Reporting 7.2

Deployment Guide

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Table of Contents

Preface

Welcome to the *Reporting 7.2 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 7.2 release(s) of this product.

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

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

Intended Audience

This guide, primarily intended for system and database administrators, assumes 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 the Genesys Framework architecture and functions, and particularly with Configuration Manager.

Chapter Summaries

In addition to this opening chapter, this guide contains these chapters:

- Chapter 1, "Reporting Overview," on page 13, provides an overview of the Genesys 7.2 Reporting components.
- Chapter 2, "Predeployment Measures," on page 29, lists the Genesys Framework and third-party software necessary for operating Reporting 7, and gives instructions for preparing your databases.
- Chapter 3, "Solution Reporting Wizards," on page 49, describes the configuration wizards provided on the Reporting CD.
- Chapter 4, "Configuring Genesys Solution Reporting," on page 53, describes how to configure Historical Reporting and Real-Time Reporting using the CC Analyzer and CCPulse+ Wizards.
- Chapter 5, "High Availability Architecture," on page 85 discusses the concept of High Availability architecture in Reporting release 7.2.
- Chapter 6, "Installing Historical Reporting Components," on page 93, describes how to install Historical Reporting on the supported platforms.
- Chapter 7, "Setting Up Historical Reporting," on page 101, describes the additional setup that is required before operating Historical Reporting.
- Chapter 8, "Starting and Stopping Historical Reporting," on page 107, describes how to start and stop Data Sourcer, Data Modeling Assistant, and ETL Runtime.
- Chapter 9, "Installing Real-Time Reporting," on page 125, describes how to install CCPulse+.
- Chapter 10, "Setting Up Real-Time Reporting," on page 127, describes the additional setup that is required before operating CCPulse+.
- Chapter 11, "Starting and Stopping Real-Time Reporting," on page 129, describes how to start and stop CCPulse+.
- Chapter 12, "Uninstalling Reporting Components," on page 133, describes how to uninstall Reporting components.
- The appendix, "Scaling Your Environment" on page 137, helps you add or remove collection units from your existing Reporting environment.

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:

72rt_dep_02-2006_v7.2.000.00

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

Type Styles

Italic

In this document, italic is used for emphasis, for documents' titles, for definitions of (or first references to) unfamiliar terms, and for mathematical variables.

Examples:

- Please consult the *Genesys 7.2 Migration Guide* for more information.
- *A customary and usual practice* is one that is widely accepted and used within a particular industry or profession.
- Do *not* use this value for this option.
- The formula, $x + 1 = 7$ where x stands for . . .

Monospace Font

A monospace font, which looks like `teletype or typewriter text`, is used for all programming identifiers and GUI elements.

This convention includes the *names* of directories, files, folders, configuration objects, paths, scripts, dialog boxes, options, fields, text and list boxes, operational modes, all buttons (including radio buttons), check boxes, commands, tabs, CTI events, and error messages; the values of options; logical arguments and command syntax; and code samples.

Examples:

- Select the `Show variables on screen` check box.
- Click the `Summation` button.
- In the `Properties` dialog box, enter the value for the host server in your environment.
- In the `Operand` text box, enter your formula.
- Click `OK` to exit the `Properties` dialog box.

- The following table presents the complete set of error messages T-Server® distributes in `EventError` events.
- If you select `true` for the `inbound-bsns-calls` option, all established inbound calls on a local agent are considered business calls.

Monospace is also used for any text that users must manually enter during a configuration or installation procedure, or on a command line:

Example:

- Enter `exit` on the command line.

Screen Captures Used in This Document

Screen captures from the product GUI (graphical user interface), as used in this document, may sometimes contain a minor spelling, capitalization, or grammatical error. 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.

Square Brackets

Square brackets indicate that a particular parameter or value is optional within a logical argument, a command, or some programming syntax. That is, the parameter's or value's presence is not required to resolve the argument, command, or block of code. The user decides whether to include this optional information. Here is a sample:

```
smcp_server -host [/flags]
```

Angle Brackets

Angle brackets indicate a placeholder for a value that the user must specify. This might be a DN or port number specific to your enterprise. Here is a sample:

```
smcp_server -host <confighost>
```

Related Resources

Consult these additional resources as necessary:

- *Reporting 7.2 Data Modeling Assistant Help,* for information about the operation of this component.
- The *Reporting 7.2 ETL Runtime User's Guide,* for information about fine-tuning the Data Mart configuration.
- *Reporting 7.2 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 7.2 CCPulse+ Administrator's Guide,* for information about fine-tuning the CCPulse+ configuration.
- The *Reporting 7.2 Stat Server Administrator's Guide* for information related to configuring Stat Server.
- The *Reporting 7.2 Master Index,* which will help you find where other related topics are documented.
- The *Genesys Info Mart 7.2 Deployment Guide* for information about the Deployment of Genesys Info Mart.
- Hyperion's documentation set for instructions on installing Hyperion Query Designer, 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 Hyperion Performance Suite, including the Hyperion Intelligence Server.
- The *Genesys Technical Publications Glossary,* which ships on the Genesys Documentation Library CD and which provides a comprehensive list of the Genesys and CTI terminology and acronyms used in this document.
- The *Genesys Migration Guide*, also on the Genesys Documentation Library CD, which contains a documented migration strategy for Genesys product releases 6.x and later. Contact Genesys Technical Support for additional information.
- The Release Notes and Product Advisories for this product, which are available on the Genesys Technical Support website at http://genesyslab.com/support.

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

- *Genesys 7 Supported Operating Systems and Databases*
- *Genesys 7 Supported Media Interfaces*

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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. These applications provide real-time and historical reporting.

This chapter contains these 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, Contact Center Analyzer and CCPulse+, which draw on much of the same data but provide different functional capabilities.

High availability of historical reporting data is a new feature in Reporting release 7.2, and it is intended to minimize the chance of any loss of historical reporting data in the event of a single hardware component failure. Please refer to, Chapter 5, “High Availability Architecture,” on page 85 for further information.

A number of components support Contact Center 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:

- Contact Center Analyzer, in combination with Report Generation Assistant, the Hyperion Performance Suite, 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.

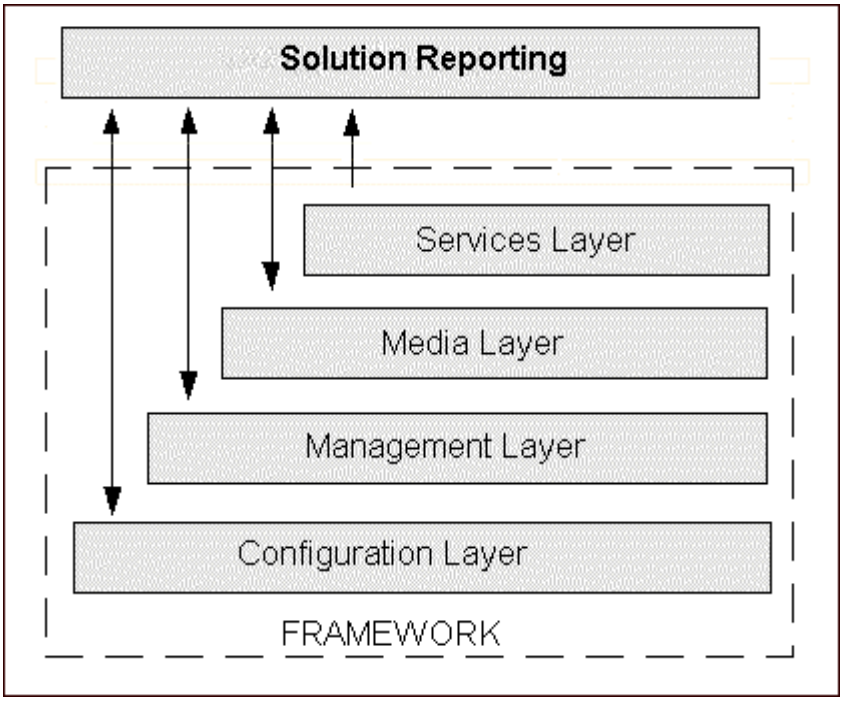

Figure 1: Genesys Framework Architecture

- The Configuration Layer provides information about configuration objects for which statistics are collected.
- CC Analyzer and CCPulse+ integrate 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 and, if you are using the Internet Contact Solution (ICS), the Contact Server database.

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 the CIM platform components.

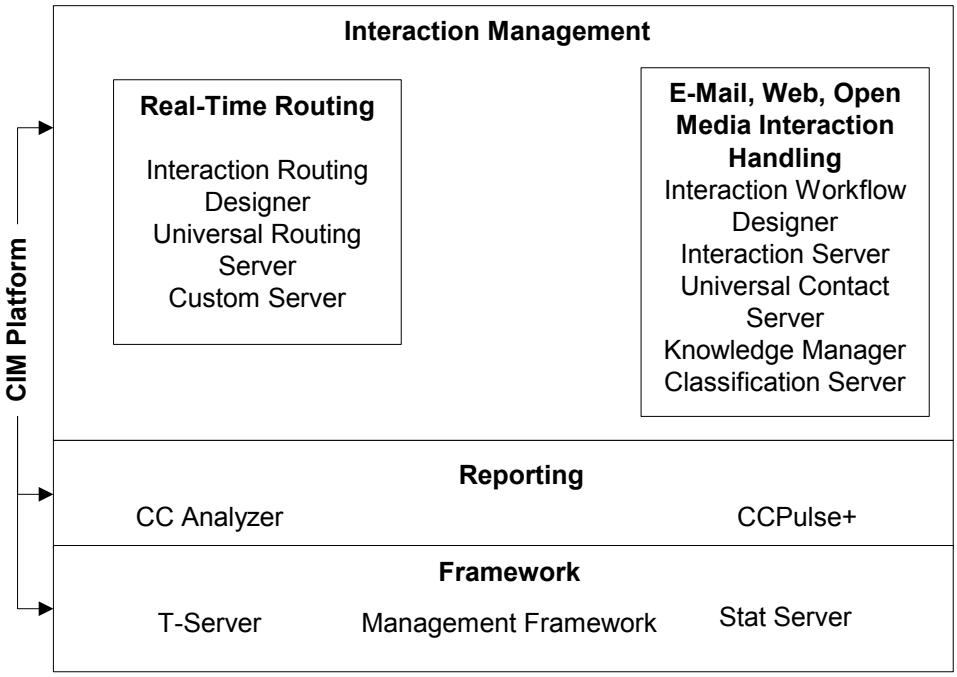

Figure 2: Reporting as Part of the CIM Platform

For information on the HA reporting architecture, refer to "HA Architecture" on page 87.

The Reporting Services

Reporting functionality can be conveniently broken down into three services:

- The *Data Collection Services* collect the data from the statistics server (whether it be Stat Server or the Internet Contact Solution's [ICS] Contact Server database).
- 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 on page 16 illustrates Reporting components and their relationships.

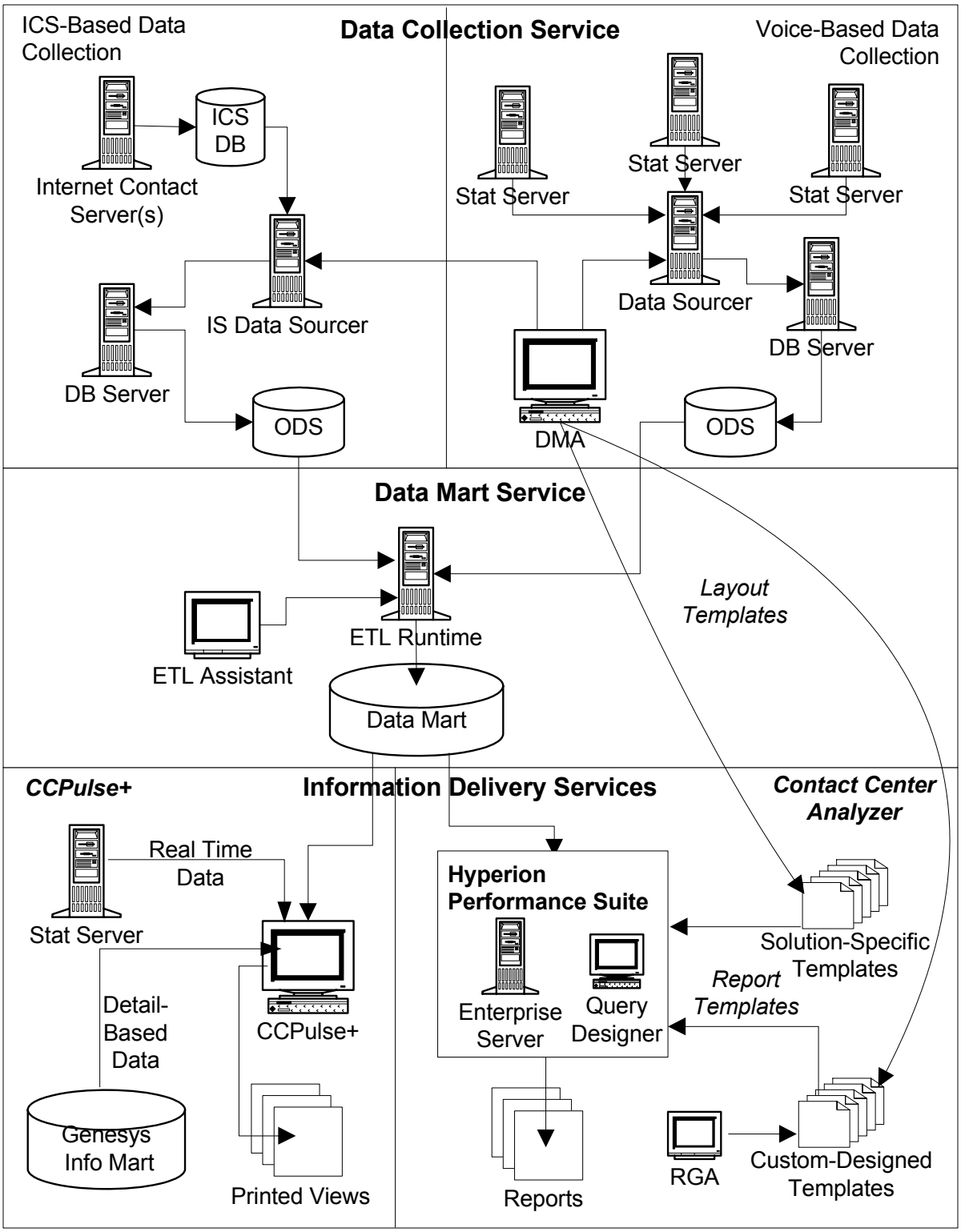

Figure 3: Reporting Architecture

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, the Contact Server database, and to the ODS database (Operational Data Storage).

The Data Collection Services include:

- **Data Sourcer**—Collects statistical data from Stat Server and/or the Contact Server database 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 19).
- **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 telephony-based 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 Sybase, Oracle, Microsoft SQL Server, DB2 and other ODBC-compliant commercial databases. As a client of DB Server, Data Sourcer reads information about activated report layouts and writes statistics received from Stat Server to the ODS.
- **Contact Server Database** (if you are using Internet Contact Solution)—Supplies data to IS Data Sourcer, which is a Data Sourcer specifically configured to work with the Internet Contact Solution (ICS).

Note: See the *Framework 7.2 Stat Server User's Guide* for information on Stat Server, the *Framework 7.2 DB Server User's Guide* for information on DB Server, and the Internet Contact Solution documentation set for information on the Contact Server database.

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 on page 18).

To implement the new High Availability Architecture in reporting release 7.2, the definition of the collection unit has been extended to include primary and backup Data Sourcers, and primary and backup Stat Servers pairs.

For an Internet-based environment using the Genesys Contact Server database, the collection unit consists of the Contact Server database, ODS, DB Server, and IS Data Sourcer—that is, a Data Sourcer specifically connected to a Contact Server database (see Figure 5 on page 19).

Blended environments handle both voice- and Internet-based interactions, drawing data from Stat Server and the Contact Server database, respectively. Such environments use two or more collection units, to provide at least one collection unit for each source.

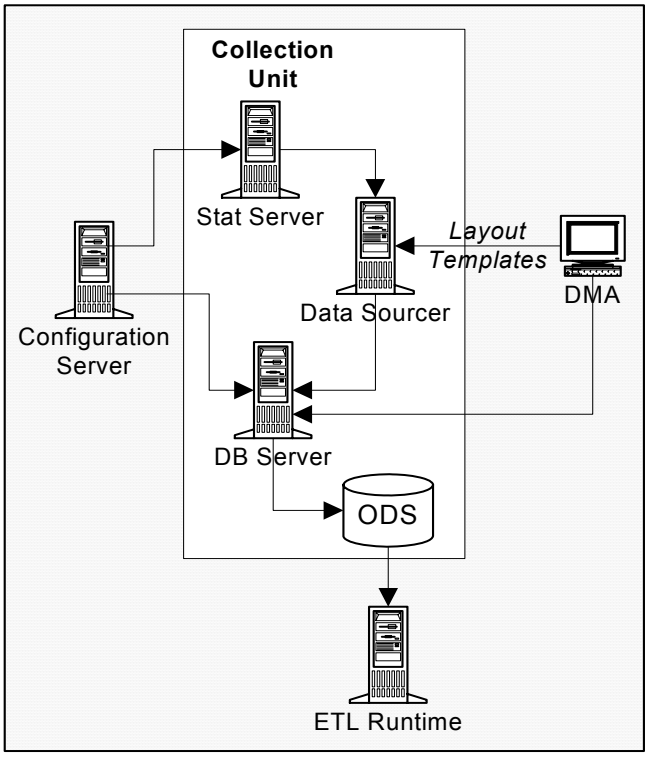

Figure 4: Stat Server-Based Collection Unit

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.

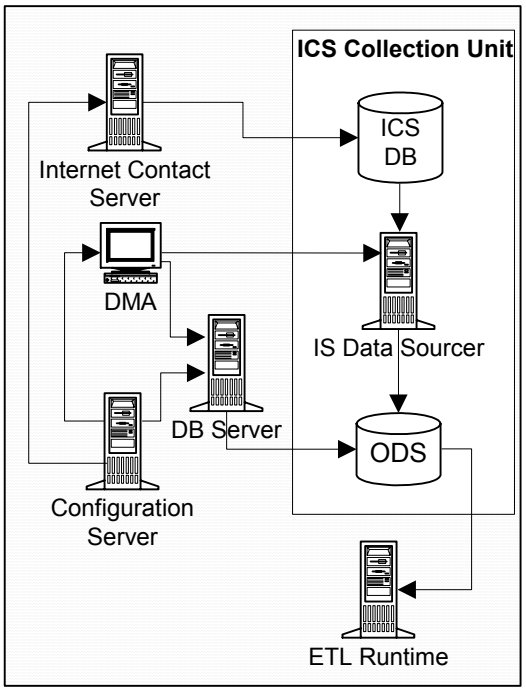

Figure 5: ICS Database Collection Unit

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. Unless you are using the Internet Contact Solution, 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.

For ICS, when you start IS Data Sourcer for the first time, IS Data Sourcer automatically writes ICS-specific layout templates to ODS. For ICS, you

cannot, in fact, use DMA to change, import, or export any layout template information to/from IS Data Sourcer.

Layout templates for IS Data Sourcer are read-only. The Internet Contact Solution can also use layout templates that are based on statistics from Stat Server rather than from the Contact Server database. You can use DMA to edit such templates.

DMA performs these functions:

- Connects to DB Server to read data from, and write data to, the ODS specified by the server's Database Access Point (DAP), which is defined in Data Sourcer's configuration.
- Reads information from Configuration Server about all configured `Data Sourcer` Application objects and their corresponding DAPs, 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 activated if you enter `true` as the value for the `activate-new-layouts` option when you configure the Data Sourcer application using the Reporting Wizard. If you set the `activate-new-layouts` option to `false`, 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.

For IS Data Sourcer, the list of monitored objects is formed automatically from the objects in the Contact Server database.

Note: When report layouts are first created, Data Sourcer automatically activates them 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. Chapter 2 on page 29 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 or the Contact Server database, 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 of these database types:

- Oracle
- Microsoft SQL Server
- Sybase
- DB2

IS Data Sourcer accesses ODS through a Java Database Connectivity (JDBC) connection. IS Data Sourcer supports these database types:

- Oracle
- Microsoft SQL Server

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:

- Configuration Server.
- Stat Server.
- ODS
- DB Server (when connected to Stat Server).

IS Data Sourcer is a client of:

- Configuration Server.
- Contact Server Database
- ODS.

DMA is a client of:

- DB Server.
- Configuration Server.
- Data Sourcer.
- IS Data Sourcer.

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 7.2 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.

Data Sourcer connects to Stat Server in `real-time` mode. This is not to be confused with real-time statistics, which Stat Server also maintains, along with historical statistics. You indirectly determine the mode when you set connections for your Data Sourcer Application object during configuration. Specifying that Data Sourcer connect to a Stat Server sets the mode at `real-time`.

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 SQL, 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.

Contact Server Database

IS Data Sourcer connects to the Contact Server database in `Cartridge` mode, using a JDBC driver to collect historical information, in much the same way as Data Sourcer collects information from Stat Server.

Note: By design, IS Data Sourcer does not use DB Server when writing data to ODS (although DB Server is still required for DMA access to ODS).

A `Cartridge` mode environment starts several Java programs that transform operational data from the Contact Server database into ODS. You indirectly determine the mode to be `cartridge` when you specify that the Data Sourcer Application object in Configuration Server connect to a Contact Server database.

Warning! Once you have established a Data Sourcer–application connection to either Stat Server or the Contact Server database, you should not reassign its connection to the other type, even though this action is permitted in the Genesys Configuration Manager. Doing so causes Data Sourcer to malfunction.

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 Sybase, Oracle, Microsoft SQL Server, DB2, and other ODBC-compliant commercial databases. As a client of DB Server, Data Sourcer reads information about activated report layouts and writes statistics received from Stat Server to ODS.

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 also receives updates from DMA on the activation and deactivation of report layouts that specify the

statistical types (stat types) for which Data Sourcer must collect data. 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 7.2 ETL Assistant Help* describes ETL Assistant functionality, and the *Reporting 7.2 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 6 on page 25 illustrates this connectivity.

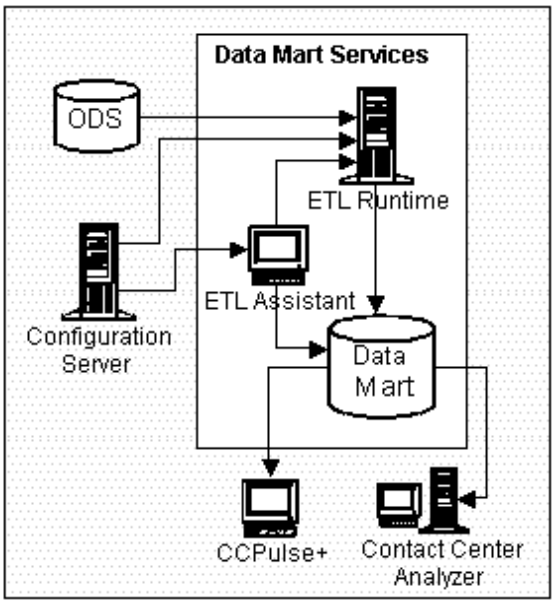

Figure 6: Components of the Data Mart Services

ODS ODS, the final component of the Data Collection Services, holds historical data until ETL Runtime transfers it to the Data Mart using an asynchronous connection. 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.

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 Report Generation Assistant (RGA), CCPulse+, Hyperion Query Designer, or other third-party tools. Data is organized in report folders by aggregation level, for quick access. Genesys Reporting supports four database types for your Data Mart: Oracle, Microsoft SQL, Sybase, 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

The Reporting Configuration Wizard creates an ETL Service Starter Application object, among other Application objects, 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 will have to 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 14) 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.

The architecture delivering these capabilities is illustrated in Figure 7 on page 27.

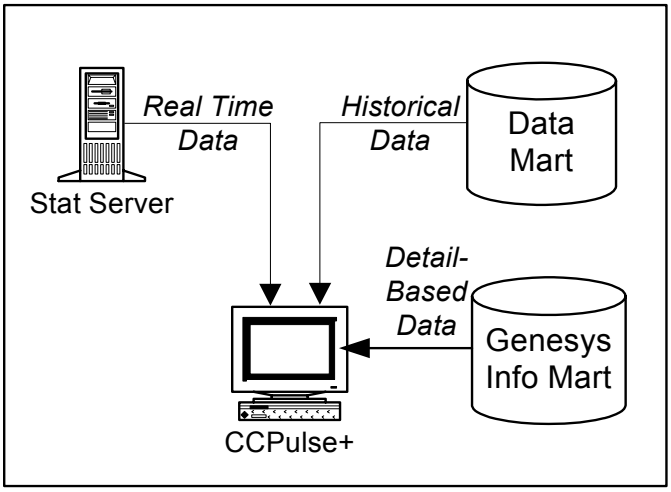

Figure 7: CCPulse+ Architecture

For detailed information on CCPulse+, refer to *Reporting 7.2 CCPulse+ Help* and the *Reporting 7.2 CCPulse+ Administrator's Guide*.

External Sources of Data

The Genesys Info Mart database is a source of query-based reports in CCPulse+ (see Figure 7). Refer to the Genesys Info Mart documentation for further information.

Information Delivery Services—CC Analyzer

CC Analyzer is a powerful and flexible tool for generating historical reports. CC Analyzer is comprised of Report Generation Assistant (RGA), a Reporting component powered by the Hyperion Query Designer (formerly, BrioQuery Designer). Genesys provides Hyperion Query Designer to CC Analyzer customers through an agreement with Hyperion Solutions Corporation.

Report Generation Assistant

RGA is the Reporting component that enables automatic generation of queries, charts, and reports, based on the Genesys-provided report templates and metadata from your Data Mart. RGA is powered by Hyperion Query Designer.

Hyperion Query Designer

Hyperion Solutions Corporation provides products that enable the design and delivery of reports by means of client-server connections, the Web, e-mail, and more. Genesys Reporting supplies Hyperion 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 Hyperion's products, refer to the provided Hyperion documentation. For additional information about generating reports using Contact Center Analyzer, refer to the *Reporting 7.2 Report Generation Assistant User's Guide* and the *Reporting Technical Reference Guide for the Genesys 7.2 Release.*

Chapter

2 Predeployment Measures

This chapter describes preparatory steps you should perform before configuring and installing the Genesys Reporting 7.2 components. Be sure to read through this chapter and understand the requirements for each component.

This chapter has these sections:

To successfully install any Reporting 7.2 component, you must first:

- Have the Reporting CD and the Reporting Templates CD at hand.
- Have a current 7.2 version of Configuration Server running in your environment.

> **Note:** You can use Reporting 7.2 with Configuration Server 7.1. However, to take advantage of the new Reporting Configuration Wizards, which are launched through the Genesys Wizard Manager, you must install the Framework 7.2 Configuration Wizard.

- Have administrator privileges to create application objects in Configuration Server. (User privileges are set using Configuration Manager.)
- Install JRE 1.4 or later on the same machine on which the Reporting 7.2 Configuration Wizards run. The Configuration Wizards perform RDBMS validation and connect to RDBMS using JDBC.

Supported Operating Systems and JREs

This section lists the operating systems that the various Reporting components support.

Note: The *Genesys 7 Supported Operating Systems and Databases* document contains the most recent information.

For the GUI Applications

You can run DMA, ETL Assistant, Report Generation Assistant, and CCPulse+ on the following Microsoft Windows platforms:

- Windows 2000 SP 4 or later
- Windows XP SP 1 or later
- Windows Server 2003

For the Servers

Table 1 shows the operating systems that Genesys supports for Reporting servers. You should install Java Runtime Environment (JRE), version 1.4 on each machine that hosts a Reporting server. The table also includes a URL where you can download the appropriate JRE version from the Web.

Table 1: Supported Platforms and JRE Download Locations

Platform	Web Location

Sun Solaris/Sparc 2.6 - 2.9 (32-bit)
Sun Solaris/Sparc 2.7 - 2.9, and 10 (64-bit)
	`http://www.sun.com/software/solaris/jre/download.html`
	The Java 2 Standard Edition is supported in the Solaris 8 operating environment.
	`http://java.sun.com/j2se/1.4.2/download.html`

Red Hat Linux 3.0 and 4.0	`http://java.sun.com/j2se/1.4.2/download.html`

Table 1: Supported Platforms and JRE Download Locations (Continued)

Platform	Web Location
Microsoft Windows • 2000, SP 4 or later • Server 2003 (32-bit and 64-bit) • XP (32-bit) **Note**: Support for Windows NT is discontinued.	`http://java.sun.com/j2se/1.4.2/download.html`
HP-UX • 11, 11.11 (32- and 64-bit) **Note:** 7.2 Data Sourcer does not support HP-UX.	`http://www.hp.com/products1/unix/java/java2/sdkrte14/downloads/index.html`
IBM AIX/Power PC • 4.3, 5.1, and 5.2 (32- and 64-bit) • 5.3 (64-bit)	`http://www6.software.ibm.com/dl/dka/dka-p`
Tru64/Alpha • 5.1, 4.0F and 5.1B	`http://h18012.www1.hp.com/java/download/unix/1.4.2/index.html`

Prerequisites for Each Reporting Component

Before running either the CC Analyzer or the CCPulse+ Wizard, 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:

- A database prepared by your database administrator for Data Sourcer and ODS. See “Preparing the Databases” on page 33 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 `trans_batch_mode` configuration option set to `OFF`.

Note: The latest generally available 7.2 release of Stat Server is required in order for Data Sourcer release 7.2 to operate correctly.

IS Data Sourcer

In addition to the Data Sourcer requirements listed in the preceding section, review the following additional recommendations before installing Data Sourcer for the Contact Server database (IS Data Sourcer):

- Do not install IS Data Sourcer while simultaneously trying to prune the Contact Server database. You might inadvertently overload your RDBMS.
- Consider installing and initially starting IS Data Sourcer during off-peak hours to lessen the chance of interference with Internet-based transactions.
- Make sure you have enough memory on your host machine to run Java Virtual Machine (JVM). Otherwise, you might encounter a `java.lang.OutOfMemoryError` exception, which may might the number of interactions reported by `NOT DONE` metrics.
- Install JRE 1.4 on the host where IS Data Sourcer will operate.

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 5.5+ 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 1.4 is installed.
- A supported database is available for the Data Mart. See “Preparing the Databases” on page 33 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.

The Hyperion Performance Suite

The report-generation tools that you can use with CC Analyzer are offered in cooperation with Hyperion Solutions Corporation. The Hyperion 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.

- Microsoft Internet Explorer 5.5+ is installed on the host machine which will run CCPulse+.
- All prior versions of CC Pulse/CCPulse+ have been completely uninstalled.
- You deploy Genesys Info Mart prior to CCPulse+ deployment, in order to run GIM-based reports. Note that this is required only for GIM-based templates. Refer to the Genesys Info Mart documentation for further information.

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 31 and 32.

Preparing the Databases

Historical Reporting, whether delivered by CC Analyzer or CCPulse+, requires two databases: ODS and the Data Mart. Both databases should use the same RBDMS. Also, if you are planning to use reports based on the data from the Contact Server database, this database must use the same RDBMS as ODS and Data Mart.

Refer to the *Reporting 7.2 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

Reporting 7.2 supports these databases:

- Oracle 8.1.7, 9.0i, 9.2 and 10g
- Sybase 12.5
- Microsoft SQL Server 2000, SP 3 or later.
- DB2 7.2 FixPak (FP) 6 or 8.1 FP 2 or later, and 8.2

Note: See also, *Genesys 7 Supported Operating Systems and Databases*, which contains the most recent information.

Calculating Database Capacity

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

Note: See pages 37 through 44 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:

- 2 for Data Sourcer.
- 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 7.2 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 37 to estimate database size).
- A tablespace for the Data Mart (refer to sizing information on page 41 to estimate database size).
- An additional tablespace for each collection unit, if you plan to operate a second or third Data Sourcer (IS Data Sourcer, for example). These additional tablespaces might not be required depending on your level of resource usage. (Refer to page 44 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`)
   - `dml_locks` (default: `100`; recommended: `200`)
3. Ensure that the `compatibility` parameter for the Oracle database is `7.3.0.0` or higher if you want to have ODS or Data Mart running on Oracle 8 or 9.
4. Set up your DB2 databases to allow for stored-procedure generation. ETL Runtime (and some other Genesys components) frequently use SQL-stored procedures.

   Note: The server where DB2 resides might require that a C compiler and/or linker be present. Please refer to your DB2 documentation set for specific details or check the IBM website for DB2 developer information.

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.

Additional Preparations for DB2 v.7.2

Historical Reporting uses a JDBC driver, `IBM DB2 JDBC 2.0 Type 3`. You run a special server on the machine on which DB2 resides—the `db2jstrt` process—which should be started on the DB2 server each time you start DB2. *Prior* to starting this process, be sure you have set environment variables, which are typically defined in the `usejdbc2` file.

Because JDBC driver for DB2 v.7.2 is release- and FixPak-dependent, the driver included in your Reporting package might differ from that included with your DB2 version. Therefore, you must replace the driver installed with Reporting with the driver (`db2java.zip`) located in the `java12` directory of your DB2 installation package.

- Copy your DB2 driver to the directory in which the Reporting ETL `jar` files reside and rename it `db2_jdbc_ibm_classes12.jar`.

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.

Note: These calculations do not apply to IS Data Sourcer. If you are using ICS, contact Genesys Technical Support for assistance in calculating ODS size.

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 2 on page 38 provides record length estimates for the supported RDBMSs.

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

Table 2: Estimated Length of Request Records by RDBMS

	Microsoft SQL	Oracle	DB2	Sybase
Record length	66 bytes	42 bytes	58 bytes	83 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 3 on page 39 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 for the Genesys 7.2 Release.*

Note: See "ODS Layout Templates" in the *Reporting Technical Reference Guide for the Genesys 7.2 Release* for more information about the statistics gathered.

Table 3: Solution Layout Templates

Outbound Contact Layout Templates		Enterprise Routing Layout Templates		Internet Contact Solution Layout Templates[a]	
Template Name	**Number of Statistics Collected**	**Template Name**	**Number of Statistics Collected**	**Template Name**	**Number of Statistics Collected**
CALL_LS	24	AGENT	28	C_CATEGORY*	18
CMP	25	GROFAGS	28	C_CONTACT*	29
CMP_CALL_L	24	GROFPLS	28	C_MATCH_AD*	12
CMP_GR	7	GROQUEUES	11	C_STANDARD*	16
GROFPLS	28	PLACE	28	CC_AG	49
GROFQUEUES	11	QUEUE	11	CC_CATEG_D*	16
O_AGENT	32	ROUTEPOINT	11	CC_CATEG_H*	16
O_AGENT_GR	32			CC_DAILY*	22
PLACE	28			CC_GRAG	49
QUEUE	11			CC_GRQ	43
ROUTEPOINT	11			CC_HOURLY*	22
				CC_MADR_D*	12
				CC_MADR_H*	12
				CC_Q	43
				CC_RP	43
				CC_STDR_D*	16
				CC_STDR_H*	16

a The Internet Contact Solution (ICS) layout templates marked with an asterisk in Table 3 draw data from the Contact Server database instead of from Stat Server. You cannot edit these layout templates. You can view these templates using DMA, but you cannot make any changes to them.

Table 3: Solution Layout Templates (Continued)

Multimedia Solution Email Layout Templates	
Template Name	**Number of Statistics Collected**
EMAIL_AG	11
EMAIL_GAG	11
EMAIL_GPL	11
EMAIL_IQ	5
EMAIL_PL	11
EMAIL_TEN	11

Multimedia Solution Voice Layout Templates	
Template Name	**Number of Statistics Collected**
VOICE_A	22
VOICE_AG	22
VOICE_GQ	12
VOICE_P	22
VOICE_PG	22
VOICE_Q	15
VOICE_RP	15
VOICE_T	16

Multimedia Solution Live Web Layout Templates	
Template Name	**Number of Statistics Collected**
CHAT_A	13
CHAT_GA	13
CHAT_GH	7
CHAT_GP	13
CHAP_P	13

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 38, 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.

Note: These calculations do not apply to a Data Mart that is entirely or partially supplied with data by IS Data Sourcer. If you are using ICS, contact Genesys Technical Support for assistance in calculating Data Mart size.

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 η 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 42.)

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 3 on page 39.)

η = 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 Figures 4 and 5 on page 18 for illustrations 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.

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 7.2 Reference Manual* for more information.

Example

Adding to the previous example on page 38, 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 assumes Windows NT servers with Pentium 400 processors and 256 MB RAM, which tests have shown to be able to handle:

- 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.

Chapter

3 Solution Reporting Wizards

Reporting 7.2 includes the CCPulse+ and Contact Center Analyzer (CC Analyzer) Wizards, which guide you through the process of configuring the necessary Reporting Application objects in Configuration Server and deploying installation files and templates to a designated location on your network.

Note: In the Reporting 7.2 release, you first configure Reporting Application objects, using the reporting wizards, before installing Reporting applications.

This chapter includes these sections:

Overview

Before deploying or operating any Reporting 7.2 components, make sure you understand the Reporting architecture and how it fits into your environment.

- Complete the predeployment steps and prepare the ODS and Data Mart databases as described in Chapter 2, beginning on page 29.

Note: If you are using the query-based functionality available in CCPulse+ release 7.2, complete the predeployment steps required to prepare your Genesys Info Mart database. Refer to the Genesys Info Mart documentation for further information.

- Familiarize yourself with the performance issues applicable to your specific contact center environment. The *Reporting 7.2 Reference Manual* contains some recommendations to achieve good performance.

Starting with the Reporting 7.0.1 release, you can invoke the Solution Reporting Configuration Wizard directly from the Genesys Wizard Manager (the Genesys Common Wizard Set), which is on the Management Framework 7.2 CD.

The CC Analyzer Wizard

The CC Analyzer Wizard helps you configure the following objects, which CC Analyzer uses for Historical Reporting:

- `Data Sourcer`

> **Note:** If you will be installing or upgrading to a release 7.2 Data Sourcer, you must first read Chapter 5, "High Availability Architecture," on page 85.

- `Data Modeling Assistant` (DMA)
- `Data Mart` (an ETL Runtime object)

The CC Analyzer Wizard calls other wizards—such as the Stat Server and Log Wizards—to configure other necessary Genesys components and further tune CC Analyzer `Application` objects.

The CCPulse+ Wizard

You can use CCPulse+ as a Real-Time Reporting application or as an application providing both Real-Time and Historical Reporting data. If you use it for both, the CCPulse+ Wizard helps you configure the following objects:

- `CCPulse+`
- `Data Sourcer`
- `Data Modeling Assistant`
- `Data Mart`

If you use CCPulse+ only for Real-Time Reporting, you need to configure only a `CCPulse+` Application object. In this case, the Wizard presents only the necessary steps to deploy Real-Time Reporting.

The CCPulse+ Wizard calls other wizards—such as the Stat Server and Log wizards—to configure other necessary Genesys components and further tune Application objects.

Installing and Starting the Solution Reporting Wizards

You will need the CDs shown in Figure 8 to configure and install CC Analyzer and CCPulse+.

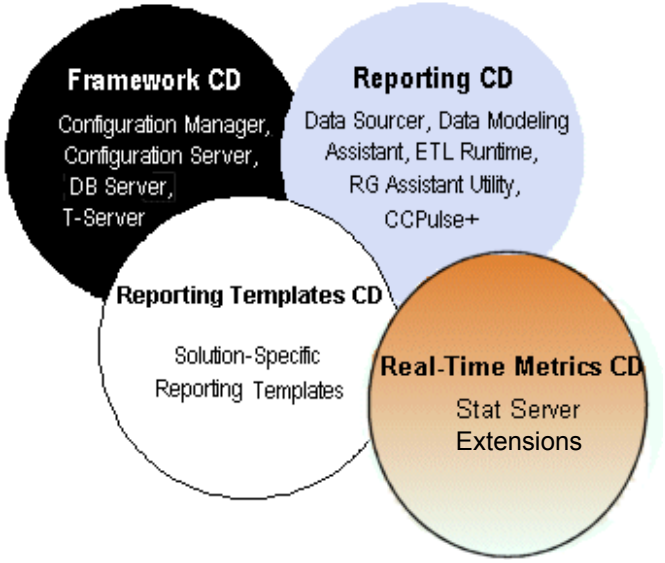

Figure 8: Genesys 7 CDs

To run the Solution Reporting Wizards:

1. Install the Genesys Common Wizard Set (the Genesys Wizard Manager), located on the Management Framework 7.2 CDs.

Note: Deploy the Common Wizard Set and all other Genesys wizards, including the Solution Reporting Wizard, in the same directory and program folder.

2. Install the Genesys Stat Server Wizard located on Real-Time Metrics Engine 7.2 CD.
3. After installing the Common Wizard Set, install the Genesys Reporting Configuration Wizard from the `configuration_wizard` directory of the Reporting 7.2 CD.
4. Start the Genesys Wizard Manager, which provides access to the Solution Reporting Wizards. See the *Framework 7.2 Deployment Guide* for instructions on starting and operating the Genesys Wizard Manager.

Chapter

4 Configuring Genesys Solution Reporting

This chapter describes how to create, upgrade, and configure Genesys Solution Reporting components using the CC Analyzer Wizard, the CCPulse+ Wizard, and their component wizards. After configuring Solution Reporting components, read Chapter 6, and Chapter 9, to learn how to install them.

This chapter has these sections:

The CCPulse+ and CC Analyzer Wizards share many of the same configuration screens. This is especially true for a CCPulse+ environment configured for both Real-Time and Historical Reporting functionality. Therefore, this chapter discusses the configuration of both Real-Time and Historical application components together to avoid repeating the steps in two separate chapters. Where information is specific to one wizard, or Real-Time deployment for CCPulse+ only, this chapter either notes this fact or prefaces the procedures with one of the following acronyms:

- **CPR** for a CCPulse+ configuration in Real-Time-only mode
- **CPRH** for a CCPulse+ configuration in both Real-Time and Historical mode
- **CCA** for a CC Analyzer configuration

Use the links and page references in the "Navigating..." sections on pages 54 and 55 to locate the procedures describing the Reporting environment you wish to configure.

Invoking the Solution Reporting Wizard

Open the Genesys Wizard Manager, login to your Configuration Server, and select `Solution Reporting` from the list on the left side of the screen. The `Solution Reporting` page appears as shown in Figure 9.

Figure 9: Invoking Solution Reporting from the Genesys Wizard Manager

To start the CC Analyzer Wizard, select `Contact Center Analyzer` from the bottom of the `Solution Reporting` page. To start the CCPulse+ Wizard, select `CCPulse+` from the middle of the `Solution Reporting` page.

Navigating the CC Analyzer Wizard

If you select `Contact Center Analyzer`, the Genesys Wizard Manager calls the CC Analyzer Wizard and displays a `Welcome` screen followed by the:

- `Reporting Templates CD` screen, described on page 56.
- `Data Sourcer` screen, described on page 57. (The Wizard may display other screens prior to this one depending on the option selected at the preceding screen.)

- Data Modeling Assistant screen, described on page 63.
- ETL Runtime screen, described on page 65.
- Summary screen, described on page 83.

Navigating the CCPulse+ Wizard

Note: If you intend to view reports based on Genesys Info Mart data in CCPulse+, perform the integration steps described in "Integrating with Genesys Info Mart" on page 76, prior to running the CCPulse+ Wizard.

If you select CCPulse+ from the Solution Reporting page, the Genesys Wizard Manager calls the CCPulse+ Wizard and displays the first screen, Welcome.

For Real-Time Reporting

The Wizard displays the following sequence of screens for a CCPulse+ Application object that you choose to configure only for Real-Time Reporting:

- Reporting Templates CD screen, described in section "Deploying Reporting Templates" on page 56.
- Operating Mode screen, described in Step 3 on page 56. (The Wizard may display other screens prior to this one depending on the option selected at the preceding screen.)
- CCPulse+ screen, described on page 72.
- Summary screen, described on page 83.

For Real-Time and Historical Reporting

The Wizard displays the following sequence of screens for a CCPulse+ Application object that you choose to configure for both Real-Time and Historical Reporting:

- Reporting Templates CD screen, described in "Deploying Reporting Templates" on page 56.
- Operating Mode screen, described in Step 3 on page 56. (The Wizard may display other screens prior to this one depending on the option selected at the preceding screen.)
- Data Sourcer screen, described on page 57.
- Data Modeling Assistant screen, described on page 63.
- ETL Runtime screen, described on page 65.
- CCPulse+ screen, described on page 72.
- Summary screen, described on page 83.

From Welcome, click Next to proceed to the Reporting Templates CD screen, which is described next.

Deploying Reporting Templates

From the Reporting Templates CD screen, you deploy Real-Time and/or Historical Reporting templates to your environment for:

- E-mail.
- Enterprise Routing (ERS).
- GIM Inbound Voice.
- Outbound Contact (OCS).
- Open Media Sample.
- Voice CallBack (VCB).
- Voice.
- Web Media (formerly MCR).

1. At this screen, click Have Disk to specify the path to the Reporting Templates CD. Then click Next.

   Note: To skip template deployment, select the Do not install any reporting templates now check box and click Next.

   CPR: The Wizard takes you to the Operating Mode screen discussed in Step 3 below.

   CCA: The Wizard takes you to the Data Sourcer screen discussed in "Operating the Data Sourcer Wizard" on page 57.

   To install the reporting templates later, follow the steps to reach this Wizard screen, and then specify the source.

2. At the Reporting Templates Groups screen, select the group(s) of templates to install. To select more than one group, hold down the [Ctrl] key while you click the groups you want. Then click Next. (Multi-selection may also be performed using the Shift key or by holding down the left mouse button over your desired selection, and then releasing the button.)

   Note: Select GIM Inbound Reporting Templates, to generate query-based reports, available in release 7.2 CCPulse+.

   Refer to the *Reporting Technical Reference Guide for the Genesys 7.2 Release* for information about the content of these templates.

3. **CPR/CPRH:** At the Operating Mode screen, select either:
   - Real-time-only Mode to display the Real-Time Reporting Data screen.
   - Real-time and Historical Mode to display the Historical Reporting Data screen.

   Then click Next.

4. **CCA/CPRH:** At the `Historical Reporting Data` screen, enter the destination where you want reporting templates copied, or click the `Browse` button to navigate to the desired location. Then click `Next`.

   CPR: At the `Real-Time Reporting Data` screen, enter the destination where you want reporting templates copied, or click the `Browse` button to navigate to the desired location. Then click `Next`.

   The Wizard opens the `Reporting Data` screen, which displays a progress-of-completion bar as the Wizard copies the files to the destination you specified.

5. When the copy process completes, click `Next`.

   CCA/CPRH: The `Data Sourcer` screen appears. Proceed to "Operating the Data Sourcer Wizard" on page 57.

   CPR: The `CCPulse+` screen appears. Proceed to "Operating the CCPulse+ Wizard" on page 72.

Operating the Data Sourcer Wizard

Warnings! Genesys recommends that you do *not* upgrade to a release 7.2 Data Sourcer unless you require High Availability of historical reporting data. Because of changes in Data Sourcer architecture and design, Genesys cannot guarantee backward compatibility of Data Sourcer in all environments.

If you are upgrading to, or installing, a release 7.2 Data Sourcer, first read Chapter 5, "High Availability Architecture," on page 85.

From the `Data Sourcer` screen of the Wizard, you can perform any or all of the following tasks:

- Upgrade a prior version of Data Sourcer to 7.2 using the Data Sourcer Wizard. Refer to "Upgrading an Existing Data Sourcer Application Object" on page 58 for the steps to take.
- Run the Data Sourcer Wizard to define a new 7.2 `Data Sourcer` Application object in Configuration Server. Refer to "Creating a New Data Sourcer Application Object" on page 59 for information about operating this Wizard.
- Select an existing 7.2 `Data Sourcer` Application object for configuration from the `Available Applications` list box. The `Available Applications` list box on the `Data Sourcer` screen shows the already existing `Data Sourcer` Application objects in Configuration Server and their respective versions.

  If your environment already has a 7.2 `Data Sourcer` Application object that you want to use, skip the configuration of this component by clicking `Next` to advance to the `Data Modeling Assistant` screen (page 63).

- Remove an existing Data Sourcer application.

CC Analyzer operation requires at least one 7.0 or higher Data Sourcer Application object. CCPulse+ requires at least one Data Sourcer Application object only if you intend to use CCPulse+ for Historical as well as for Real-Time Reporting. You can add more Data Sourcer Application objects to your environment, if desired.

High availability of historical reporting data requires that you have at least two 7.2 Data Sourcer application objects configured and installed.

Note: Skip this section if you are configuring CCPulse+ in Real-Time mode only.

Upgrading an Existing Data Sourcer Application Object

At the Data Sourcer screen of the Wizard:

1. Select a Data Sourcer Application object from the Available Applications list box and click Properties.

   The Data Sourcer Properties screen opens.

2. On the General Information tab, click the Upgrade button.

   This action opens the General Information screen of the Data Sourcer Wizard.

3. Click Next to continue. The Server Information screen appears.

4. Change the host and port information for the Configuration Server on which this application is located if necessary. Then click Next. The Installation Path screen appears.

5. At the Installation Path screen:

   a. Specify the source of the new Data Sourcer installation package. The source can be either the Reporting CD or the Genesys Express CD.

   b. Specify the destination to which you want the installation package copied, and then click Next.

   The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Upgrade Information screen appears.

   Note: This installation package is used for CC Analyzer installation (see Chapter Step 6, beginning on page 93) and for CCPulse+ installation (see Chapter Step 9, beginning on page 125).

6. Click Next to continue. The Summary screen appears showing the name, version, host, and port for the upgraded Data Sourcer Application object.

7. Click Finish to return to the General Information tab of the Data Sourcer Properties screen (the same screen as in Step 2).

   Notice that the version number of your Application object now reads 7.2 (or higher).

8. Click OK to return to the Data Sourcer screen, and with your Data Sourcer Application object selected in the Available Applications list box, click Next to proceed to the Data Modeling Assistant screen (page 63).

You have now upgraded your Data Sourcer Application object. After you complete the Wizard, install the deployed installation package (see "Installing Data Sourcer on Windows Platforms" on page 94 or "Installing Data Sourcer on Unix Platforms" on page 96 as appropriate).

Creating a New Data Sourcer Application Object

At the Data Sourcer screen of the Wizard:

1. Click New to start the Data Sourcer Wizard.

   Note: For configuration of an IS Data Sourcer (a Data Sourcer to be used with the Internet Contact Solution), make sure your RDBMS is already running because the Data Sourcer Wizard uses it for Java Database Connectivity (JDBC) validation.

2. At the Welcome screen, click Next.
3. At the General Information screen, enter a name for your Data Sourcer Application object, select a Configuration Manager folder to place it in, and then click Next. The Wizard provides a unique default name. If you enter a different name, be sure that it is also unique.
4. At the Tenants screen, select the tenants that this application is to serve. Then click Next.

   Note: If you have a single tenant environment, you will not see the Tenants screen.

5. At the Log Options screen, accept the default log options or click Run Log Wizard to specify your own, and then click Next.

   Note: See the "Log Section" topic in the *Reporting 7.2 Data Sourcer User's Guide* for a description of log options.

   For IS Data Sourcer, choose the All log level instead of Standard. IS Data Sourcer activity is not recorded otherwise.

6. At the Options screen, specify the options for automatic report-layout generation for new tenants and the emergency save file directory, and then click Next. Specifying either is optional.

   Note: The emergency save file directory must reside on the machine running Data Sourcer. If you chose *not* to specify a path to an emergency save directory, *no* emergency save files will be created.

   IS Data Sourcer ignores both options. IS Data Sourcer does not use an emergency save file and all report layouts are activated automatically upon creation.

7. At the `Stat Server` screen:
   a. Select the appropriate Stat Server from the `Stat Server Applications` list box. You can choose only one Stat Server to connect to Data Sourcer.

   Note: The Wizard displays only those Stat Servers belonging to the current tenant.

   b. Verify that the location of Stat Server's configuration file is correct.

   The Wizard automatically fills in this field with the path of the Stat Server configuration file, if you chose to install reporting templates at Step 1 of "Deploying Reporting Templates" on page 56. You can click the `Browse` button to the right of this field to search for the location.

   c. Click `Next`.

   If you choose, you can create a new `Stat Server` Application object by clicking `New` to invoke the Stat Server Wizard, or you can upgrade an existing `Stat Server` Application object to 7.2 by clicking `Properties` and then `Upgrade` from the `General` tab. Refer to the *Reporting 7.2 Stat Server Deployment Guide* for further information on Stat Server deployment.

   Once you have created the new `Stat Server` Application object, control returns to the `Stat Server` screen of the Data Sourcer Wizard. Click `Next` to proceed.

8. At the `Database Access Point` (DAP) screen, click `New` to invoke the Database Access Point Wizard from which you can define a DAP to Data Sourcer. DAPs describe the parameters required for communication with a particular database and the DB Server through which this database can be accessed.

   Note: Refer to "Operating the Database Access Point Wizard" on page 70 for instructions on using the DAP Wizard.

Note: If you are configuring IS Data Sourcer, the Wizard prompts you to provide additional information for the database application at the `JDBC URL Creation Page`. Provide the JDBC URL data for the ODS. IS Data Sourcer cannot be configured from the Solution Reporting 7.2 Wizard. To configure IS Data Sourcer, click the `Internet Contact Solution` hyperlink from the Genesys Wizard Manager and proceed from there.

Once you have defined a DAP, control returns to the `Database Access Point` screen of the Data Sourcer Wizard where the `Database Access Point Name` field reflects the DAP you just defined. Click `Next` to proceed.

Note: Genesys recommends that DB Server and your RDBMS be up and running. Otherwise, the Wizard cannot validate or initialize ODS.

9. If your ODS is not initialized, at the `Operating Mode` screen, select `Yes` to have the Wizard initialize ODS now or `No` to have Data Sourcer initialize ODS upon first start. Then, click `Next`.

   Note: The Stat Server assigned to Data Sourcer must be up and running. Otherwise, the Wizard cannot initialize ODS.

10. If your ODS has been initialized but contains outdated layout templates, at the `ODS Upgrade` screen, select `Yes` to upgrade ODS now or `No` to postpone the upgrade for a later time. Then, click `Next`.

    When upgrading templates, the Wizard displays screens that enable you to compare stat type definitions of your layout templates with stat type definitions provided in the upgraded templates, if they differ. For each stat type definition, you can select one version or the other.

    Note: Please be sure to thoroughly understand the differences in stat definitions before you upgrade them.

11. At the second `Options` screen that appears, specify the TCP/IP port for management client connection. Then click `Next`.

    Note: IS Data Sourcer ignores any management port information you may specify.

12. At the third `Options` screen, review the options you have specified thus far. Click `Back` if you need to change any of them or click `Next` to proceed.
13. At the `Server Information` screen, specify a host and port for Data Sourcer and click `Next`. Click the `Browse` button  to display the `Browse for Host` screen from which you can select an existing host or create a new one.

14. At the Installation Path screen, specify a source path and a destination path for installation files and click Next. By default, the Wizard fills in the source path from the Reporting CD (or Genesys Express CD) and destination, but you can change this if desired. If you specify a destination that does not exist, the Wizard creates it for you.

    Note: Remember the destination path you specify in this step. You will need it later (in Chapter 6,"Installing Historical Reporting Components") to install Data Sourcer.

    The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Solution-Specific Data screen appears.

15. At this screen, specify the source path to which the Wizard copied solution-specific data. Then click Next. Use the Browse button if necessary. The destination path, populated with the value specified at Step 14, is disabled.

    A second Solution-Specific Data screen appears displaying a progress-of-completion bar. When the copy process completes, the Installation Information screen appears.

16. Click Next after reading the Installation Information screen.

17. At the Summary screen, read the information about the newly-created Data Sourcer Application object. Click Finish to return to the Data Sourcer screen, which now lists the Data Sourcer Application object you just created at the bottom of the Available Applications list box.

18. If desired, repeat Step 1 through Step 17 to define another Data Sourcer Application object for your Reporting environment.

19. With your Application object selected, click Next to proceed to the Data Modeling Assistant screen of the Wizard. The operations available from this screen are described in the next section (page 63).

You have now configured a new Data Sourcer Application object. The red slash through the Application icon  indicates that the object is not yet active. This object self-activates upon installation. For installation procedures, refer to "Installing Data Sourcer on Windows Platforms" on page 94 or "Installing Data Sourcer on Unix Platforms" on page 96 as appropriate.

Data Sourcer is normally a client of Configuration Server, but you can configure it to connect to Configuration Server Proxy (CS Proxy) instead. CS Proxy is a Genesys application that enables read-only access to a remote Configuration Server. To specify a backup CS Proxy after you have configured a Data Sourcer Application object you must manually edit the object in Configuration Manager to change the value in the Redundancy Type field on the Start Info tab from Not Specified to Warm Standby.

Refer to the "Graphically Distributed Installations" chapter in the *Framework 7.2 Deployment Guide* for more information about Configuration Server Proxy.

Operating the Data Modeling Assistant Wizard

From the Data Modeling Assistant screen, you can perform any of the following tasks:

- Upgrade a prior version of DMA to 7.2 using the Data Modeling Assistant Wizard. Refer to "Upgrading an Existing DMA Application Object" on page 63.
- Run the Data Modeling Assistant Wizard to define a 7.2 Data Modeling Assistant Application object in the Configuration Server. Refer to "Creating a New DMA Application Object" on page 64 for information about operating this Wizard.
- Select an existing 7.2 Data Modeling Assistant Application object for configuration from the Available Applications list box. The Available Applications list box on the Data Modeling Assistant screen shows the already-existing Data Modeling Assistant Application objects and their respective versions.

  If your environment already has a 7.2 Data Modeling Assistant Application object that you want to use, skip the configuration of this component by clicking Next to advance to the Data Mart screen (page 65).

CC Analyzer 7.2 operation requires at least one 7.0 or higher Data Modeling Assistant Application object. CCPulse+ requires a Data Modeling Assistant Application object only if you intend to use CCPulse+ for Historical as well as for Real-Time Reporting. You can add more than one Data Modeling Assistant Application object to your environment, if desired.

Note: Skip this section if you are configuring CCPulse+ in Real-Time mode only.

Upgrading an Existing DMA Application Object

At the Data Modeling Assistant screen of the Wizard:

1. Select a Data Modeling Assistant Application object from the Available Applications list box and click Properties.

   The Data Modeling Assistant Properties screen opens.

2. On the General Information tab, click the Upgrade button.

This action opens the General Information screen of the Data Modeling Assistant Wizard.

3. Click Next to continue. The Installation Path screen appears.
4. At the Installation Path screen:
   a. Specify the source of the new DMA installation package. The source can be either the Reporting 7.2 CD or the Genesys Express CD.
   b. Specify the destination to which you want the installation package copied and then click Next.

   The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Upgrade Information screen appears.

Note: This installation package is used for CC Analyzer installation (see Chapter 6, beginning on page 93) and for CCPulse+ installation (see Chapter 9, beginning on page 125).

5. Click Next to continue. The Summary screen appears showing the name, version, host, and port for the upgraded Data Modeling Assistant Application object.
6. Click Finish to return to the General Information tab of the Data Modeling Assistant Properties screen (the same as in Step 1 on page 63).

   Notice that the version number of your Application object now reads 7.2 (or higher).
7. Click OK to return to the Data Modeling Assistant screen. With your Data Modeling Assistant Application object selected in the Available Applications list box, click Next to proceed to the Data Mart screen (page 65).

You have now upgraded your Data Modeling Assistant Application object. After you complete the Wizard, install the deployed installation package (see "Installing Data Modeling Assistant" on page 93).

Creating a New DMA Application Object

At the Data Modeling Assistant screen of the Wizard:

1. Click New to start the Data Modeling Assistant Wizard.
2. At the Welcome screen, click Next.
3. At the General Information screen, name your Data Modeling Assistant Application object, select a Configuration Manager folder to place it in, and then click Next. The Wizard provides a unique default name. To change it, type a new unique name over the default.

4. At the Installation Path screen, specify a source path and a destination path for installation files and click Next. By default, the Wizard fills in the source path from the Reporting CD (or Genesys Express CD) and destination, but you can change this if desired. If you specify a destination that does not exist, the Wizard creates it for you.

   Note: Remember the destination path you specify in this step. You will need it later (in Chapter 6,"Installing Historical Reporting Components") to install DMA.

   The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Installation Information screen appears.

5. At this screen, read the information and then click Next.
6. At the Summary screen, read the information about the Data Modeling Assistant Application object you just created. Click Finish to return to the Data Modeling Assistant screen which now lists the Data Modeling Assistant Application object you just created at the bottom of the Available Applications list box.
7. If desired, repeat Steps 1 through 6 to define another Data Modeling Assistant Application object in your Reporting environment.
8. With your Application object selected, click Next to proceed to the Data Mart screen of the Wizard. The operations available from this screen are described in the next section (page 65).

You have now configured and activated a new Data Modeling Assistant Application object. For installation procedures, refer to "Installing Data Modeling Assistant" on page 93.

Operating the Data Mart Wizard

The Data Mart Wizard enables you to create or upgrade an ETL Runtime Application object. ETL Runtime transforms data stored in the ODS, aggregates it, and writes it to the Data Mart.

Note: You must have JRE 1.4 or higher installed on your computer prior to deploying, configuring, and installing an ETL Runtime application.

From the ETL Runtime screen of the Wizard, you can perform any of the following tasks:

- Upgrade a prior version of ETL Runtime to 7.2 using the Data Mart Wizard. Refer to "Upgrading an Existing ETL Runtime Application Object" on page 66.

- Run the Data Mart Wizard to define a 7.2 ETL Runtime Application object in Configuration Server. Refer to "Creating a New ETL Runtime Application Object" on page 67 for information about how to operate this Wizard.
- Select an existing 7.2 ETL Runtime Application object for configuration from the Available Applications list box. The Available Applications list box on the ETL Runtime screen shows the ETL Runtime Application objects already existing in Configuration Server and their respective versions.

  If your environment already has a 7.2 ETL Runtime Application object that you want to use, skip the configuration of this component by clicking Next to advance to the Summary screen (page 83).

CC Analyzer 7.2 operation requires at least one 7.1 or higher ETL Runtime Application object. CCPulse+ requires an ETL Runtime Application object only if you intend to use CCPulse+ for Historical as well as Real-Time Reporting. You can add more ETL Runtime Application objects and more Data Marts to your environment, if desired.

Note: Skip this section if you are configuring CCPulse+ in Real-Time mode only.

Upgrading an Existing ETL Runtime Application Object

At the ETL Runtime screen of the Wizard:

1. Select an ETL Runtime Application object from the Available Applications list box and click Properties.

   The ETL Runtime Properties screen opens.

   Note: Make sure your RDBMS is already running because the Data Mart Wizard requires it for JDBC validation.

2. On the General Information tab, click the Upgrade button.

   This action opens the General Information screen of the Data Mart Wizard.

   Click Next to continue. The Wizard checks DAP and JDBC connection parameters. If a connection cannot be established, the Wizard halts the upgrade process and suggests that you double check the setup of your DAP/ JDBC configuration.

3. At the Server Information screen, specify any changes to the host and port in which Data Mart is to operate and click Next.

4. At the Installation Path screen:
   a. Specify the source of the new Data Mart installation package. The source can be either the Reporting CD or the Genesys Express CD.
   b. Specify the destination to which you want the installation package copied, and then click Next.

   The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Upgrade Information screen appears.

   Note: This installation package is used for CC Analyzer installation (see Chapter 6, beginning on page 93) and for CCPulse+ installation (see Chapter 9, beginning on page 125).

5. Click Next to continue. The Summary screen appears showing the name, version, host, and port for the upgraded ETL Runtime Application object.
6. Click Finish to return to the General Information tab of the ETL Runtime Properties screen.

   Notice that the version number of your Application object now reads 7.2 (or higher).
7. Click OK to return to the ETL Runtime screen. With your ETL Runtime Application object selected in the Available Applications list box, click Next to proceed to the Data Mart screen (page 83).

You have now upgraded your ETL Runtime Application object. After you have completed the Wizard, install the deployed installation package (see "Installing Data Mart on Windows Platforms" on page 97 or "Installing Data Mart on Unix Platforms" on page 98 as appropriate). Also, revisit the log options for this object, because the upgrade process resets all log options to their defaults.

Creating a New ETL Runtime Application Object

Use the Data Mart Wizard to configure a new ETL Runtime Application object to start one or more ETL Runtime modules.

Refer to the "Component Overview" chapter of the *Reporting 7.2 ETL Runtime User's Guide* for a listing and brief description of ETL Runtime's modules.

Note: 1. Your RDBMS should be running for JDBC validation.
2. Refer to "Deploying ETL Runtime Using DB2" on page 103 for notes specific to DB2 before creating an ETL Runtime Application object.

1. At the ETL Runtime screen, click New to start the Data Mart Wizard.
2. At the Welcome screen, click Next.

3. At the General Information screen, name your ETL Runtime Application object, select a Configuration Manager folder to place it in, and then click Next. The Wizard provides a unique default name. To change it, type a new unique name over the default.
4. At the Database Access Point (DAP) screen, click New to invoke the Database Access Point Wizard from which you can define a DAP to Data Mart. Then click Next. Refer to "Operating the Database Access Point Wizard" on page 70 for further information.

   The Wizard validates the information you provided before displaying the next screen. If validation fails, click the Properties button to correct connection parameters.

   Note: Genesys recommends that DB Server and your RDBMS be running. Otherwise, the Wizard cannot validate or initialize the Data Mart.

5. At the Data Mart Initialization screen, select Yes or No as appropriate and click Next. Initializing the Data Mart creates the database's schema and populates it with metadata and folder templates.
6. If you opted to initialize Data Mart, when initialization completes, click Next.
7. At the Data Sourcer List screen, move one or more sources for your Data Mart from the right pane to the left pane.

   Note: This screen and the next appears only if the Data Mart has no ODSs defined to it.

8. At the Connect Data Sourcer screen, specify parameters for JDBC connection and the time zone. As you specify these values the Wizard automatically fills in the URL field. Click OK at this screen and Next at the Data Sourcer List screen to proceed.
9. At the Configuration Options screen, select which processes your ETL Starter application will run, and click Next.

   Note: The Tenant Alias Tracking option is available only for multi-tenant environments.

10. At the second Configuration Options screen, specify:
    - Whether ETL Runtime is to drop transferred tables from ODS.
    - The start day of your business week: Sunday or Monday (for week-level aggregations that ETL Runtime performs).

      (To select any other day, you will have to update the setFirstDayOfWeek parameter in etl.properties after Data Mart installation.)

> **Note:** These options are grayed if you do not select the Transformation and Aggregation processes during the previous step.

Click Next. The Wizard prompts you to confirm your selection of Drop ODS Tables. Click Yes or No as appropriate.

11. At the Log Options screen, accept the default log options or run the Log Wizard to specify your own and click Next.

    Refer to the "Common Log Options" chapter in the *Reporting 7.2 ETL Runtime User's Guide* for a description of log options.

12. At the Options screen, verify the options you have chosen thus far and click Next to proceed or Back to change them. Notice that the processes you chose at Step 9 on page 68 appear as values for the Processes key.

13. At the Server Information screen, specify the host and port in which Data Mart is to operate and click Next.

> **Note:** Refer to "Deploying ETL Runtime Using DB2" on page 103 for additional configuration information regarding DB2 versions 7 and 8.

14. At the Installation Path screen, specify a destination in your network for copying installation files and click Next. By default, the Wizard fills in the source path from the Reporting CD, but you can change this path if desired. If you specify a destination that does not exist, the Wizard creates the path for you.

> **Note:** Remember the destination path you specify in this step. You will need it later (in Chapter 6,"Installing Historical Reporting Components") to install Data Mart.

    The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Installation Information screen appears.

15. At the Installation Information screen, read the information about the installation package you just prepared and click Next.

16. At the Summary screen, read the information about the ETL Runtime Application object you just created. Click Finish to return to the ETL Runtime screen which now lists the ETL Runtime Application object you just created at the bottom of the Available Applications list box.

17. If desired, repeat Steps 1 through 16 to define another ETL Runtime Application object in your Reporting environment.

18. Click Next to proceed to the Summary screen of the Wizard (page 83).

You have now configured a new ETL Runtime Application object. The red slash through the Application icon  indicates that the object is not yet active. The object self-activates when you install the application. For installation

procedures, refer to "Installing Data Mart on Windows Platforms" on page 97 or "Installing Data Mart on Unix Platforms" on page 98, as appropriate.

Operating the Database Access Point Wizard

The Database Access Point Wizard enables you to create a Database Access Point (DAP) Application object, which stores connection parameters—such as user name, password, and database name—to your ODS or Data Mart. This object also stores JDBC information for your Data Mart or IS Data Sourcer (a Data Sourcer that connects to a Contact Server database) and specifies which DB Server to connect to. DAPs, themselves, have no processes associated with them.

Note: You must have JRE 1.4, or later, installed on your computer prior to configuring a database access point.

From the Database Access Point screen of either the Data Sourcer Wizard or the Data Mart Wizard, you can perform any of the following tasks:

- Create a new 7.2 DAP. Refer to "Creating a New DAP Application Object" below.
- View and update the properties of an existing DAP. Refer to "Updating a DAP Application Object" on page 71.

Creating a New DAP Application Object

You can invoke the Database Access Point Wizard by clicking New from the Database Access Point screen of either the Data Sourcer Wizard or the Data Mart Wizard.

Note: Your RDBMS should be running for JDBC validation.

1. At the Database Access Point Name and Type screen:
   a. Type a unique name for your Database Access Point Application object.
   b. Click the Browse button to locate your DB Server for Data Mart. You can also use this button to create a new DB Server Application object.
   c. Select or clear the Enable JDBC access check box. Genesys recommends that you leave this check box selected.
   d. Specify the folder in Configuration Manager that will house the DAP application object or accept the default Applications folder.
   e. Click Next.

Note: At this screen, the Wizard does not verify name uniqueness.

2. At the Database Information screen, specify database access parameters including the DBMS name, type, database name, and name and password of a user who is authorized to access database. Then click Next.

   Note: At this point, the Wizard does not verify the parameters you specify.

3. At the JDBC Connection screen, specify the host and port of your Data Mart and click Next. Also specify the SID for an Oracle Data Mart. As you specify these values, the Wizard automatically fills in the JDBC URL field based on the standard JDBC designation for your DBMS; for instance, jdbc:jtds:sqlserver://*dbhost*:*dbport*;*DatabaseName=dbname*

   If your JDBC driver or URL is nonstandard, click Use custom Driver to specify its values. Genesys does not support all JDBC drivers. Contact Genesys Technical Support to determine wether your custom driver is supported.

   Note: The port you specify at this screen is a database port, not a DB Server port.

4. At the Case Conversion screen, select lower or upper from the list box if your DBMS requires that parameters be presented in lower- or uppercase. Otherwise, accept the default, any, and click Finish.

When you return to the Database Access Point screen of either the Data Sourcer or Data Mart Wizard and click Next, the Wizard attempts to establish a connection to your ODS or Data Mart. Click the Properties button at this screen to make corrections if necessary.

Updating a DAP Application Object

Note: Your RDBMS should be running for JDBC validation.

At the Database Access Point screen of either the Data Sourcer Wizard or the Data Mart Wizard:

1. In the Name field on the General tab, rename and/or relocate your DAP, if desired.
2. On the DB Info tab, change any of the database access fields or DB Server, if desired.
3. Click OK.

Operating the CCPulse+ Wizard

Click CCPulse+ on the Solution Reporting screen of the Genesys Wizard Manager to reach the CCPulse+ screen. From this screen you can perform any of the following tasks:

- Upgrade a prior version of CC Pulse or CCPulse+ to 7.2, using the CCPulse+ Wizard. Refer to "Upgrading an Existing CCPulse+ Application Object" on page 72.

  Note: The name CC Pulse (or Call Center Pulse) refers to a release of the application prior to 6.5. The name CCPulse+ refers to the 6.5 or higher release of the application.

- Run the CCPulse+ Wizard to define a new 7.2 CCPulse+ Application object in Configuration Server. Refer to "Creating a New CCPulse+ Application Object" on page 74 for the operation of this Wizard.
- Select an existing 7.2 CCPulse+ Application object for configuration from the Available Applications list box. The Available Applications list box on the CCPulse+ screen shows the already-existing CCPulse+ Application objects and their respective versions.

  If your environment already has a 7.2 CCPulse+ Application object that you want to use, skip the configuration of this component by clicking Next to advance to the Summary screen (page 83).

CCPulse+ 7.2 operation requires at least one 7.2 or higher CCPulse+ Application object. You can add more to your environment if desired.

Note: Skip this section if you are configuring CC Analyzer.

Upgrading an Existing CCPulse+ Application Object

At the CCPulse+ screen of the CCPulse+ Wizard:

1. Select a CCPulse+ (or CC Pulse) Application object from the Available Applications list box and click Properties.

   The CCPulse+ Properties screen opens.

2. On the General Information tab, click the Upgrade button.

   This action opens the General Information screen of the CCPulse+ Wizard.

3. Click Next to continue. The Historical Reporting View screen appears.
4. To enable Historical Reporting for your CCPulse+ Application object, select the Enable Historical Reporting with CCPulse+ check box. Select your Data Mart application from the list box, and then click Next.

> **Note:** You cannot select an application from the Data Mart `Available Applications` list box or otherwise use the list box (to resize columns, for example) unless you select the `Enable Historical Reporting with CCPulse+` check box.

5. At the `Stat Server Connections` screen, click `Add` to display the `Browse for Applications` screen, where you can select one or more Stat Servers from your environment. (Hold down the `Ctrl` key to select more than one application at a time. The Wizard does allow other methods of selecting multiple objects.) Then click `Next`.

   If you choose, you can define and select a new `Stat Server` Application object by clicking the `New Application` button from the `Browse for Applications` screen to invoke the Stat Server Wizard.

   > **Note:** Unlike other Genesys applications, you do not have to specify a Stat Server connection protocol for CCPulse+.

   Once you have defined one or more `Stat Server` Application objects, control returns to the `Stat Server Connections` screen where the `List of Current Connections` list box reflects your selection(s). Click `Next` to proceed.

6. At the `Installation Path` screen, specify the destination in your environment for copying installation files and click `Next`. If you specify a destination that does not exist, the Wizard creates the path for you. (The Wizard automatically fills in the source path from the Reporting or Genesys Express CD as appropriate.)

   > **Note:** Remember the destination path you specify in this step. You will need it later (in Chapter 9,"Installing Real-Time Reporting") to install CCPulse+.

   The `Installation Copy` screen appears displaying a progress-of-completion bar. When the copy process completes, the `Upgrade Information` screen appears.

   > **Note:** This installation package is used for CCPulse+ installation (see Chapter 9).

7. Click `Next` to continue. The `Summary` screen appears showing the name and version for the upgraded `CCPulse+` Application object.
8. Click `Finish` to return to the `General Information` tab of the `CCPulse+ Properties` screen.

   Notice that the version number of your Application object now reads 7.2.

9. Click OK to return to the CCPulse+ screen. With your CCPulse+ Application object selected in the Available Applications list box, click Next to proceed to the Summary screen (page 83).

Creating a New CCPulse+ Application Object

At the CCPulse+ screen:

1. Click New to start the CCPulse+ Wizard.
2. At the Welcome screen, click Next.
3. At the General Information screen, name your CCPulse+ Application object, select a Configuration Manager folder to place it in, and then click Next. The Wizard provides a unique default name. To change it, type a new unique name over the default.
4. At the Solution-Specific Data screen, specify the location of your preexisting storages or select the Copy Storages check box and specify the location to which the Wizard is to deploy storages from the Reporting CD (or Genesys Express CD). Then click Next.

   Note: To enable historical views for predefined templates, you must use the 6.5 or later solution-specific storages. You can always import your custom templates, actions, and thresholds into the 6.5+ storages later.

   Refer to "Fine-Tuning CCPulse+ Configuration" in the *Reporting 7.2 CCPulse+ Administrator's Guide* for information about locating your storages.

5. At the Stat Server Connections screen, click Add to display the Browse for Applications screen where you can select one or more Stat Servers from your environment. (Hold down the [Ctrl] key to select more than one application at a time. The Wizard does allow other methods of selecting multiple objects.) Then click Next.

   If you choose, you can define and select a new Stat Server Application object by clicking the New Application button from the Browse for Applications screen to invoke the Stat Server Wizard.

   Note: Unlike other Genesys applications, you do not have to specify a Stat Server connection protocol for CCPulse+.

   Once you have defined one or more Stat Server Application objects, control returns to the Stat Server Connections screen where the List of Current Connections list box reflects your selection(s). Click Next to proceed.

6. At the Historical Reporting View screen, indicate whether the Wizard should enable Historical Reporting within CCPulse+. If yes, select the appropriate Data Mart Application object from the Data Mart Applications list box, and click Next.

   Note: This screen appears only if you selected the Real-time and Historical operating mode at Step 3 on page 56.

7. At the Info Mart Reports View screen, select the GIM ETL Application object that will provide CCPulse+ data for query-based reports. (This screen appears only if you selected GIM Inbound Voice Reporting Templates at the Reporting Template Groups screen described in Step 2 on page 56.)

   Note that you cannot create a new GIM ETL Application object from this screen. You should make sure that it is available in the configuration before you run the CCPulse+ Wizard. See "Integrating with Genesys Info Mart" on page 76 for details.

   Once you selected the GIM ELT Application object, click Next to proceed.

8. At the Installation Path screen, specify a source path and a destination path for installation files and click Next. By default, the Wizard fills in the source path from the Reporting CD (or Genesys Express CD), but you can change this if desired. If you specify a destination that does not exist, the Wizard creates it for you

   Note: Remember the destination path you specify in this step. You will need it later (in Chapter 9,"Installing Real-Time Reporting") to install CCPulse+.

   The Installation Copy screen appears displaying a progress-of-completion bar. When the copy process completes, the Installation Information screen appears.

   Note: This installation package is used for CCPulse+ installation (see Chapter 9).

9. At the Installation Information screen, read the information about the installation package you just prepared and click Next.

10. At the Summary screen, read the information about the CCPulse+ Application object you just created. Click Finish to return to the CCPulse+ screen which now lists the CCPulse+ Application object you just created at the bottom of the Available Applications list box.

11. If desired, repeat Steps 1 through 10 to define another CCPulse+ Application object in your Reporting environment.

12. With your Application object selected, click `Next` to proceed to the `Summary` screen of the Wizard (next section, page 83).

You have now configured and activated a new `CCPulse+` Application object. For installation procedures, refer to "Installing Real-Time Reporting" on page 125.

Integrating with Genesys Info Mart

This section describes the prerequisites for deploying GIM Inbound Voice Templates in CCPulse+, including manual integration of CCPulse+ with Genesys Info Mart (GIM).

Note: GIM is not a part of the standard Reporting package and must be purchased separately.

Major Integration Steps

If you intend to use GIM-based reports in CCPulse+, do the following:

1. Verify that Genesys Info Mart release 7.2 is installed and configured properly, or deploy it, if it is not already deployed. Refer to the Genesys Info Mart documentation set for instructions.

   In particular, verify that:

   - An `Application` object of the `GIM ETL` type exists in the Genesys Configuration Layer.
   - A DB Server that enables access to the GIM database is both configured in the Genesys Configuration Layer and running. If you need to deploy a new DB Server application, refer to the *Framework 7.2 DB Server User's Guide.*

2. In the RDMS that handles the GIM database, create a new read-only user account for Reporting purpose or use an existing one. This account must not have administrative privileges. Run GIM-provided scripts to create the necessary database views for CCPulse+:

   - For single-tenant deployments, run `make_gim_view.sql`.
   - For multiple-tenant deployments, run `make_gim_view.sql`. If you need high security isolation among different tenants, you must create a dedicated CCPulse+ application and a dedicated DAP application for each tenant, and `run make_gim_view.sql` for each tenant-specific account. This ensures that each tenant sees only their own data.

   Refer to the "Genesys Info Mart SQL Scripts" section of the *Genesys Info Mart 7.2 Deployment Guide* for step-by-step instructions.

3. Several Genesys Info Mart configuration options must be set in order to properly generate the aggregates that CCPulse+ queries. Refer to Table 4 on page 77.

Table 4: Genesys Info Mart Configuration Options for CCPulse+ Queries

Section	Option and Values
gim-etl	max-session-duration-in-hours = (some appropriate non-zero value) (default is 0)
	voice-init-resp-duration = (some appropriate value) (default is TIME_TO_FIRST_AGENT)
gim-transformation	show-abandoned-detail = TRUE (default is FALSE)
optional-tables	populate-resource-session-facts = TRUE (default is TRUE)
	populate-resource-state-reason-facts = TRUE (default is FALSE)
	populate-resource-skill-facts = TRUE (default is TRUE)
	populate-resource-group-facts = TRUE (default is TRUE)
gim-aggregates-tenant	populate-agent-state-aggregates = TRUE (default is FALSE)
	populate-skill-demand-aggregates = TRUE (default is FALSE)
	populate-skill-combination-aggregates = TRUE (default is FALSE)
	maximum-aggregation-level = MONTH (default is MONTH)
gim-agg-skill-inb-ixn-tenant **Note**: Always select default values, as report headings are hardcoded to these values.	init-resp-duration-range-1-thold = 15 (default is 15)
	init-resp-duration-range-2-thold = 30 (default is 30)
	init-resp-duration-range-3-thold = 60 (default is 60)
gim-agg-skill-abandon-tenant **Note**: Always select default values, as report headings are hardcoded to these values.	abandon-duration-range-1-thold = 15 (default is 15)
	abandon-duration-range-2-thold = 30 (default is 30)
	abandon-duration-range-3-thold = 60 (default is 60)

Refer to the *Genesys Info Mart 7.2 Deployment Guide* for option descriptions.

4. Modify your routing strategies to attach the appropriate Key-Value Pair (KVP) for RRequestedSkillCombination using the IRD MultiAttach function.
   - Configure Call Concentrator to store this KVP in EVREFEX.
   - Configure Genesys Info Mart to extract this KVP from EVREFEX_VIEW.

Refer to the "Genesys Info Mart and Attached Data" section of the *Genesys Info Mart 7.2 Deployment Guide* for further information.

5. Make sure that GIM is working with Stat Server release 7.2, and is collecting stat reason codes from the Stat Server database.
6. In Configuration Manager, create a `Database Access Point` (DAP) Application object for CCPulse+ to use to access the Info Mart data. The database connection parameters should point to database schema under which the read-only views were created (`make_gim_view.sql` for a single-tenant, or `make_gim_view_for_tenant.sql` for a multi-tenant environment).

Note: The configuration option `role=INFO_MART_READ_ONLY` must be configured in section `gim_etl` for the DAP.

Refer to the "Configuring Genesys Info Mart Data Access Points" section of the *Genesys Info Mart 7.2 Deployment Guide*. Refer also to "Creating a New DAP Application Object for GIM" on page 79.

7. In Configuration Manager, add the newly created DAP Application object to the connections of the `GIM ETL` Application object.
8. Add the `GIM ETL` Application object to the connections of your CCPulse+ Application object, either using the CCPulse+ Wizard (see Step 7 on page 75) or manually (see page 82).

Once you deploy GIM Inbound Voice Templates, the `Create Query Based View` command on the CCPulse+ context menu is no longer greyed out for appropriate objects in the Call Center Objects pane.

Deploying GIM Templates Manually

When using the CCPulse+ Wizard, you have to select GIM Inbound Voice Templates for deployment at two Wizard screens:

- First, by selecting `GIM Inbound Voice Reporting Templates` at the `Reporting Template Groups` screen described in Step 2 on page 56.
- Second, by selecting the `Enable Info Mart Reports within CCPulse+` check box, and selecting the `GIM ETL` Application object at the `Info Mart Reports View` screen described in Step 7 on page 75.

If you miss one of these points, either by mistake or intentionally, you can still deploy the templates manually.

To manually deploy `GIM Inbound Voice Templates` in CCPulse+:

1. Complete Steps 1 through 8 above, if not completed yet.
2. Copy the `Queries.xml` file from the `\solution_specific\gim-voice\templates\realtime` folder on the Reporting Templates 7.2 CD to the CCPulse+ storage folder.
3. In Configuration Manager, configure the `QueryStorageFullPath` configuration option in the `Storage` section on the `Options` tab of the `CCPulse+` Application object. As the option value, specify the full path to the `Queries.xml` file.

Creating a New DAP Application Object for GIM

If you are unsure how to create a new Application object in Configuration Manager, refer to Appendix A, "Standard Configuration Procedure" of the *Framework 7.2 Deployment Guide.*

In addition to the standard configuration steps, do the following to configure a `Database Access Point` Application object for GIM database:

1. When specifying the application name on the `General` tab, keep in mind that the Database Access Point may have the same name as the database itself. However, make each name unique if you are using multiple access points to the same database.
2. On the `General` tab, use the `Browse` button to locate the DB Server through which this database is to be accessed. This must be the DB Server referenced in Step 1 of "Major Integration Steps" on page 76.

   Note: Do not select the `JDBC Connection` check box because it does not apply to database connections through DB Server.

3. Specify the properties on the `DB Info` tab:
   - `DBMS Name`— The name or alias identifying the DBMS that handles the GIM database. The value of this option is communicated to DB Server so that it connects to the correct DBMS:
     - For Oracle, the value is the name of the Listener service (also called a database alias).
     - For Microsoft SQL, set this value to the SQL server name (usually the same as the host name of the computer where Microsoft SQL runs).
     - For DB2, set this value to the name or alias-name of the database specified in the db2 client configuration.
   - `DBMS Type`—The type of DBMS that handles the GIM database. You must set a value for this property.
   - `Database Name`—The name of the GIM database, as it is specified in the DBMS that handles this database. You must set a value for this property unless `oracle` or `db2` is specified as the `DBMS Type`. For Microsoft SQL, this value is the name of the database where the client will connect.
   - `User Name`—The user name established in the SQL server for CCPulse+ users to access the GIM database. You must set a value for this property, and you must set it to the name of the account referred to in Step 2 of "Major Integration Steps" on page 76.
   - `Password`—The password established in the SQL server for CCPulse+ users to access the GIM database.
   - `Re-enter Password`—Confirmation for the value entered for `Password`.

- `Case Conversion`—Case conversion method for key names of key-value lists coming from DB Server. This value specifies whether and how a client application converts the field names of a database table when receiving data from DB Server. If you select `upper`, field names are converted into uppercase; if you select `lower`, field names are converted into lowercase; and if you select `any`, field names are not converted. This setting does not affect the values of key-value lists coming from DB Server. That is, the actual data is presented exactly as it is in the database tables.

Warning! For the Case Conversion option, use the default value (`any`) unless directed to do otherwise by Genesys Technical Support.

4. On the `Options` tab, create a section named `gim-etl` (as shown in Figure 10). Within this section, create a configuration option named `role`, and set its value to `INFO_MART_READ_ONLY` (as shown in Figure 11 on page 81).

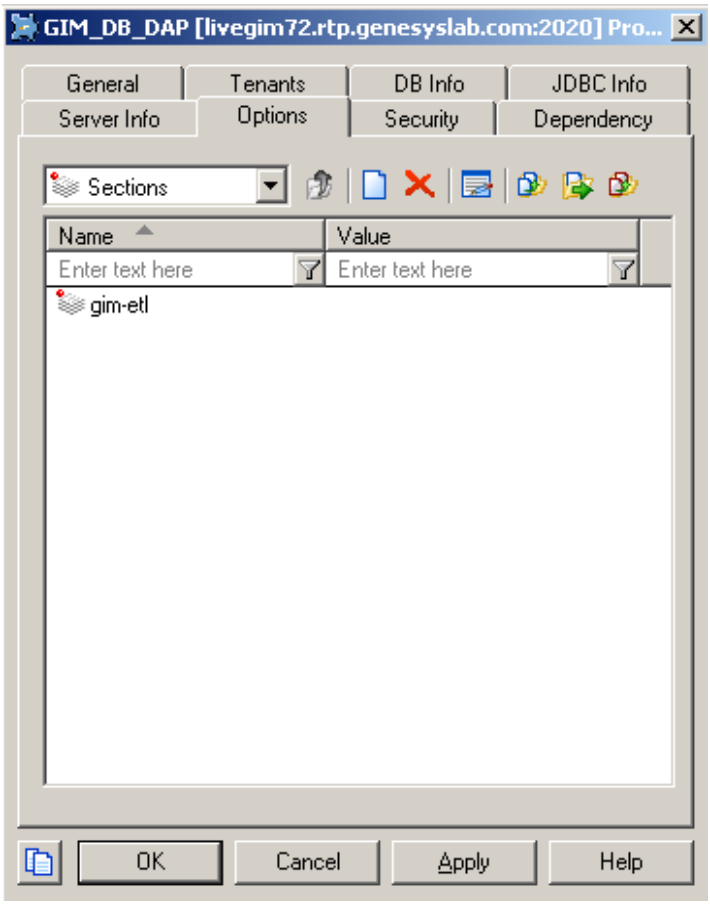

Figure 10: Configuring the gim-etl Section in the DAP Application

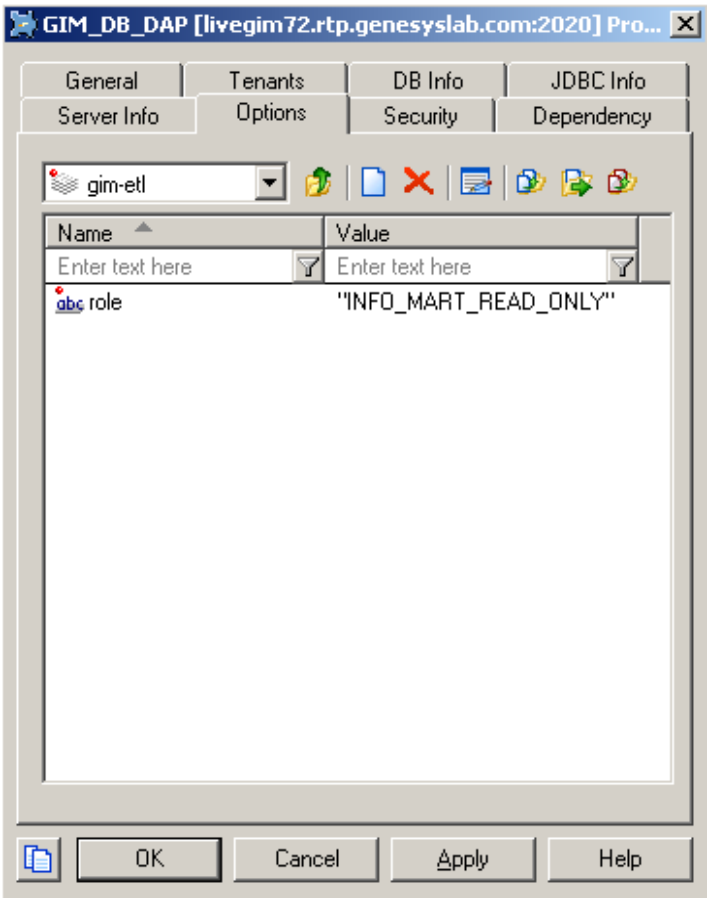

Figure 11: Configuring the role Option in the DAP Application

To interface the `GIM ETL` Application object with the GIM database through the Database Access Point that you just created, add this access point to the list of connections on the `Connections` tab of the `GIM ETL` Application `Properties` dialog box (see Figure 12 on page 82).

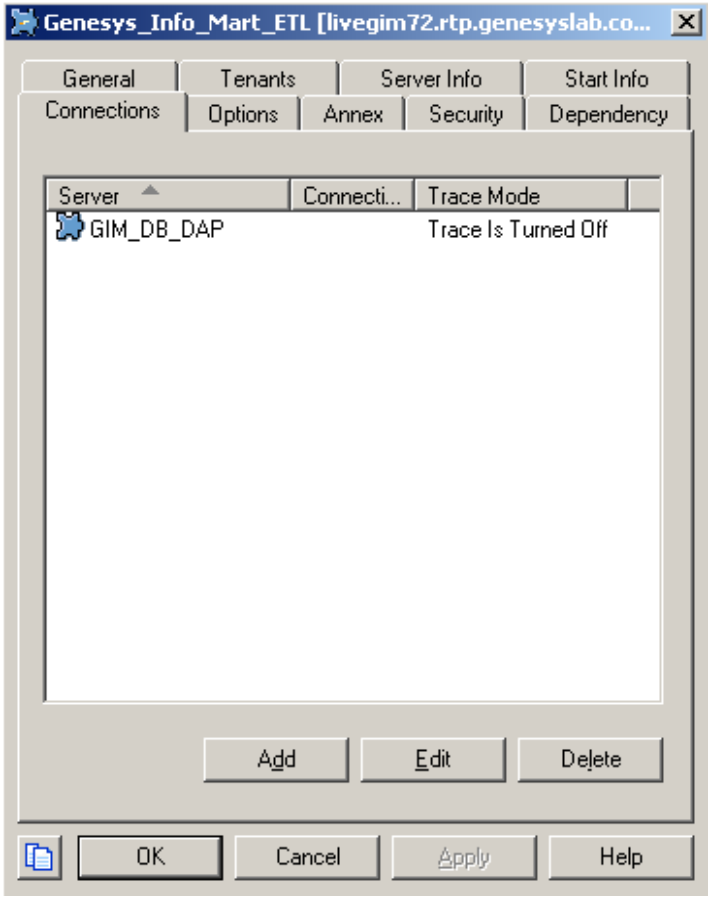

Figure 12: Configuring DAP Connection in GIM ETL

Configuring CCPulse+ Connection to GIM ETL

If you have not configured a connection to the `GIM ETL` Application object using the CCPulse+ Wizard, configure this connection in the `CCPulse+` Application object manually, as follows:

1. In Configuration Manager, open the `CCPulse+` Application `Properties` dialog box.
2. On the `Connections` tab, add the `GIM ETL` Application object to the list of `CCPulse+` connections (see Figure 13 on page 83).

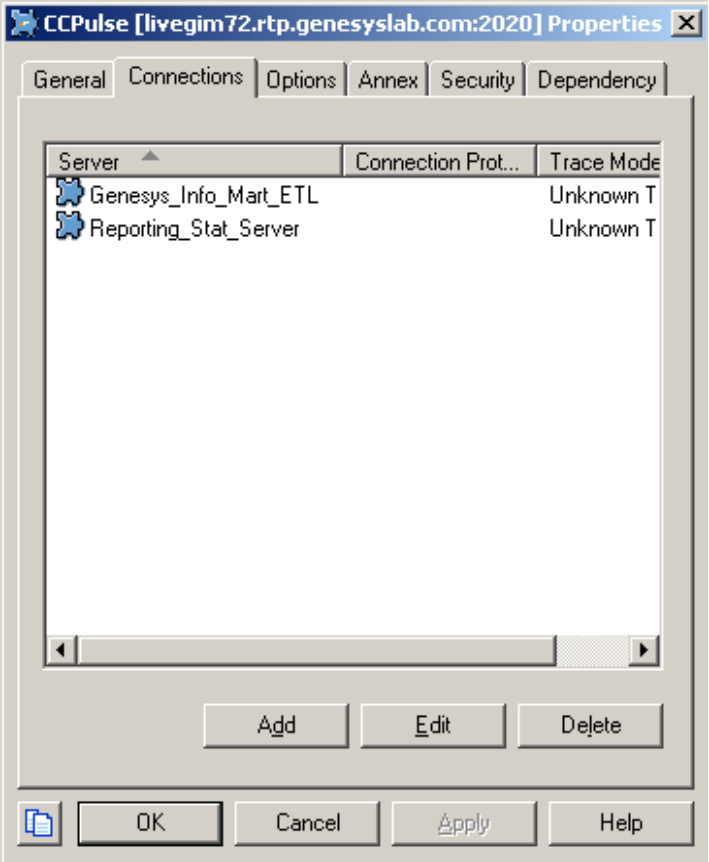

Figure 13: Configuring GIM ETL Connection in CCPulse+

Summary Screen

The `Summary` screen is the last screen of the both the CC Analyzer and CCPulse+ Wizards. For CC Analyzer, this screen provides information about, as well as a link to, the Hyperion website. Click `Finish` to close the Wizard and return to the Genesys Wizard Manager.

Chapter

5 High Availability Architecture

This chapter discusses the concept of High Availability architecture in Reporting release 7.2. This chapter includes the following sections:

Overview

High Availability architecture in historical reporting is a new feature of Genesys release 7.2. High Availability or HA 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 Sourcers, configured in Hot Standby mode, and connected to two Stat Servers, an HA T-Server, an HA ODS database, and an HA Data Mart. Stat Servers 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 HA ODS database.

Data redundancy, connections to backup servers, and components operating in Hot Standby mode, will together ensure High Availability of historical reporting data in release 7.2. Figure 14 on page 86 illustrates the HA reporting architecture.

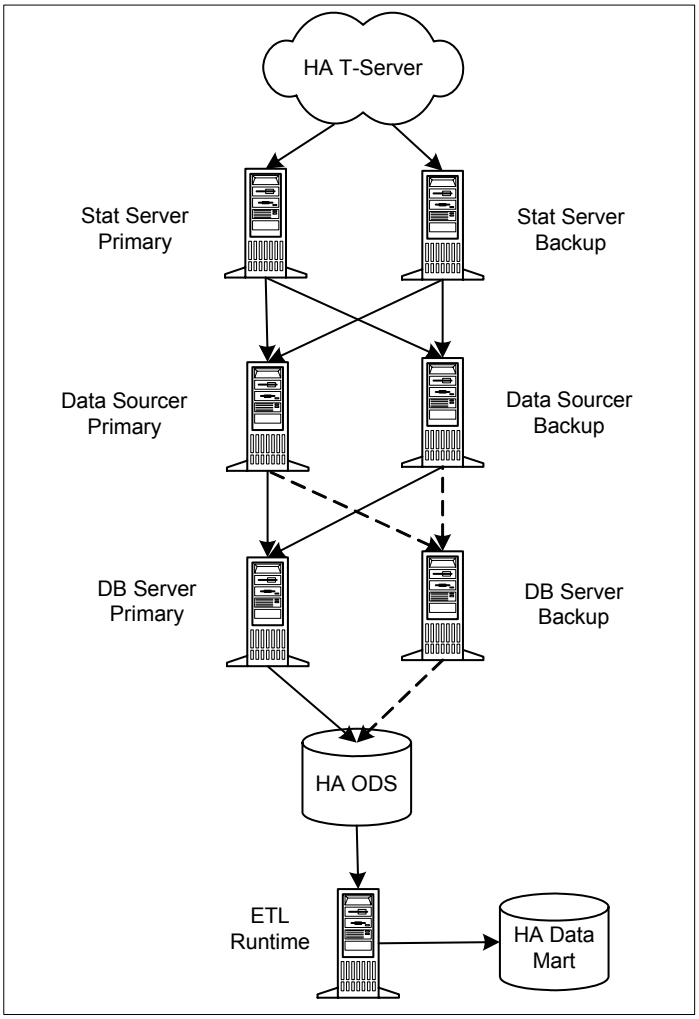

Figure 14: High Availability Reporting Architecture in Release 7.2.

Planning Considerations

Proper planning is required in order 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 Database Administrator (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 release 7.2 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 HA ODS database, and an HA Data Mart database. Refer to Figure 14 on page 86.

To provide data redundancy, primary and backup Stat Servers 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 the ODS database. An ODS lock mechanism ensures that only one Data Sourcer (primary) is able to write to the ODS database 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 *Framework 7.2 T-Server 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. In the new functionality, introduced in release 7.2, 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 Sourcers, 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 Sourcers

7.2 Data Sourcers will be configured as either a backup or primary Data Sourcer in the Configuration Server. However, this initial configuration does not determine the actual operating configuration of the Data Sourcer. The initial operating mode is determined at startup. At this time, each Data Sourcer, regardless of its configured state, will attempt to gain control of the ODS database. The successful Data Sourcer becomes primary, and it alone will write data to the ODS. The other Data Sourcer becomes 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 7.2 Data Sourcer operates like a 7.1 Data Sourcer, a backup Data Sourcer functions differently from earlier releases. It collects the same data at the same time from the primary Stat Server, but it does not write this data to the ODS database. Instead, the backup Data Sourcer periodically checks the ODS to see whether the Stat Server data has been successfully written. After ensuring that the data has been written to the ODS, the backup Data Sourcer deletes its duplicate information from memory. The backup Data Sourcer also performs periodic checks of the ODS database to determine whether the primary Data Sourcer still has control, and it 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 the ODS database, *not* by the Genesys Management Layer.

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

Deployment

Deployment of the HA reporting architecture requires configuration and deployment of primary and backup Data Sourcers, primary and backup Stat Servers, and the other HA components discussed earlier in this chapter.

You can use the release 7.2 Reporting Wizards, in combination with some manual configuration, to configure and deploy the reporting components. Refer to Chapter 3, "Solution Reporting Wizards," on page 49, and Chapter 4, "Configuring Genesys Solution Reporting," on page 53, for instructions on using these wizards.

In addition to deploying Data Sourcer using the Configuration Wizard, you must manually configure primary and backup Data Sourcer within Configuration Manager. You must also set a new configuration option within each Stat Server, to enable it to function in HA mode. For detailed instructions, refer to "Using the Data Sourcer Wizard", "Manually Configuring Data Sourcers", and "Manually Configuring Stat Servers for HA mode" on page 91.

Note: Genesys recommends that you *not* upgrade to a release 7.2 Data Sourcer unless you require High Availability of historical reporting data. Because of changes in Data Sourcer architecture and design, Genesys cannot guarantee backward-compatibility of Data Sourcer in all environments.

Using the Data Sourcer Wizard

You can use the Data Sourcer Wizard to create and configure a new primary Data Sourcer `Application` object, as in previous releases, or to upgrade your existing primary Data Sourcer application from a earlier version. See "Operating the Data Sourcer Wizard" on page 57 for more information.

You cannot, however, use the Data Sourcer Wizard to create and configure a backup Data Sourcer. Refer to the following section, "Manually Configuring Data Sourcers", for further information.

Once your primary and backup Data Sourcer applications have been created, you must also set some options within the properties files of these objects in Configuration Server. Refer to, "Modifying Backup Data Sourcer Properties" and "Modifying Primary Data Sourcer Properties" on page 91 for further instructions.

Manually Configuring Data Sourcers

In release 7.2, you must manually create and configure a backup Data Sourcer to work in Hot Standby mode with your primary Data Sourcer.

Note: The initial operating mode of the Data Sourcers will be determined at startup, and it might be different from what you configure within Configuration Server.

Creating and Configuring Backup Data Sourcer

To manually create and configure a 7.2 backup Data Sourcer, please refer to the complete instructions for creating and configuring Application objects, provided in Appendix A, "Standard Configuration Procedure" of the *Framework 7.2 Deployment Guide*.

Modifying Backup Data Sourcer Properties

Once your backup Data Sourcer application is created, you must make some adjustments to its properties, to enable it to work in Hot Standby mode with primary Data Sourcer. You must also ensure that your primary and backup Data Sourcer applications use the same ODS Database Access Point (DAP).

1. From your Applications folder, open the Properties of the backup Data Sourcer object that you just created, and do one of the following:
   - Right-click the Data Sourcer object and select Properties.
   - Double-click the Data Sourcer object.
2. On the Server Info tab, click the drop-down menu next to the Redundancy Type box.
3. Select Hot Standby.
4. On the Connections tab, check for a connection to the primary ODS Database Access Point. If there is *no* DAP connected:
   a. Click Add to open the New Properties dialog box.
   b. Click browse to find and select the ODS DAP of the primary Data Sourcer.
5. On the Server Info tab, click Apply and OK to save your changes.

Note: Do *not* specify a backup Data Sourcer on the Server Info tab of the backup Data Sourcer Application object.

Note: After you assign the backup to your primary Data Sourcer Application, connections configured for the primary Data Sourcer Application are automatically propagated to the Connections tab of the backup Data Sourcer Application.

Modifying Primary Data Sourcer Properties

You must also 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, and do one of the following:
   - Right-click the Data Sourcer object and select Properties.
   - Double-click the 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.
3. Select the backup Data Sourcer 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, using the reporting wizards, refer to Chapter 4, "Configuring Genesys Solution Reporting," on page 53.

To install the 7.2 Data Sourcer software, refer to "Installing Data Sourcer on Windows Platforms" on page 94, or "Installing Data Sourcer on Unix Platforms" on page 96, as appropriate.

Manually Configuring Stat Servers for HA mode

Use the Stat Server Wizard as described in the *Framework 7.2 Stat Server Deployment Guide* to create primary and backup Stat Server Application objects. In order for them to function in reporting HA mode, you must also add a new configuration option to both Stat Servers, as described below:

1. From your Applications folder, open the Properties file of the primary Stat Server, and do one of the following:
   - Right-click the Stat Server object and select Properties.
   - Double-click the Stat Server object.
2. On the Options tab, from the list of sections, double-click statserver.
3. Click the Create New Section/Option icon. This opens the Edit Option dialog box.
4. Enter the following values:
   - Option Name: accept-clients-in-backup-mode
   - Option Value: True or Yes
5. Click OK to save your changes, and close the dialog box.
6. Click Apply and OK to save your changes.
7. Repeat Steps 1 through 6 for the backup Stat Server Application object.

Chapter

6 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 (see Chapter 4). You will not be able to install any opponents otherwise.

After installing Historical Reporting components, read Chapter 7, for additional setup prior to starting Historical Reporting for the first time.

This chapter has the following sections:

Installing Data Modeling Assistant

The procedure for installing DMA is the same regardless of whether you have configured a `Data Modeling Assistant` Application object and whether this Application object was configured using the Data Modeling Assistant Wizard. However, you can install and operate only one 7.2 DMA application on any given machine. Previous versions of DMA installations did not impose this restriction. Furthermore, Genesys recommends that you install DMA 7.2 in a different directory from any previously installed version(s) of DMA.

1. Invoke `setup.exe`, either from the destination path you specified during configuration (refer to Chapter 4, "Operating the Data Modeling Assistant Wizard," on page 63), or from the Reporting CD.

   The InstallShield Wizard opens. If the Wizard detects an existing 7.2 DMA 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 7.2, 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 7.2`, 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 Sourcer on Windows Platforms

Note: Starting with the 7.0.2 release, the installation procedure installs Data Sourcer automatically as a Windows NT service; you cannot install Data Sourcer in any other manner.

Note: Before installing a release 7.2 Data Sourcer, first read Chapter 5, "High Availability Architecture," on page 85.

To install Data Sourcer or IS Data Sourcer on a Windows platform:

1. Invoke `setup.exe`, either from the destination path you specified during configuration (refer to Chapter 4, "Operating the Data Modeling Assistant Wizard," on page 63), or from the Reporting CD.

   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`.

   The Wizard searches the installation directory for `GCTISetup.ini`, which is created when you configured a `Data Sourcer` Application object using the Data Sourcer Wizard. Skip to Step 6 if you used the Data Sourcer Wizard; otherwise, continue with Step 4.

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 7.2`, with two menu items:

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

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

Note: Data Sourcer does not begin collecting data until report layouts are created and activated within ODS. Refer to *Reporting 7.2 Data Modeling Assistant Help* for more information about layout templates and report layouts.

Installing Data Sourcer on Unix Platforms

If you are using the Wizard to copy files, check that the files in the installation package have the `r` and `x` permissions to be able to read and execute them. For example:

```
-r-x-------- 1 admin   staff 10 Dec 13 17:27 sample.sh*
```

If these permissions are missing, you can easily change this by issuing the Unix `chmod` commands:

```
chmod u+x install.sh
chmod u+x gunzip
```

Also, ensure that JRE 1.4 or later is installed and that the `CLASSPATH` and `PATH` environment variables are set up properly to run Java. Refer to "Supported Operating Systems and JREs" on page 30 for a list of websites from which you can download JRE.

To install Data Sourcer on a Unix platform:

1. If you used the Wizard to deploy a Data Sourcer installation package, locate the directory of the deployed package. Otherwise, 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`

   If you used the Wizard to configure a `Data Sourcer` Application object, skip to Step 4.
3. When prompted, specify the name of the host where Data Sourcer is to be installed.

   If InstallShield finds the `GCTISetup.ini` file which is deployed during configuration using the Historical Reporting Wizard, skip to Step 5.
4. When prompted, specify the:
   - Name of the host where the Configuration Server is running.
   - Port used by the client applications to connect to the Configuration Server.
   - User name used to log in to the Configuration Server.
   - Password used to log in to the Configuration Server.
5. From the list of Applications of `Data Sourcer` type configured for this host, type the number of the `Data Sourcer` Application to install.
6. Specify the destination directory where Data Sourcer is to be installed, with the full path to it.

   If this directory already exists, back up all files in the directory (if you wish), and then overwrite it.

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 Mart on Windows Platforms

Notes: Starting with the 7.0.2 release, the installation procedure on Windows platforms installs Data Mart automatically as a Windows NT service; you cannot install Data Mart in any other manner.

You must have JRE 1.4 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`, either from the destination path you specified during configuration (refer to "Operating the Data Mart Wizard" on page 65) or from the Reporting CD.

   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`.

   The Wizard searches the installation directory for `GCTISetup.ini`, which is created when you configured a `Data Mart` Application object using the Data Mart Wizard. Skip to Step 7 if you used the Data Mart Wizard; otherwise, continue with Step 4.

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 JRE 1.4 or later has been installed. Installation ceases if this check fails. If this happens, restart the Data Mart installation after installing JRE 1.4.

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 7.2, with two menu items:

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

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 101 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 7.2 ETL Assistant Help* for more information.

Installing Data Mart on Unix Platforms

If you used the Wizard to copy files, check that the files in the installation package have the r and x permissions to be able to read and execute them. For example:

```
-r-x-------- 1 admin   staff 10 Dec 13 17:27 sample.sh*
```

If these permissions are missing, you can easily change this by using the Unix chmod command, chmod 750*

If you did not use the Wizard, make sure that the two Application objects (of type ETL Proxy and Data Mart) have been created and configured properly in the Configuration Manager.

Note: You must have JRE 1.4 installed on your computer prior to deploying, configuring, and installing a Data Mart application. Also, set up the the `CLASSPATH` and `PATH` environment variables properly to run Java.

Refer to "Supported Operating Systems and JREs" on page 30 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.

   Note: If using the Wizard, skip to Step 5.
5. When prompted, specify the:
   - Host name of the computer where the Configuration Server is running.
   - Port used by the client applications to connect to the Configuration Server.
   - User name used to log in to the Configuration Server.
   - Password used to log in to the Configuration Server.
6. When prompted to install the Local Control Agent (LCA) on this host:
   a. Select `Yes`.
   b. Specify that the LCA be started automatically for the LCA installation.
   c. Type `y` when prompted, `Add LCA to startup (rc) files (y/n)?` In this case, LCA starts automatically when you reboot the computer. After a successful LCA installation, continue with your Data Mart installation.
7. From the list of Application objects of the `Data Mart` type configured for this host, enter the number of the `Data Mart` Application object to install.
8. At the `Database Access Configuration` screen, type the parameters to define a Database Access Point:
   a. In the `Application Name` field, accept the default name or type another name for your Database Access Point.
   b. At the `Host` list box, select the appropriate host where your DB Server is running.

   Note: You cannot specify or create a new host at this screen.

c. In the `Port` field, assign a port number for your DB Server.

d. At the `DBMS Name` field, type the name of your database management system. This RDBMS must already exist.

e. In the `DBMS Type` field, choose `MS SQL`, `DB2`, `Oracle`, or `Sybase` from the drop-down list box.

9. Specify the destination directory where Data Mart is to be installed, with the full path to it.

   If this directory already exists, the following message appears:

   ```
   Before overwriting an application, you must manually stop any
   running instances of it or the overwrite will fail. Do you wish to
   overwrite it, ERASING THE ENTIRE CONTENTS OF THE DIRECTORY (y/n)?

   If you are absolutely sure that there is nothing important inside
   this folder, type y. Otherwise, type n and specify the new folder
   where the product will install.
   ```

   Enter `y` or `n`.

10. At the 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 completes, a message appears indicating a successful installation. The process created a directory containing the Data Mart executable with the name you specified during the installation. If LCA was installed during the Data Mart installation, the process also created a directory containing the LCA in the LCA directory.

For a Unix installation, you may need to configure some additional parameters, such as `CfgAppName`, `CfgUser`, and `CfgUserPassword` to gain full functionality. Refer to the "Runtime Parameters" chapter in the *Reporting 7.2 ETL Runtime User's Guide* for information about these and other parameters.

Note: Refer to Chapter 7, for information on initializing the Data Mart, specifying ETL Runtime properties, and running the `ETL Runtime` Application object.

Chapter

7 Setting Up Historical Reporting

If followed, the procedures described in Chapters 4 and 6 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 these 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 7.2 ETL Runtime User's Guide* for parameter definitions.

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 file you specified. Check for errors using the following command:

   `grep -i EXCE` *[logfilename]*

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

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 file specified in the `createdb.properties` file.

Figure 15 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 15: Sample createdb.properties 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 7.2 ETL Runtime User's Guide* for information about the various ETL Runtime processes. Refer to "Starting and Stopping ETL Runtime" on page 118 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

Starting with release 7.0, ETL Runtime supports two versions of DB2:

- DB2 version 7
- DB2 version 8 using the IBM DB2 Universal JDBC driver.

Deployment using the Historical Reporting Wizard, however, supports only the latter for establishing a connection to the Data Mart and initializing it.

The following subsections explain how to configure ETL Runtime on DB2.

DB2 Version 7

For connectivity to a DB2 version 7 Data Mart, Genesys uses a Type 3 driver. Each IBM FixPak (FP) release of DB2 contains a different Type 3 driver, which is used exclusively for that particular release. Deployed in the Data Mart installation package is a file named `db2_jdbc_ibm_classes12.jar`, which contains the Type 3 driver for DB2 version 7, FP 6.

ETL Runtime 7.2 communicates with a DB2 Data Mart in the same manner as it did in previous releases, except that neither the directory from which ETL runtime is run nor the `CLASSPATH` environment variable should contain the `db2jcc.jar` or `db2jcc_license_cu.jar` files shipped with DB2 version 8. You must move, delete, or rename these files from both locations on the machine where you deploy ETL Runtime. Otherwise, ETL Runtime behavior will assume that a connection to a DB2 version 8 Data Mart is being attempted and the connection will fail.

DB2 Version 8

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. The default DRDA port number is `50000`. Use this value instead of `6789`, which is the default JDBC server port number populated by the Data Mart Wizard during ETL Runtime configuration.

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 16 on page 105 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`.

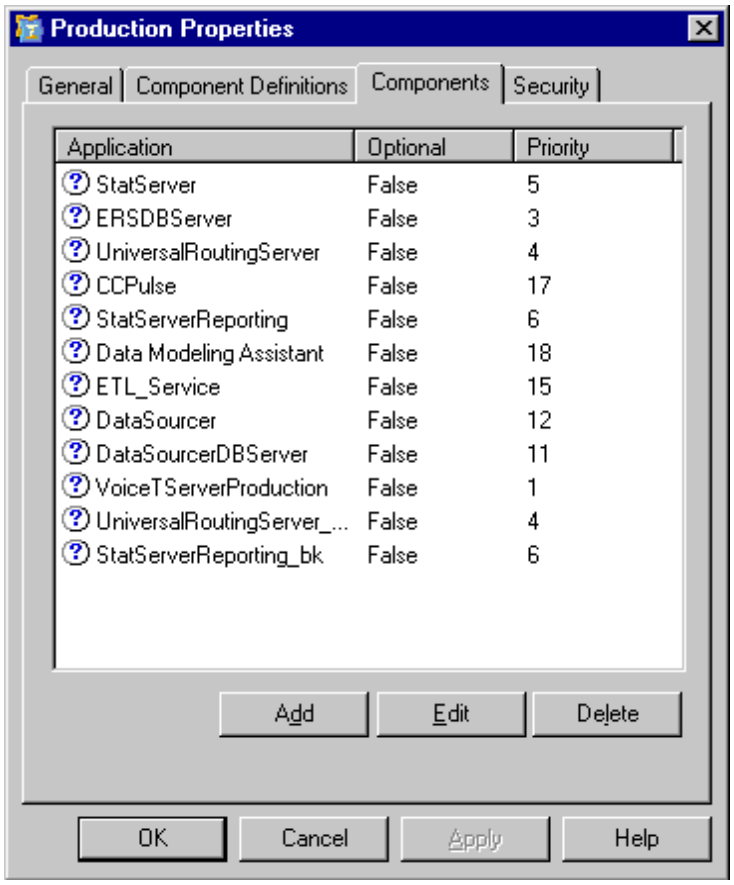

Figure 16: Startup Priorities of the Production Solution

Refer to the "Solutions" section in *Framework 7.2 Configuration Manager Help* for further information about assigning priorities to the applications in your configuration environment.

Chapter

8 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, and 6. 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 has the following sections:

Starting and Stopping DMA

This section describes the starting and stopping procedures for Data Modeling Assistant (DMA). You can start DMA from a Windows 2000, Windows XP, or Windows Server 2003 platform.

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 7.2 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 in Figure 17 appears with the name of the previous user in the `User name` field.

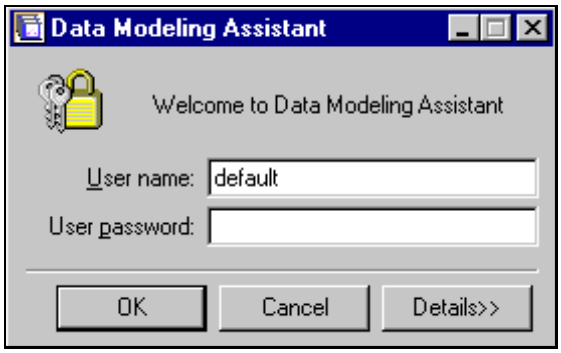

Figure 17: Data Modeling Assistant Login Screen

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 as illustrated in Figure 18 on page 109

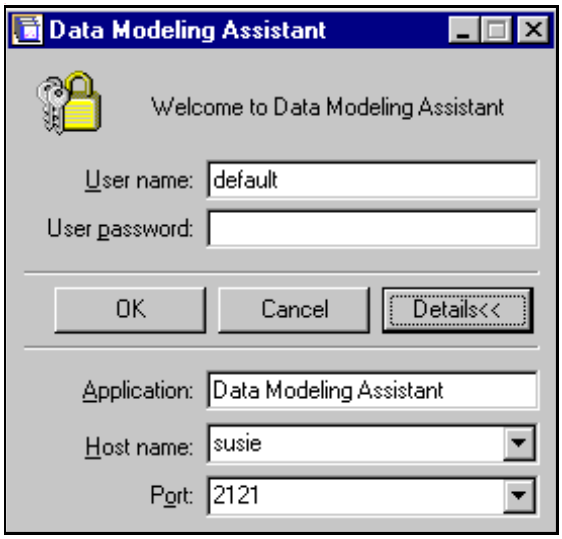

Figure 18: DMA Login Screen (Expanded)

4. Enter the DMA application name and 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 at Step 8 on page 60 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 7.2 Configuration Manager Help* for information about Database Access Points. Refer to "Operating the Data Sourcer Wizard" on page 57 for information about configuring `Data Sourcer` Application objects.

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 shown in Figure 17 on page 108.
3. Complete Steps 2–5 starting on page 108.

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 19.) The Configuration Manager marks inactive applications with a red slash ( ).

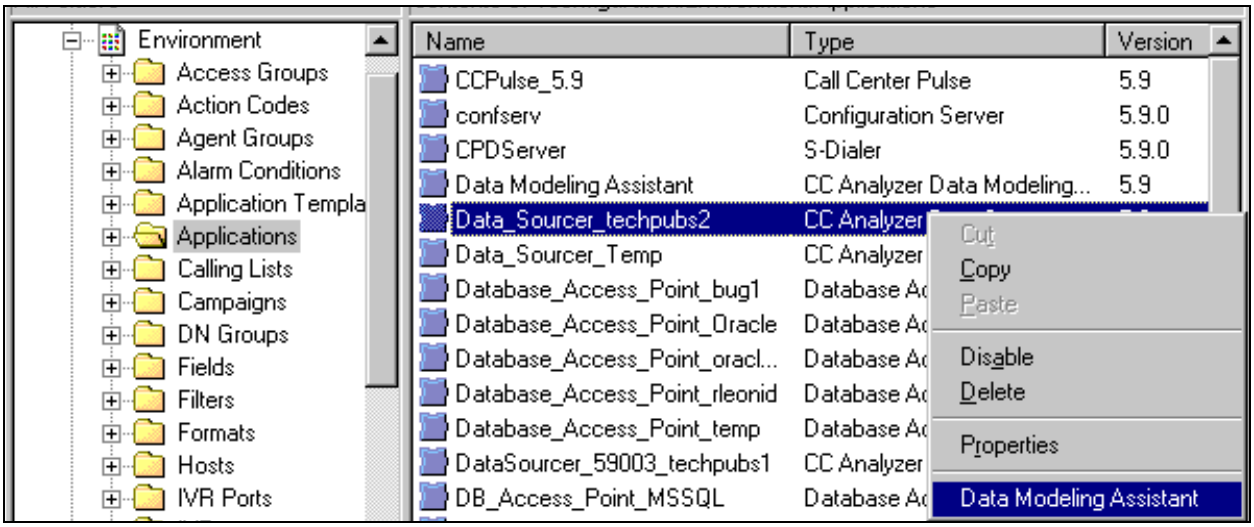

Figure 19: Starting DMA from the Configuration Manager

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. These start and stop procedures also apply to your Data Sourcer for the Contact Server Database (IS Data Sourcer). Please ensure, however, that you do not simultaneously run two instances of IS Data Sourcer under the same application name. Genesys recommends that you start Data Sourcer from SCI.

Refer to the "Troubleshooting" chapter in the *Reporting 7.2 Data Sourcer User's Guide* if you experience performance problems in starting and operating IS 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 7.2 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 Application object.

If you are using two Stat Servers in the release 7.2 HA reporting architecture, you must also set a new configuration option in each Stat Server application within Configuration Server. Please refer to Chapter 5, "High Availability Architecture," on page 85 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 `TimeRanges` or `TimeProfiles` sections, startup may fail. These settings are not necessary for Data Sourcer 7.0.2 and forward releases.

Starting Data Sourcer for the first time is quite simple if you used either the CCPulse+ or CC Analyzer Wizard to configure your `Data Sourcer` Application object. 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 7.2 Data Sourcer User's Guide* for information on the data collected when any or all of these applications are *not* running. Refer to Chapter 7 for information about startup priorities.

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 7.2 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. This release does not support an IS Data Sourcer connection to the Configuration Server Proxy.

For information about how to use SCI, refer to *Framework 7.2 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 as a Windows NT 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"
   ```

As a Windows NT Service

1. From the task bar, choose `Start > Settings > Control Panel`. 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 NT 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"
   ```

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 Technical Support 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 NT service, you should stop it only from the Windows NT Service Control Manager.

To stop Data Sourcer running as a Windows NT service:

1. From the task bar, choose `Start > Settings > Control Panel.` 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 -SIGTERM` *`processid,`* where *`processid`* is Data Sourcer's Unix process ID.
- Press ^C from the active Data Sourcer window.
- 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
- The DB2 JDBC Applet Server for your DB2 (v7.2, FP6) ODS and Data Mart databases

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 shown in Figure 20 appears.

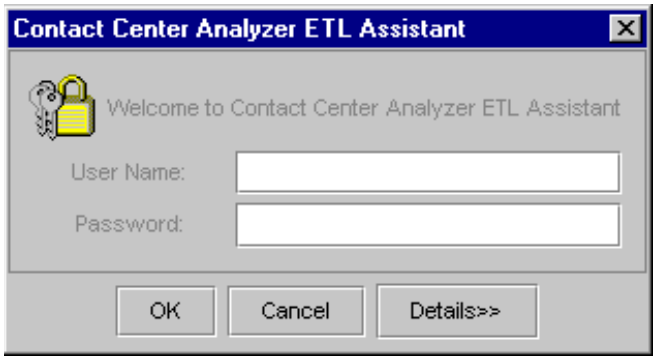

Figure 20: CC Analyzer ETL Assistant Login Screen

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 as shown in Figure 21.

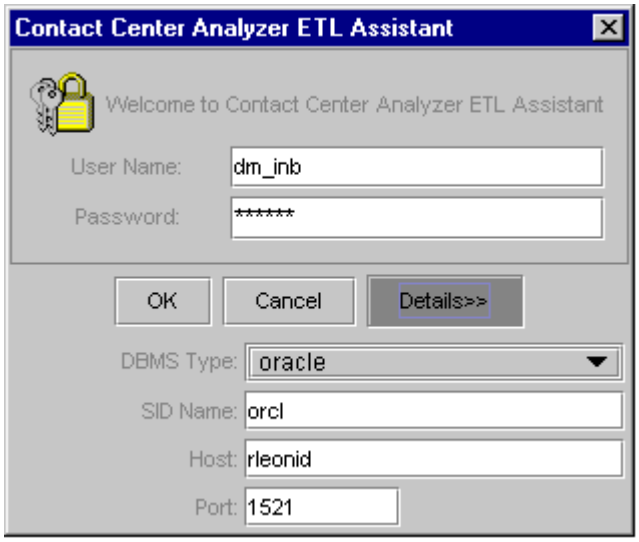

Figure 21: Specifying DB Server Connection Parameters

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. Figure 21 above illustrates connection parameters specified for an Oracle database.

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 shown previously in Figure 20 on page 116 appears.
3. Complete Steps 2 - 4 on pages 116 - 117.

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 7.2 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
- The DB2 JDBC Applet Server for your DB2 ODS and Data Mart databases

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 NT 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 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 NT Service

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

Note: Since you can install LCA as a Windows NT 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 Technical Support 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 ETL Runtime modules individually:

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

Refer to the *Reporting 7.2 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 5 on page 122)
- *properties_file* are any of the properties files listed in Table 5 on page 122

ETL Runtime parameters can also be issued at the command line for all ETL Runtime modules.

Refer to the *Reporting 7.2 ETL Runtime User's Guide* for a complete listing of parameters.

Table 5 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 5: Starting ETL Runtime's Modules

ETL Runtime Module	Batch File	Corresponding Properties File
Aggregation	Windows: run-agg_only.bat Unix: run-agg_only	etl.properties
Data Mart Database Creation	Windows: run-createdb.bat Unix: run-createdb	createdb.properties
One-Time Transformation	Windows: run-trans_once.bat Unix: run-trans_once	etl.properties
Purge	Windows: run-purge.bat Unix: run-purge	purge.properties
Tenants Alias Update	Windows: run-tenants_alias_update.bat Unix: run-tenants_alias_udpate	tenants_alias_update.properties
Transformation	Windows: run-trans_only.bat Unix: run-trans_only	etl.properties
Transformation and Aggregation	Windows: run-trans_and_agg.bat 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 NT service, you should stop it only from the Windows NT Service Control Manager:

1. From the task bar, choose `Start > Settings > Control Panel`.
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` window.

Default Source Paths

Table 6 lists the source paths and program groups of Historical Reporting components on Windows platforms as created during the installation process if you accepted all default values.

Table 6: Default Application Source Paths for Historical Reporting

Reporting Component	Default Source Path/ Program Group
Data Sourcer	Source Path: `C:\Program Files\GCTI\Data Sourcer` Program Group: `Genesys Solutions\Reporting 7.2`
Data Modeling Assistant	Source Path: `C:\Program Files\GCTI\Data Modeling Assistant` Program Group: `Genesys Solutions\Reporting 7.2`

Table 6: Default Application Source Paths for Historical Reporting (Continued)

Reporting Component	Default Source Path/ Program Group
ETL Assistant	Source Path: `C:\Program Files\GCTI\DataMart\ETL Runtime Mart` Program Group: `Genesys Solutions\Reporting 7.2`
ETL Runtime	Source Path: `C:\Program Files\GCTI\DataMart\ETL Runtime` Program Group: `Genesys Solutions\Reporting 7.2`

Chapter

9 Installing Real-Time Reporting

The installation of Real-Time Reporting involves one component: CCPulse+. This chapter describes the steps for installing CCPulse+ manually.

Note: You cannot install CCPulse+ on Unix platforms.

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

1. Invoke `setup.exe`, either from the destination path you specified during configuration (refer to "Operating the CCPulse+ Wizard" on page 72), or 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 7.2, with two menu items:

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

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

Chapter

10 Setting Up Real-Time Reporting

If followed, the procedures described in Chapters 4 and 9 configure, install, and activate a `CCPulse+` Application object. This chapter describes the additional setup required to define who can access data, namely:

- Setting Up Administrators, page 127
- Setting Up Users, page 128

All CCPulse+ users, at a minimum, must have privileges that allow them to access all Application objects defined in the configuration.

Please note that the Configuration Manager also has levels of security similar to CCPulse+, including the `Users`, `Administrators`, and `Super Administrators` user groups. Though similarly named, these groupings grant a different level of access to data than CCPulse+'s classifications. The Configuration Manager groupings determine which Configuration Database objects can be viewed and modified (such as Tenant information). The CCPulse+ classifications determine who can create and modify CCPulse+ storages and templates workspaces, and who is restricted to viewing a defined subset of objects.

Refer to the "Persons" topic in *Framework 7.2 Configuration Manager Help* for additional information. Also refer to the "Security Considerations" section in the *Framework 7.2 Deployment Started Guide* to learn more about controlling access to Configuration Manager data.

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.
- Create storages.

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.

Setting Up Users

CCPulse+ Users can monitor CCPulse+ objects only with a connection to the Stat Server defined within the Real-Time Reporting Wizard. 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 Person objects as having the rank of User, if not explicitly identified otherwise.

Chapter

11 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" subsections, so that startup is successful the first time. Starting procedures assume that you have properly configured and installed application components. If not, refer to Chapter 4, and Chapter 9. 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 the Solution Control Interface (SCI), which is the recommended approach. Where applicable, this information is covered in Chapter 8. The historical aspect of Real-Time Reporting is also covered.

This chapter has two sections:

Starting and Stopping CCPulse+

This section describes the starting and stopping procedures for CCPulse+, a component of Real-Time Reporting 7.0. You can start and stop CCPulse+ on a Windows NT, Windows 2000, Windows XP, or Windows Server 2003 platform.

What Must Be Running Prior to Start

- Configuration Server
- Stat Server

Starting CCPulse+

On Windows platforms, you 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 7.2` program folder created during installation, select `Start CCPulse+`.

   The `Login` screen in Figure 22 appears, with the name of the previous CCPulse+ user in the `User name` field.

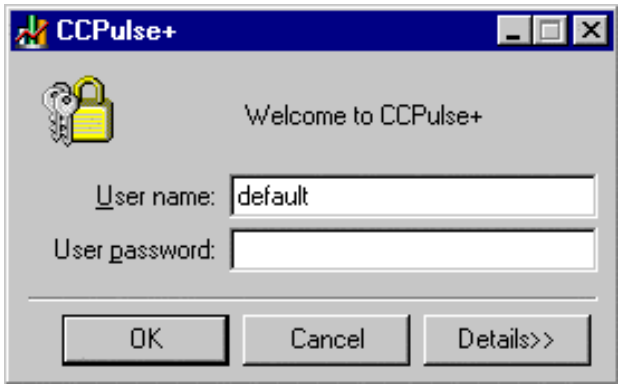

Figure 22: CCPulse+ Login Screen

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 as shown in Figure 23 on page 131

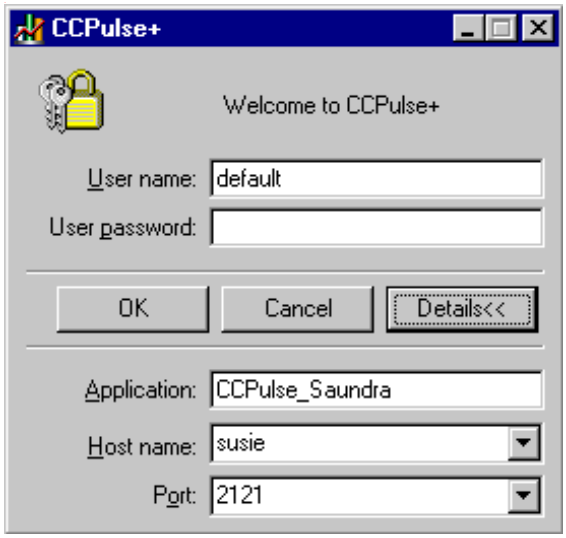

Figure 23: CCPulse+ Login Screen (Expanded)

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 (see Figure 22 on page 130) 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 7 on page 132 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 6 on page 123 for a listing of Historical Reporting component source paths, which are used for the historical facet of Real-Time Reporting.

Table 7: Default Application Source Paths for Real-Time Reporting

Reporting Component	Default Source Path/ Program Group
CCPulse+	Source Path: `C:\Program Files\GCTI\CCPulse+` Program Group: `Genesys Solutions\Reporting 7.2`

Chapter

12 Uninstalling Reporting Components

To uninstall applications, you must first stop them. Refer to Chapter 8, and Chapter 11, for information about stopping Reporting components.

This chapter has 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. 7.0.2 installations no longer deploy an `Uninstall` menu item.

Uninstalling Data Modeling Assistant

From the Control Panel

1. Open `Add/Remove Programs`.
2. Select the `Genesys Data Modeling Assistant 7.2` application.
3. Click `Change/Remove`.

From Installation Maintenance

1. From the path where the DMA Wizard deployed your installation package, or 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

From the Control Panel

1. Open `Add/Remove Programs`.
2. Select the `Genesys Data Mart 7.2` application.
3. Click `Change/Remove`.

From Installation Maintenance

1. From the path where the Data Mart Wizard deployed your installation package or 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

From the Control Panel

1. Open Add/Remove Programs.
2. Select the Genesys Data Sourcer 7.2 application.
3. Click Change/Remove.

From Installation Maintenance

1. From the path where the Data Sourcer Wizard deployed your installation package, or 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+

From the Control Panel

1. Open Add/Remove Programs.
2. Select the Genesys CCPulse+ 7.2 application.
3. Click Change/Remove.

From Installation Maintenance

1. From the path where the CCPulse+ Wizard deployed your installation package or 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`.

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 has 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, Tables 8 and 9 on page 138 list a few signs that you can look out for when making your assessment.

Table 8: 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. • Network is slow. • ODS is not regularly available. • The number of statistics requested is too large for your environment. • 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. • 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). • 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. • The number of objects in your Configuration Server has increased.

Table 9: Signs to Look for When Determining Whether to Scale Down

Symptom	Probable Cause
Chunk write time has considerably decreased.	Data Sourcer is configured to use Oracle binding.

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 each collection unit generates.

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 24 on page 140 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 *one or the other* of the `BronzeInfo` and `BronzeService` agent groups.

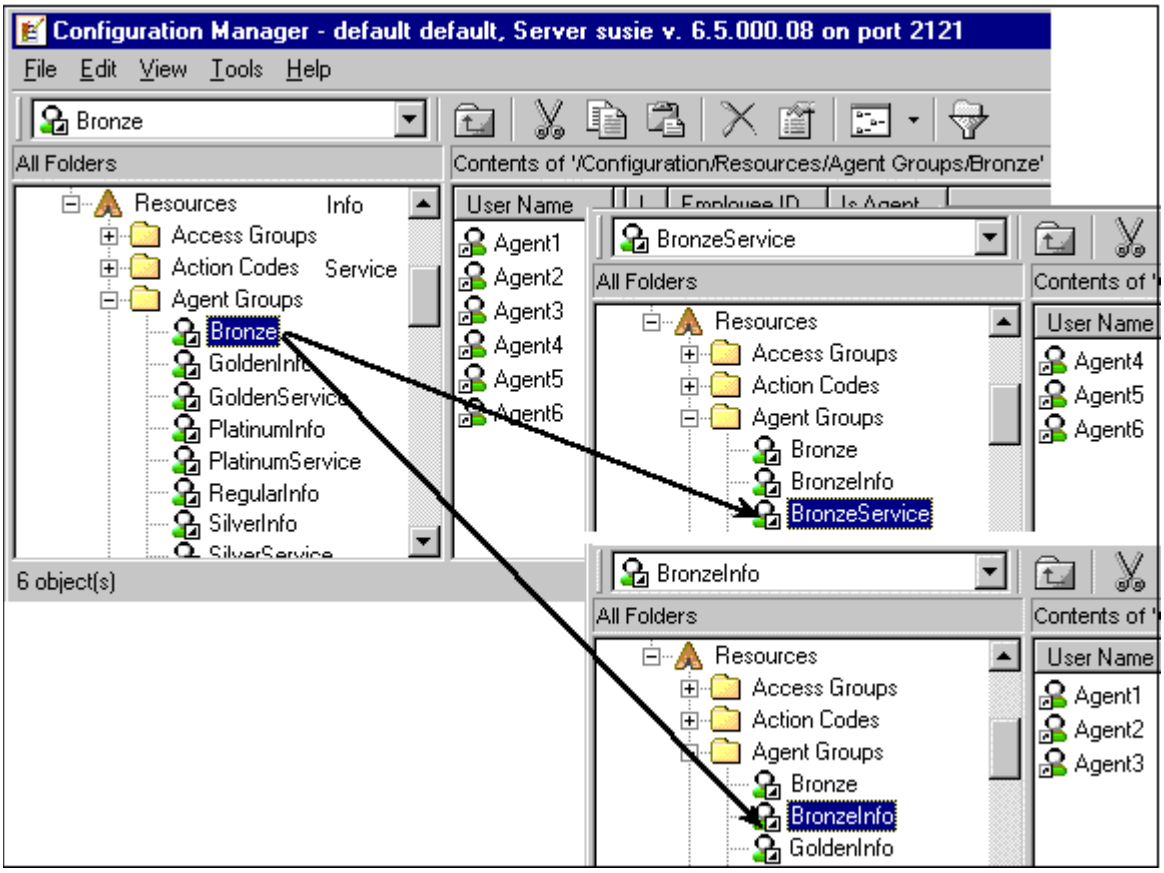

Figure 24: Redefining Metagroups

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 25 on page 141, 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 24). Then a new agent Report Layout, `BronzeInfo Agent Layout`, was created to incorporate the agents belonging to the `BronzeInfo` agent group.

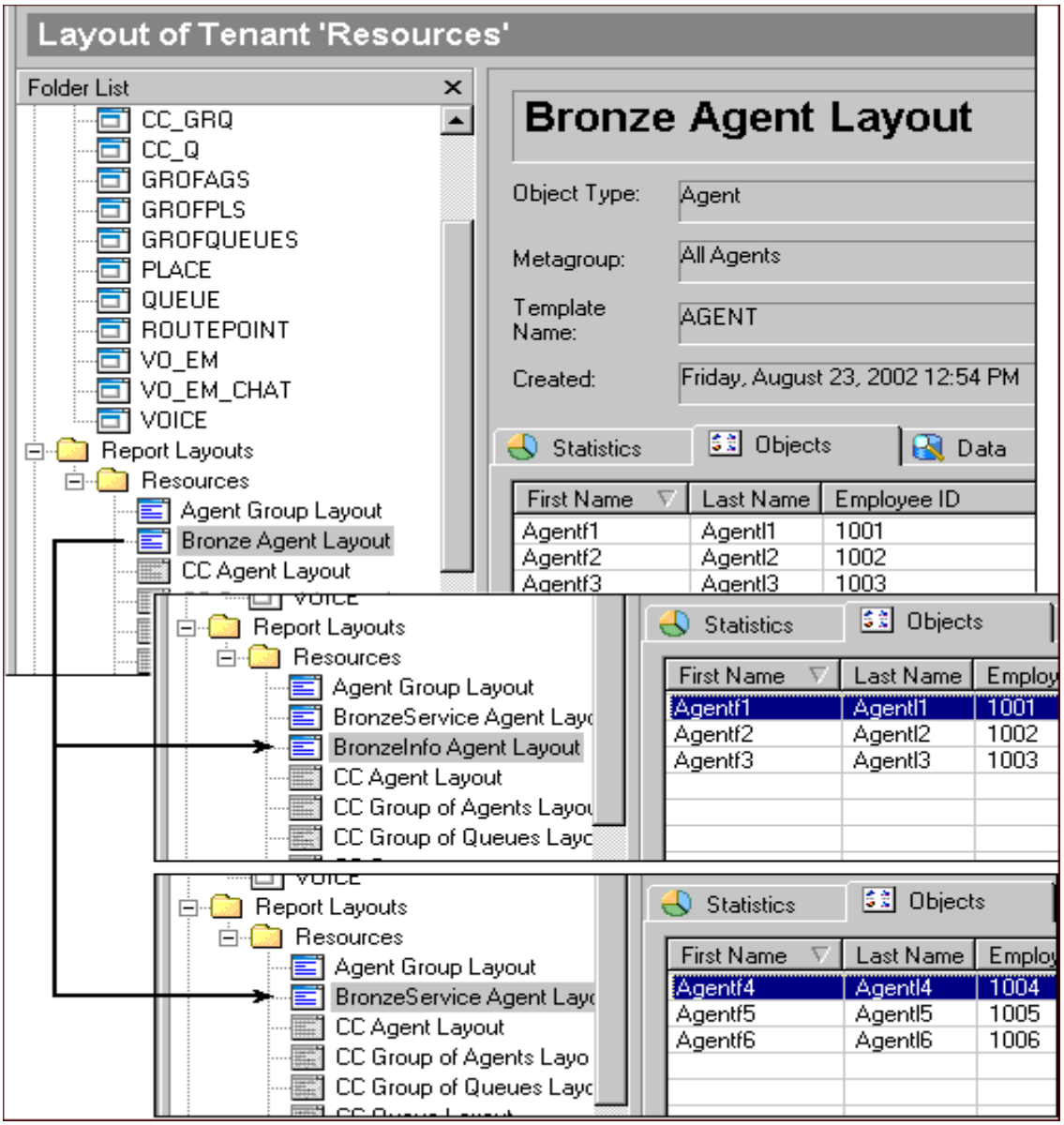

Figure 25: Redefining Report Layouts

Once 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.

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

If you take advantage of Oracle binding made available through use of the `use-prepared-statements` Data Sourcer configuration option, you might choose to scale *down* your Reporting environment rather than add to it. Performance measurements indicate roughly a fivefold improvement. There are several other 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:
   a. Deleted.
   b. 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.

Note: Refer to "Generating Accurate Reports" in the *Reporting 7.2 Report Generation Assistant User's Guide* for more information.

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.

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