for Tenant 1's two sites and a separate one for each of Tenant 2's two sites.

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Chapter

# 3 High-Availability Architecture

This chapter discusses the concept of High-Availability (HA) architecture in Reporting release 8.1. This chapter contains the following sections:



**Note:** Reporting 8.1 consists of two products, Contact Center Analyzer 8.1 and CCPulse+ 8.1.

## Overview

The high-availability architecture in historical reporting is intended to minimize the chance of any loss of historical reporting data, in the event of a single hardware component failure.

The HA reporting architecture consists of two Data Sourcer applications, configured in `Hot Standby` mode, and connected to two Stat Server applications, an HA T-Server, an ODS, and a Data Mart. The Stat Server applications will collect and send duplicate sets of data to the Data Sourcer pair, although only the Data Sourcer with the ODS lock will write to the ODS.

Data redundancy, connections to backup servers, and components operating in `Hot Standby` mode, will together ensure high availability of historical reporting data in release 8.1. Figure 7 illustrates the HA reporting architecture.

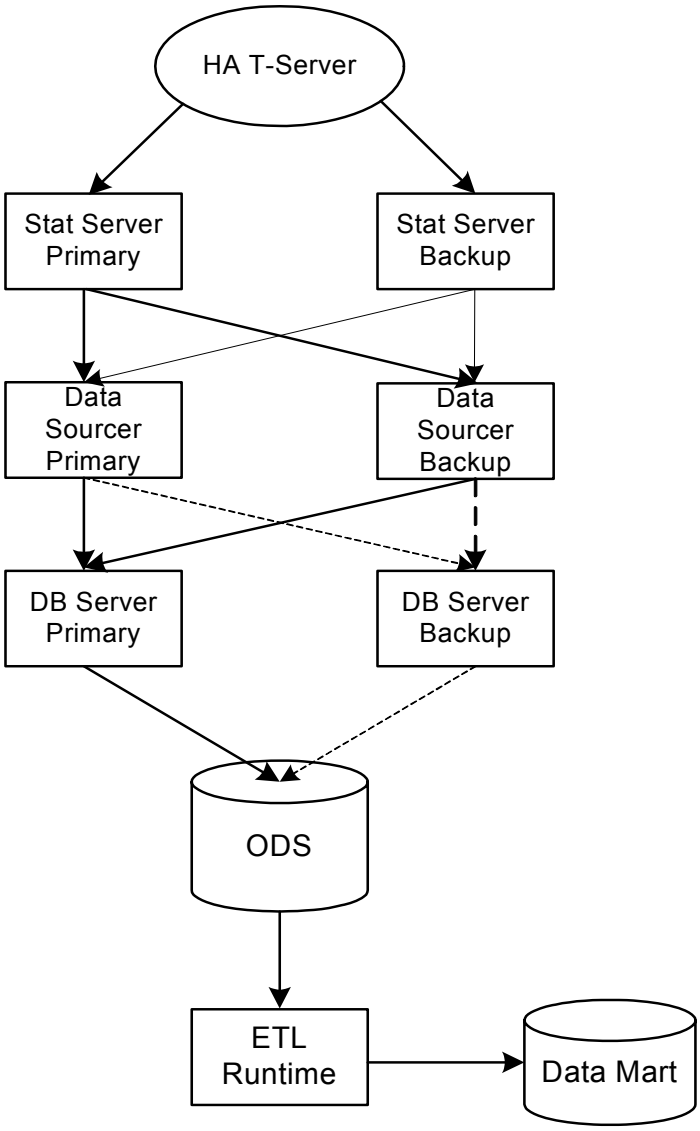


**Figure 7: High-Availability Reporting Architecture**

# Planning Considerations

Proper planning is required to ensure successful implementation of the HA reporting architecture. The following suggestions are guidelines for planning your HA architecture:

- Install your primary and backup reporting components on separate servers, if your hardware boxes are not HA. If possible, physically separate each primary server from each backup server.
- Use HA networks or clustered boxes.

- Set up alarms to signal component failures, and create a response plan for handling these alarms.
- Configure your ODS and Data Mart databases to operate in HA mode. It is the responsibility of your DBA to configure both ODS and Data Mart databases in HA mode, to ensure that there is no loss of data from databases on the RDBMS side. For example, in the case of an Oracle database, you can achieve the necessary database level guarantees by using appropriate storage solutions, or by using Oracle Data Guard in maximum protection mode.

# HA Architecture

In the HA reporting architecture, a primary and backup Data Sourcer pair operates in `Hot Standby` mode. Each Data Sourcer is connected to both a primary and a backup Stat Server. The complete HA reporting architecture must also include an HA T-Server, an ODS, and an Data Mart database. Refer to Figure 7 on page 40.

To provide data redundancy, primary and backup Stat Server applications collect and send the same set of statistics to each Data Sourcer at the same time. Under normal operating conditions, the data from the primary Stat Server has priority over the data collected from the backup Stat Server. Although each Data Sourcer receives an identical set of statistics, only the primary Data Sourcer will write this data to ODS. An ODS lock mechanism ensures that only one Data Sourcer (primary) is able to write to ODS at one time.

**Note:** To avoid loss of data, your T-Server, and your ODS and Data Mart databases, must all be in HA mode. Refer to the *Deployment Guide* for your specific T-Server, and to your DBA, for further information.

To achieve High Availability in historical reporting data, you must also configure two Stat Server applications in such a way that one Stat Server functions as a backup to the other. Stat Server is now able to accept client connections while running in `backup` mode. This enables both the primary and backup Stat Servers to collect the same set of statistics, thus ensuring minimal loss of data in the event of primary Stat Server failure.

To enable this connectivity in `backup` mode, you must set a new configuration option, `accept-clients-in-backup-mode`, in each `Stat Server Application` object. In both the primary and backup Data Sourcer applications, configure a connection to the primary Stat Server.

**Note:** If these options are not set, Stat Server will function as it did in previous releases, and you will not have HA in historical reporting data.

# Primary and Backup Data Sourcer Applications

You designate Data Sourcer 7.6 applications either as primary or backup in Configuration Server. This initial designation, however, does not actually determine which Data Sourcer application will serve the primary role of writing data to ODS. The initial operating mode of both applications is determined at startup when each application, regardless of its configured state, attempts to gain control of ODS. The successful application becomes the primary Data Sourcer, and it alone writes data to ODS. The other Data Sourcer serves as the backup.

**Note:** The initial operating mode of Data Sourcer is not static. In the event of a failure, the operating mode of each Data Sourcer can change.

Although a primary Data Sourcer 7.6 application operates in the same manner as a Data Sourcer 7.2 application, a backup Data Sourcer application behaves differently. A backup Data Sourcer collects the same data from Stat Server as does the primary Data Sourcer application. Although the backup Data Sourcer application collects this data at the same time, it does not write this data to ODS. Instead, the backup application periodically checks ODS to see whether Stat Server data has been successfully written to ODS. Upon ensuring this event occurred, the backup Data Sourcer application deletes its duplicate information from memory. The backup Data Sourcer also performs periodic checks of ODS to determine whether the primary Data Sourcer still has control and switches to primary mode if required.

## Hot Standby Mode

*Hot Standby* mode in Genesys Framework implies the existence of redundant applications, and monitoring and control of these applications by the Management Layer (that is, Solution Control Server and Local Control Agent). In the HA reporting architecture, `Hot Standby` mode is controlled by Data Sourcer and ODS, *not* by the Genesys Management Layer.

In `Hot Standby` mode, both backup and primary Data Sourcer applications collect the same data at the same time from both Stat Server applications. If the primary Data Sourcer fails and loses its connection to ODS, for example, the backup Data Sourcer does not automatically switchover to primary mode. Instead, in `Hot Standby` mode, both Data Sourcer applications will attempt to gain control of ODS. It is the one that is successful that becomes the primary Data Sourcer. Consequently, unlike `Hot Standby` in other Genesys components, there exists the chance that the Data Sourcer that was primary *before* the failure will become the primary Data Sourcer *again*, after reconnection to ODS.

Data Sourcer does not operate in `warm standby` mode.

# Deployment

Deployment of a high-availability reporting architecture requires configuration and deployment of primary and backup Data Sourcer applications, primary and backup Stat Server applications, and the other high-availability components discussed earlier in this chapter.

To configure and deploy the necessary Reporting components, refer to the following sources for more information:

- Chapter 4, "Installing Historical Reporting Components," on page 45.
- "Modifying Your Primary Data Sourcer Application Properties for High Availability" on page 43.
- "Modifying Your Stat Server Application Object for High Availability" on page 44.

In addition to configuring primary and backup Data Sourcer applications, you must also set the `accept-clients-in-backup-mode` configuration option within each Stat Server application to enable each to function in high-availability mode. See page 44 for details.

## Configuring the Data Sourcer Application Object

Configure a new primary `Data Sourcer Application` object, as in previous releases, or to upgrade your existing primary Data Sourcer application from an earlier version. You can also create and configure a backup Data Sourcer application. Once your primary and backup Data Sourcer applications have been created, you must also set some specific properties for these objects and the supporting `Stat Server Application` object in Configuration Server. Refer to "Modifying Your Primary Data Sourcer Application Properties for High Availability" and "Manually Configuring Stat Server Applications for High Availability" below for further instructions.

## Modifying Your Primary Data Sourcer Application Properties for High Availability

Make the following adjustments to the properties of your primary Data Sourcer to enable it to work in `Hot Standby` mode with the backup Data Sourcer.

1. From your `Applications` folder, open the `Properties` of the primary Data Sourcer object.
2. On the `Server Info` tab, click the `Browse` button next to the `backup Server` box. Browse to find your backup Data Sourcer application.
3. Select the backup Data Sourcer application and click `OK`.

4. From the drop-down menu next to the `Redundancy Type` box, select `Hot Standby`.
5. On the `Server Info` tab, click `Apply` and `OK` to save your changes.

To complete the CC Analyzer deployment, refer to Chapter 4, "Installing Historical Reporting Components," on page 45.

To install Data Sourcer 7.6 software, refer to "Installing Data Sourcer on Windows Platforms" on page 48, or "Installing Data Sourcer on UNIX Platforms" on page 49, as appropriate.

## Modifying Your Stat Server Application Object for High Availability

Create primary and backup `Stat Server Application` objects. For them to function in reporting High Availability mode, you must also add the `accept-clients-in-backup-mode` configuration option to both Stat Server applications, as described below:

1. For the primary and backup `Stat Server Application` object, enter the following option in the `statserver` section:
   - Option Name: `accept-clients-in-backup-mode`
   - Option Value: `True` or `Yes`
2. Save your changes.

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Chapter

# 4 Installing Historical Reporting Components

Historical Reporting components use three separate installations to facilitate the distribution of Data Modeling Assistant, Data Sourcer, and Data Mart over different machines in your network. You can install Data Sourcer and Data Mart on either Windows or UNIX platforms. You can install DMA and ETL Assistant, however, only on Windows platforms.

This chapter provides the steps for installing each component on Windows and UNIX platforms. Before installation, make sure that you have configured Historical Reporting `Application` objects. You will not be able to install any opponents otherwise.

After installing Historical Reporting components, read Chapter 5, for additional setup prior to starting Historical Reporting for the first time.

This chapter contains the following sections:

# Installing Data Sourcer

**Notes:**
- Review all steps in this guide and the *Genesys Migration Guide* before performing any of the steps in this procedure.
- Genesys recommends you review the Release Note for the latest information specific to your release of Data Sourcer about the installation and upgrade process.
- Plan a time when you can complete this deployment, starting with installation step 6, in one continuous session. Several steps can take significant time to complete, and this potentially affects the availability of your Reporting data.
- If you already have an environment that has Primary and Backup DB Server, Primary and Backup Stat Server, Primary and Backup Data Sourcer Configuration Manager Applications, and ODS created, you can reuse your existing environment and can begin this deployment starting from installation step 6.

## Pre-Installation Steps

1. Ensure that the system parameters such as the Operating System, CPU, memory and disk space requirements for installing the supported releases of DB Server and Stat Server are sufficient. Any outdated releases should be upgraded to the minimum required release prior to performing this installation procedure for Data Sourcer. Refer to the Reporting 8.1 Deployment Guide for the minimum required release information.
2. Ensure that the system parameters such as the Operating System, CPU, memory and disk space requirements for installing Data Sourcer are sufficient.
3. Ensure that there is enough disk space for log files. Detailed log files may be required for some servers if troubleshooting is required, so it is better to have a large amount of disk space reserved for the log files. Genesys recommends a minimum of 100 GB for each server, so a minimum of 200 GB is recommended for the Primary and Backup Data Sourcers.
4. Ensure that there is enough disk space for the Emergency Save Folder. This is dependant on the number of chunks you plan to store and the amount of data in your environment. Genesys recommends a minimum of 1 GB for the Emergency Save Folder.

## Installation Steps

Install the new Data Sourcer installation package:

1. Create the Database User for Data Sourcer in your RDBMS environment.

2. Create the ODS database and grant access to the Database User created in previous Step 1. This User must have the ability to create and alter database objects such as:
   - tables
   - triggers
   - stored procedures
   - indexes
   - foreign keys
   - synonyms

   The User must also have permissions to run commands such as:
   - Select
   - Insert
   - Update
   - Delete
   - Execute stored procedures

   for all user tables in the ODS database.
3. Install the Primary and Backup DB Servers and start each DB Server. Refer to the *Framework Deployment Guide* for instructions on how to install DB Server.
4. Install the Primary and Backup Stat Servers and start each Stat Server. Refer to the *Framework 8.5 Stat Server Deployment Guide* for instructions on how to install Stat Server.
5. Create and configure the Primary and Backup Data Sourcer applications in Configuration Manager. Make sure you configure the following: *collector options, log options, connections, tenants, backup application*, and so forth.

   **Warning!** Genesys strongly recommends setting the `chunk-composition-mode` option to a value other than `legacy`. Please choose an appropriate value depending on the type of environment you are using and the amount of statistics that are collected.

6. Install the Primary Data Sourcer. Refer to "Installing Data Sourcer on Windows Platforms" on page 48 or "Installing Data Sourcer on UNIX Platforms" on page 49 for instructions on how to install Data Sourcer. Do NOT start the Primary Data Sourcer.
7. Install the Backup Data Sourcer. Refer to "Installing Data Sourcer on Windows Platforms" on page 48 or "Installing Data Sourcer on UNIX Platforms" on page 49 for instructions on how to install Data Sourcer. Do NOT start the Backup Data Sourcer.

8. At this point, make sure your RDBMS, DB Servers and Stat Servers are all running. Next, start ONLY the Primary Data Sourcer.
9. Wait until the Primary Data Sourcer ODS initialization is complete. You know it has initialized when the initialization complete message appears in the log file.
10. Stop the Primary Data Sourcer.
11. Start the Primary Data Sourcer again and wait until the initialization complete message appears in the log file.
12. Start the Backup Data Sourcer and wait until the initialization complete message appears in the log file.
13. Install Data Modeling Assistant (DMA). Refer to "Installing Data Modeling Assistant" on page 50 for instructions on how to install DMA.
14. Use DMA to import and create layout templates. Refer to *Reporting 7.6 Data Modeling Assistant Help* for information on how to import and create layout templates.
15. Use DMA to create your desired layouts. Refer to *Reporting 7.6 Data Modeling Assistant Help* for information on how to create layouts.
16. Use DMA to activate your layouts. Refer to *Reporting 7.6 Data Modeling Assistant Help* for information on how to activate layouts.

**Note:** If Data Mart is NOT already installed in your environment, then to complete your CC Analyzer installation, refer to "Installing Data Mart" on page 51 to install Data Mart.

## Installing Data Sourcer on Windows Platforms

**Notes:** The installation procedure installs Data Sourcer automatically as a Windows service; you cannot install Data Sourcer in any other manner.

Before installing a release 7.6 Data Sourcer, first read Chapter 3, "High-Availability Architecture," on page 39.

To install Data Sourcer on a Windows platform:

1. Run `setup.exe`, from the installation package (for example, `data_sourcer\[operating_system]`).

   The InstallShield Wizard opens.
2. At the `Welcome to the Installation of Data Sourcer` screen, read the general information and click `Next` to proceed.
3. At the `Maintenance Setup Type` screen, select `Install new instance of the application` and click `Next`.

4. At the Connection Parameters to the Genesys Configuration Server screen, type the host, port, user name, and password for your Configuration Server in the fields provided. Then, click Next.
5. At the Select Application screen, from the upper list box, select the configured Data Sourcer Application object you want to install and click Next.

   The lower list box displays the properties of the Data Sourcer application you selected.
6. At the Choose Destination Location screen, accept the default location, type a desired location, or click Browse to choose the path where Data Sourcer is to be installed, and click Next.
7. At the Ready to Install screen, click Install.

   The Wizard displays a progress-of-completion bar on the Installation Status screen while copying the necessary files and registering dlls.
8. At the Installation Complete screen, click Finish.

The Wizard creates a Data Sourcer program group inside Genesys Solutions \Reporting 7.6, with two menu items:

- ReadMe—a shortcut to information about the Data Sourcer installation package
- Start Data Sourcer—a shortcut to the application executable

Once installed, your Data Sourcer application is activated within Configuration Server and ready for immediate use. ODS is initialized by Data Sourcer when you start Data Sourcer the first time.

---

**Note:** Data Sourcer does not begin collecting data until report layouts are created and activated within ODS. Refer to *Reporting 7.6 Data Modeling Assistant Help* for more information about layout templates and report layouts.

---

## Installing Data Sourcer on UNIX Platforms

To install Data Sourcer on a UNIX platform:

1. Locate the shell script called install.sh under the appropriate data_sourcer *operating_system* directory on the Reporting CD.
2. Run this script from the command prompt by typing the sh command and the file name. For example:

   sh ./install.sh or ./install.sh
3. When prompted, specify the host name of the computer where Data Sourcer is to be installed or press Enter to accept the provided default, which is the current host.

4. When prompted, specify the following information about your Configuration Server:
   - Host name of the computer where the Configuration Server is running.
   - Network port used by the client applications to connect to Configuration Server.
   - User name used to log in to Configuration Server.
   - Password used to log in to Configuration Server.

   The installation routine then attempts to connect to Configuration Server to gather information about Data Mart applications configured therein. If unable to make this connection, skip to Step 6.
5. From the list of applications of `Data Sourcer` type configured for this host, type the number of the Data Sourcer applications to install.
6. When prompted, specify the full path where Data Sourcer is to be installed.

   If this directory already exists, the installation routine provides you three options to deploy files:

   ```
   1. Back up all files in the directory
   2. Overwrite only the files contained in this package
   3. Wipe the directory clean
   ```

   Choose the appropriate option.

   The installation routine extracts Data Sourcer application files to the path you specified.
7. At this prompt:

   ```
   There are two versions of this product available: 32-bit and 64-bit.
   Please enter 32 or 64 to select which version to use.
   ```

   Enter `32` or `64` to specify which version of the executable to use.

As soon as the installation process is complete, a message appears indicating a successful installation. The process places the Data Sourcer in the directory specified during installation.

# Installing Data Modeling Assistant

The procedure for installing DMA is the same regardless of whether you have configured a `Data Modeling Assistant Application` object. However, you can install and operate only one DMA 7.6 application on any given machine. Previous versions of DMA installations did not impose this restriction. Furthermore, Genesys recommends that you install DMA 7.6 in a different directory from any previously installed version(s) of DMA.

1. Invoke `setup.exe` from the installation package (for example, `dma\[operating_system]`).

   The InstallShield Wizard opens. If the Wizard detects an existing DMA 7.6 version installed on your machine, it displays the `Welcome to the`

Maintenance of DMA screen, where your only option is to remove the existing version:

a. Select the Remove button and click Next.
b. At the Confirm Uninstall screen, select Yes or No as appropriate.
c. At the Maintenance Complete screen, click Finish.

To reinstall DMA 7.6, re-invoke setup.exe and proceed.

2. At the Welcome to the Installation of DMA screen, read the general information and click Next.
3. At the Choose Destination Location screen, accept the default location, type a desired location, or click Browse to choose the path where DMA is to be installed. Click Next to proceed.
4. At the Ready to Install screen, click Install.

   The Wizard displays a progress-of-completion bar on the Installation Status screen while copying the necessary files and registering dlls.
5. At the Installation Complete screen, click Finish.

The Wizard creates a Data Modeling Assistant program group inside Genesys Solutions\Reporting 7.6, with two menu items:

- Start Data Modeling Assistant—a shortcut to the application executable
- ReadMe for Data Modeling Assistant—a shortcut to information about the DMA installation package

Once installed, your DMA application is ready for immediate use.

# Installing Data Mart

**Notes:**
- Review all steps in this guide and the *Genesys Migration Guide* before performing any of the steps in this procedure.
- Genesys recommends you review the Release Note for the latest information specific to your release of Data Mart about the installation and upgrade process.
- Plan a time when you can complete this deployment, starting with installation step 6, in one continuous session. Several steps can take significant time to complete, and this potentially affects the availability of your Reporting data.
- If you already have an environment that has Primary and Backup DB Server, Primary and Backup Stat Server, Configuration Manager Applications, ODS, Data Sourcer installed from the Data Sourcer 7.6.000.15 Deployment Procedure, Data Mart database, and the JDBC Database Access Point (DAP) described below, you can reuse your existing environment and can begin this deployment starting from installation step 6.

## Pre-Installation Steps

1. Ensure that the system parameters such as the Operating System, CPU, memory and disk space requirements for installing Data Mart are sufficient.
2. Ensure there is enough disk space for log files. Detailed log files may be required for some servers if troubleshooting is required, so it is better to have a large amount of disk space reserved for the log files. Genesys recommends a minimum of 100 GB for each server.
3. Ensure that you have performed the "Installing Data Sourcer" on page 46 prior to starting this Deployment Procedure.

## Installation Steps

Install the new Data Mart installation package:

1. Create the database (schema) for the Data Mart Database.The User that owns the database (schema) should be used in Database Access Point (DAP) configuration below and must have permission to create tables, views, indexes, and synonyms in the database.
2. Create a JDBC DAP that will be used with Data Mart.
3. On the `DB Info` tab, enter `DBMS Name`, `DBMS Type`, `Database Name` and `User Information` (`User Name` and `Password`).
4. Ensure the JDBC DAP has the following option set correctly to point to the Data Mart Database:

   ```
   [jdbc]
   jdbcurl="The JDBC URL in appropriate format for your RDBMS"
   ```

   In DAP, on the Options tab, configure the`jdbc` section with the `jdbcurl` option set for the DB platform:

   - For Oracle:

     ```
     jdbc:oracle:thin:@<Oracle server host>:<Oracle listener port>:<SID>
     ```

     or

     ```
     jdbc:oracle:thin:@<Oracle server host>:<Oracle listener port>/<Service Name>
     ```

     See the Oracle JDBC driver documentation for more details.
   - For Microsoft SQL Server:

     ```
     jdbc:jtds:sqlserver://<MS SQL server host>:<MS SQL TCP/IP listening port>;DatabaseName=<ETL database name>
     ```

     See the JDTS driver documentation for more details at `http://jtds.sourceforge.net/faq.html`.
   - For DB2 see the IBM DB2 JDBC driver documentation.

5. Create an entirely new Data Mart application in Configuration Manager by importing the template and configuring all the required connections and options. Be sure to include the JDBC DAP you have created above. Refer to "Installing Data Mart on Windows Platforms" on page 53 or "Installing Data Mart on UNIX Platforms" on page 55 for more information on how to install and configure the Data Mart application.
6. Install ETL Runtime and ETL Assistant from the Data Mart installation package you received from Genesys.
7. Initialize the Data Mart. Refer to the "Initializing the Data Mart" on page 57 for more information on how to initialize the Data Mart.
8. Using ETL Assistant, configure the ETL options and ODS Data sources as described in the "Specifying a New ODS" topic in *Reporting 7.6 ETL Assistant Help*.
9. Update the `etl.properties` file in the Data Mart root directory as required. Refer to the "Specifying ETL Service Starter Processes" on page 59 for more information.

# Installing Data Mart on Windows Platforms

**Note:** The installation procedure on Windows platforms installs Data Mart automatically as a Windows service; you cannot install Data Mart in any other manner.

You must have supported JRE installed on your computer prior to deploying, configuring, and installing an ETL Runtime application.

To install Data Mart on a Windows platform:

1. Invoke `setup.exe` from the installation package (for example, `data_mart\[operating_system]`).

   The InstallShield Wizard opens.
2. At the `Welcome to the Installation of Data Mart` screen, read the general information and click `Next` to proceed.
3. At the `Maintenance Setup Type` screen, select `Install new instance of the application` and click `Next`.
4. At the `Select Components` screen, select `ETL Runtime`, at your discretion, and click `Next`. The Wizard automatically installs ETL Assistant.

   **Note:** InstallShield verifies that supported JRE has been installed. Installation ceases if this check fails. If this happens, restart the Data Mart installation after installing supported JRE.

Skip to Step 7 if you chose to install ETL Assistant only.

5. At the Connection Parameters to the Genesys Configuration Server screen, type the host, port, user name, and password for your Configuration Server in the fields provided. Then, click Next.
6. At the Select Application screen, from the upper list box, select the configured Data Mart Application object you want to install and click Next.

   The lower list box displays the properties of the Data Mart application you selected.
7. At the Choose Destination Location screen, accept the default location, type a desired location, or click Browse to choose the path where ETL Runtime is to be installed and click Next.
8. At the Ready to Install screen, click Install.

   The Wizard displays a progress-of-completion bar on the Installation Status screen while copying the necessary files and registering dlls.
9. At the Installation Complete screen, click Finish.

The Wizard creates a Data Mart program group inside Genesys Solutions/Reporting 7.6, with two menu items:

- ReadMe for Data Mart—a shortcut to information about the Data Mart installation package
- Start Data Mart—a shortcut to the application executable

Once installed, your Data Mart application is activated within Configuration Server and ready for immediate use.

**Note:** If you did not initialize your Data Mart during configuration, execute the procedure listed in "Initializing the Data Mart" on page 57 before starting ETL Runtime for the first time. You must also manually specify ODS sources using ETL Assistant. Refer to the "Specifying a New ODS" topic in *Reporting 7.6 ETL Assistant Help* for more information.

# Installing Data Mart on UNIX Platforms

Make sure that the two Application objects (of type ETL Proxy and Data Mart) have been created and configured properly in the Configuration Manager.

**Notes:** You must have supported JRE installed on your computer prior to deploying, configuring, and installing a Data Mart application. Also, set up the CLASSPATH and PATH environment variables properly to run Java.

Refer to "Install JRE 1.6 or JRE 1.7 on the same machine on which the Reporting applications run. Supported Operating Systems" on page 23 for a list of websites from which you can download JRE.

To install Data Mart on a UNIX platform:

1. Designate a UNIX path for Data Mart.
2. On the Reporting CD in the appropriate data_mart/[operating_system] directory, locate a shell script called install.sh.
3. Run this script from the command prompt by typing the sh command and the file name. For example:

   ```
   sh ./install.sh
   ```
4. When prompted, specify the host name of the computer where Data Mart is to be installed or press Enter to accept the provided default, which is the current host.
5. When prompted, specify the following information about your Configuration Server:
   - Host name of the computer where the Configuration Server is running.
   - Network port used by the client applications to connect to Configuration Server.
   - User name used to log in to Configuration Server.
   - Password used to log in to Configuration Server.

   The installation routine then attempts to connect to Configuration Server to gather information about Data Mart applications configured therein. If unable to make this connection, skip to Step 7.
6. When prompted, from the list of Application objects of the Data Mart type configured for this host, specify the number of the Data Mart Application objects to install.
7. When prompted, specify the full path where Data Mart is to be installed.

   If this directory already exists, the installation routine provides you three options to deploy files:

   ```
   1. Back up all files in the directory
   2. Overwrite only the files contained in this package
   3. Wipe the directory clean
   ```

Choose the appropriate option.

The installation routine extracts Data Mart application files to the path you specified.

8. Enter `32` or `64` to specify which version of the executable to use, if prompted:

```
There are two versions of this product available: 32-bit and 64-bit.
Please enter 32 or 64 to select which version to use.
```

As soon as the installation routine completes, a message appears indicating a successful installation. On UNIX platforms, you may also need to configure certain parameters, such as `CfgAppName`, `CfgUser`, and `CfgUserPassword` to gain full functionality. Refer to the "Runtime Parameters" chapter in the *Reporting 7.6 ETL Runtime User's Guide* for information about these and other parameters.

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Chapter

# 5 Setting Up Historical Reporting

The procedures described in Chapters 4 configure, install, and activate `Data Modeling Assistant`, `ETL Assistant`, `Data Mart`, and `Data Sourcer Application` objects. However, if, during installation, you chose any of the following, additional setup is required:

- Not to initialize the Data Mart
- To install ETL Runtime on UNIX
- Not to identify ODS sources within ETL Assistant
- To edit ETL Runtime properties

You should also review the start-up priorities in the Configuration Manager to verify that they reflect the requirements of your environment.

This chapter describes the additional setup required. It contains the following sections:



## Initializing the Data Mart

You can change four database initialization parameters by modifying settings in the `createdb.properties` file. The properties you can edit are the database user name (`user`), database password (`pass`), the JDBC URL (`jdbcurl`), and the name of the log file (`log`). Users can also add the log level (`loglevel`) parameter to the `createdb.properties` file.

**Note:** See the "ETL Runtime Parameters" table in the *Reporting 7.6 ETL Runtime User's Guide* for parameter definitions.

To change these parameters and initialize your Data Mart on a Windows platform:

1. Open the `createdb.properties` file using a text editor.
2. Change database initialization parameters as desired, and save the file.
3. Run the `run-createdb.bat` batch script.

   If errors occur, exceptions are generated and written to the log specified in the `createdb.properties` file.

Figure 8 illustrates a sample `createdb.properties` file with settings for five parameters.

```
# $Id: createdb.properties,v 2.2 2000/07/29 06:10:36 saund Exp $
# Default properties for database initialization
# DATAMART owner database username
user=susie_datamart
# DATAMART owner database password
pass=susie_datamart
# for ORACLE: jdbc:oracle:thin:@dbhost:dbport:ORACLE_SID
# for  MSSQL: jdbc:weblogic:mssqlserver4:dbname@dbhost:dbport
# for SYBASE: jdbc:sybase:Tds:dbhost:dbport
# provided to JDBC driver for connect to DATAMART database
jdbcurl=jdbc:oracle:thin:@susie:2121:orcl
# name of the log file [default=<STDOUT>]
log=createdb.log
# <INIT[[:0-9]:ClassName],...> - log level: (logName:level)
# [default=CREATE-SQL:3,WRITE:5,DIST-POOLING:3,INFO:9,PURGE:9,INIT:3,DEE
loglevel=THREAD-WAIT:3,SQL:3,CREATE-SQL:3,WRITE:3,DIST-POOLING:3,INFO:9,
# will create database schema, populate it
# by meta-data and templates info and exit
createdb
```

**Figure 8: Sample createdb.properties File**

To change these parameters and initialize your Data Mart on a UNIX platform:

1. Open the `createdb.properties` file using a text editor.
2. Change database initialization parameters as desired, and save the file.
3. Type `./run-createdb` at the command prompt.

   If an error occurs, an exception is generated and written to the log you specified. Check for errors using the following command:

   `grep -i EXCE` *`[logfilename]`*

   where *`[logfilename]`* is the name of the log file.

# Specifying ETL Service Starter Processes

By default, the Data Mart installation defines the following ETL Runtime processes to run when you invoke the ETL Service Starter:

- `ETL_Trans_Only`
- `ETL_Agg_Only`
- `ETL_Tracking`

To run a different mix of processes, modify the `process` section of the Genesys ETL Service Starter within Configuration Manager to include the processes you want to run. Be sure to define a separate section for each new process you add.

Refer to "Configuration Options" in the *Reporting 7.6 ETL Runtime User's Guide* for information about the various ETL Runtime processes. Refer to "Starting and Stopping ETL Runtime" on page 70 for information about starting ETL Runtime.

Before running ETL Runtime, set the properties by which data should be aggregated and/or transformed in the `etl.properties` file.

# Deploying ETL Runtime Using DB2 v8+

Starting with the Reporting 7.5 release (CC Analyzer 7.2), ETL Runtime supports Data Mart operation on DB2 8.1 and 8.2 RDBMSs. The most visible change in the configuration of a DB2 version 8 Data Mart is the port number used for Data Mart connection. The Universal JDBC driver, used in conjunction with this version of DB2, communicates with a DB2 server via an open distributed protocol (DRDA). As such, JDBC server `db2jd` is no longer necessary and the JDBC URL format remains the same. Use the default DRDA port number, `50000`. Use this value instead of `6789`.

You can use the following procedure for determining your actual DRDA port value if the default (`50000`) is not used:

1. Type `get DBM CFG` at the DB2 command line.
2. Find the line where the `SVCENAME` configuration parameter is displayed. It will resemble the following:

   ```
   TCP/IP Service name     (SVCENAME) = db2inst1
   ```
   or
   ```
   TCP/IP Service name     (SVCENAME) = 50000
   ```
3. Determine the value of `SVCNAME:`
   a. If a numeric value is assigned to `SVCENAME`, use it for the JDBC URL in ETL Runtime configuration.

**b.** If a symbolic value, such as `db2inst1`, is used, you must determine the numeric value from either the `/etc/services` file or the `NIS/NIS+` database. Please contact your UNIX administrator for assistance.

**c.** If no value is assigned at all, contact your DB2 database administrator to modify the configuration of your DB2 server.

# Assigning Start-Up Priorities

Genesys recommends that you assign Data Sourcer a startup priority of at least one number higher than your backup Stat Server. For example, if your Stat Server has a startup priority of `4` and its backup has startup priority of `5`, then you should assign Data Sourcer a start-up priority of `6` (or higher). Priorities are assigned at the solution level within Configuration Manager.

Figure 9 provides another example, showing the startup priorities of components belonging to the Production solution. Note that the primary Stat Server application is assigned startup priority of `5`. Its backup, `StatServerReporting_bk`, is assigned `6`, and Data Sourcer is assigned `12`.

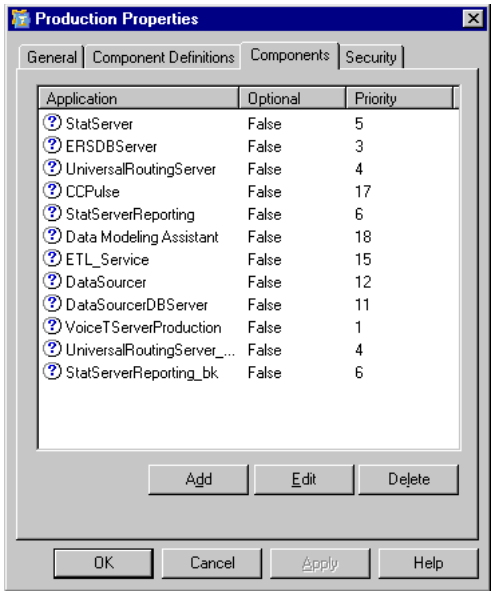


**Figure 9: Startup Priorities of the Production Solution**

Refer to the "Solutions" section in *Framework 8.1 Configuration Manager Help* for further information about assigning priorities to the applications in your configuration environment.

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Chapter

# 6 Starting and Stopping Historical Reporting

This chapter provides the starting and stopping procedures for each component of Historical Reporting. Each section includes "What Must Be Running Prior to Start" so that startup is successful the first time. Starting procedures assume that you have properly configured and installed the application components. If not, refer to Chapters 4. The final section provides a table of default source paths for all Historical Reporting executables mentioned in this guide.

Your entire solution, including the server components of Historical Reporting, may be started from the Solution Control Interface (SCI), which is the recommended approach. Where applicable, this information is also covered in a subsection.

This chapter contains the following sections:



## Starting and Stopping DMA

This section describes the starting and stopping procedures for Data Modeling Assistant (DMA).

### What Must Be Running Prior to Start

- RDBMS with ODS
- Configuration Server

- DB Server for the ODS

Refer to the "Troubleshooting" chapter in the *Reporting 7.6 Data Sourcer User's Guide* for information about the data collected when the Data Sourcer to which DMA connects, or the Stat Server assigned to that Data Sourcer, is not running.

# Starting DMA on Windows Platforms

On a Windows platform, you can start DMA:

- From the `Programs` menu.
- From a console window.
- From the Configuration Manager.

## From the Programs Menu

1. Select `Data Modeling Assistant` from the program folder created during installation.

   The `Welcome to Data Modeling Assistant` screen appears with the name of the previous user in the `User name` field.

   **Note:** If a security banner is configured for all Genesys user interfaces, it is displayed before the Login screen.

2. Type an authorized user name and password to connect to your Configuration Server.
3. Click `Details>>` to display connection information for your Configuration Server. The `Welcome to Data Modeling Assistant` screen expands.
4. Enter the DMA application name, the host name and port number of the appropriate Configuration Server, and then click `OK`.

   DMA opens the `Select DataSourcer Application` screen and displays all applications of type `Data Sourcer`.
5. Select a `Data Sourcer Application` object and click `OK`.

   DMA opens a document window that connects to the corresponding ODS. A connection is made to DB Server using the Database Access Point specified when you configured your `Data Sourcer Application` object. If DMA cannot connect to the specified DB Server, an appropriate message displays. If DMA successfully connects to the DB Server, but the DB Server is connected to a database other than ODS, an SQL error message appears.

   Refer to *Framework 8.1 Configuration Manager Help* for information about Database Access Points.

You can have several document windows open simultaneously within DMA. From the `File` menu, select `Open` to open another document window. The `Select DataSourcer Application` screen reappears. Repeat Step 5.

## From a Console Window

1. At the command-line prompt, go to the directory where DMA has been installed.
2. Enter `dma.exe`, which opens the `Welcome to Data Modeling Assistant` screen.
3. Complete Steps 2–5 ("From the Programs Menu") starting on page 62.

## From the Configuration Manager

You can start DMA from the Configuration Manager by right-clicking any active `Data Sourcer Application` object to display the context menu, and then selecting `Data Modeling Assistant` from this menu (see Figure 10). The Configuration Manager marks inactive applications with a red slash ( ).

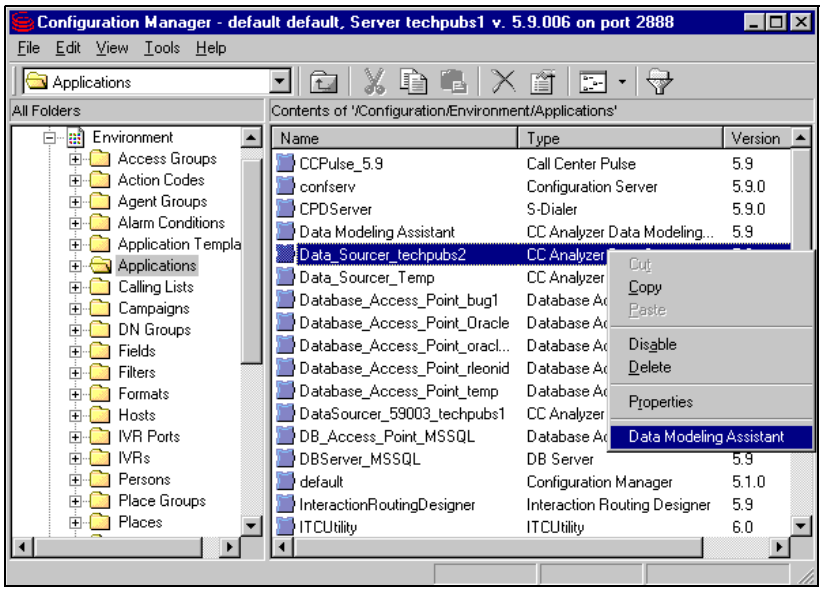


**Figure 10: Starting DMA from the Configuration Manager**

To invoke DMA in this manner, your `Data Modeling Assistant Application` object must be named `Data Modeling Assistant`. DMA starts and opens a document window with the specified `Data Sourcer Application` object. DMA connects to the DB Server specified by the Database Access Point without closing any previously opened document windows or existing connection(s), provided that the Configuration Server remains the same.

## Stopping DMA

There are at least two ways to exit DMA:

- From the `File` menu, select `Exit`.
- Click the `Close` button located on the right side of the title bar in the DMA main window.

**Note:** You cannot stop DMA from the Configuration Manager although you can start it from there.

# Starting and Stopping Data Sourcer

This section describes the starting and stopping procedures for Data Sourcer. You can start Data Sourcer on a Windows or UNIX platform. Genesys recommends that you start Data Sourcer from SCI.

Refer to the "Troubleshooting" chapter in the *Reporting 7.6 Data Sourcer User's Guide* if you experience performance problems in starting and operating Data Sourcer.

**Note:** If you have upgraded Data Sourcer from release 6, Genesys strongly recommends that you back up your Operational Data Storage (ODS) before starting Data Sourcer 7.6 for the first time.

## What Must Be Running Prior to Start

**Important!** Before starting Data Sourcer for the first time, ensure that you have properly configured your `Stat Server Application` object in the Configuration Manager. This is especially pertinent if you manually configured this object.

**HA Stat Server** If you are using two Stat Server applications in a high availability configuration, you must also define the `accept-clients-in-backup-mode` option in each Stat Server's configuration. Refer to "Modifying Your Stat Server Application Object for High Availability" on page 44 for further instructions.

For Data Sourcer 7.0.1 and earlier releases, specifically, check that you have set values for the following properties:

- The `TimeProfiles` section of Stat Server must contain the `CollectorDefault` option set to `0:00+0:15`.
- The `TimeRanges` section of Stat Server must contain two time ranges: `ServiceFactorAbandonedThreshold`, with a recommended value set to `0-5`, and the `ServiceFactorAnsweredThreshold`, with a recommended value set to `0-10`.

If you attempt to start Data Sourcer without having set options for the `Time Ranges` or `TimeProfiles` sections, startup may fail. These settings are not necessary for Data Sourcer 7.0.2 and later releases.

**Backup Configuration Server**

To enable your Data Sourcer application to be restarted when backup Configuration Server switches to the primary mode, you must specify the backup Configuration Server parameters when starting Data Sourcer.

On the command line, specify these parameters using the following two new arguments:

`-backup_host` *hostname*

`-backup_port` *port-number*

where:

- *hostname* refers to the name of the computer on which the backup Configuration Server is running.
- *port-number* refers to the port on which the backup Configuration Server is running.

For more information on starting Data Sourcer from a console window, see "From a Console Window" on page 66 of this guide.

**Microsoft SQL Server**

If you are starting Data Sourcer 7.2.003.10 (or later) in a Microsoft SQL Server environment, Genesys recommends modifying the DAP application that Data Sourcer uses to access the ODS. This is a manual step that must be performed after installing the Data Sourcer application. See the configuration chapter in the *Reporting 7.6 Data Sourcer User's Guide* for more information.

Genesys recommends that you start Data Sourcer with the following applications already running:

- The RDBMS with your ODS
- Your Configuration Server
- The DB Server for your ODS
- The Stat Server assigned to your Data Sourcer and/or the RDBMS with your solution-specific server database (Internet Contact Server Database)

Refer to the "Troubleshooting" chapter in the *Reporting 7.6 Data Sourcer User's Guide* for information on the data collected when any or all of these applications are *not* running. Refer to Chapter 5 for information about startup.

## Starting Data Sourcer from the Solution Control Interface

You can start Data Sourcer on any of the supported platforms. To do so from SCI:

1. From the `Applications` view, select your `Data Sourcer Application` object in the list pane.

2. Click the `Start` button on the toolbar, or select `Start` either from the `Action` menu or the context menu. (Right-clicking your `Application` object displays the context menu.)
3. Click `Yes` in the confirmation box that appears. Your Data Sourcer application starts.

**Note:** If you are using a Framework 8.1 environment, if Data Sourcer is connected to the Configuration Server Proxy and if the primary Configuration Server and the Configuration Server Proxy have the appropriate connections, starting Data Sourcer through SCI establishes a connection with the Configuration Server Proxy.

For information about how to use SCI, refer to *Framework 8.1 Solution Control Interface Help*.

# Starting Data Sourcer from Windows Platforms

On a Windows platform, you can start Data Sourcer:

- Manually from the `Programs` menu as an application.
- Manually from a console window as an application.
- Automatically or manually as a Windows service.

## From the Programs Menu

To start Data Sourcer from the `Programs` menu as an application, select `DataSourcer` from the program group created during installation. The application opens a console window and automatically issues the parameters you specified during configuration to start Data Sourcer. The Data Sourcer application name and version appear in the title bar.

## From a Console Window

To start Data Sourcer as an application from a console window:

1. At the command-line prompt, go to the directory where Data Sourcer has been installed.
2. Type the name of the Data Sourcer executable followed by the appropriate command-line parameters using the following syntax:

   `data_sourcer.exe -host` *hostname* `-port` *portno* `-app` *application*

   where:

   - *`hostname`* refers to the name of the computer on which Configuration Server is running.
   - *`portno`* refers to the communication port on which Configuration Server is running.

- *application* refers to the name of the Data Sourcer Application object as defined in the Configuration Manager.

**Note:** If the host or application name contains spaces or hyphens (-), enclose it in double quotation marks.

For example, to start Data Sourcer with parameters specifying the host as cs-host, port as 2020, and name as Data Sourcer, type:

```
data_sourcer.exe -host "cs-host" -port 2020 -app "Data Sourcer"
```

**Note:** If needed, specify the optional parameters -backup_host and -backup_port.

### As a Windows Service

1. From the task bar, choose Start > Settings > Control Panel > Administrative Tools. The Control Panel folder appears.
2. Double-click the Services icon. The Services screen opens.
3. Right-click your Data Sourcer service from the list and click Start.

**Note:** Since the Local Control Agent (LCA) can be installed as a Windows service with the user interface disabled, all servers started through SCI, in this case, are started without a console unless you specifically select the Allow Service to Interact with Desktop check box for both LCA and Data Sourcer.

## Manually Starting Data Sourcer from UNIX Platforms

1. Go to the directory where Data Sourcer has been installed.

**Note:** You can invoke Data Sourcer only from the directory where it is installed.

2. Type the name of the Data Sourcer executable followed by the appropriate command-line parameters using the following syntax:

   ./data_sourcer -host *hostname* -port *portno* -app *application*

   where:

   - *hostname* refers to the name of the computer on which Configuration Server is running.
   - *portno* refers to the communication port on which Configuration Server is running.

- *application* refers to the name of the Data Sourcer Application object as defined to the Configuration Server.

**Note:** If the host or application name contains spaces or hyphens (-), enclose it in double quotation marks.

For example, to start Data Sourcer with parameters specifying the host as cs-host, port as 2020, and name as Data Sourcer, type:

```
./data_sourcer -host "cs-host" -port 2020 -app "Data Sourcer"
```

**Note:** If needed, specify the optional parameters -backup_host and -backup_port.

When Data Sourcer starts, it writes log messages into stdout, so you can check for errors in its configuration. If Data Sourcer fails to start, a descriptive message with the reason is written to stdout. If you cannot resolve the problem, contact Genesys Customer Care and provide the entire content of the Data Sourcer log.

You can also type the name of the Data Sourcer executable and its command-line parameters into a shell script and execute the script using the following command:

./run.sh *[Name of script]*

To redirect Data Sourcer output (on most UNIX shells), use the following syntax:

```
./data_sourcer -host hostname -port portno -app appl >
    log_file.log
```

To have both log file and console, within the Configuration Manager add the following to Data Sourcer's application properties:

- Section: Log.
- Option: all.
- Value: stdout, <log_file_name.log>, network. Instead of stdout, you can also use stderr.
- Add the name of the log file. (It is written into the same directory where Data Sourcer is installed, or indicate the full path where you want it to be written.)
- Separate values with commas.

## Stopping Data Sourcer on Windows Platforms

If Data Sourcer is running as an application, switch to its console window and press Control-C (^C) to stop it. If you are running Data Sourcer as a Windows service, you should stop it only from the Microsoft Management Console.

To stop Data Sourcer running as a Windows service:

1. From the task bar, choose `Start > Settings > Control Panel > Administrative Tools`. The Control Panel folder appears.
2. Double-click the `Services` icon. The `Services` screen opens.
3. Right-click your Data Sourcer service from the list and click `Stop`.

**Note:** Be sure that the autorestart property is cleared for the `Data Sourcer Application` object in the Configuration Manager.

If you use LCA and SCS, you can stop Data Sourcer from SCI. To do so:

1. From the `Applications` view, select your `Data Sourcer Application` object in the list pane.
2. Click `Stop` on the toolbar, or select `Stop` either from the `Action` menu or the context menu.
3. Click `Yes` in the confirmation box that appears.

## Stopping Data Sourcer on UNIX Platforms

**Note:** Be sure that the `autorestart` property is cleared for the `Data Sourcer Application` object in the Configuration Manager.

Stop Data Sourcer on UNIX using either of the following methods:

- On the command line, type `kill -9` *`processid`*, where *`processid`* is Data Sourcer's UNIX process ID.
- Press `^C` from the active Data Sourcer console.
- If LCA and SCS are used, you can stop Data Sourcer from SCI.

# Starting and Stopping ETL Assistant

This section describes the starting and stopping procedures for the Extraction, Transformation, and Loading (ETL) Assistant, a component of both Real-Time and Historical Reporting. You can start ETL Assistant from a Windows 2000, Windows XP, or Windows Server 2003 platform.

## What Must Be Running Prior to Start

- Configuration Server
- RDBMS for Data Mart

## Starting ETL Assistant

On a Windows platform, you can start ETL Assistant:

- From the `Programs` menu.
- From a console window.

### From the Programs Menu

1. Select `ETL Assistant` from the program folder created during installation.

   The `Login` screen appears.
2. Type an authorized user name and password for connection to a Data Mart.
3. Click `Details>>` to specify connection information for the Data Mart. The `Login` screen expands.
4. Select the appropriate DBMS type from the drop-down list, and specify host and port information for connection to the database server. In addition, for Oracle, type the identification name in the `SID Name` field.

### From a Console Window

1. At the command-line prompt, go to the directory where ETL Assistant has been installed.
2. Type the ETL Assistant command: `run.bat`. The `Login` screen appears.
3. Complete Steps 2–4 under "From the Programs Menu" to finish starting ETL Assistant from a console window.

## Stopping ETL Assistant

To exit ETL Assistant, either:

- Select `Exit` from the `File` menu.
- Click the `Close` button on the right side of the title bar of the ETL Assistant main window.

# Starting and Stopping ETL Runtime

Starting ETL Runtime in this release is significantly different from starting it in releases prior to 6.1. The recommended approach is to start ETL Runtime and its modules using the ETL Runtime Starter, an `Application` object defined in the Configuration Manager.

**Note:** ETL Runtime Starter is also referred to as *Starter* and the two names can be used interchangeably.

You can also start ETL Runtime from the Solution Control Interface on both Windows and UNIX platforms. Optionally, you can start ETL Runtime's modules individually from the command line of a console window. This section describes all methods for starting ETL Runtime on the Windows and UNIX platforms.

Refer to the "Configuration Options" chapter in the *Reporting 7.6 ETL Runtime User's Guide* for more information about ETL Runtime Starter (also known as Starter).

**Note:** If you have upgraded ETL Runtime from release 6, Genesys strongly recommends that you back up your Data Mart before starting ETL Runtime for the first time.

## What Must Be Running Prior to Start

- The RDBMS with your ODS
- Your Configuration Server
- The RDBMS with your Data Mart

## Starting ETL Runtime Starter from SCI

You can start ETL Runtime Starter on any of the supported platforms. To start it from SCI:

1. From the `Applications` view, select your `ETL Runtime Starter Application` object in the List pane.
2. Click `Start` on the toolbar, or select `Start` either from the `Action` menu or the context menu.
3. Click `Yes` in the confirmation box that appears.

## Starting ETL Runtime Starter from Windows Platforms

You can start the ETL Runtime Starter:

- Manually from the `Programs` menu as an application.
- Manually from a console window as an application.
- Automatically as a Windows service.

### From the Programs Menu

Select `ETL Runtime Starter` from the program group created during installation. ETL Runtime Starter opens a console window and automatically issues the command-line parameters that you specified during configuration, to

start ETL Runtime. The `ETL Runtime Application` object name and version appear in the title bar.

## From a Console Window

1. At the command-line prompt, open the directory where you have installed ETL Runtime.
2. Type the name of the Starter executable followed by the appropriate command-line parameters, using the following syntax:

   `starter.exe -host` *hostname* `-port` *portno* `-app` *application*

   where:

   - *hostname* refers to the name of the computer on which Configuration Server is running.
   - *portno* refers to the communication port on which Configuration Server is running.
   - *application* refers to the name of the `Data Mart Application` object.

**Note:** If the host or application name contains spaces or hyphens (-), enclose it in double quotation marks.

You can also type the name of the Starter executable and its command-line parameters into a shell script, and execute the script using the following command:

`./run.sh` *[Name of script]*

## As a Windows Service

1. From the task bar, choose `Start > Settings > Control Panel > Administrative Tools`.
2. Double-click the `Services` icon.
3. Select your ETL Runtime service from the list and click `Start`.

**Note:** Because you can install LCA as a Windows service with the user interface disabled, all servers started through SCI, in this case, are started without a console, unless you specifically select the `Allow Service to Interact with Desktop` check box.

# Starting ETL Runtime Starter from UNIX Platforms

To start ETL Runtime Starter on a UNIX platform:

1. Go to the directory where ETL Runtime has been installed.

   **Note:** You can invoke ETL Runtime Starter (or any of ETL Runtime's components) only from the directory where it is installed.

2. Type the name of the Starter executable followed by the appropriate command-line parameters, using the following syntax:

   `./starter -host` *`hostname`* `-port` *`portno`* `-app` *`application`*

   where:

   - *`hostname`* refers to the name of the computer on which Configuration Server is running.
   - *`portno`* refers to the communication port on which Configuration Server is running.
   - *`application`* refers to the name of the `Data Mart Application` object.

   **Note:** If the host or application name contains spaces or hyphens (-), enclose it in double quotation marks.

When ETL Runtime Starter starts, it writes log messages into `stderr`, so you can check for errors in its configuration. If ETL Runtime Starter fails to start, a descriptive message with the reason is written to `stderr`. If you cannot resolve the problem, contact Genesys Customer Care and provide the entire content of the log.

You can also type the name of the Data Sourcer executable file and its command-line parameters into a shell script, and execute the script using the following command:

`./run.sh` *`[Name of script]`*

To redirect ETL Runtime output (on most UNIX shells), use the following syntax:

`./starter -host` *`hostname`* `-port` *`portno`* `-app` *`appl`* `>` *`log_file.log`*

To have both log file and console working, within the Configuration Manager add the following in the `Properties` dialog box of the `ETL Runtime Starter Application` object:

- Section: `Log`
- Option: `all`
- Value: `stderr`, `<log_file_name.log>`, `network`. Instead of `stderr`, you can also use `stdout`.

- Add the name of the log file (it will be written into the same directory where you installed ETL Runtime, or indicate the full path where you want the log file to be written).
- Separate values with commas.

## Starting the ETL Runtime Modules Individually

From the command line in the directory where ETL Runtime is installed, you can start any of the following ETL Runtime modules individually:

- Aggregation
- Data Mart Database Creation
- One-Time Transformation
- Purge
- Tenants Alias Update
- Transformation
- Transformation and Aggregation

Refer to the *Reporting 7.6 ETL Runtime User's Guide* for a description of ETL Runtime's modules and property files.

The command-line syntax for starting ETL Runtime is the following:

`java` *`java_options`* `-jar transform.jar -conf` *`properties_file`*

where

- *`java_options`* are those specified in the corresponding properties file (sample batch files provided in Table 3).
- *`properties_file`* are any of the properties files listed in Table 3 on page 74.

ETL Runtime parameters can also be issued at the command line for all ETL Runtime modules. Refer to the *Reporting 7.6 ETL Runtime User's Guide* for a complete listing of parameters.

Table 3 lists the batch files and corresponding `.properties` file that you can issue for each module at the command line where ETL Runtime has been installed.

### Table 3: Starting ETL Runtime's Modules

| ETL Runtime Module | Batch File | Corresponding Property File |
|---|---|---|
| Aggregation | Windows: run-agg_only.bat<br>UNIX: run-agg_only | etl.properties |
| Data Mart Database Creation | Windows: run-createdb.bat<br>UNIX: run-createdb | createdb.properties |

**Table 3: Starting ETL Runtime's Modules (Continued)**

| ETL Runtime Module | Batch File | Corresponding Property File |
|---|---|---|
| One-Time Transformation | Windows: run-trans_once.bat<br>UNIX: run-trans_once | etl.properties |
| Purge | Windows: run-purge.bat<br>UNIX: run-purge | purge.properties |
| Tenants Alias Update | Windows: run-tenants_alias_update.bat<br>UNIX: run-tenants_alias_udpate | tenants_alias_update.properties |
| Transformation | Windows: run-trans_only.bat<br>UNIX: run-trans_only | etl.properties |
| Transformation and Aggregation | Windows: run-trans_and_agg.bat<br>UNIX: run-trans_and_agg | etl.properties |

# Stopping ETL Runtime Starter on Windows Platforms

**Note:** Be sure that the `autorestart` property is cleared for the `ETL Runtime Starter Application` object in the Configuration Manager.

If ETL Runtime Starter is running as an application, switch to its console window and press `^C` to stop it.

If you are running ETL Runtime Starter as a Windows service, you should stop it only from the Microsoft Management Console:

1. From the task bar, choose `Start > Settings > Control Panel > Administrative Tools`.
2. Double-click the `Services` icon.
3. Select your ETL Runtime service from the list and click `Stop`.

**Note:** Be sure that the `autorestart` property is cleared for the `ETL Runtime Starter Application` object in the Configuration Manager.

To stop ETL Runtime Starter from SCI:

1. From the `Applications` view, select your `ETL Runtime Starter Application` object in the List pane.

2. Click `Stop` on the toolbar, or select `Stop` either from the `Action` menu or the context menu.
3. Click `Yes` in the confirmation box that appears.

## Stopping ETL Runtime Starter on UNIX Platforms

**Note:** Be sure that the `autorestart` property is cleared for the `ETL Runtime Starter Application` object in the Configuration Manager.

Stop ETL Runtime Starter on UNIX using either of the following methods:

- On the command line, type `kill -SIGTERM` *`processid`* where *`processid`* is ETL Runtime Starter's UNIX process ID.
- Press `^C` from the active `ETL Runtime Starter` console.

# Default Source Path

Table 4 lists the source paths and program groups of Historical Reporting components on Windows platforms created during the installation process if you accepted all default values.

**Table 4: Default Application Source Paths for Historical Reporting**

| Reporting Component | Default Source Path/ Program Group |
|---|---|
| Data Sourcer | Source Path: `C:\Program Files\GCTI\Data Sourcer`<br>Program Group: `Genesys Solutions\Reporting 7.6` |
| Data Modeling Assistant | Source Path: `C:\Program Files\GCTI\Data Modeling Assistant`<br>Program Group: `Genesys Solutions\Reporting 7.6` |
| ETL Assistant | Source Path: `C:\Program Files\GCTI\Data Mart\etl_assistant`<br>Program Group: `Genesys Solutions\Reporting 7.6` |
| ETL Runtime | Source Path: `C:\Program Files\GCTI\Data Mart\ETL Runtime`<br>Program Group: `Genesys Solutions\Reporting 7.6` |

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Chapter

# 7 Installing Real-Time Reporting

The installation of Real-Time Reporting involves one component: CCPulse+. This chapter describes the steps for manually installing CCPulse+. Refer to the *Reporting 8.1 CCPulse+ Administrator's Guide* for instructions on installing CCPulse+ silently.

**Note:** CCPulse+ is a Microsoft Windows application. It is not supported on UNIX platforms.

Refer to Chapter 2 for preparatory requirements that you must satisfy before installing Real-Time Reporting.

To install Real-Time Reporting:

1. Invoke `setup.exe` from the Reporting CD.

   The InstallShield Wizard opens.

2. At the `Welcome to the Installation of CCPulse+` screen, read the general information and click `Next` to proceed.

3. At the `Choose Destination Location` screen, accept the default location, type a desired location, or click `Browse` to choose the path where CCPulse+ is to be installed, and click `Next`.

4. At the `Select Monitoring Agent Activity` screen, select whether users can monitor agent activity, and click `Next`.

5. At the `Ready to Install` screen, click `Install`.

   The Wizard displays a progress-of-completion bar on the `Installation Status` screen while copying the necessary files and registering dlls.

6. At the `Installation Complete` screen, click `Finish`.

The Wizard creates a CCPulse+ program group inside Genesys Solutions/Reporting 8.1, with two menu items:

- ReadMe—a shortcut to information about the CCPulse+ installation package
- Start CCPulse+—a shortcut to the application executable

Chapter

# 8 Setting Up Real-Time Reporting Users

CCPulse+ looks to the setting of the Ranks property of Persons objects in Configuration Server to determine whether to grant or restrict access to certain CCPulse+ functionality that is typically reserved for administrator-type operations. This ranking is not to be confused with access to data in the Configuration Database—access which is controlled, in part, by the Security property of the Persons object.

This chapter describes the additional setup required to set up CCPulse+ users and administrators. It contains the following sections:



Refer to the "Persons" topics in *Framework 8.1 Configuration Manager Help* for additional information about this object's properties.

## Setting Up Users

CCPulse+ users can select and monitor configuration objects only with a connection to a selected Stat Server and its set of monitored tenants. Any CCPulse+ user can open any workspace against a particular Stat Server application available from Stat Server list.

To set up a new CCPulse+ user within the Configuration Manager:

1. With the Persons folder selected, select File > New > Person.
2. On the General tab, identify the new person by completing the First and Last name fields.
3. On the Ranks tab, click Add and specify the following:
   - Application type: Call Center Pulse
   - Rank: User

4. Click OK.

You have now set up a CCPulse+ user.

**Note:** By default, CCPulse+ recognizes all Configuration Manager Persons objects as having the rank of User, if not explicitly identified otherwise.

# Setting Up Administrators

In addition to the privileges provided by CCPulse+ users, CCPulse+ administrators can:

- Use the CCPulse+ Threshold and Action Wizard to create and/or modify threshold and action scripts.
- Use the CCPulse+ Template Wizard to create and/or modify templates.
- Use the Import/Export Utility.

To set up a new CCPulse+ administrator within the Configuration Manager:

1. With the Persons folder selected, select File > New > Person. The Configuration Manager displays the Person Properties screen.
2. On the General tab, identify the Person by filling in the appropriate fields. Clear the Is Agent check box.
3. Select the Ranks tab, click Add, and specify the following:
   - Application type: Call Center Pulse
   - Rank: Administrator
4. Click OK.

You have now set up a CCPulse+ administrator.

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Chapter

# 9 Starting and Stopping Real-Time Reporting

This chapter provides the starting and stopping procedures for Real-Time Reporting and includes a "What Must Be Running Prior to Start" subsection, so that startup is successful the first time. Starting procedures assume that you have properly configured and installed application components. If not, refer to Chapters 4 and 7. The final section provides the default source paths for all Real-Time Reporting executables.

You can start your entire solution, including the server components of Reporting, from SCI, which is the recommended approach. Where applicable, this information is covered in Chapter 6. The historical aspect of Real-Time Reporting is also covered.

This chapter contains the following sections:



## Starting and Stopping CCPulse+

This section describes the starting and stopping procedures for CCPulse+, a component of Real-Time Reporting.

### What Must Be Running Prior to Start

- Configuration Server
- Stat Server
- RDBMS and DB Server for Data Mart, if you intend to operate CCPulse+ in historical as well as real-time mode

# Starting CCPulse+

On Windows platforms, you can start CCPulse+:

- From the Programs menu.
- From a console window.

## From the Programs Menu

To start CCPulse+ from the Programs menu:

1. From the Genesys Solutions\Reporting 8.1 program folder created during installation, select Start CCPulse+.

   The Login screen appears with the name of the previous CCPulse+ user in the User name field.

   **Note:** If a security banner is configured for all Genesys user interfaces, it is displayed before the Login screen.

2. Type an authorized user name and password for connection to your Configuration Server.
3. Click the Details>> button to display connection information for your Configuration Server. The CCPulse+ Login screen expands.
4. Type your CCPulse+ application name, host name and port of your Configuration Server, and click OK.

## From a Console Window

1. At the command-line prompt, open the directory where CCPulse+ has been installed.
2. Type CallCenter.exe at the command line. The Login screen appears, with the name of the previous user filled in.
3. Complete Steps 2–4 under "From the Programs Menu" to finish starting CCPulse+ from a console window.

# Stopping CCPulse+

To exit CCPulse+, either:

- Select Close from the File menu.
- Click the Close button located on the right side of the title bar in the CCPulse+ window.

# Default Source Paths

Table 5 lists the source path and program group of the CCPulse+ component of Real-Time Reporting on Windows platforms as created during the installation process if you accept all default values.

Refer to Table 4 on page 76 for a listing of Historical Reporting component source paths, which are used for the historical facet of Real-Time Reporting.

**Table 5: Default Application Source Paths for Real-Time Reporting**

| Reporting Component | Default Source Path/ Program Group |
|---|---|
| CCPulse+ | Source Path: `C:\Program Files\GCTI\CCPulse+`<br>Program Group: `Genesys Solutions\Reporting 8.1` |

Chapter

# 10 Uninstalling Reporting Components

To uninstall applications, you must first stop them. Refer to Chapters 6 and 9 for information about stopping Reporting components.

This chapter contains the following sections:



Starting with the 7.0.2 release, you uninstall applications on Windows platforms either from `Add/Remove Programs` in the Control Panel, or during the maintenance of an existing installation. Previously, you performed this action by selecting the `Uninstall` menu item from the program group created during installation. Release 7.0.2 installations no longer deploy an `Uninstall` menu item.

## Uninstalling Data Modeling Assistant

On Windows platforms, you can uninstall Data Modeling Assistant:

- From the Control Panel
- During Installation Maintenance

### From the Control Panel

To uninstall Data Modeling Assistant from the Control Panel:

1. Open `Add or Remove Programs`.
2. Select the `Genesys Data Modeling Assistant 7.6` application.

3. Click Remove.

### During Installation Maintenance

To uninstall Data Modeling Assistant during Installation Maintenance:

1. From the Reporting CD, double-click setup.exe.
2. Navigate to the Maintenance Setup Type screen and select the Maintenance of the existing installation option.
3. Select your Data Modeling Assistant application from the list box and click Next.
4. At the Welcome screen, click Remove, and then Next.
5. At the Confirm Uninstall dialog box, click Next.
6. At the Maintenance Complete screen, click Finish.
7. At the After Installation screen, click Next.

# Uninstalling Data Mart

On Windows platforms, you can uninstall Data Mart:

- From the Control Panel
- During Installation Maintenance

### From the Control Panel

To uninstall Data Mart from the Control Panel:

1. Open Add or Remove Programs.
2. Select the Genesys Data Mart 7.6 application.
3. Click Remove.

### During Installation Maintenance

To uninstall Data Mart during Installation Maintenance:

1. From the Reporting CD, double-click setup.exe.
2. Navigate to the Maintenance Setup Type screen and select the Maintenance of the existing installation option.
3. Select your Data Mart application from the list box, and click Next.
4. At the Welcome screen, click Remove, and then Next.
5. At the Confirm Uninstall dialog box, click Next.
6. At the Maintenance Complete screen, click Finish.

7. At the After Installation screen, click Next.

**Note:** The Uninstall Wizard does not delete the Data Mart database or the Data Mart Application object in the Configuration Server, so you can reuse them later if desired.

# Uninstalling Data Sourcer

On Windows platforms, you can uninstall Data Sourcer:

- From the Control Panel
- During Installation Maintenance

## From the Control Panel

To uninstall Data Sourcer from the Control Panel:

1. Open Add or Remove Programs.
2. Select the Genesys Data Sourcer 7.6 application.
3. Click Remove.

## During Installation Maintenance

To uninstall Data Sourcer during Installation Maintenance:

1. From the Reporting CD, double-click setup.exe.
2. Navigate to the Maintenance Setup Type screen and select the Maintenance of the existing installation option.
3. Select your Data Sourcer application from the list box, and click Next.
4. At the Welcome screen, click Remove, and then Next.
5. At the Confirm Uninstall dialog box, click Next.
6. At the Maintenance Complete screen, click Finish.
7. At the After Installation screen, click Next.

**Note:** The Uninstall Wizard does not delete ODS or the Data Sourcer Application object in the Configuration Server, so you can reuse them later if desired.

# Uninstalling CCPulse+

On Windows platforms, you can uninstall CCPulse+:

- From the Control Panel
- During Installation Maintenance

## From the Control Panel

To uninstall CCPulse+ from the Control Panel:

1. Open `Add or Remove Programs`.
2. Select the `Genesys CCPulse+ 8.1` application.
3. Click `Remove`.

## During Installation Maintenance

To uninstall CCPulse+ during Installation Maintenance:

1. From the Reporting CD, double-click `setup.exe`.
2. Navigate to the `Maintenance Setup Type` screen and select the `Maintenance of the existing installation` option.
3. Select your CCPulse+ application from the list box and click `Next`.
4. At the `Welcome` screen, click `Remove` and then `Next`.
5. At the `Confirm Uninstall` dialog box, click `Next`.
6. At the `Maintenance Complete` screen, click `Finish`.
7. At the `After Installation` screen, click `Next`.

Genesys

Appendix

# Scaling Your Environment

The original estimates you made for the number of collection units required in your Reporting environment might require modification. For instance, your environment might grow beyond expectations as your company structure changes, or your environment might be splintered as your company is divided into independent business units.

The information provided in Chapter 2 assumes a stable, nonelastic environment and assists you in configuring your original environment.

This chapter assumes otherwise, and it describes how to modify your configuration to effectively use your custom reports or the canned reports provided with each solution so that they continue to yield meaningful results.

This chapter contains the following sections:



## Do You Need to Scale Your Environment?

Ultimately, only you can determine whether to scale up or scale down your environment; however, Table 6 lists a few signs that you can look for when making your assessment.

**Table 6: Signs to Look for When Determining Whether to Scale Up**

| Symptom | Probable Cause |
|---|---|
| The emergency save files steadily grow. | • Performance problems with the ODS RDBMS.<br>• Network is slow.<br>• ODS is not regularly available.<br>• The number of statistics requested is too large for your environment.<br>• The number of objects in your Configuration Server has increased. |
| Data Sourcer chunks are getting larger over time, or chunk write time has increased. (You can review chunk write time in the Data Sourcer log.) | • The number of open statistics has increased.<br>• The number of objects in your Configuration Server has increased. |
| Reporting activity overloads your collection unit. | • Stat Server is overloaded (that is, you have reached 100 percent CPU).<br>• The collection unit is unable to process all of the requests from all activated report layouts within the processing time indicated by the time profile. |
| Stat Server cannot handle the number of requests made by Data Sourcer. | • Stat Server memory required exceeds the available physical memory. |
| Memory consumption increases over time. | • You are running other non-Reporting processes concurrent with Reporting.<br>• The number of objects in your Configuration Server has increased. |

# Adding New Collection Units

If you intend to create a new collection unit composed of elements completely separate from those in your existing collection unit(s), create the new collection unit as described in Chapter 2. If, however, you intend to move objects between collection units—such as `Agent`, `Place`, or `Queue` objects—use the following procedure. The problem you want to avoid is double counting—that is, having objects considered twice (or more) in the corresponding reports generated by each collection unit.

**Note:** In this procedure, the *N* subscript denotes elements in the new collection unit. *O* indicates elements in the old or existing collection unit.

To add a collection unit to your environment:

1. Map out the Reporting environment as you envision it and determine which objects are to reside in which collection unit. Account for every object in your mapping. Follow the sizing guidelines outlined in Chapter 2.
2. Stop Data Sourcer ($DS_O$).
3. Configure a new `Data Sourcer Application` object ($DS_N$) for the new collection unit.
4. Install $DS_N$, and then start it to initialize the new ODS ($ODS_N$).
5. When initialization completes, stop $DS_N$.
6. In the Configuration Server, define uniquely named, nonoverlapping groups of objects.

   Figure 11 is a simple example showing the `Bronze` agent group being split into the `BronzeInfo` and `BronzeService` agent groups. The six agents previously included in the `Bronze` group have been assigned to *either* the `BronzeInfo` or `BronzeService` agent groups.

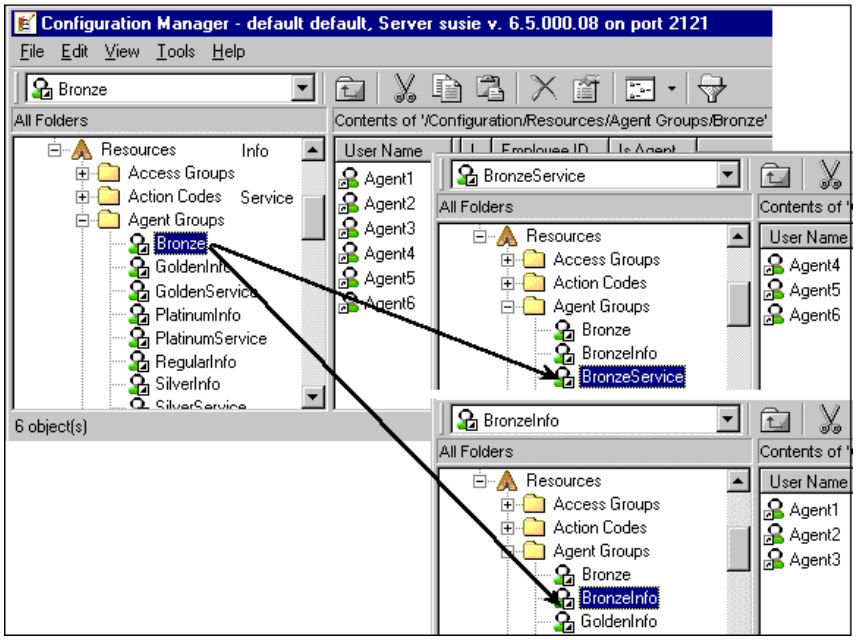


**Figure 11: Redefining Metagroups**

> **Note:** In this example, when the transformation of objects is complete, delete the `Bronze` agent group.

7. Deactivate the affected report layouts in DMA. Affected report layouts are those that are based on the former metagroup—for example, the `Bronze Agent Layout`. (There is no quick way to find all affected report layouts.)
8. Using DMA, redefine the affected report layouts to reference the appropriate metagroups. You might have to create new report layouts to complete this task.

   For example, in Figure 12 the report layout named `Bronze Agent Layout` was renamed to `BronzeService Agent Layout` and its supporting metagroup was changed from `All Agents` to the `BronzeService`, which consists of three agents (refer to Figure 11). Then a new agent report layout, `BronzeInfo Agent Layout`, was created to incorporate the agents belonging to the `BronzeInfo` agent group.

   After you have defined these report layouts, activate them so that data collection can begin when Data Sourcer is started.
9. Start $DS_N$ to start data collection in the new ODS $(ODS_N)$.
10. Start ETL Assistant and add $ODS_N$ to the Data Mart. Define purge rules if they should differ from the default.

When you run the Transformation module, ETL Runtime automatically combines report views from multiple sources.

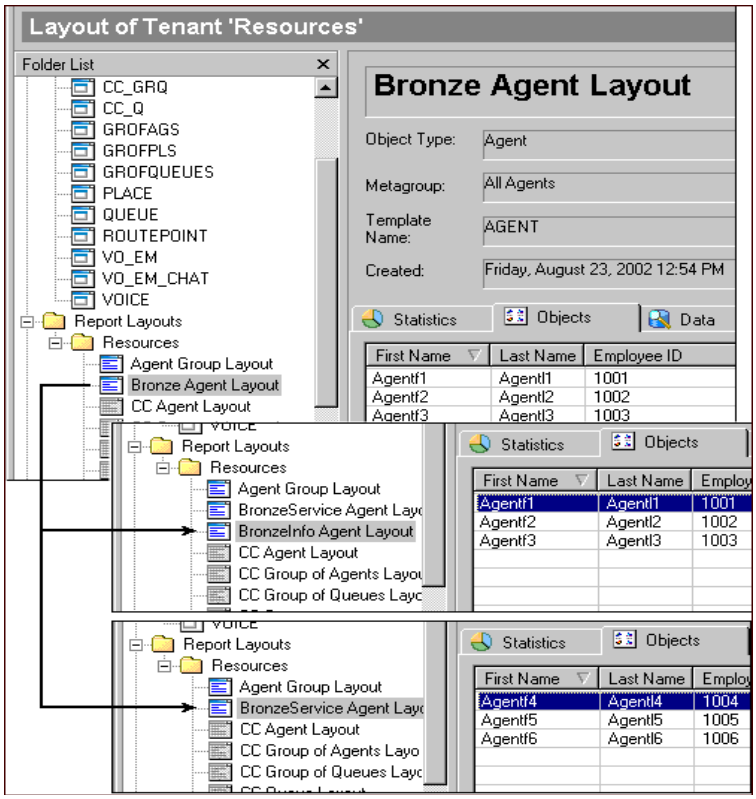


**Figure 12: Redefining Report Layouts**

For Reporting 6.1 users, two additional steps are necessary:

1. Run the Tenants Alias Update (TAT) module of ETL Runtime. Do this even if your modified environment remains a single-tenant environment. Running the TAT module combines report views from multiple sources.
2. If you use ETL Runtime Starter, add the TAT process to its definition.

# Removing Collection Units

There are several reasons why you might consider scaling down your Reporting environment—for example, your company might choose to downsize or restructure its business into smaller and independent business units, or to correct an inefficient environment and make better use of resources.

**Note:** In this procedure, the *D* subscript denotes elements in the collection unit to be removed or deleted. *R* denotes the elements in the remaining collection unit.

To remove a collection unit from your Reporting environment:

1. Map out the environment you envision and execute the plan during off-peak hours. Follow the guidelines in Chapter 2, to determine if your remaining collection unit(s) can absorb the statistics collected on the objects from the collection unit being removed.
2. Deactivate all affected collection units by stopping their Data Sourcer applications. Affected collection units are those that will either be:
   - Deleted.
   - Modified to take on all or part of the objects from the deleted collection unit(s).
3. Invoke ETL Assistant and delete the corresponding ODS source ($ODS_D$). This action marks this source for deletion in the Data Mart. Note that $ODS_D$ data still resides there.
4. Create object groups in the remaining collection unit and/or modify existing object groups to absorb those objects in the collection unit you are deleting.
5. If you created new object groups in Step 4, create new report layouts based on those object groups and activate them in DMA.
6. If you created new object groups in Step 4, run ETL Runtime's TAT module to create the new tables necessary for the report views.
7. Reactivate the remaining collection units by starting their Data Sourcer applications.

Be sure to monitor the Data Sourcer log file over the course of a day containing peak periods, to make sure you have not overloaded your resources. If you use the `emergency save` file, for instance, and have no unexplained network interruptions, resources are probably inadequate to handle the load. Revisit Chapter 2. If all goes smoothly, this procedure frees up the $DS_D$, $ODS_D$, and $DBServer_D$ resources.

# Problems with Scaling Incorrectly

Statistical double counting might result when two or more collection units share objects and is manifested in the canned reports you generate. For instance, if Bob is defined as an agent both in $CU_1$ and $CU_2$, the calls he receives might be tallied by both collection units. If Bob took any calls during a reported time period, the agent report for that period reports twice the number of calls Bob actually received.

As you modify your Reporting environment, also make sure that the objects you create are uniquely named across all collection units common to one Data Mart. For instance, if you are adding Bob Smith to $CU_2$ and a Bob Smith already exists in $CU_1$, double counting results even if the agents represent two different people. The canned reports are based on the `Presentation Name` field in the various `Object` tables (the field with names beginning with `O_`) of the Data Mart; this field is not unique.

Finally, map out your integration plan thoroughly. You must properly set up:

- All objects in the Configuration Manager.
- Object groups to include all objects.
- Report layouts based on those metagroups.
- All ODS sources within ETL Assistant.

If you do not, CCPulse+ and Contact Center Analyzer cannot possibly generate the results you expect.

# Related Documentation Resources

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

## Solution Reporting

- *Reporting 7.6 Data Modeling Assistant Help,* for information about the operation of this component.
- The *Reporting 7.6 ETL Runtime User's Guide,* for information about fine-tuning the Data Mart configuration.
- *Reporting 8.1 CCPulse+ Help,* for information about the operation of this product.
- The *Reporting Technical Reference Guide for the Genesys 7.2 Release,* for information about the reporting and layout templates provided with Genesys solutions.
- The *Reporting 8.1 CCPulse+ Administrator's Guide,* for information about CCPulse+ administrators, installing CCPulse+ silently, and fine-tuning the CCPulse+ configuration.
- The *Reporting 8.0 Master Index,* which will help you find where other related topics are documented.
- The *Genesys Info Mart Deployment Guide,* for information about the deployment of Genesys Info Mart.

## Management Framework

- The *Framework 8.5 Stat Server Deployment Guide,* for information related to configuring Stat Server.

## SAP Crystal Reports

- SAP Crystal Reports' documentation set for instructions on installing SAP Crystal Reports, which is used in conjunction with the Genesys-provided report templates included on the Reporting Templates CD. This documentation set also explains the tools available with the SAP Crystal Reports Suite.

## Genesys

- *Genesys Technical Publications Glossary,* available on the Genesys Documentation website and which provides a comprehensive list of the Genesys and computer-telephony integration (CTI) terminology and acronyms used in this document.
- *Genesys Migration Guide*, which ships on the Genesys Documentation Library DVD, and which provides documented migration strategies for Genesys product releases. Contact Genesys Customer Care for more information.
- Release Notes and Product Advisories for this product, which are available on the Genesys Customer Care website at http://www.genesys.com/customer-care.

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 these additional resources as necessary:

- *Genesys Hardware Sizing Guide,* which provides information about Genesys hardware sizing guidelines for the Genesys 7.x/8.x releases.
- *Genesys Interoperability Guide,* which provides information on the compatibility of Genesys products with various Configuration Layer Environments; Interoperability of Reporting Templates and Solutions; and Gplus Adapters Interoperability.
- *Genesys Licensing Guide,* which introduces you to the concepts, terminology, and procedures relevant to the Genesys licensing system.
- *Genesys Database Sizing Estimator 7.6 Worksheets,* which 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://www.genesys.com/customer-care

- 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:

81fr_ref_11-2014_v8.1.001.00

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

### Table 7: Type Styles

| Type Style | Used For | Examples |
|---|---|---|
| Italic | • Document titles<br>• Emphasis<br>• Definitions of (or first references to) unfamiliar terms<br>• Mathematical variables<br>Also used to indicate placeholder text within code samples or commands, in the special case where angle brackets are a required part of the syntax (see the note about angle brackets on page 101). | Please consult the *Genesys Migration Guide* for more information.<br>Do *not* use this value for this option.<br>A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession.<br>The formula, $x + 1 = 7$<br>where $x$ stands for . . . |
| Monospace font<br>(Looks like `teletype` or `typewriter text`) | All programming identifiers and GUI elements. This convention includes:<br>• The *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, fields, text and list boxes, operational modes, all buttons (including radio buttons), check boxes, commands, tabs, CTI events, and error messages.<br>• The values of options.<br>• Logical arguments and command syntax.<br>• Code samples.<br>Also used for any text that users must manually enter during a configuration or installation procedure, or on a command line. | Select the `Show variables on screen` check box.<br>In the `Operand` text box, enter your formula.<br>Click `OK` to exit the `Properties` dialog box.<br>T-Server distributes the error messages in `EventError` events.<br>If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls.<br>Enter `exit` on the command line. |
| Square brackets ([ ]) | A particular parameter or value that is optional within a logical argument, a command, or some programming syntax. That is, the presence of the parameter or value is not required to resolve the argument, command, or block of code. The user decides whether to include this optional information. | `smcp_server -host [/flags]` |
| Angle brackets (< >) | A placeholder for a value that the user must specify. This might be a DN or a port number specific to your enterprise.<br>**Note:** In some cases, angle brackets are required characters in code syntax (for example, in XML schemas). In these cases, italic text is used for placeholder values. | `smcp_server -host <confighost>` |

# Index

## Symbols



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