G*plus* Adapter 8.0

for SAP Analytics

Deployment Guide

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Preface

Welcome to the Gplus *Adapter 8.0 for SAP Analytics Deployment Guide.* This guide lists the system requirements for, and describes how to install and configure, the G*plus* Adapter 8.0 for SAP Analytics (the Adapter). It introduces the concepts and terminology relevant to the Adapter, and it explains how to enable interaction statistics for SAP enterprise applications by using SAP's NetWeaver Integration Platform SAPphone interface.

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

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

This preface provides an overview of this document, identifies the primary audience, introduces document conventions, and lists related reference information. It contains the following sections:

For information about related resources and about the conventions that are used in this document, see the supplementary material starting on page 105.

About Gplus Adapter for SAP Analytics

This Adapter provides Genesys Interaction Management capability to the SAP Customer Relationship Management (CRM) system through the SAPphone interface.

Note: For details about the SAPphone interface, see the SAP website at `http://help.sap.com` (see, "Gplus Adapter for SAP Analytics Resources" on page 105).

Intended Audience

This document is primarily intended for [list primary and secondary audience for this document]. It has been written with the assumption that you have a basic understanding of:

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

You should also be familiar with:

- Genesys Framework
- Enterprise Routing
- SAP architecture

Chapter Summaries

In addition to this preface, this Deployment Guide contains the following chapters and an appendix:

- Chapter 1, "About the Adapter," on page 13, introduces concepts and terminology relevant to the Adapter product, discusses its key features, and describes its architecture and how it works with other Genesys and SAP products.
- Chapter 2, "About SAPphone," on page 21, introduces concepts and terminology relevant to the SAPphone interface, and describes the SAPphone architecture as it relates to integration with the Adapter.
- Chapter 3, "System Requirements," on page 29, describes the minimum hardware and software requirements for installing and using the Adapter.
- Chapter 4, "Installing the Adapter," on page 33, describes how to install the Adapter.

- Chapter 5, "Configuring the Adapter," on page 47, describes how to configure the Adapter.
- Chapter 6, "Starting the Adapter," on page 67, describes how to start and stop the Adapter.
- Chapter 7, "Configuring the Adapter-SAPphone Connection," on page 73, describes how to configure and test the Adapter SAPphone connection.
- Chapter 8, "Use-Case Scenarios," on page 79, describes some common use-case scenarios that you can apply when using the Adapter.
- Chapter 9, "Genesys to SAP Model Mapping," on page 89, describes the mapping of the Genesys interaction states to the SAP statistics tables in a user-friendly manner.
- Appendix A, "Categorizing a Call Type," on page 99, describes how a call is categorized as internal or external.

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Document Change History

This is the first release of the *Gplus* Adapter 8.0 *Gplus* Adapter for SAP Analytics. In future releases of this document, this section will list topics that are new or that have changed significantly since the first release of this document.

New in Document Version v8.0.001.00

This is the first 8.0.x release of this document.

Chapter

1 About the Adapter

The G*plus* Adapter 8.0 for SAP Analytics (the Adapter) is a server-side integration component that provides a software connection between the SAP NetWeaver platform and Genesys. The Adapter passes the interaction data from the Genesys Interaction Database to the SAP Customer Relationship Management (CRM) system. The statistical data may include:

- How long an interaction lasted.
- How many turnovers resulted from the interaction.

This chapter contains the following sections:

Feature Overview

The Adapter is compatible with the SAP specification and it exposes all of the Genesys Interaction Details.

The Adapter:

- Implements the SAPphone Remote Function Call (RFC) interface so that the Genesys Interaction Details are exposed to SAP. The SAPphone RFC interface are all the interfaces of functions that are either called in the SAP system from external computers, or are required on external computers by the SAP System to provide the functionality available in SAPphone.

- Enables customers to import the Genesys Interaction details (for completed external interactions) into the SAP CRM for centralized analytics processing.

  Note: You can initiate an import of the Genesys Interaction details into the SAP CRM by providing the desired reporting data time interval.

- Enables the configuration for secure data exchange with the other Genesys components that support this functionality. Refer to the *Genesys 8.x Security Deployment Guide* for details.

Key Features

The Adapter enables the following key features:

- Adapter configuration using Genesys Configuration Manager
- Adapter options validation using Genesys Administrator
- Adapter administration from the Genesys Management Layer
- High-availability configuration (backup and primary servers)
- Automatic monitoring options
- Multi-site contact center support options
- Analytics support options
- Internal DN treatment customization support options
- Custom open media interactions support

Genesys Configuration Layer

The Adapter uses the Genesys Configuration Layer to enable system administrators to select or adjust configuration options. For more information about setting configuration options through Configuration Manager, see Chapter 5, "Configuring the Adapter," on page 47.

The Adapter also provides a metadata .xml file (`Gplus_Adapter_for_SAP_Analytics_800.xml`) for use in validating the option values in Genesys Administrator.

Genesys Management Layer

The Genesys Management Layer can be used to administer the Adapter. It enables you to remotely start and stop the Adapter, and to view the Adapter log data for troubleshooting purposes.

High Availability

All connections to the Adapter are *active*, that is, they support high-availability (HA). As a result, if the Adapter detects a lost connection with the other server components (Genesys or SAP), it actively tries to reconnect to them.

Note: The Adapter is not required to maintain an active connection with the Genesys DB Server. Instead, it provides connection-on-demand functionality—for example, when it receives a request to upload statistical data, the Adapter either uses an existing DB Server connection, or establishes a new connection (if a connection has not already been established).

In addition, the Adapter can work with both the primary and backup instances of Genesys components. As a result, if the primary instance of the Genesys server fails or goes out of service, the Adapter starts working with the backup instance.

Note: The Adapter does not support a primary/backup configuration for DB Server. The Adapter can only work with the primary instance of DB Sever.

Finally, the Adapter supports a Advanced Disconnect Detection Protocol (ADDP) connection to both the Configuration Server and Message Server. Adjusting ADDP improves the ability to detect the network disconnection, but it increases the local network loading.

Note: For more information about how to enable High Availability and ADDP, see your Genesys *Framework 8.x Deployment Guide*.

Specialized Configuration Options

The Adapter enables specialized configuration options, including options that support the following:

- Analytics
- Internal DN Treatment

Analytics Support Options

The Analytics support options indicate the type of interaction identifier that is sent to SAP. The identifier can be generated by either of the following:

- T-Server or Interaction Server

- The G*plus* Adapters (ERP or ICI Multi-Channel)
  See the section, "settings Configuration Section" on page 48 for more details.

Internal DN Treatment Support Options

In some use cases, it is necessary to interpret internal calls as inbound or outbound calls. The Adapter enables you to mark a set of internal DNs as `external`.

- If a call is received by an external-marked DN, the Adapter treats this call as an *outbound* call.
- If a call is initiated from an external-marked DN, the Adapter treats this call as an *inbound* call.

For more details see "settings Configuration Section" on page 48, and Appendix A, "Categorizing a Call Type," on page 99.

SAPphone Support

SAPphone Interface

The Adapter implements the SAPphone RFC interface, version 5.11.ASP. For more information about this interface, see Chapter 2, "About SAPphone," on page 21, and the SAPphone documentation that is available on the SAP website.

SAPphone Architecture

The Adapter is implemented as a SAPphone server component. A Genesys environment can support several instances of the Adapter, each of which can connect to one SAP CRM system and one Genesys environment. Two different instances of the Adapter can connect to the same or different SAP CRM systems. For more information about the SAPphone architecture, see "The SAPphone Centralized Architecture" on page 23.

Architectural Overview

The Adapter uses a SAPphone-centralized architecture as described in the *SAPphone Interface Specification 2.3*. The Adapter communicates with SAP CRM applications through the SAPphone Remote Function Call (RFC) interface. The Adapter interacts with the Genesys Info Mart database through DB Server, which provides a relational database management system (RDBMS) vendor-abstraction layer. It also interacts with the Configuration and

Management Layers by using corresponding Genesys libraries and APIs. This system overview is depicted in Figure 1 on page 17.

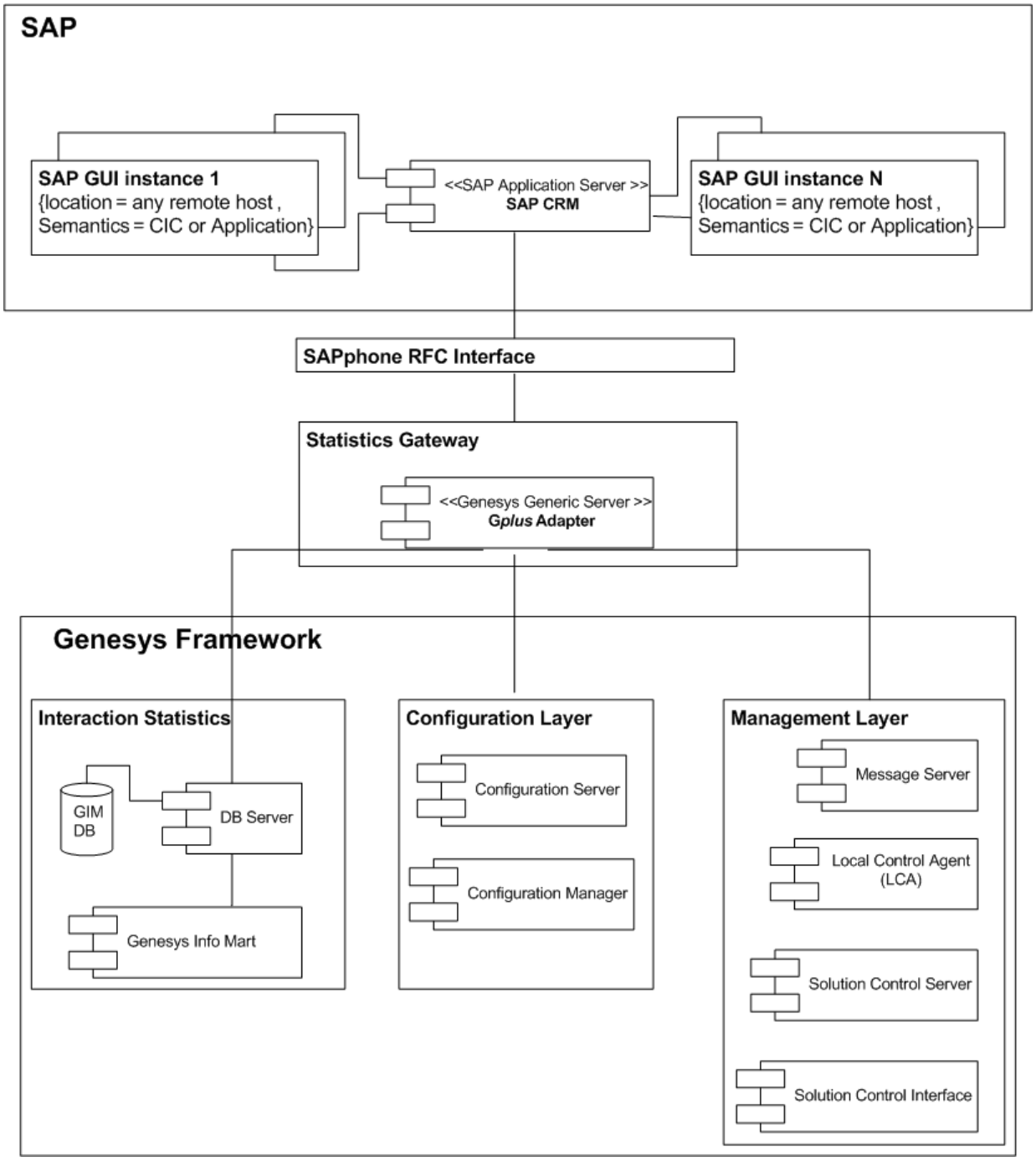


Figure 1: System Overview

Genesys Info Mart extracts the data from one or more Genesys Interaction Concentrator databases to produce the Info Mart database, a data store for Contact Center historical reporting. The Adapter connects to the Genesys Info Mart database through the DB Server and upon receiving an upload request

from SAP, it then pulls the data from the Genesys Info Mart database, processes that data into the representation required by the SAP Statistic Interface, and then sends the response to SAP along with this data.

The Adapter communicates with SAP CRM applications through the SAPphone Remote Function Call (RFC) Interface. Within Genesys, the Adapter connects to:

- Interaction Statistics
- Configuration Layer
- Management Layer

Genesys Info Mart Database Model

Genesys Info Mart uses multidimensional modeling to create a constellation of *star schemas*. These star schemas create a database for storing contact center data that can be retrieved by using SQL queries. Star schemas support queries that speed the retrieval of the stored data.

The types of tables that make up the Genesys Info Mart star schemas are fact tables and dimension tables and are described as follows:

- Fact tables are the large tables in the middle of a star schema. They represent the business measures, such as how long customers wait in a queue, how long and how often agents put the customers on hold, or how long agents talk to the customers. Fact tables are surrounded by a set of slowly-changing dimension tables. Fact tables represent a many-to-many relationship between dimensions; that is, there are many facts in a single fact table, and these facts are related to many dimensions in various dimension tables. Fact tables reference dimensions by using surrogate key columns.
- Dimension tables describe the attributes that are common to many facts in the associated fact tables. For example, dimensions that are related to interactions might include the date and time at which each interaction started, the required skills for the various service types that are requested by customers, and the value of various customers to the business.

Interaction Statistics

The Adapter uses Genesys Interaction Statistics to:

- Create a connection with the Genesys Info Mart database through DB Server, when a SAP request is received. This connection is required so that the interaction details can be sent from the Genesys Info Mart database to SAP.

Note: This connection remains open after the SAP request has processed to avoid resource allocation overhead. This connection will be reused for next requests. See “High Availability” on page 15 for details.

The Configuration Layer

The Adapter uses the Genesys Configuration Layer to enable system administrators to adjust the configuration options. For information about setting the configuration options through the Configuration Layer, see the section “Connections Tab” on page 39.

The Management Layer

The Adapter uses the Genesys Management Layer to enable you to remotely start and stop the Adapter, and to remotely view the Adapter’s status.

New in This Release

This section contains a brief description of the new features in G*plus* Adapter for SAP Analytics 8.0.x release.

Release 8.0.0 The following new features and components are supported:

- You can now import the Genesys Interaction details (for completed voice, e-mail, chat, and open media interactions) into the SAP CRM for centralized analytics processing.
- Interaction details are now retrieved from Genesys Info Mart instead of Genesys Interaction Concentrator.
- Multiple Adapter instances can now point to the same Genesys Info Mart database.
- You can now validate application options in Genesys Administrator.

Chapter

2 About SAPphone

This chapter introduces the SAPphone interface.

It contains the following sections:

The SAPphone Overview

The SAPphone statistics functions enables the possibility to upload statistical data to the SAP system. As a result, the connection information (for example, how long a call lasted) can be mapped to the business information (for example, how many turnovers resulted from this call).

Transactions That Use SAPphone

The following are examples of SAP transactions that use SAPphone:

- `SPHA`: SAPphone administration
- `SPHB`: SAPphone system administration
- `CRM_CIC_CTI_LOAD`: Uploading Interaction Statistics from the communications systems

Integration

As a Basis component on SAP NetWeaver, SAPphone was designed as a cross-application module. SAPphone functions are part of the generic object services, which means that they can be called in all applications that support these services.

Basic Functions

SAPphone enables users to upload Interaction Statistics from Genesys to SAP.

The SAPphone Interface

The component that communicates with the SAP system through the SAPphone interface and the computer-telephony integration (CTI) system is usually known as a *statistics gateway.* CTI systems can range from a CTI-enabled switch to a globally distributed contact center solution.

Figure 2 illustrates this architecture:

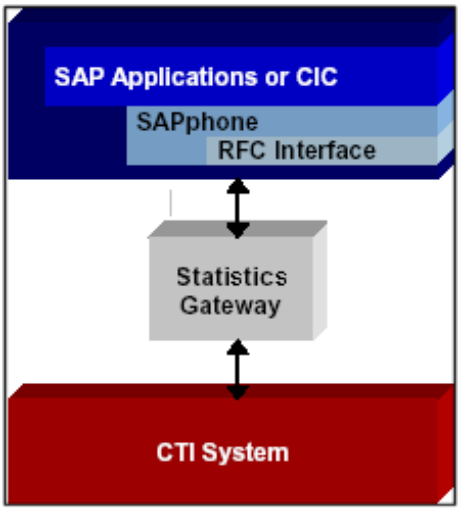


Figure 2: SAPphone Interface and CTI System

The SAPphone interface provides the functionality that enables users to upload the statistical data from the Genesys CTI to the SAP system. This selected statistical data is:

- Within the time-range parameters specified on the SAP interface.
- For completed interactions only (released calls or marked-done e-mail).

SAP provides three different system architectures for SAPphone:

- Local connection
- Client/server architecture
- Centralized architecture (using a central Adapter Server component)

Note: The Adapter supports only the central architecture.

The SAPphone Centralized Architecture

In a centralized architecture (also called a centralized connection), the individual work center PCs do not require any additional hardware or software.

The Genesys Interaction Statistics contains the interaction data, and it communicates directly with the SAP application server (for example, SAP CRM) through the local network, without routing through the work center PCs. In order to accomplish this task, the Genesys Interaction Statistics must be equipped (extended by means of the Statistics Gateway) with the following software components:

- The central Remote Function Call (RFC) component for communicating with the SAP application server. The RFC is used to call and execute functions or procedures on remote SAP systems or other computers.
- The interface for adapting the statistics software to the SAPphone RFC interface (either a SAPphone server or a third-party application). A SAPphone server is a program provided by SAP that functions as the Telephone Application Programming Interface (TAPI) client and adapts the SAPphone RFC interface to TAPI.
- The central statistics software

Figure 3 illustrates this centralized architecture:

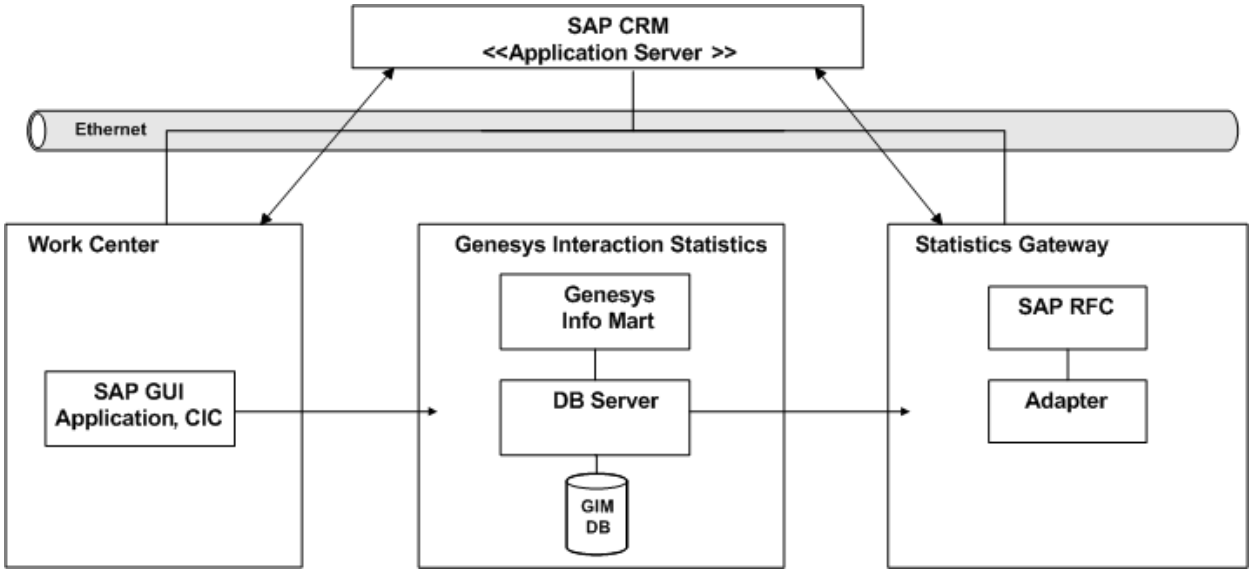


Figure 3: Centralized Connection

The SAPphone Statistics Support

Every day, statistical data is uploaded to the SAP system from Genesys CTI in a batch job. The batch job's parameters include:

- A time range
- A maximum package size

If additional statistical data (beyond the maximum package size) exists in the statistics server during the specified time range, a flag is set that triggers another batch job, which continues until all of the statistical data is uploaded to SAP.

The statistical data records for all completed interactions within the specified time range are uploaded to the SAP system in chronological order, along with all of the interaction's connection steps.

SAP Data Structures

The Adapter transforms the statistical data taken from the Genesys Info Mart database into the SAP Business Warehouse (BW) statistical data structured format. This statistical data is then uploaded to two SAP tables: the first table stores the interaction headers (`SPH_STHDRE`), and the second table stores all the associated interaction steps (`SPH_STSTPE`). All interaction steps are assigned to an interaction header through the interaction connection ID (`CONN_ID`). For more information, see the *SAPphone Interface* document.

`Note:` In SAPphone terms, the word *interaction* denotes *connection*.

The interaction header table contains a field that describes the *direction* of a interaction. There are three possible directions for an interaction:

1. Inbound interaction—For example, inbound phone calls and incoming e-mail.
2. Outbound interaction—For example, outbound phone calls and outgoing e-mail.
3. Automatic interaction—Outbound calls that have been initiated by an automatic dialer.

The interaction step table contains a field that describes the *direction* of each interaction step. There are four possible directions for an interaction step:

1. Inbound—An inbound phone call that has not yet been transferred.
2. Outbound—An outbound phone call that has not yet been transferred.
3. Transfer—A phone call that is being transferred.
4. Conference—A phone call that is in conference mode.

Data Structure Order and Grouping

All interaction records, along with associated interaction details, are uploaded from the Genesys Info Mart Database to SAP in chronological order, as shown in Table 1, Table 2, and Table 3.

Table 1: Sample Genesys Info Mart Database Records

Interaction ID	Detail ID	Timestamp
I_1	D_1_1	12:01:00
I_1	D_1_2	12:01:01
I_2	D_2_1	12:01:02
I_2	D_2_2	12:01:03
I_1	D_1_3	12:01:04
I_3	D_3_1	12:01:05
I_3	D_3_2	12:01:06
I_2	D_2_3	12:01:07
I_3	D_3_3	12:01:08

Table 2 shows that the interactions are uploaded to the SAP interaction header table in chronological order, based on the interaction event time (`START_TMSP`).

Table 2: Resulting Upload to the SAP Interaction Header Table

CONN_ID	START_TMSP
I_1	12:01:00
I_2	12:01:02
I_3	12:01:05

Table 3 shows the interaction details that are related to the interaction are uploaded to the SAP connection steps table in chronological order, based on the interaction event time (START_TMSP).

Table 3: Resulting Upload to the SAP Connection Steps Table

CONN_ID	STEP_NO	START_TMSP
I_1	01	12:01:00
I_1	02	12:01:01
I_1	03	12:01:04
I_2	01	12:01:02
I_2	02	12:01:03
I_2	03	12:01:07
I_3	01	12:01:05
I_3	02	12:01:06
I_3	03	12:01:08

Interaction Types

The following types of interactions are supported:

- Voice interaction—Represented in the interaction header table by the following values: 01 (in the REQ_TYPE field) and TEL (in the EXT_ADTY and INT_ADTY fields).
- E-mail interaction—Represented in the interaction header table by the following values: 02 (in the REQ_TYPE field) and INT (in the EXT_ADTY and INT_ADTY fields).
- Chat interaction—Represented in the interaction header table by the following values: 04 (in the REQ_TYPE field) and INT (in the EXT_ADTY and INT_ADTY fields).
- Open media interaction—Represented in the interaction header table by the values configured in a specific media type in Configuration Manager (for more details, refer to the following section, “Configuring the Genesys Media Type Mapping to SAP Connection Type Mapping” on page 56.

Time Interval

The Interaction Detail records that are uploaded from Genesys Info Mart Database to the SAP CRM system are selected on the basis of the time interval. For more information, see the SAPphone Interface document.

Note: Only completed interactions are uploaded.

Time Stamp Overlap

All Interaction Detail records for completed interactions that started within the requested time interval for the data upload are exported to the SAP CRM system.

Chapter

3 System Requirements

This chapter outlines the minimum software and hardware requirements for the Genesys G*plus* Adapter 8.0 for SAP Analytics (the Adapter). It contains the following sections:

Compatibility Overview

The Adapter's functioning depends upon the following items:

- Operating system
- Genesys Framework
- Relationship Database Management System (RDBMS).
- SAP CRM version and support package (including relevant SAP Notes)

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

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

To ensure that you have access to the latest SAP CRM features, install the latest SAP CRM support package. To determine the SAP CRM release that you are using, and the latest support package that was applied, select `System` > `Status`.

Finding Relevant SAP Notes

The Note Assistant (`SNOTE` transaction) helps you to implement SAP Notes. You can use this tool to load SAP Notes into your SAP System from the SAP Service Marketplace.

To search for further SAP Notes about integrating SAP CRM with the Adapter, search SAP Notes by using the following keyword: `Genesys`.

Software Requirements

You will need the following software in order to deploy and use the Adapter:

- Microsoft Windows 2008 or 2012
- Genesys Framework
- SAP CRM Application Server and SAP GUI client
- A web browser (such as Microsoft Internet Explorer 5.5 or later) and a PDF viewer (such as Adobe Acrobat Reader 5.0 or later), for reading and viewing support documentation

SAP Applications

SAPphone

The Adapter communicates with the SAP system through the SAPphone interface. For SAPphone requirements, see your SAPphone documentation. This Adapter implements the SAP Remote Function Call (RFC) interface, version 5.11.ASP.

`Note:` The SAP system must implement the SAP RFC interface, version 5.11 or later.

SAP CRM and Other Required Applications

The following additional SAP software is required:

- An installed and configured SAP CRM Application Server release 3.0 or later
- SAP GUI release 4.6D or later
- An installed and configured SAP Gateway

`Note:` SAP applications must be compatible with the SAP RFC interface, version 5.11.

Genesys Applications

The following Genesys software is required:

- Genesys Framework 8.0, including:

- The Configuration Layer (Configuration Server, Configuration Manager, and so on)
- The Management Layer (Local Control Agent [LCA], Message Server, Solution Control Server [SCS], Solution Control Interface [SCI], and so on)
- Database Access Point Layer (DB Server)
- Interaction Concentrator (ICON)
- Genesys Info Mart (requires version 8.1.2, or later. Any other version prior to 8.1.2 is not supported)

Note: For best performance, install the Genesys applications on different machines. For installation information, see your documentation for each application.

Relational Database Management System

You will need one of the following Relational Database Management Systems (RDBMS) in order to deploy and use the Adapter:

- Microsoft SQL Server 2005, 2008, or 2012
- Oracle 11g

Hardware Requirements

You will need the following hardware in order to deploy the Adapter:

- Pentium III 600 MHz CPU or faster
- 256 MB or more of RAM
- 25 MB of free disk space
- CD-ROM drive
- 800x600 256-color monitor or higher
- Network adapter and network connection

Note: For hardware requirements for other Genesys Framework components, see your Genesys Framework documentation.

Chapter

4 Installing the Adapter

This chapter describes how to install the G*plus* Adapter 8.0 for SAP Analytics (the Adapter). It contains the following sections:

Importing the Application Template

Genesys recommends that, before you install the Adapter, you import the Genesys Generic Server Application Template into Genesys Configuration Manager, and that you create and configure an `Application` object based on this template.

Procedure: Importing the Application Template

Purpose: To import the Genesys Generic Server Application Template that is used to create the Adapter's `Application` object in the configuration environment.

Start of procedure

1. Open Configuration Manager and log in.
2. Select `Environment` > `Application Templates`.
3. Right-click `Application Templates`, and then select `Import Application Template`. The `Open` dialog box appears.

4. Navigate to the file for the Adapter's Application Template. The location of this file on your hard drive, or on the installation CD, can vary. The file name is: `Gplus_Adapter_for_SAP_Analytics_800.apd`.
5. Select this file and click `Open`. The `Properties` dialog box appears.
6. Click `OK`.

End of procedure

Next Steps

- Create and configure the `Application` object for the Adapter. See, Procedure: Creating the Adapter's Application object, on page 34.

Creating and Configuring the Application Object

After you import the Application Template as described in the previous section, you are ready to create and configure a new `Application` object based on it. This process consists of the following tasks:

- Creating the `Application` object—page 34
- Configuring the `General` tab—page 36
- Configuring the `Tenants` tab (in a multi-tenant environment)—page 37
- Configuring the `Server Info` tab—page 37
- Configuring the `Start Info` tab—page 38
- Completing the initial setup of the `Application` object—page 41

The following procedures explain how to complete each of these tasks.

Creating the Application Object

After you have imported the `Application` Template, you must create and configure an `Application` object.

Procedure: Creating the Adapter's Application object

Purpose: To create the Adapter's `Application` object in Configuration Server.

Prerequisites

- The generic Application Template was imported to Configuration Server. See Procedure: Importing the Application Template, on page 33.

Start of procedure

1. In Configuration Manager, select `Environment` > `Applications`.
2. Right-click either the `Applications` folder or the subfolder where you want to create your application, and then select `New` > `Application`.
   The `Open` dialog box appears.
3. Navigate to the Application Template that you just imported (`Gplus_Adapter_for_SAP_Analytics_800.apd`), and then double-click it.

   The `New Application Properties` dialog box for the new `Application` object appears, with the `General` tab displayed (see Figure 4).

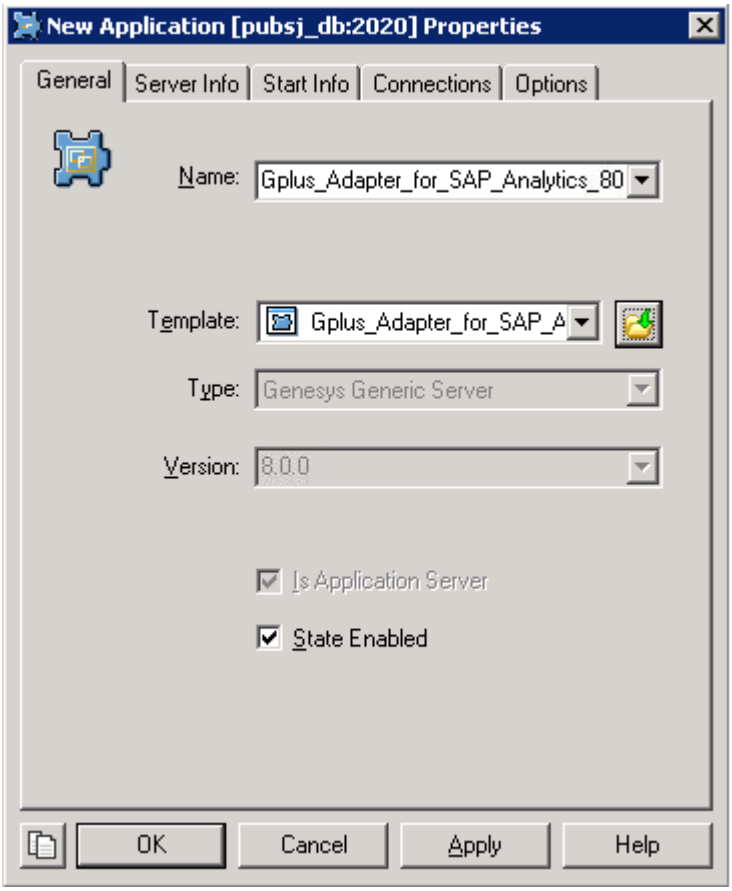


Figure 4: New Application Properties Dialog Box

End of procedure

Next Steps

- Configure the properties of the Adapter's `Application` object. See Procedure: Configuring the Adapter's Application object, on page 36.

Configuring the Application Object

Use the procedure in this section to configure the tabs of `Properties` dialog box of the Adapter's `Application` object. The subsections in the procedure describe how to configure each tab, in the order in which they appear.

Procedure: Configuring the Adapter's Application object

Purpose: To configure the Adapter's `Application` object.

Prerequisites

- The Adapter's `Application` object has been created. See Procedure: Creating the Adapter's Application object, on page 34.

Start of procedure

General Tab

1. (Optional) On the `General` tab of the `New Application Properties` dialog box:
   a. In the `Name` box, enter a name for the Adapter's `Application` object.
      For example, in Figure 5 on page 37, the name of the `Adapter` object is `GplusAdapterForSAPAnalytics`.
   b. Select the `State Enabled` check box (see Figure 5 on page 37).
   c. Click the `Tenants` tab, if you are installing the Adapter in a multi-tenant environment.

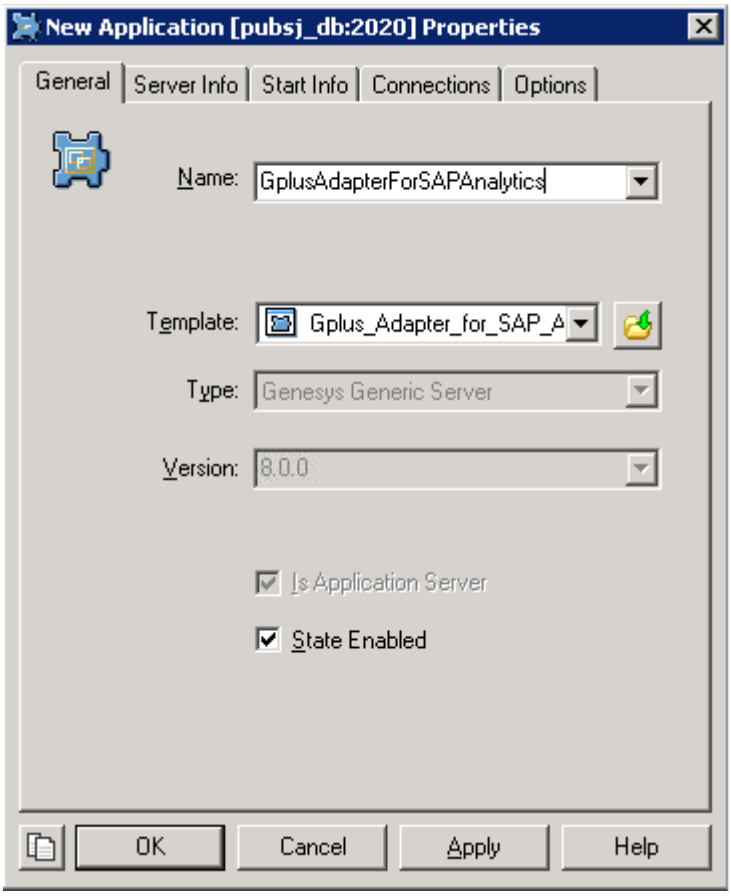


Figure 5: Adapter Application Properties Dialog Box—General Tab

Tenant Tab

2. On the `Tenants` tab, if you are installing the Adapter in a multi-tenant environment; otherwise, the `Tenants` tab is not available:
   a. Specify the Tenant that you are using.
   b. Click `Add`.
   c. Select the Tenant where the DN groups are created.
   d. Click the `Server Info` tab.

Server Info Tab

3. On the `Server Info` tab:
   a. In the `Host` box, select the host from among those defined in the `Host` section of the `Environment` folder in Configuration Manager, and then click `OK`.

> `Note:` The properties on the `Server Info` tab are used by the Local Control Agent (LCA) application. They enable automatic shut down of the Adapter.

   b. In the `Communication Port` box, enter any unused port.
   c. For the `Reconnect Timeout` box, accept the default value.

d. For the `Backup Server` box, accept the default value (of `[None]`).

e. For the `Redundancy Type` box, accept the default value of `Not Specified` (see Figure 6).

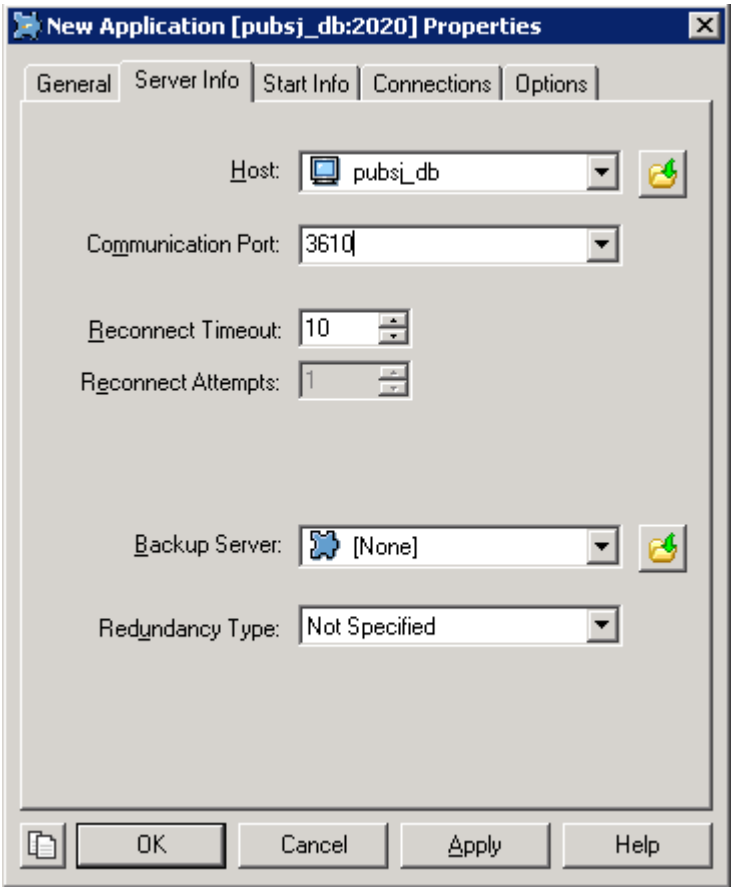


Figure 6: Adapter Application Properties Dialog Box — Server Info Tab

f. Click the `Start Info` tab.

Start Info Tab

4. On the `Start Info` tab:

a. In the `Working Directory` box, enter a period (`.`) to enable Setup to populate it during installation.

b. In the `Command Line` box, enter a period (`.`) to enable Setup to populate it during installation.

c. Do not enter a value in the `Command Line Argument` box. Setup will populate it during installation.

d. Leave the default values for the remaining boxes.

Figure 7 on page 39 shows an example of the `Start Info` tab.

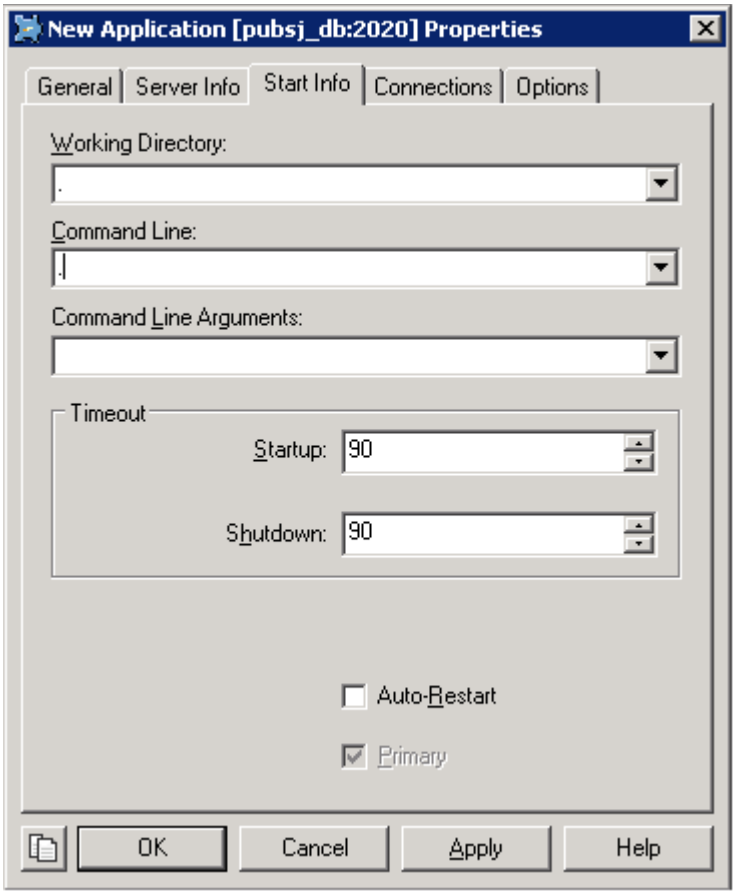


Figure 7: Adapter Application Properties Dialog Box—Start Info Tab

Connections Tab

5. On the `Connections` tab:
   - **a.** Add a Message Server connection, if you want the Adapter to write log files into the network database.
   - **b.** To create connections, add a connection to the following server(s):
     - Database Access Point that specifies a connection to the Info Mart Database (a JDBC Connection is not supported)
     - Message Server (optional, for logging messages to the network)
     - Configuration Server (optional)

     `Note:` The Adapter reads configuration from this tab only during startup. Therefore, if you update the options on this tab, you must restart the Adapter in order for the changes to take effect.

   - **c.** (Optional) Add an Advanced Disconnect Detection Protocol (ADDP) connection to the Configuration Server to enable the connection monitoring between the Adapter and the Configuration Server.
   - **d.** (Optional) Adjust the ADDP connection between the Adapter and Genesys servers. This improves the disconnection detection capability.

e. Click the `Options tab`.

Options Tab

6. Select the `Options` tab (see Figure 8 on page 40).
Configure the sections in the `Options` tab as required, using the information in the following section, "Setting the Adapter Configuration Options" on page 47.

In the `Sections` pane, the following sections are listed:

- `settings`
- `log`
- `rfc-server`

7. To configure the options for each section:

a. Double-click the section's name to access its options.

b. Enter the option values as described in the section, "Setting the Adapter Configuration Options" on page 47.

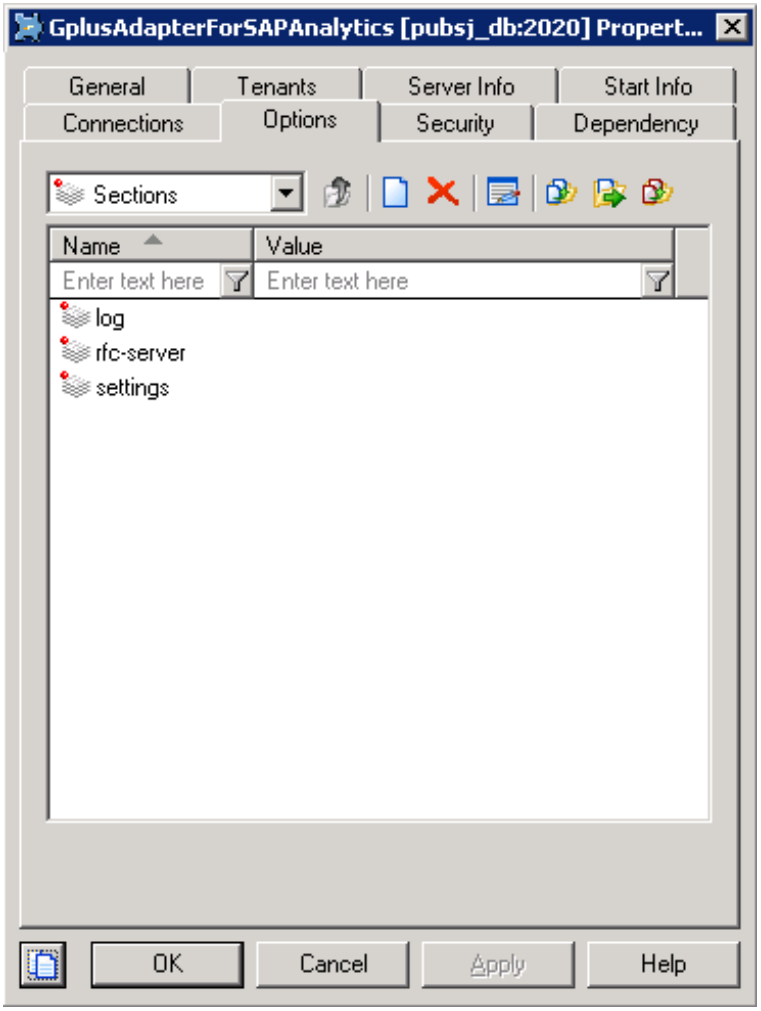


Figure 8: Adapter Application Properties Dialog Box—Options Tab

Completing the Initial Application Setup

8. After you configure the tabs of the `New Application Properties` dialog box as described in the previous subsections, click `Apply`, and then `OK` to complete the application setup.

End of procedure

Next Steps

- To start working with the Adapter, proceed to the next section, "Installing the Adapter", and then configure the Adapter's options in Configuration Manager, as described in "Configuring the Adapter" on page 47.

Installing the Adapter

To install the Adapter on the target computer, you must use an InstallShield Wizard (Setup) program that takes you step-by-step through the process.

Procedure: Running the Setup program

Purpose: To install the Adapter on the target machine by using the Setup program.

Start of procedure

1. Locate the `setup.exe` file, either on the installation CD (in the path `\gplus_components\gplus_analytics\windows\`), or in the installation package.
2. Double-click `setup.exe` to start the InstallShield Wizard. The first wizard page that appears is the `Welcome` page.
3. Read the text, and then click `Next` to continue. The `Connection Parameters to the Genesys Configuration Server` page appears.
4. Enter values in the `Host name`, `Port`, `User name`, and `Password boxes, and` then click `Next` to continue. The `Select Application` page appears. This page contains a list of all the `Application` objects from the Configuration Server Database that have a template of type `Genesys Generic Server` corresponding to the host on which the Setup program is running.
5. Select the application, and then click `Next` to continue. The `Choose Destination Location` page appears.
6. Enter a destination folder for the Adapter, or use the default location, and then click `Next` to continue. The `Ready to Install` page appears.
7. Click `Install` to begin copying files. The Setup program begins copying files. When it is finished, the `Installation Complete` page appears.

8. Click `Finish` to complete the installation.

End of procedure

Next Steps

- Obtain the SAP Remote Function Call (RFC) SDK binary files. See the section, “Obtaining SAP RFC SDK Binaries” on page 42.

Obtaining SAP RFC SDK Binaries

The Adapter implementation requires SAP Remote Function Call (RFC) software development kit (SDK) binary files. Due to SAP policies, these files are not included on the Adapter’s Installation DVD. For more information about how to obtain the required binaries, go to the SAP Service Marketplace website at `http://service.sap.com`, and search for SAP Note 413708. Read this SAP Note and its Related Notes.

`Note`: A copy of the SAP `librfc32.dll` must be in either the Adapter's destination folder, or in the folder defined in the System Variable path.

Installation Results

After the Setup program successfully runs, you will see the following:

Executable and Auxiliary Files

The Adapter's executable and auxiliary files in the destination folder that you specified (see Figure 9).

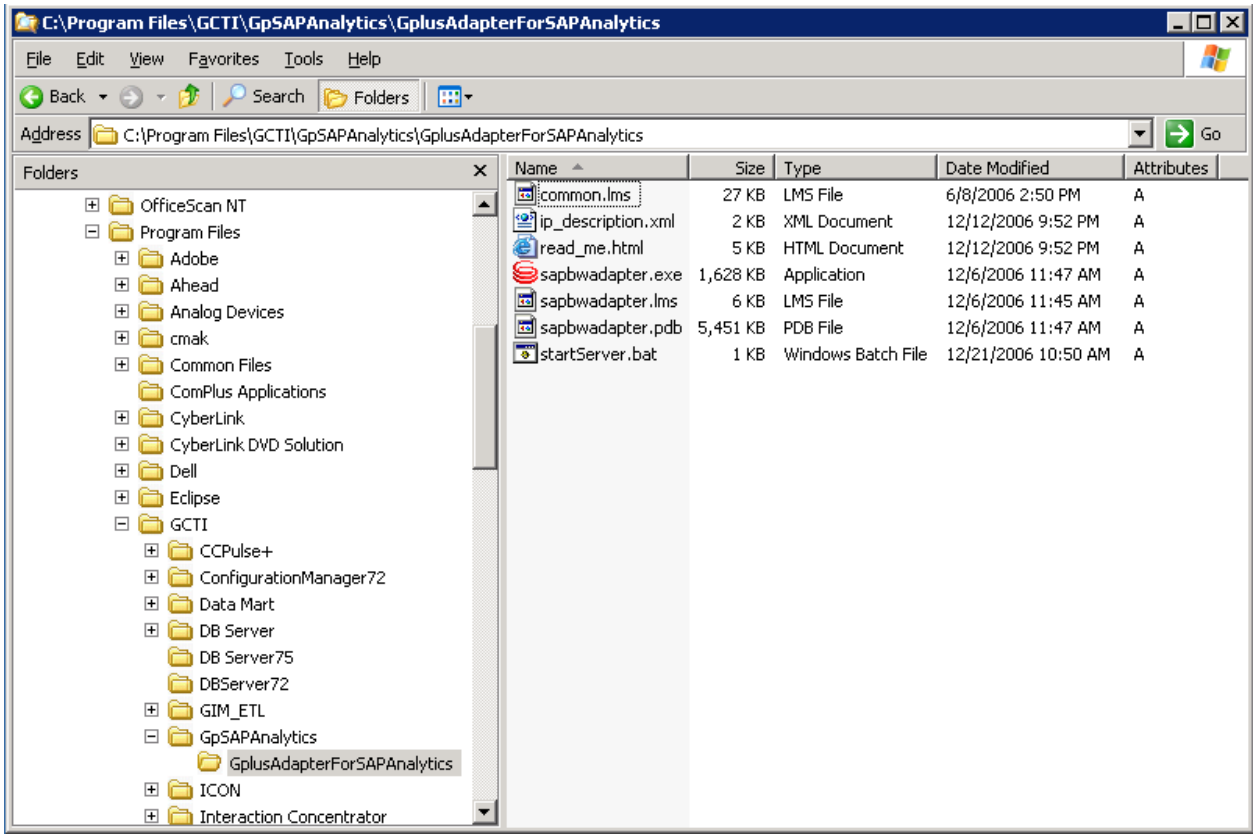


Figure 9: Destination Folder

SAP Analytics Group

The `Gplus Adapter for SAP Analytics` group on the Windows `Start` menu > `Programs` > `Genesys Solutions` (see Figure 10).

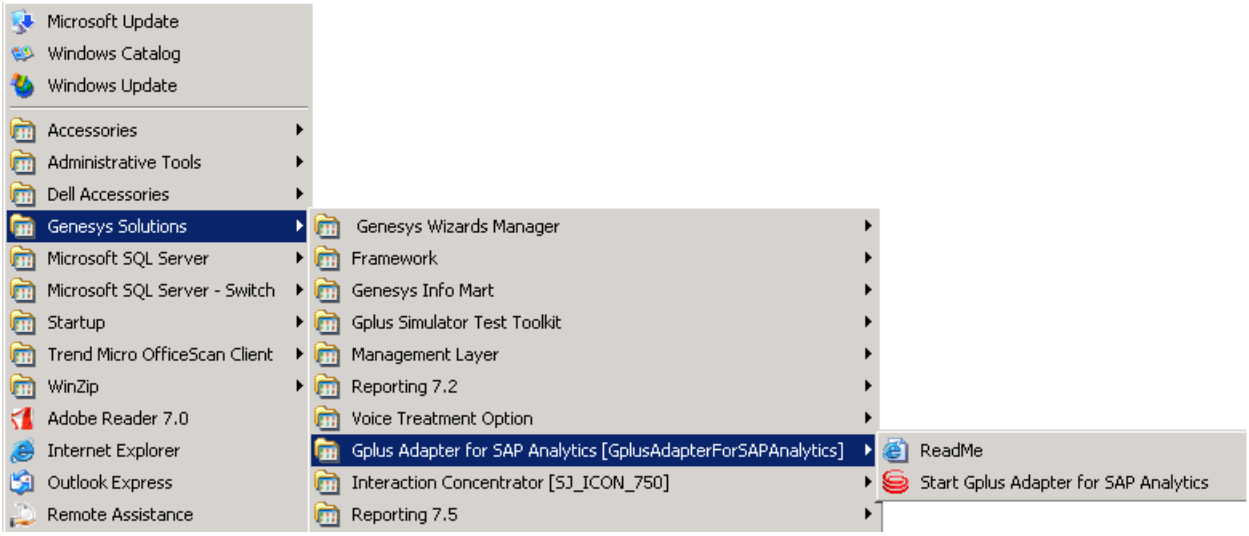


Figure 10: Windows Start Menu

SAP Analytics Item

The `Genesys Gplus Adapter for SAP Analytics` item in the Windows Services list (see Figure 11).

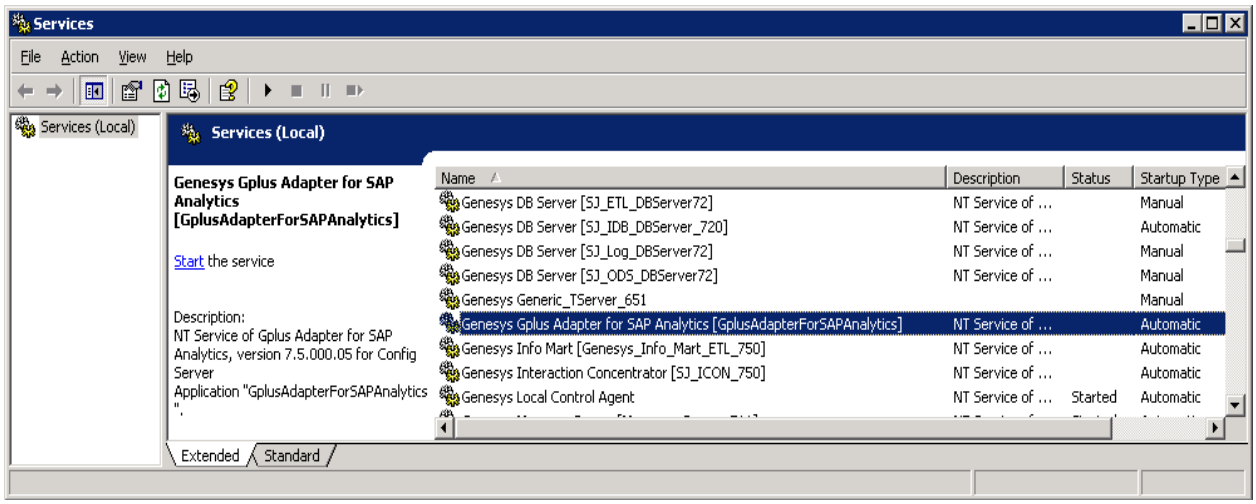


Figure 11: Windows Services List

Startup Parameters

The Startup parameters populated on the `Start Info` tab of the Adapter's `Application` object in Configuration Manager (see Figure 12).

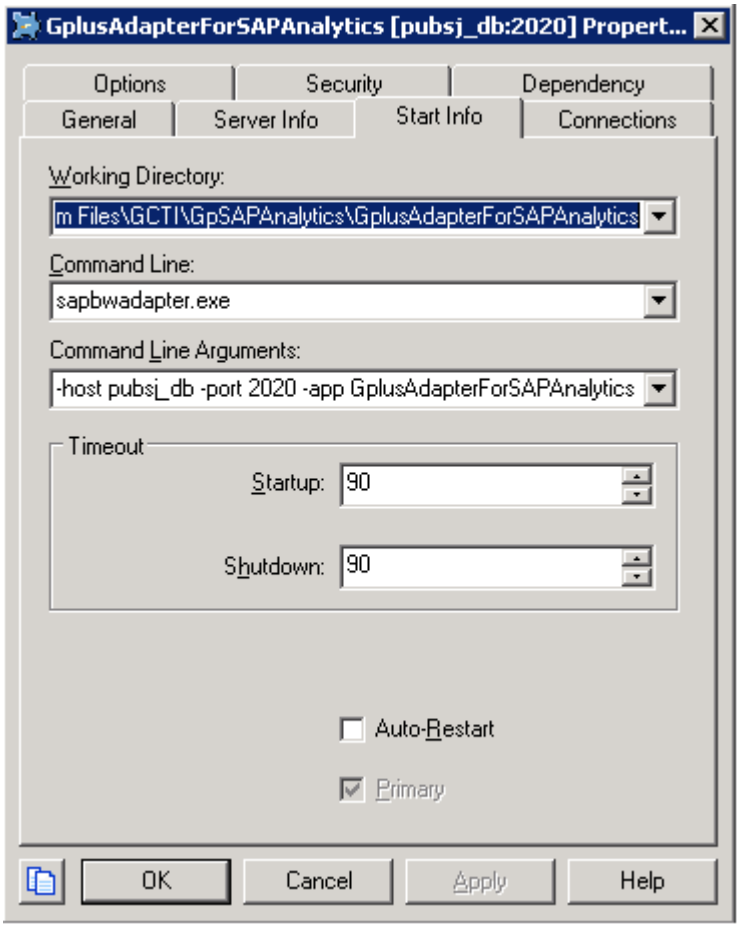


Figure 12: Start Info Tab

Note: If you plan to run the Adapter as a Windows Service, you should become familiar with the common recommendations about deploying Genesys components as Windows Services. See the *Genesys Framework Deployment Guide*.

Uninstalling the Adapter

You can uninstall the Adapter by using the Microsoft Windows' `Add/Remove Programs` feature.

Procedure: Uninstalling the Adapter

Purpose: To completely uninstall the Adapter's components.

1. From the Windows `Start` menu, select `Settings` > `Control Panel` > `Add/Remove Programs`.
2. Select `Genesys Gplus Adapter for SAP Analytics` as the component to remove.
3. Follow the on-screen instructions, and confirm that you want to remove the Adapter's components.

   `Add/Remove Programs` removes the Adapter's components. When it is finished a message appears, informing you that the uninstallation was completed.
4. Follow the on-screen instructions to conclude the uninstallation process.

Note: If the Adapter's application folder contains files that were not initially installed, these files are not deleted by the uninstallation process. You must remove these files manually.

End of procedure

Next Steps

- No further steps are required.

Chapter

5 Configuring the Adapter

This chapter describes how to configure the G*plus* Adapter 8.0 for SAP Analytics (the Adapter) in Genesys Configuration Manager. It contains the following sections:

Before You Begin

Before you can configure the Adapter, you must import the Application Template into Genesys Configuration Manager, and create and configure an `Application` object.

- If you completed these tasks before you installed the Adapter, as was recommended, you can proceed to the next section and configure the Adapter.
- If you have not yet completed these tasks, do so now. For instructions, see "Importing the Application Template" on page 33 and "Creating and Configuring the Application Object" on page 34.

Setting the Adapter Configuration Options

This section describes the configuration options that are available for the Adapter. To view or change these options, first use Genesys Configuration

Manager to open the Properties dialog box for the Application object that you created, and then click the appropriate tab.

Configuring the Adapter

If you have not yet completed the following tasks listed below, do so now:

- Configure the Connections tab on page 39.
- Configure the Options tab on page 40.

Unless specified otherwise, set the Adapter configuration options in the Options tab of the Application object using the following navigation path:

In Genesys Adminstrator—Application object > Options tab > Advanced View (Options)

In Configuration Manager—Application object > Properties dialog box > Options tab.

For ease of reference, the configuration options have been arranged in alphabetical order within their corresponding configuration sections in the Adapter's Application object:

- settings section—page 48
- log section—page 50
- rfc-server section—page 53

A *Yes* as the "Must Restart" value indicates that you must restart the Adapter after changing the option. A *Yes* as the "Must Set?" value indicates an option that you *must* configure in order for the Adapter to function properly (see also "Configuration Options That You Must Set" on page 54). For all other configuration options, you can accept the default values or adjust them later, according to your needs.

Note: All option names and values are case sensitive; therefore, make sure that you use the correct case.

settings Configuration Section

This section contains all of the options that control the data transformation algorithm.

external-dns-group

Default Value: "" (an empty string)
Valid Values:

""	(an empty string)
<any valid string>	represents a DNGroup object of type Single Ports in Configuration Manager

Must restart: No

Note: A restart is not required for updates to the external-dns-group option; however, a restart is required for updates to a DNGroup object.

Must set: No

Specifies the name of a container (specifically, a DNGroup configuration object of type Single Ports) with predefined DNs. The Adapter uses the DNs to populate the Call Direction column in the SAP connection header table (when the Genesys call type is internal). For more information, see Appendix A, "Categorizing a Call Type," on page 99

Note: All of the following options must contain different values.

email-from-key

Default Value: "" (empty string)
Valid Values: "" (empty string) or a user data key (see the UD_KEY_NAME column in the Genesys Info Mart Database table, CTL_UD_TO_UDE_MAPPING, referenced in the Info Mart documentation for more details).
Must restart: No
Must set: No

Determines if the e-mail From address is stored in the Genesys Info Mart Database.

- If the value of this option is set to "" (empty string), then the e-mail address (the From field) that is exported to SAP has a value that is specified in the interaction fact table.
- If the value of this option is set to a user data key name from the CTL_UD_TO_UDE_MAPPING table then the From e-mail data is saved in the Genesys Info Mart Database in a customized fact extension table, which is eventually exported to SAP.

email-to-key

Default Value: "" (empty string)
Valid Values: "" (empty string) or a user data key (see the UD_KEY_NAME column in the Genesys Info Mart Database table, CTL_UD_TO_UDE_MAPPING, referenced in the Info Mart documentation for more details).
Must restart: No
Must set: No

Determines if the e-mail To address is stored in the Genesys Info Mart Database.

- If the value of this option is set to "" (empty string), then the e-mail address (the To field) that is exported to SAP has a value that is specified in the interaction fact table.

- If the value of this option is set to a user data key name from the `CTL_UD_TO_UDE_MAPPING` table then the `To` e-mail data is saved in the Genesys Info Mart Database in a customized fact extension table, which is eventually exported to SAP.

interaction-id-key

Default Value: `""` (empty string)
Valid Values: `""` (empty string) or a user data key (see the `UD_KEY_NAME` column in the Genesys Info Mart Database table, `CTL_UD_TO_UDE_MAPPING`, referenced in the Info Mart documentation for more details).
Must restart: No
Must set: No

Determines where the interaction ID is stored.

- If the value of this option is set to `""` (empty string), then the interaction ID data that is exported to SAP has a value that is specified in the interaction fact table.
- If the value of this option is set to a user data key name from the `CTL_UD_TO_UDE_MAPPING` table then the interaction ID data is saved in the Genesys Info Mart Database in a customized fact extension table, which is eventually exported to SAP.

log Configuration Section

This section specifies the common Genesys log options. For more options, see the *Genesys Framework 8.x Configuration Options Reference Manual.*

all

Default Value: `stdout`
Valid Values:

`memory`	Log events are sent to the memory output on the local disk. This is the safest choice in terms of application performance.
`network`	Log events are sent to the Message Server, which can reside anywhere on the network. The Message Server stores the log events in the `Log Database`.
`[pathname]`	Log events are stored in a file with a specified file and path name. If a path is not specified, the file is created in the application's working directory.
`stderr`	Log events are sent to the standard error output.
`stdout`	Log events are sent to the standard output device

Must restart: No
Must set: No

Specifies the outputs to which an application sends all log events.

Note: To make troubleshooting easier, consider using unique names for the log files that different applications generate.

If more than one output is configured, you must separate the log output types with a comma—for example:

```
all = stdout, logfile
```

---

buffering

Default Value: `true`
Valid Values:

`true`	Enables buffering and increases the file output performance
`false`	Disables buffering

Must restart: No
Must set: No

Enables or disables the operating system file buffering and applies only to the file output.

expire

Default Value: `false`
Valid Values:

`false`	No expiration; all generated segments are stored
`<1 to 100>`	The maximum number of log files that are stored

Must restart: No
Must set: No

Determines whether the log files expire, or not. If they do expire, sets the maximum number of log files that are stored. This option is ignored if the log output is not configured to be sent to a log file.

print-attribute

Default Value: `true`
Valid Values: `true`, `false`
Must restart: No
Must set: No

Specifies whether the application attaches extended attributes, if any exist, to a log event that it sends to a log output. Typically, log events of the Interaction log level and Audit-related log events contain extended attributes. Setting the value of this option to `true` enables the audit capabilities, but it negatively affects the performance. For other applications, refer to the *Genesys 8.x Combined Log Events Help* to find out whether an application generates Interaction-level and Audit-related log events; if it does, enable this option only when testing new interaction scenarios.

segment

Default Value: `false`
Valid Values:

`false`	No segmentation is allowed.
`<number> KB` or `<number>`	Sets the maximum segment size, in kilobytes. The minimum segment size is `100` KB.

Must restart: No
Must set: No

Specifies whether there is a segmentation limit for a log file. If there is, sets the maximum size. If the current log segment exceeds the size set by this option, the file is closed and a new one is created. This option is ignored if the log output is not configured to be sent to a log file.

verbose

Default Value: `all`
Valid Values:

`all`	All log events (that is, log events of the Standard, Trace, Interaction, and Debug levels) are generated.
`debug`	Functions the same as `all`.
`interaction`	Log events of the Interaction level and higher (that is, log events of the Standard and Interaction levels) are generated, but log events of the Trace and Debug levels are not generated.
`none`	No log events are generated.
`standard`	Log events of the Standard level are generated, but log events of the Interaction, Trace, and Debug levels are not generated.
`trace`	Log events of the Trace level and higher (that is, log events of the Standard, Interaction, and Trace levels) are generated, but log events of the Debug level are not generated.

Must restart: No
Must set: No

Determines whether a log output is created. If it is, specifies the minimum level of log events generated. The log events levels, starting with the highest priority level, are Standard, Interaction, Trace, and Debug. Changes take effect immediately.

`Note:` For definitions of the Standard, Interaction, Trace, and Debug log levels, refer to the *Framework 8.x Management Layer User's Guide*, the *Framework 8.x Genesys Administrator Help*, or to the *Framework 8.x Solution Control Interface Help*.

---

rfc-server Section

This section contains options that affect the Remote Function Call (RFC) server. The SAP Customer Relationship Management (CRM) system administrator should provide all SAP-related settings.

connection-pool

Default Value: `1`
Valid Values: Any positive integer ranging from `1` to `128`
Must restart: No
Must set: No

Specifies the maximum number of open (but not necessarily listening) connections.

gateway-host

Default Value: `localhost`
Valid Values: Any valid host name
Must restart: No
Must set: Yes

Specifies the host name or host string of the SAP Gateway—for example: `/H/192.168.3.215/H/204.79.180.5/S/3298/H/cpce601/.`

gateway-service

Default Value: `sapgw00`
Valid Values: Any valid service
Must restart: No
Must set: Yes

Specifies the service of the SAP Gateway—for example, `sapgw13.`

listen-timeout

Default Value: `1`
Valid Values: Any positive integer from `1` to `120`
Must restart: No
Must set: No

Specifies the timeout value, in seconds.

program-id

Default Value: `GPLUS.BW`
Valid Values: The Program ID in the RFC destination used in the SAPphone server
Must restart: No
Must set: Yes

Specifies the Program ID of the Adapter (the RFC destination).

reconnect-timeout

Default Value: 4
Valid Values: Any positive integer
Must restart: No
Must set: No

Specifies the amount of time, in seconds, that the Adapter waits before trying to connect to the SAP gateway if the connection is broken.

recv-thread

Default Value: 1
Valid Values: Any positive integer from 1 to 512
Must restart: No
Must set: No

Specifies the minimum number of threads that await incoming requests. If the number of threads falls below this value, because a thread is busy handling requests, the Adapter creates additional threads.

Configuration Options That You Must Set

You must set or adjust certain configuration options for the Adapter to start and to communicate successfully with the SAP system. Table 4 on page 55 describes the required options for the various sections described in the section, "Setting the Adapter Configuration Options" on page 47.

Note: You can accept the default values for all other configuration options or adjust them later according to your needs.

Table 4: Configuration Options That Must Be Set

Section	Required Option	Description/Values	Must Restart?
`rfc-server`	`gateway-host`	Specifies the host name of the SAP Gateway—for example: `/H/192.168.3.215/H/204.79.180.5/S/3298/H/cpce601` Default Value: `localhost` Valid Values: Any valid host name	No
	`gateway-service`	Specifies the service of the SAP Gateway—for example: `sapgw13` Default Value: `sapgw00` Valid Values: Any valid service	No
	`program-id`	Specifies the Program ID of the Adapter (the RFC destination). Default Value: `GPLUS.BW` Valid Values: The Program ID in the RFC destination that is used in the SAPphone server	No

Integrating with the Management Layer

You can easily integrate the Adapter with the Genesys Framework Management Layer. This enables you to administer the Adapter remotely from the Solution Control Interface (SCI). In particular, you can:

- Start or stop the Adapter.
- View the Adapter's generated log messages.
- Receive alarms for various errors.

Procedure: Integrating the Adapter with the Management Layer

Purpose: To integrate the Adapter with the Management Layer.

Start of procedure

1. Make sure the Management Layer components are installed and configured.
2. In Configuration Manager, on the `Connections` tab of the Adapter's `Application` object, add the Message Server application to the `Connections` list. See the section, "Connections Tab" on page 39.
3. Adjust the Adapter's log options to enable the Adapter to send log messages to the Message Server. See, "log Configuration Section" on page 50.

End of procedure

Next Steps

- Configure the Genesys Media type mapping to the SAP Connection type mapping. See, "Configuring the Genesys Media Type Mapping to SAP Connection Type Mapping" on page 56.

Configuring the Genesys Media Type Mapping to SAP Connection Type Mapping

The Adapter supports the mapping of any specific Genesys media type to the SAP address and request types mapping (see, SAPPhone 11.3.11 and 11.3.12).

The mapping is configured by adding the `SAPBW` section and the following options that belong in this section:

- `addrtype`—contains the address type
- `reqtype`—contains the request type that is reported to SAP for this media type.

Figure 13 on page 57 displays the `Annex` tab used for this mapping:

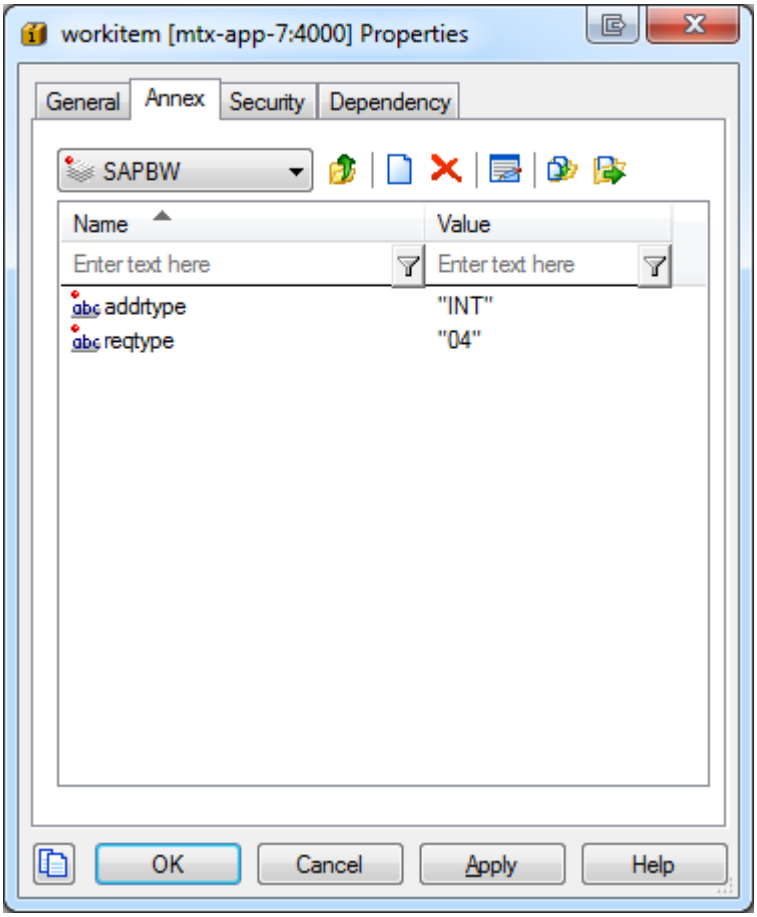


Figure 13: Genesys Media Type to SAP Address Type Mapping

The Adapter scans the `Annex` tab for the Configuration Manager media types (which are obtained from the Tenant specified in the `Application` object) and reports the interaction of these media types by using the `addrtype` and `reqtype` option values and maps them to the interaction header table (`SPH_STHDRE`) as shown in Table 5:

Table 5: Using the addrtype and rectype Options to Map to SPH_STHDRE

SPH_STHDRE	Media Type Name	
	Request Type	Address Type
REQ_TYPE	X	
EXT_ADTY		X
INT_ADTY		X

MEDIA_NAME_CODE is a column included in the Genesys Info Mart MEDIA_TYPE table that stores the Genesys media types; the default media types are then mapped to the SAP types as shown in Table 6:

Table 6: Mapping the Default Genesys Media Types to the SAP Types

MEDIA_NAME_CODE	SPH_STHDRE		
	REQ_TYPE	EXT_ADTY	INT_ADTY
EMAIL	02	INT	INT
VOICE	01	TEL	TEL
CHAT	04	INT	INT

Table 7 is an example of how the header table for an interaction can be reported, if the media type is configured the same as in Figure 13 on page 57:

Table 7: Example of a Header Table for an Media Type Interaction

Con_ ID	Req_ Type	Con_ Direct	Ext_ Adty	Ext_ Addr	Int_ Adty	Int_ Addr	Start_ Tmsp	Call_ Aband	Queue
1234	04 Chat	1 Inbd.	INT Email	a@a.com	INT Email		<TS>		

Working with User Data

The G*plus* Adapter for SAP Analytics can be configured to retrieve interaction identifiers, generated by other G*plus* Adapters (specifically ERP and ICI Multi-Channel), from the Info Mart database. You enable this functionality by setting the G*plus* Adapter for SAP Analytics `interaction-id-key` option.

SAP ERP Interactions

Figure 14 on page 59 shows how data would flow from the G*plus* Adapter for SAP ERP to the G*plus* Adapter for SAP Analytics.

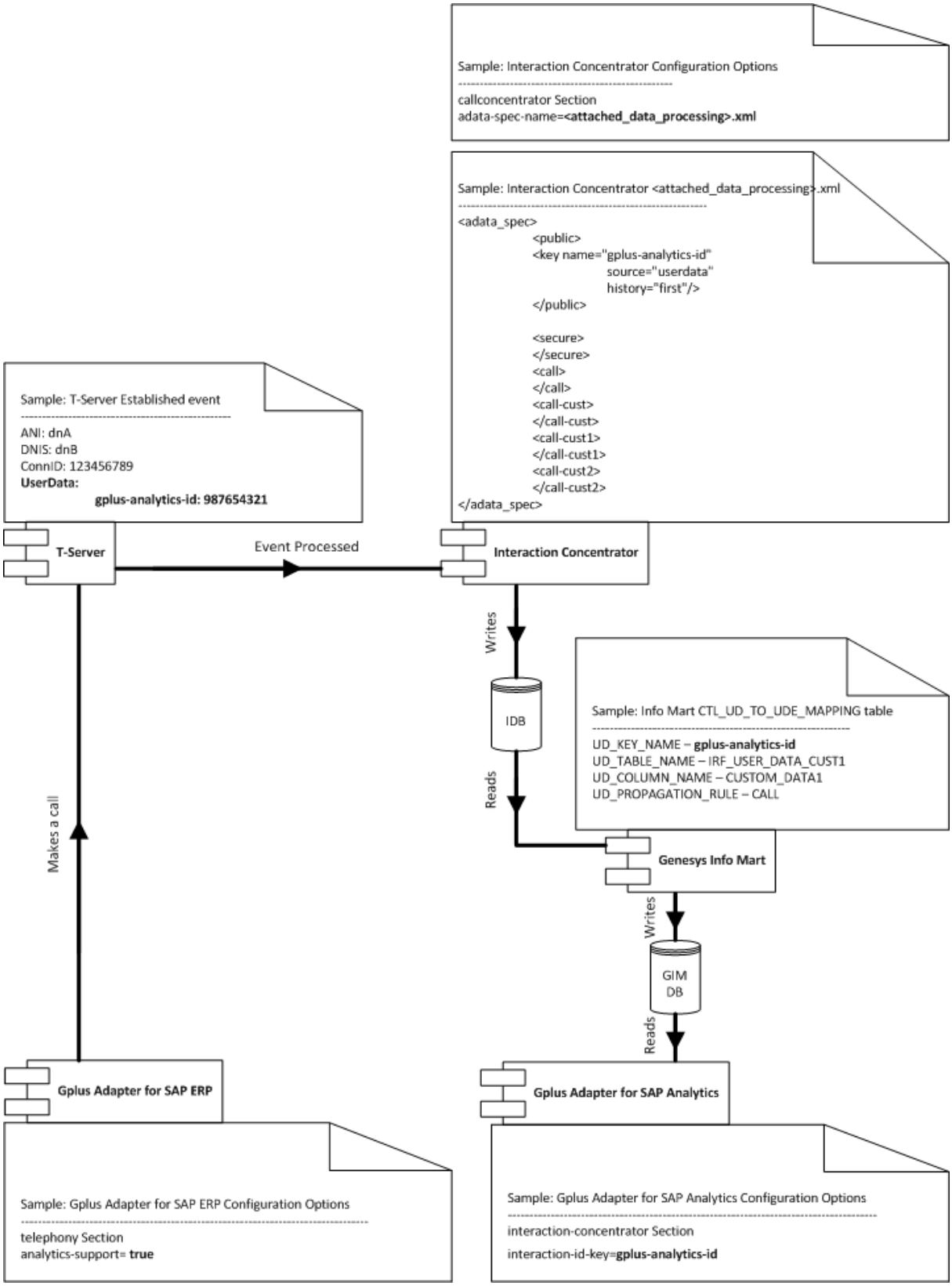


Figure 14: G*plus* Adapter for SAP Analytics interactions with the G*plus* Adapter for SAP ERP

To enable this functionality between the G*plus* Adapter for SAP Analytics and the G*plus* Adapter for SAP ERP (or ICI Multi-Channel), you must configure the following:

- The `analytics-support` option of the G*plus* Adapter for SAP ERP (or ICI Multi-Channel) set in the `telephony` section.
- The `<attached_data_processing>.xml` file for Interaction Concentrator.
- The Interaction Concentrator configuration options.
- Adjust the Info Mart database to be able to store the user data (refer to the Info Mart documentation)
- Specify the mapping rules for Info Mart to extract and process this data by updating the `CLT_UD_TO_UDE_MAPPING` table (for more details, refer to the Info Mart documentation).
- The `interaction-id-key` option of the G*plus* Adapter for SAP Analytics set in the `interaction-concentrator` section.

Configuring the G*plus* Adapter for SAP Analytics

Procedure: Configuring the G*plus* Adapter for SAP Analytics

Purpose: To configure the Gplus Adapter for SAP Analytics to retrieve interaction identifiers.

Start of procedure

- In Configuration Manager, set the value of the G*plus* Adapter for SAP ERP's `analytics-support` option to `true` (see, the *G*plus *Adapter 7.5 for SAP ERP Deployment Guide* `telephony` section).

  After you set this option, an additional request is sent to T-Server to attach a key-value pair for the `UserData` call attribute—for example, in Figure 14, the pair is `gplus-analytics-id`: `987654321`.

  Note: The G*plus* Adapters ERP and ICI Multi-Channel all have the `analytics-support` option (with the following valid values: `true`, `false`), and each Adapter attaches a key-value pair in the `UserData` call attribute (the predefined key is `gplus-analytics-id`).

End of procedure

Next Steps

- Configure the Interaction Concentrator. See the section, "Configuring the Interaction Concentrator" on page 61.

Configuring the Interaction Concentrator

You must configure the Interaction Concentrator section and file as follows:

- The `callconcentrator` section
- The `<attached_data_processing>.xml` file for a custom interaction ID
- The `<attached_data_processing>.xml` file for custom `From` and `To` e-mail addresses

Configuring the callconcentrator Configuration Section

The value of the `callconcentrator` section's `adata-spec-name` option must be set to `<attached_data_processing>.xml`. See the *Interaction Concentrator 8.x Deployment Guide* for details.

Configuring the <attached_data_processing>.xml File for Custom Interaction ID

Interaction Concentrator listens for T-Server events and checks all Multimedia Reporting Protocol events for changes to attached data. By default, Interaction Concentrator ignores the user data. You can change this behavior and specify the keys that you want to insert into the Interaction Concentrator Database (IDB), as follows:

Procedure: Configuring the <attached_data_processing>.xml file for Custom Interaction ID

Purpose: To create or update the `<attached_data_processing>.xml` file. for custom interaction ID.

Start of procedure

- Create or update the `<attached_data_processing>.xml` file with the table and column attributes required to specify where the `UserData` attribute is saved.

Figure 14 shows the following XML example:

```
<adata_spec>
        <public>
        <key name="gplus-analytics-id"
               source="userdata"
               history="first"/>
        </public>
        <secure>
        </secure>
        <call>
        </call>
        <call-cust>
        </call-cust>
        <call-cust1>
        </call-cust1>
        <call-cust2>
        </call-cust2>
</adata_spec>
```

The attributes in this file translate to:

- Save the data from the `UserData` attribute (`source="userdata"`) where the `<key name = "gplus-analytics-id">`
- Insert the data into the `G_USERDATA_HISTORY` table

End of procedure

Next Steps

- Configure the `<attached_data_processing>.xml` file for e-mail functionality. See the section, "Configuring the <attached_data_processing>.xml File for the From and To e-mail addresses".

Configuring the <attached_data_processing>.xml File for the From and To e-mail addresses

You can change the behavior of the `<attached-data_processing>.xml` file to enable custom `From` and `To` e-mail addresses, as follows:

Procedure: Configuring the <attached_data_processing>.xml file for the From and To e-mail addresses

Purpose: To create or update the `<attached_data_processing>.xml` file for the From and To e-mail addresses.

Start of procedure

1. Enable the G*plus* Adapter for SAP Analytics e-mail `From` and `To` field functionality, by setting the `email-from-key` and the `email-to-key` options.
2. Customize the Interaction Concentrator `<attached_data_processing>.xml` with the table and column attributes to specify where the user data attributes is saved—for example:

```
<adata_spec>
        <public>
        <key name="FromAddress"
               source="userdata"
               history="last"/>
        <key name="To"
               source="userdata"
               history="last"/>
        </public>

        <secure>
        </secure>
        <call>
        </call>
        <call-cust>
        </call-cust>
        <call-cust1>
        </call-cust1>
        <call-cust2>
        </call-cust2>
</adata_spec>
```

Where:

- `FromAddress`: specifies the e-mail `From` address
- `To`: specifies the e-mail `To` address.

> Note: Interaction Concentrator ignores duplicate keys. Only the first occurrence of a key name is used to update the applicable database table.

Configuring Info Mart to Work with User Data

To import the correct user data from Interaction Concentrator to Genesys Info Mart, you should customize the SQL script that Genesys Info Mart provides for database scheme modification to support user data reporting.

See the following chapter in the *Genesys Info Mart Deployment Guide* for more information:

- Part 2: Deploying Genesys Info Mart—Chapter 10: Preparing Genesys Info Mart Database—Customizing the User Data Template subchapter.

You should modify the script to correctly map the user data key from Interaction Concentrator to the user data fact or dimensions table columns (step 11 of the script configuration procedure found in the *Genesys Info Mart Deployment Guide*).

For example—to support the `gplus-analytics-id` key, you could replace the following string:

```
SELECT 'CustomData1'  AS C1, 'IRF_USER_DATA_CUST_1' AS C2,
'CUSTOM_DATA_1'   AS C3, 'CALL'     AS C4, null    AS C5, 1 AS C6 FROM
DUAL UNION ALL
```

with the subsequent string:

```
SELECT 'gplus-analytics-id'      AS C1, 'IRF_USER_DATA_CUST_1' AS C2,
'CUSTOM_DATA_1'   AS C3, 'CALL'     AS C4, null    AS C5, 1 AS C6 FROM
DUAL UNION ALL
```

After replacing the string, Genesys Info Mart puts the value of the `gplus-analytics-id` key, from the `G_USERDATA_HISTORY` key in Interaction Concentrator to the `CUSTOM_DATA_1` column of the `IRF_USER_DATA_CUST_1` table in the Genesys Info Mart database. For more details, refer to the User Data information in the *Genesys Info Mart Deployment Guide*.

Configuring the G*plus* Adapter for SAP Analytics

After the interaction identifiers are stored in the Genesys Info Mart Database, you must configure the G*plus* Adapter for SAP Analytics so that it can find them. See, the “Specifies the name of a container (specifically, a `DNGroup` configuration object of type `Single Ports`) with predefined DNs. The Adapter uses the DNs to populate the `Call Direction` column in the SAP connection header table (when the Genesys call type is `internal`). For more information, see Appendix A, “Categorizing a Call Type,” on page 99” on page 49.

The interaction-id-key Configuration Option

To configure the Adapter to know where the custom interaction identifiers can be found, see the `interaction-id-key` option.

The Adapter's `interaction-id-key` option must have a string with a valid user data key configured both in Interaction Concentrator and Genesys Info Mart `<attached_data_processing>.xml` file.

For example:
`interaction-id-key` = `gplus-analytics-id`.

The email-from-key Configuration Option

To configure the Adapter to find the `From` email address value, see the `email-from-key` option.

This option should contain a string with the user data key where a `From` address is stored.

For example:

```
email-from-key = FromAddress
```

The email-to-key Configuration Option

To configure the Adapter to find the `To` email address value, see the `email-to-key` option.

This option should contain a string with the user data key where a `To` address is stored.

For example:

```
email-to-key = To
```

Configuring Statistics in a Multi-Site Environment

There is no configuration required for the G*plus* Adapter for SAP Analytics to provide the interaction statistics in a multi-site environment. See the *Interaction Concentrator 8.x Deployment Guide* and the *Genesys Info Mart Deployment Guide* for more details on how to configure Interaction Concentrator and Genesys Info Mart.

Chapter

6 Starting the Adapter

This chapter describes how to start and stop the G*plus* Adapter 8.0 for SAP Analytics (the Adapter). It contains the following sections:

You can start the Adapter in any of the following ways:

- From the Windows Start menu, using a shortcut
- From Windows Explorer, using an executable file with command-line-arguments
- From the Solution Control Interface (SCI), using the `Application` object that is configured in Configuration Manager

---

Note:
- Before you can start the Adapter, all Genesys components (DBServer, Configuration Server, and so on) must be properly configured and running.

Starting the Adapter from the Start Menu

This section describes how to start the Adapter from the Windows Start menu.

Procedure:
Starting the Adapter from the Windows Start menu

Purpose: To start the Adapter from the Windows Start menu.

Start of procedure

- On the Start menu, select Programs > Genesys Solutions > Gplus Adapter for SAP Analytics[<application>] > Start Gplus for SAP Analytics.

  The Adapter starts. The Adapter console window appears, showing the log information (initialization steps, SAP requests, error information, and so on). Figure End of procedure on page 68 shows an example of the Adapter console window. The specific information that it displays will vary.

  Note: A copy of the SAP librfc32.dll file must be either in the Adapter's destination folder, or in the folder that is defined in the System Variable Path.

End of procedure

Next Steps

- There are no further steps.

Starting the Adapter from the Solution Control Interface

If you adjusted the Adapter's integration with the Management Layer as described in "Integrating with the Management Layer" on page 55, you can also start the Adapter and check the log information remotely, by using the Solution Control Interface (SCI) application.

Procedure: Starting the Adapter from the Solution Control Interface

Purpose: To start the Adapter from the SCI.

1. Make sure that the Local Control Agent (LCA) is running on the host on which the Adapter is installed.
2. In Configuration Manager, make sure that the correct startup parameters are specified on the Start Info tab of the Adapter's Application object.
3. In the SCI, in the Items Tree view, locate the Adapter's Application object you created in the previous steps.

4. Start the Adapter by using either the command on the `Start` menu shortcut or the `Start` button on the toolbar.

Note: For more information about how to use SCI, see the *Framework 8.1 Solution Control Interface Help*.

End of procedure

Next Steps

- There are no further steps.

Adjusting Command-Line Arguments

During installation, the Setup program creates a batch file (`startServer.bat`) in the destination folder that you can use to start the Adapter. This file contains settings and options that are necessary in order for the Adapter to start successfully; in particular, it includes the command-line arguments that are necessary in order for the Adapter to connect to the Configuration Server and read the settings. You must modify these arguments if your Configuration Server settings are changed.

The component supports the following command line options:

```
-host <hostName> -port <portNo> -app <application>
```

Where:

- `<hostName>` is the name of the host on which the Configuration Server is running.
- `<portNo>` is the port number of the Configuration Server.
- `<application>` is the application name, as defined on the `General` tab of the Adapter's `Application` object.

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

Starting the Adapter as a Windows Service

During installation on Microsoft Windows platforms, the Adapter is, by default, installed as a Windows Service. If, however, you stop the Adapter from running as a Windows Service and need to restart it as a Windows Service, perform the steps in the following procedure:

Procedure: Starting the Adapter as a Windows Service

Purpose: To start the Adapter as a Windows Service.

Start of procedure

1. Open the Windows Administrative Tools and double-click the `Services` icon. The Services dialog box appears.
2. Select your Adapter service from the list, and then click `Start`.

> Note: If you removed the Adapter from operating as a Windows Service, your application will not appear for selection in the `Services` list.

3. In addition, if you use the Adapter as a Windows Service, you can change the startup parameters, as follows:
   a. Open the Registry Editor.
   b. Open the Adapter's registry key, which is located in the following directory:
   `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\GpSAPAnalytics\ImagePath`
   c. Adjust the registry key value. The value must have the following format:

```
<full path>\sapbwadapter.exe" -host <hostName> -port <portNo>
-app <application> -service <serviceName>
```

   Where:
   - `servicName` must be the same as the name of the corresponding registry key in the `Services` registry folder (`GpSAPAnalytics` in our example).

> Note: It is recommended that you maintain consistency between the startup parameters that are specified in the following locations:
> - The Startup batch file
> - The service entry for the Adapter in the Windows Registry
> - The `Start Info` tab of the corresponding `Application` object in Configuration Manager.

End of procedure

Next Steps

- There are no further steps.

Stopping the Adapter

You can stop the Adapter by using the following methods:

- From the SCI (this is the recommended method)
- Manually stopping the Adapter running as either an application or as a Windows Service

Note: To prevent the Adapter from self-starting, make sure that the `autorestart` option is cleared in the Adapter's `Application` object in Configuration Manager.

Stopping the Adapter from SCI

If you are using LCA and a Solution Control Server (SCS), you can stop the Adapter from SCI, using the following procedure:

Procedure: Stopping the Adapter from SCI

Purpose: To stop the Adapter from SCI.

Start of procedure

1. In SCI, in the `Applications` view, select your application on the list pane.
2. Do one of the following:
   a. On the toolbar, click `Stop`.
   b. From the `Action` menu, click `Stop`.
   c. Right-click the `Application` object, and then click `Stop`.

   A message box appears, asking you to confirm that you want to stop the application.
3. Click `Yes`.

   SCI stops the Adapter application.

End of procedure

Next Steps

- There are no further steps.

Manually Stopping the Adapter

The procedure for stopping the Adapter manually differs, depending on whether it is running as an application or as a Windows Service.

Procedure: Manually stopping the Adapter

Purpose: To manually stop the Adapter from running.

Start of procedure

Adapter Running as an Application

1. If the Adapter is running as an application—not as a Windows Service:
   - From the Adapter's console window, press `Ctrl + C`.

Adapter Running as a Windows Service

2. If the Adapter is running as a Windows Service, you should stop it only from the Services Control Manager, as follows:
   a. Open the Windows Administrative Tools, and double-click the `Services` icon. The `Services` dialog box appears.
   b. Select your Adapter service from the list, and then click `Stop`.

Chapter

7 Configuring the Adapter-SAPphone Connection

This chapter describes how to configure and test the connection between the G*plus* Adapter 8.0 for SAP Analytics (the Adapter) and SAPphone. It contains the following sections:

Configuring a Connection Between SAP and the Adapter

In order to configure the connection between a SAP Application Server and the Adapter, you must first configure the SAP Application Server and the Adapter. If everything is configured correctly, you should have all the information that you need to set the mandatory options in the Adapter, as described in Chapter 5, "Configuring the Adapter," on page 47. These options are common to the general SAP environment settings and should be provided by the SAP administrator; however the Adapter's option, `rfc-server:program-id` depends on the specific SAPphone server configuration.

The following steps describe how to configure the SAPphone server on the SAP Application Server, and how the SAPphone server settings should be reflected in the Adapter's `program-id` option. Make sure that all the other Adapter's options are set to their correct values.

Procedure: Configuring the SAPphone server on the SAP Application Server

Purpose: To configure the SAPphone server on the SAP Application Server.

1. Go to the `SM59` transaction in your SAP system.
2. In the `RFC Destination` window, create a new Remote Function Call (RFC) destination:
   a. In the `Connection type` box, enter `T` (`TCP/IP` connection).
   b. In the `RFC destination` box, enter the name of the new RFC destination.
   c. In the `Program ID` box, enter the program ID.

   Figure 15 shows an example of an `RFC Destination` window in which a RFC destination named `SPS.RFC` is defined.

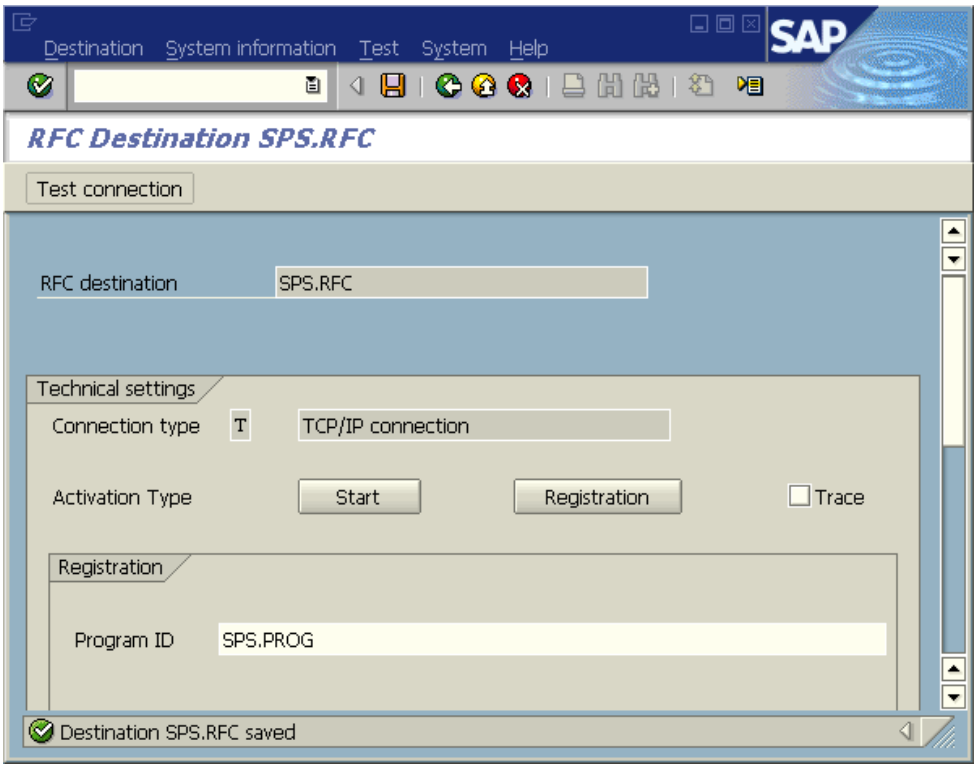


Figure 15: SAP: RFC Destination Window

3. Save your settings.
4. In Genesys Configuration Manager, set the value of the Adapter's `rfc-server:program-id` option so that it matches the value that you entered in the `Program ID` box in Step c.
5. Apply the changes.

6. Make sure that the Adapter is running.
7. In the SAP `RFC Destination` window, click the `Test Connection` button.

   If the connection test is successful, the `RFC - Connection Test` window appears, displaying the test results (see Figure 16).

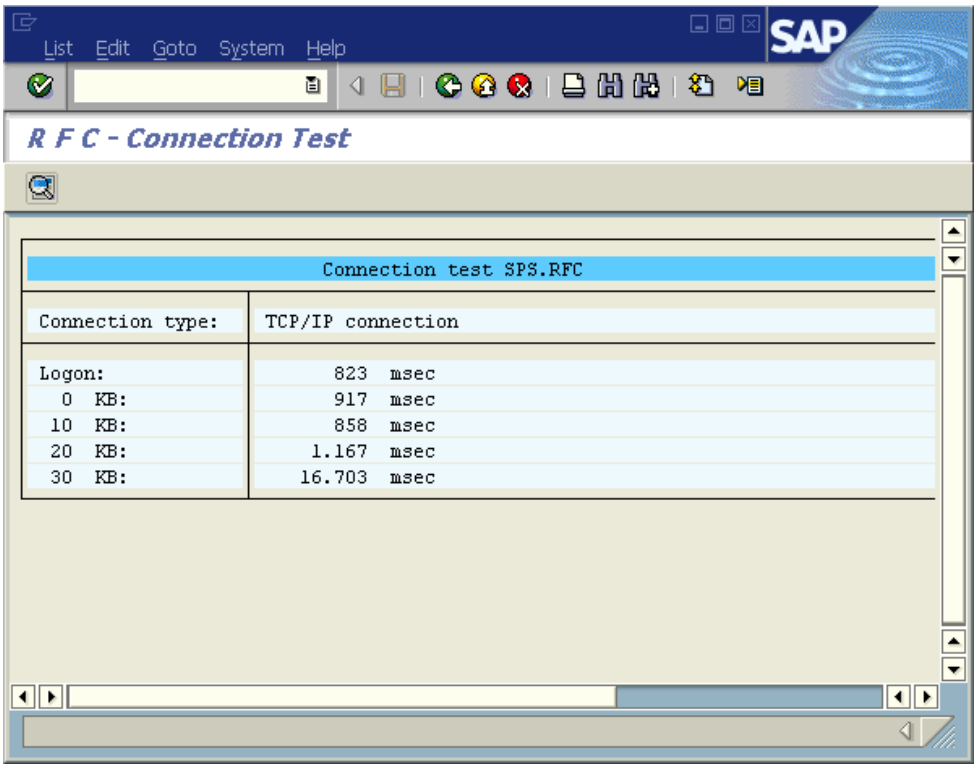


Figure 16: SAP: RFC Connection Test Results

8. Go to the `SPHB` (SAPphone system administration) transaction, create a new SAPphone server based on the RFC destination that you defined. You will see that the `Server` box is disabled, which means that the server is inactive (see Figure 17 on page 76).

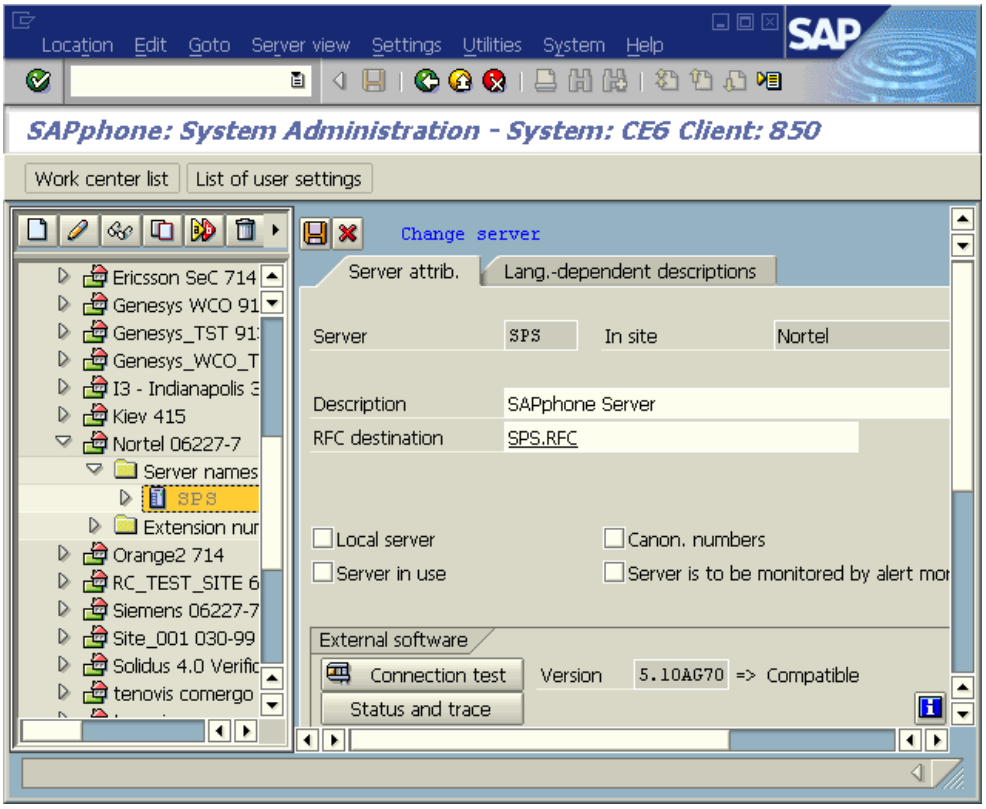


Figure 17: SAP: The Newly Created SAPphone Server

9. In the SAPphone server window, click `Connection test`. This test enables SAP and the Adapter to exchange the following data:

- Parameters that must be maintained in both the SAP system and the telephony gateway (`XCHGPARAMS` request). The telephony gateway is a software component that maps SAPphone functions and the corresponding functions in the CTI system.
- Version numbers of the SAPphone and the telephony gateway (`XCHGVERSION` request).

If the connection test is successful, the `Version Compatibility` message box appears, displaying the compatibility information about the SAPphone interface that is supported by SAP and the Adapter (see Figure 18 on page 77).

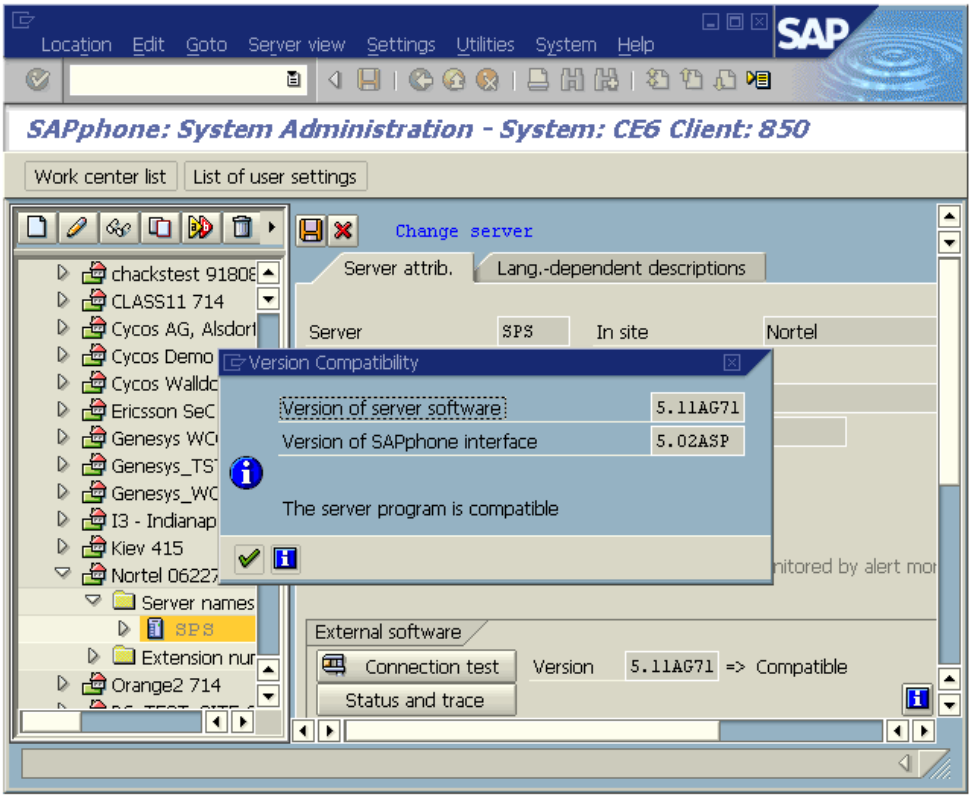


Figure 18: SAP Version Compatibility Message Box—Connection Test Has Passed

10. In the SAPphone server window (see Figure 17 on page 76), select the `Server in use` check box to activate the SAPphone server and save the changes.

You can now use the Adapter and SAP together.

End of procedure

Next Steps

- Test the Adapter-SAPphone Connection. See the section, "Testing the Adapter-SAPphone Connection".

Testing the Adapter-SAPphone Connection

Genesys recommends that, after you start the Adapter and set up the agent work center on SAP, you perform a connection test. In this way, you can check the connection and compatibility between the Adapter and SAP, and the Adapter receives information about your SAPphone server settings.

Procedure: Performing an Adapter-SAPphone connection test

Purpose: To perform an Adapter-SAPphone connection test.

Start of procedure

- Go to the `SPHB` transaction in your SAP system, select your site and telephony server, and click `Connection test`.

  The `Version Compatibility` message box appears, displaying the SAPphone version that is implemented in the Adapter and supported by your SAP system (see Figure 19).

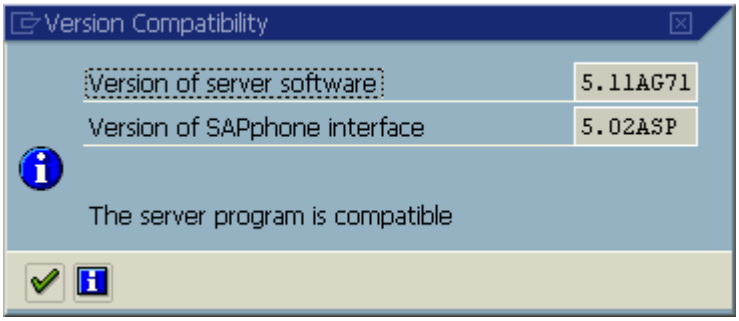


Figure 19: Version Compatibility Message Box—Connection Test Has Passed

End of procedure

Next Steps

- There are no further steps.

Chapter

8 Use-Case Scenarios

This chapter describes some common use-case scenarios for the G*plus* Adapter 8.0 for SAP Analytics (the Adapter). These scenarios illustrate some useful functions of the Adapter in action. This chapter contains the following sections:

Before You Begin

The information in these use-case scenarios are most useful if your system administrator first installs and configures the Adapter. Specifically, make sure that your system administrator has already done the following:

1. Created an `Application` object in Configuration Manager (see "Creating and Configuring the Application Object" on page 34).
2. Installed the Adapter (see Chapter 4, "Installing the Adapter," on page 33).
3. Created a Site and Telephony (SAPphone) server by using the `SPHB` (SAPphone system administration) transaction (see your SAP documentation).

   During this step, your system administrator defines the `RFC destination` and `Program ID` values, which are used when configuring the Adapter.
4. Configured the connections and set the mandatory configuration options for the Adapter (see Chapter 5 on page 47).

Scenario 1: Gathering Log Information

All Genesys components create log files that are used to help troubleshoot issues when they emerge. In order to help you resolve any issues that you have, Genesys Customer Care will need a copy of the log file(s), and a detailed problem description.

If you encounter any telephony-related issues and you feel that you need help from Genesys Customer Care, collect the following:

- A full Adapter log saved to a file.
- All SAP Remote Function Call (RFC) software development kit (SDK) trace files. For more information about RFC tracing, see your SAP RFC SDK documentation.

Note: A copy of the SAP trace file is automatically created in the Adapter's destination folder when SAP fails.

Adapter Log

To collect the full Adapter log data, set the option values as shown in Table 8.

Table 8: Option Values for the Adapter Log

Section	Option	Value
log	all	`stdout, AdapterLog` = enables log output both to the Adapter application's graphical user interface (GUI) and to a log file prefixed with `AdapterLog`, which is placed into the application folder.
	print-attributes	`true` = provides more details about the input and output parameters for the Adapter's interaction functions.
	verbose	`all` = enables all log events on all log levels to be produced.

After you set all the option values as shown in Table 8 on page 80, complete the following procedure:

Procedure:
Collecting the full Adapter log data

Purpose: To collect the full Adapter log data.

Start of procedure

1. Start the Adapter.
2. Repeat the steps that caused the problem.
3. Collect the Adapter log files.
4. Send the log files and a description of the problem to Genesys Customer Care.

Note: Setting the log options to the values shown in Table 8 on page 80 forces the Adapter to produce the most complete log information, but it can negatively affect the performance. Therefore, after you gather the log data, reset the options in order to decrease the level of log details.

End of procedure

Next Steps

- There are no further steps.

Scenario 2: Uploading Statistical Data

To collect the data that is required in order to generate SAP Business Information Warehouse (BW) reports with computer-telephony integration (CTI) statistics, you need the following:

- Data in the Genesys and SAP systems that was previously collected.

The Genesys and SAP systems must have data from the actual SAP ERP or IC WebClient interactions. The scenario in this section shows:

- How to upload post interaction data into the SAP Customer Relationship Management (CRM) for statistics.

Uploading the Sample Interaction Data

The following procedure shows you how to upload the sample interaction data.

Procedure:
Uploading the sample interaction data

Purpose: To upload interaction data into the SAP CRM.

1. Use the transaction, `CRM_CIC_CTI_LOAD`, to open the data uploading screen (see Figure 20 on page 82).
2. In the `Upload Interaction Statistics from Communication System` window, select the `CTI Upload` option (see Figure 20 on page 82).

> Note: This option is selected, because the data is from a communication system in this scenario. In order to use this option, you must have a CTI server connected to your SAP CRM system.

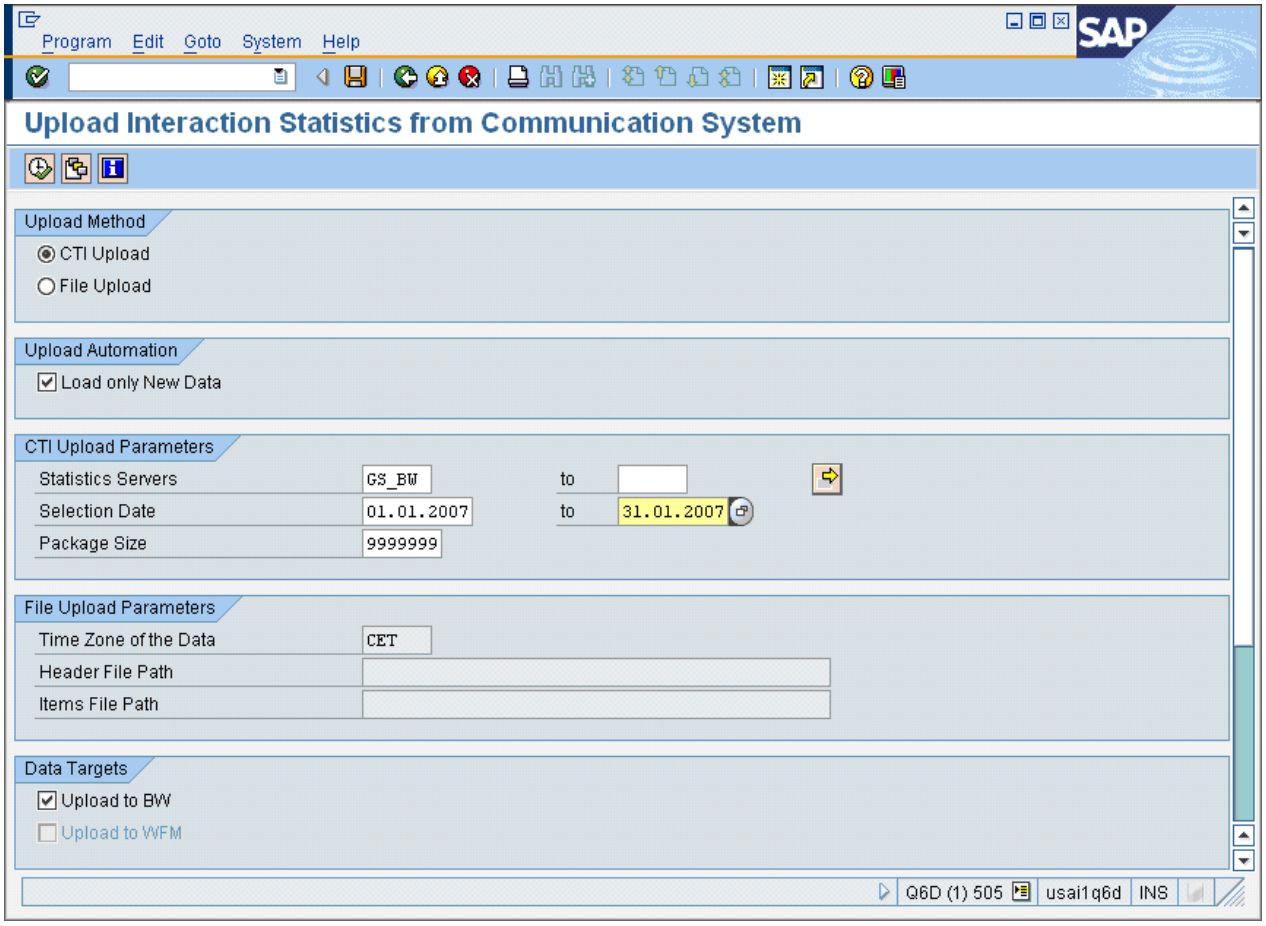


Figure 20: SAP: Upload Interaction Statistics from Communication System Window

3. (Optional) Select the `Load Only New Data` check box, if you want the system to upload only the data that is new since the last upload (see Figure 20).

After you select this check box:

- The system populates the `Selection Date` boxes in the `CTI Upload Parameters` section, using the date of the last upload, and the current date as the `to` value.
- You can manually specify your own `Selection Date` values. In this case, the system uses one of the following as the `from` date, depending on which is the earlier:
  - The date of the last upload
  - The date that you entered

  For example:

  Suppose that you select `Load Only New Data`, and enter `20.08.2013` (August 20) and `31.08.2013` (August 31) in the `Selection Date` boxes, but the last upload was on `01.01.2012` (August 1). In this case, the system uploads the data from August 1, 2012 to August 31, 2013.

Note: If you do not select `Load Only New Data`, you must manually set the `Selection Date` values.

---

4. Under `CTI Upload Parameters`, enter values as follows (see Figure 20 on page 82):
   a. In the `Statistics Servers` box, select the Statistic Server on which the G*plus* Adapter for SAP Analytics is running, and for which you want to upload the communication data.
   b. (Optional) In the `Selection Date` box, update the maximum package size.
   c. (Optional) In the `Package Size` box, update the maximum package size.
5. Under `File Upload Parameters`, enter appropriate values (see Figure 20 on page 82).

Note: If you selected the `CTI Upload` update method in Step 2 on page 82, by default the time zone of the CTI server is set to the time zone of the SAP CRM system.

---

6. Under `Data Targets`, enter the target system to which you want to upload the data (see Figure 20 on page 82).

Note: Statistical data can be used only by a BW system. Therefore, you must select the `Upload to BW` check box.

If your SAP CRM system is not currently connected to a BW system, this option is disabled. To enable the option, connect the BW system to SAP CRM.

---

7. Execute the data uploading by clicking:
   - The clock and check-mark icon (top left tool bar).
   - F8, see Figure 20 on page 82.

End of procedure

Next Steps

- View the sample interaction data. See, “Viewing the Sample Interaction Data” on page 84.

If the sample interaction data upload is successful, the status bar displays `File upload OK`.

Note: The data is saved in a buffer table, from which it is enriched with SAP CRM application data, and extracted into the BW.

In order to have access to data from the communication system, you should execute the report as often as necessary in order to meet your scheduling requirements—for example, every night or once a week. You should execute the report at least once a week, prior to calculating a forecast, so that you can use the most current CTI information when generating that week’s schedule.

Viewing the Sample Interaction Data

The following procedures describes how to view the uploaded interaction data.

Procedure: Viewing the sample interaction data

Purpose: To view the uploaded interaction data.

Start of procedure

1. Open the `BW Delta Queue Maintenance` window (`RSA7` transaction), and double-click the `CRM_CIC_CTI` data source. (see Figure 21 on page 85).

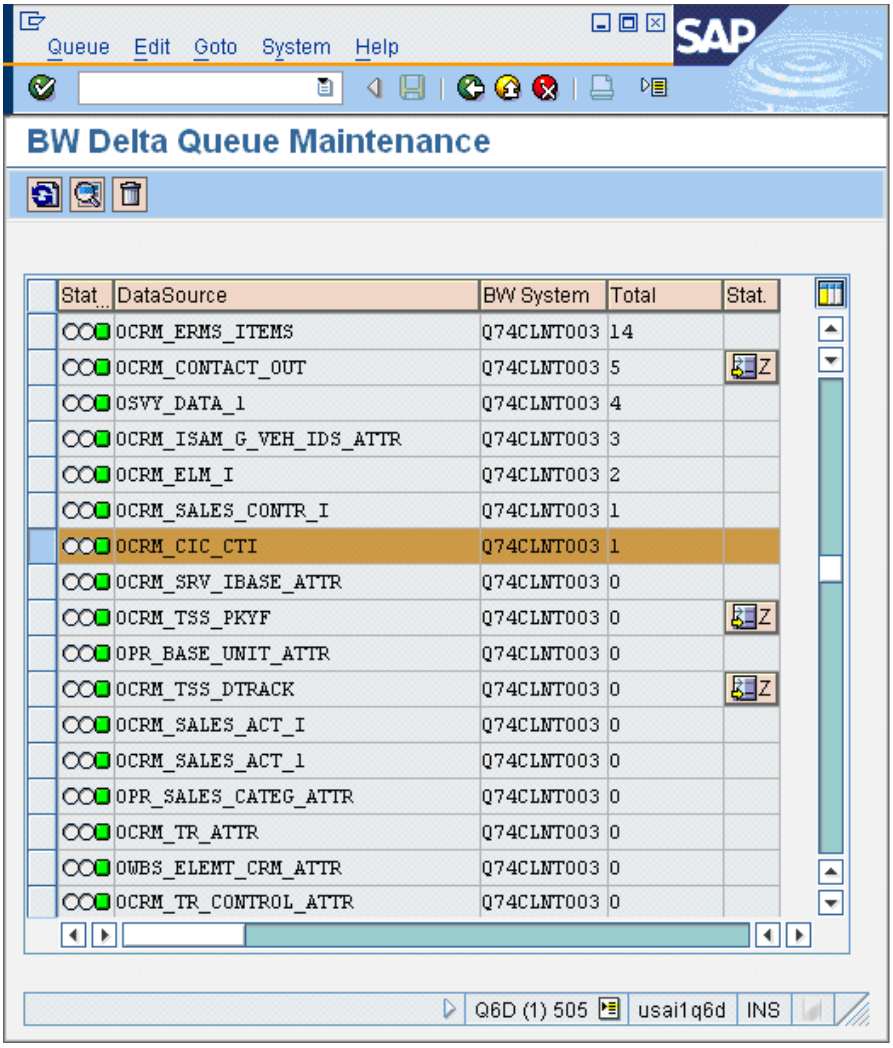


Figure 21: SAP: BW Delta Queue Maintenance Window

The `Display data entries` window appears (see Figure 22).

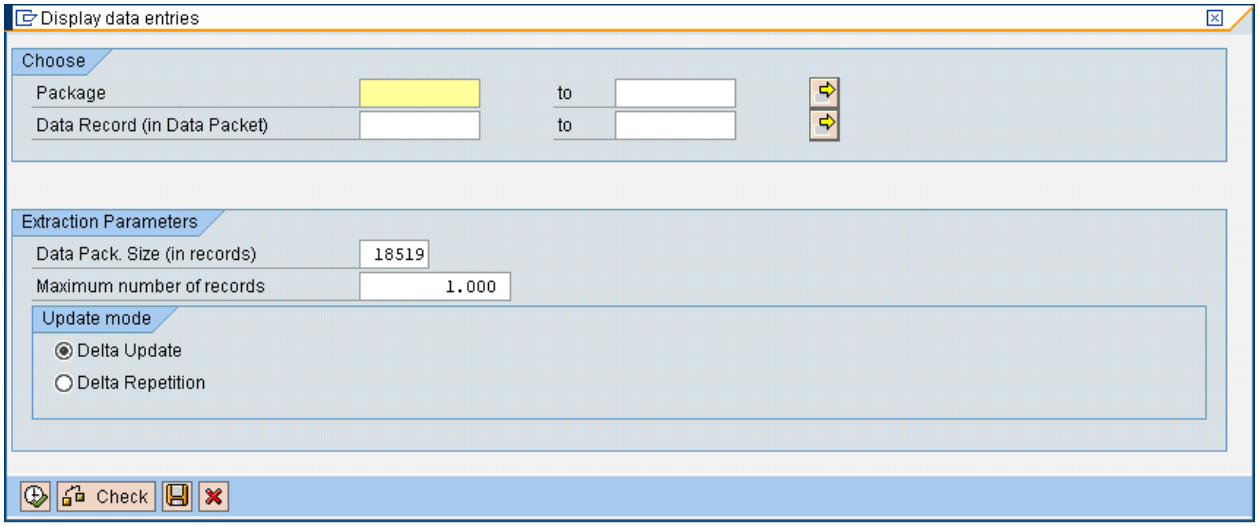


Figure 22: SAP: Display data entries Window

2. Execute the data uploading by clicking:
   - The clock and check-mark icon (bottom left tool bar).
   - F8 (see Figure 22).

   If that data upload is successful, the Monitor for qRFC window appears, showing the data (see Figure 23 on page 87).

End of procedure

Next Steps

- There are no further steps.

Note: The table in Figure 23 shows several interaction types:
- An inbound call is queued and processed by an agent called, GENTEST3
- An inbound call is queued and processed by an agent called, GENTEST3, after a blind transfer to agent, GENTEST2; the second agent processes the call.
- An inbound call is queued and processed by an agent called, GENTEST3, after a warm transfer to agent, GENTEST2; both agents process the call in a conference call.
- An inbound call is queued and abandoned by the caller.
- An outbound call is performed and processed by agent, GENTEST3.

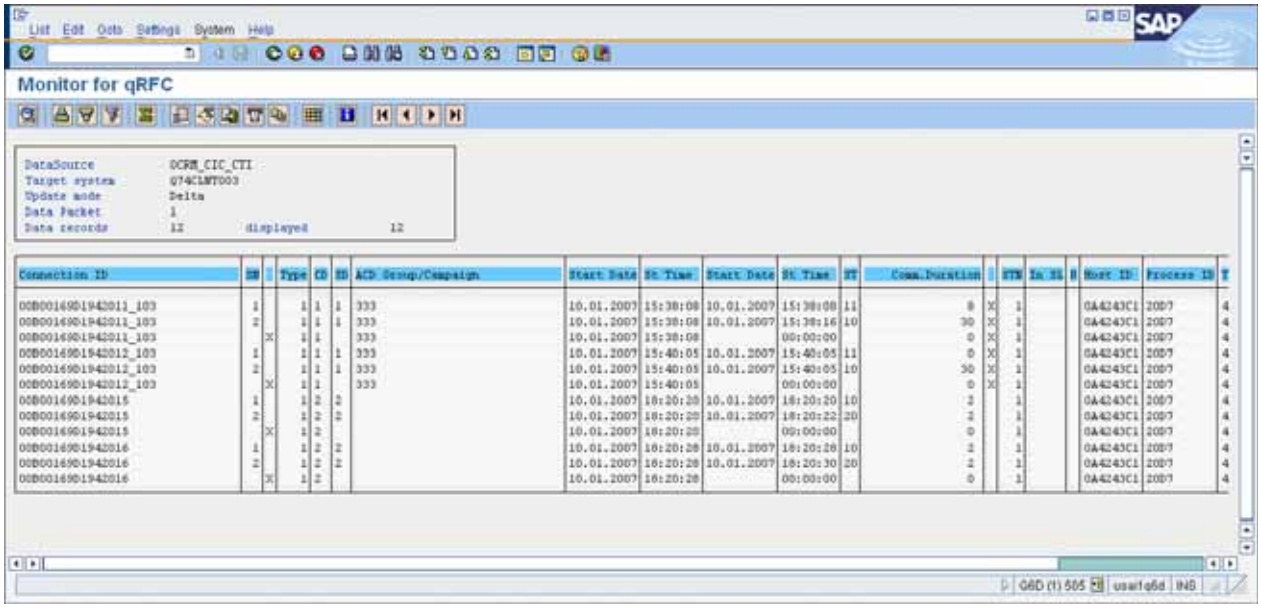


Figure 23: SAP: Monitor for qRFC Window - Verifying Successful Data Upload into CRM

Note: Uploading data from SAP CRM into the Business Warehouse is beyond the scope of this Deployment Guide. For more information, refer to your SAP System Administrator documentation.

Chapter

9 Genesys to SAP Model Mapping

The chapter describes the mapping of the Genesys interaction states to the SAP statistics tables in a user-friendly manner.

This chapter contains the following section:

Interaction States

This section contains the following four tables:

- Table 9 displays a conventional notation for the pictures describing the interaction states.
- Table 10 displays interaction states supported by the Adapter and the corresponding SAP steps table (`SPH_STSTPE`).
- Table 11 displays the mapping of the Genesys Interaction direction to the SAP Connection direction in the SAP header table (`SPH_STHDRE`).
- Table 12 displays the default media type mapping that is represented in the SAP header table (`SPH_STHDRE`).

Table 9: Symbols Description

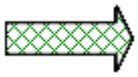
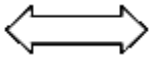
Symbol	Description
	A connection is in the active-transient state
	A connection is in the active-processing state—for example, the data is processing
	A non-directional connection—for example, the direction either is undefined or is not an object
	A connection is in the inactive state—for example, the processing is suspended (no activities)
	Queue
	Alarm (ringing/dialing)
	IVR
	Agent
	Customer
	Waiting

Table 10: Interaction State to Steps Table Mapping

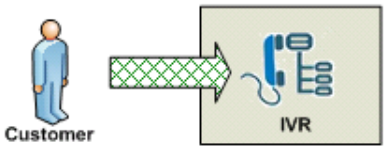
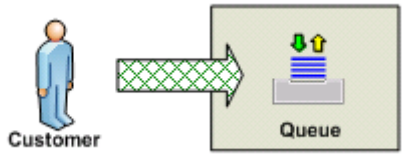
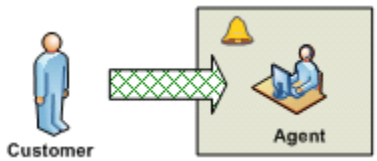
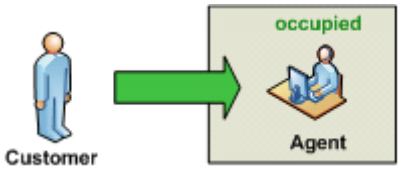
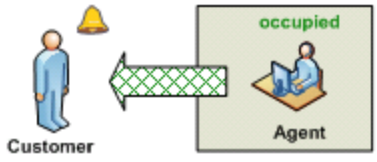
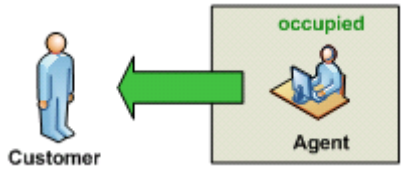
#	Genesys Interaction States	SAP Steps Table
1	 A customer navigates through the IVR.	Step direct: 1 | Step Type: 12 | 1st Agt. Extens.: | 1st Agt CC User: | 2nd Agt Extens.: | 2nd Agt CC User: | Transfer No.: 1
2	 An interaction waits in the queue.	Step direct: 1 | Step Type: 11 | 1st Agt. Extens.: | 1st Agt CC User: | 2nd Agt Extens.: | 2nd Agt CC User: | Transfer No.: 1
3	 A customer contacts an agent.	Step direct: 1 | Step Type: 10 | 1st Agt. Extens.: | 1st Agt CC User: | 2nd Agt Extens.: | 2nd Agt CC User: | Transfer No.: 1
4	 An agent processes an inbound interaction with a customer.	Step direct: 1 | Step Type: 20 | 1st Agt. Extens.: ext1 | 1st Agt CC User: ag1 | 2nd Agt Extens.: | 2nd Agt CC User: | Transfer No.: 1
5	 An agent contacts a customer.	Step direct: 2 | Step Type: 10 | 1st Agt. Extens.: ext1 | 1st Agt CC User: ag1 | 2nd Agt Extens.: | 2nd Agt CC User: | Transfer No.: 1

Table 10: Interaction State to Steps Table Mapping (Continued)

<table>
<tr><th>#</th><th>Genesys Interaction States</th><th>SAP Steps Table</th></tr>
<tr><td>6</td><td> 

An agent processes an outbound interaction with a customer.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>2</td><td>20</td><td>ext1</td><td>ag1</td><td></td><td></td><td>1</td></tr>
</table>
</td></tr>
<tr><td>7</td><td> 

An agent initiates a consultation call to a queue.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>11</td><td>ext1</td><td>ag1</td><td></td><td></td><td>1</td></tr>
</table>
</td></tr>
<tr><td>8</td><td> 

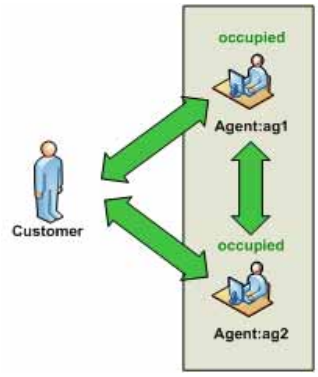
An agent initiates a mute transfer to a queue.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>1</td><td>20</td><td>ext1</td><td>ag1</td><td></td><td></td><td>1</td></tr>
<tr><td>3</td><td>11</td><td></td><td></td><td></td><td></td><td>1</td></tr>
</table>
</td></tr>
<tr><td>9</td><td> 

An agent is alerted that there is a consultation call waiting—for example, when an interaction is transferred through a queue.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>11</td><td></td><td></td><td></td><td></td><td>1</td></tr>
<tr><td>3</td><td>10</td><td></td><td></td><td></td><td></td><td>1</td></tr>
</table>
</td></tr>
<tr><td>10</td><td> 

Agent <code>ag1</code> initiates a consultation call with agent <code>ag2</code>.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>10</td><td>ext1</td><td>ag1</td><td></td><td></td><td>1</td></tr>
</table>
</td></tr>
</table>

Table 10: Interaction State to Steps Table Mapping (Continued)

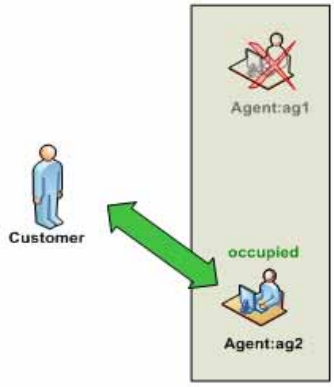
<table>
<tr><th>#</th><th>Genesys Interaction States</th><th>SAP Steps Table</th></tr>
<tr><td>11</td><td> 

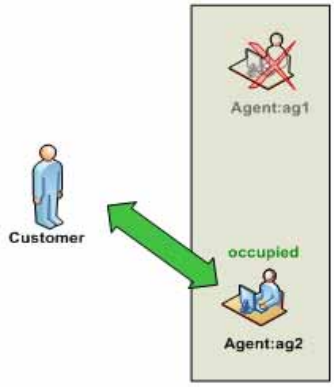
Agent ag1 consults with agent ag2.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>20</td><td>ext1</td><td>ag1</td><td>ext2</td><td>ag2</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>12</td><td> 

The two agents and the customer are engaged in a conference call.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>4</td><td>20</td><td>ext1</td><td>ag1</td><td>ext2</td><td>ag2</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>13</td><td> 

The conversation between agent ag1 and agent ag2 is muted, while agent ag1 talks with the customer.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>20</td><td>ext1</td><td>ag1</td><td>ext2</td><td>ag2</td><td>1</td></tr>
<tr><td>1</td><td>20</td><td>ext1</td><td>ag1</td><td>ext2</td><td>ag2</td><td>1</td></tr>
</table>
</td></tr>
</table>

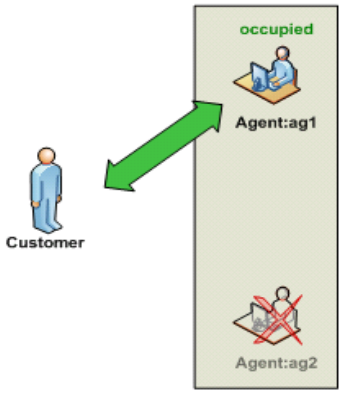
Table 10: Interaction State to Steps Table Mapping (Continued)

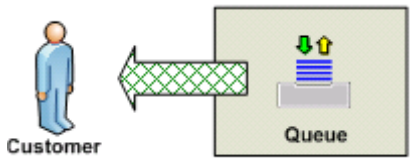
<table>
<tr><th>#</th><th>Genesys Interaction States</th><th>SAP Steps Table</th></tr>
<tr><td>14</td><td> 

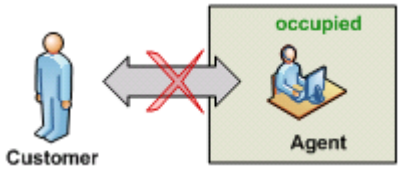
Agent ag1 transfers the call to agent ag2.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>...</td><td></td><td></td><td></td><td></td><td>N</td></tr>
<tr><td>1</td><td>20</td><td>ext2</td><td>ag2</td><td></td><td></td><td>N+1</td></tr>
</table>
N—The transfer number from the previous step</td></tr>
<tr><td>15</td><td> 

The first agent (ag1), who talked to the customer, leaves the conference call.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>...</td><td></td><td></td><td></td><td></td><td>N</td></tr>
<tr><td>4</td><td>20</td><td>ext1</td><td>ag1</td><td>ext2</td><td>ag2</td><td>N</td></tr>
<tr><td>1</td><td>20</td><td>ext2</td><td>ag2</td><td></td><td></td><td>N+1</td></tr>
</table>
N—The transfer number from the previous step</td></tr>
</table>

Table 10: Interaction State to Steps Table Mapping (Continued)

<table>
<tr><th>#</th><th>Genesys Interaction States</th><th>SAP Steps Table</th></tr>
<tr><td>16</td><td> 

The second agent (ag2), who talked to the customer, leaves the conference call.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>3</td><td>...</td><td></td><td></td><td></td><td></td><td>N</td></tr>
<tr><td>4</td><td>20</td><td>ext1</td><td>ag1</td><td>ext2</td><td>ag2</td><td>N</td></tr>
<tr><td>1</td><td>20</td><td>ext1</td><td>ag1</td><td></td><td></td><td>N</td></tr>
</table>
N—The transfer number from the previous step</td></tr>
<tr><td>17</td><td> 

Sending an interaction outside the contact center area through a queue (this is applicable only for offline media, such as e-mail).</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>2</td><td>11</td><td></td><td></td><td></td><td></td><td>1</td></tr>
</table></td></tr>
<tr><td>18</td><td> 

The customer call is finished, but the agent performs some activities that are related to the call—for example, finalizing the outbound record.</td><td>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>1</td><td>30</td><td>ext1</td><td>ag1</td><td></td><td></td><td>1</td></tr>
</table>
<table>
<tr><th>Step direct</th><th>Step Type</th><th>1st Agt. Extens.</th><th>1st Agt CC User</th><th>2nd Agt Extens.</th><th>2nd Agt CC User</th><th>Transfer No.</th></tr>
<tr><td>2</td><td>30</td><td>ext1</td><td>ag1</td><td></td><td></td><td>1</td></tr>
</table></td></tr>
</table>

Table 11: Interaction Direction Mapping for the SAP Header Table

Genesys Interaction Direction	SAP Connection Directions
From an outside location to the contact center	SAP Connection Directions SPH_CON_DRCT_INBOUND - 1
From the contact center to an outside location	SPH_CON_DRCT_OUTBOUND - 2
From the contact center to an outside location through the Outbound Contact Solution (OCS)	SPH_CON_DRCT_AUTOMATIC_CALL - 3

Table 12: Default Media Type Mapping for the SAP Header Table

Genesys Media	SAP Request Type	SAP Address Type
Voice	SPH_REQ_TYP_PHONECALL - 01	SPH_ADR_TYP_PHONE - 'TEL'
E-mail	SPH_REQ_TYP_EMAIL - 02	SPH_ADR_TYP_INTERNET_MAIL - 'INT'
Chat	SPH_REQ_TYP_CHAT - 03	SPH_ADR_TYP_INTERNET_MAIL - 'INT'
<Open Media>	<Customizable>[a]	<Customizable>[b]

a. Refer to Chapter 5, “Configuring the Genesys Media Type Mapping to SAP Connection Type Mapping,” on page 56.

b. Refer to Chapter 5, “Configuring the Genesys Media Type Mapping to SAP Connection Type Mapping,” on page 56.

Note: Since the reporting is based on Genesys Info Mart, the report might be different from the one generated by the 7.5 version of the Adapter.

In the interaction header table, the 8.0 version of the Adapter does the following:

- Reports the `INT_ADDR` and `EXT_ADDR` interactions directly from the `SOURCE_ADDRESS` and `TARGET_ADDRESS` columns of the `INTERACTION_FACT` table in the Genesys Info Mart database.
- Reports as the `QUEUE` interaction as the first queue or Routing Point, where the interaction resides prior to being sent to an agent.
- Does not provide the `INT_ADDR` interaction for the incoming e-mail interactions by default because Genesys Info Mart does not provide the address in the `TARGET_ADDRESS` column for e-mail interactions. It is possible to use the `email-to-key` option to populate the target address.

Appendix

A

Categorizing a Call Type

This appendix describes how a call type is categorized as *external* or *internal* when the `external-dns-group` option is set, as illustrated in Figure 24.

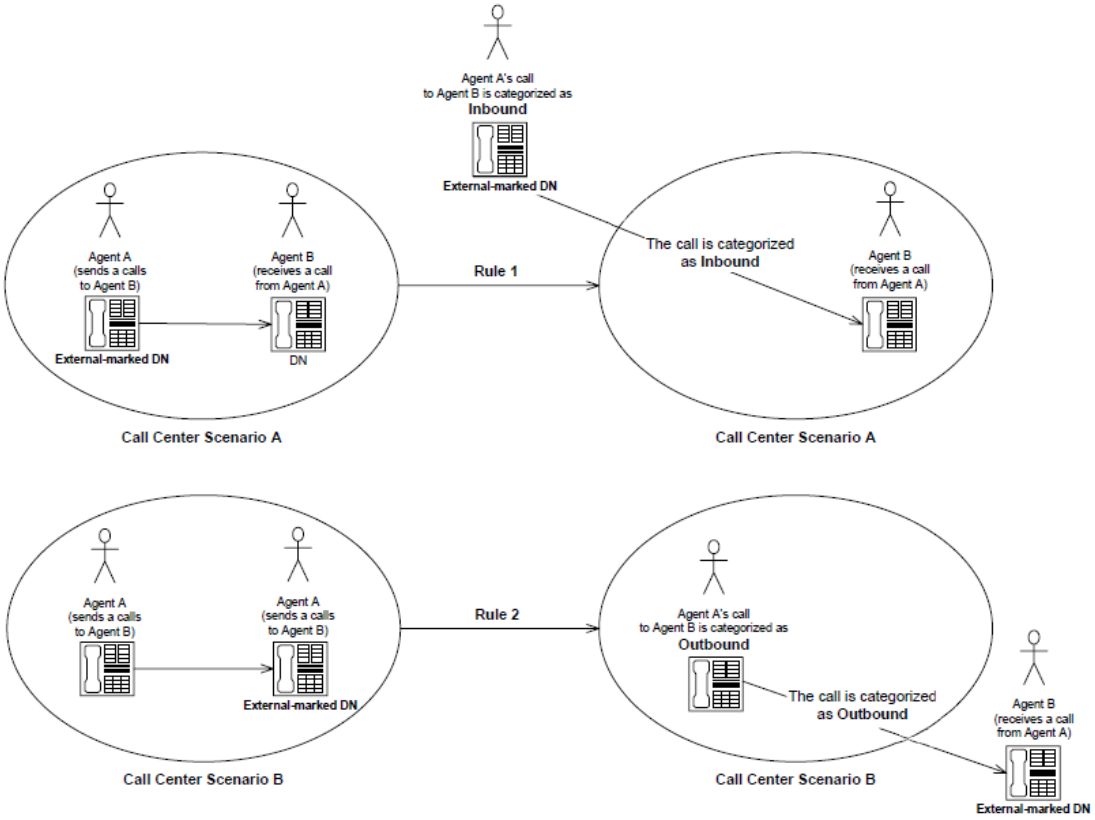


Figure 24: Categorizing a Call as External or Internal

How a Call Type is Categorized

A call type is categorized as *internal* or *external* as follows:

- If there is an internal call, and Agent A (the first party in the call thread), who resides on a DN from the `external-dns-group` list, is an initiator of the call, the Adapter reports the call type to SAP as `inbound`.
- If there is an internal call, and Agent B (the second party in the call thread), who resides on a DN from the `external-dns-group` list, accepts the call, the Adapter reports the call type to SAP as `outbound`.
- If there is an internal call, and both Agent A and Agent B reside on DNs that are not included on the `external-dns-group` list, the call is ignored, and the Adapter does not report it to SAP at all. The default value, an empty string, is used.

`Note:` If there is an internal call, and both Agent A and Agent B reside on DNs from the external-dns list, the Adapter does not report it to SAP at all.

Appendix

B

Analyzing the Memory Consumption

This appendix contains the memory recommendations and empirical formulas that calculate the approximate memory consumption based on the amount of data transferred through the Adapter.

Formulas Used for Calculating Memory Usage

The data structures (`SPH_STHDRE` and `SPH_STSTPE`) used to store the interaction details in the SAPphone statistics report are described in *SAPphone Telephony in SAP Systems*, sections 11.1.18 and 11.1.19.

The memory size of the data structure records is as follows:

- The size of the `SPH_STHDRE` record is 562 bytes.
- The size of the `SPH_STSTPE` record is 148 bytes.

The General Formula Used for Calculating Memory Usage

The general formula used for calculating the Adapter's memory consumption is as follows:

General Formula

$$M \approx H * Hsize + S * Ssize + Mo$$

Where:

- `H` – the number of records in the `SPH_STHDRE` table
- `S` – the number of records in the `SPH_STSTPE` table
- `Hsize` – the size of one record in the `SPH_STHDRE` table, in bytes. In the SAPphone interface, the size of this record is 562 bytes.
- `Ssize` – the size of one record in the `SPH_STSTPE` table, in bytes. In the SAPphone interface, the size of this record is 148 bytes.
- `Mo` – the memory consumed by the Adapter without a header and steps table, the additional data structures used in the algorithm, the stack memory size, and so on.

Note: `Mo` ≈ `50 megabytes`.

The Simplified Formula Used for Calculating Memory Usage

Since the number of connection steps (`S`) is limited by the value of `MAX_PACKAGE_SIZE`, it is possible to simplify this formula to have a dependency only on the number of connection steps.

Procedure: Simplifying the Formula Used for Calculating Memory Usage

Purpose: To simplify the formula used for calculating memory usage.

Start of procedure

1. The first step to simplifying this formula is to introduce the connection step count to the header count coefficient, as follows:

   $$K = S/H$$

   This `K` coefficient signifies how many steps belong to the one header record (this value depends on certain contact center activities).

2. From this formula, the number of headers (H) is deduced, as follows:

$$H = S/K$$

3. Substitute the number of headers in the general formula to get the following equation:

$$M \approx \frac{S}{K} * Hsize + S * Ssize + Mo$$

4. Substitute the Hsize and the Ssize with the actual values and the value of MAX_PACKAGE_SIZE to get the following equation:

$$M \approx MAX\_PACKAGE\_SIZE * \left(\frac{562}{K} + 148 \right) + Mo$$

This formula is used to calculate a high memory bound function, which can be acquired by the Adapter.

End of procedure

Next Steps

- There are no further steps.

A Practical Example of the Simplified Formula

For this example, assume the following:

- A contact center has the K coefficient equal to a value of 5 (K = 5):

Therefore:

$M \approx MAX\_PACKAGE\_SIZE * \left(\frac{562}{K} + 148 \right) + 50\ MB \approx MAX\_PACKAGE\_SIZE * 260 + 50\ MB$

- MAX_PACKAGE_SIZE equals 1000000, which means that the memory consumption is:

$$M \approx 1000000 * 260 + 50\ MB \approx 300\ MB$$

It is not recommended to set the value of MAX_PACKAGE_SIZE to a value that can lead to a memory allocation more than 1 GB.

In order to allocate around 1 GB of memory (for the above example), the value of `MAX_PACKAGE_SIZE` should not exceed 4000000.

`Note`: In case the memory allocation exceeds the available memory for this process, then the Adapter stops (this behavior is caused by the `librfc32.dll`, which is responsible for the memory allocation).

Supplements

Related Documentation Resources

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

G*plus* Adapter for SAP Analytics Resources

To access additional SAP documentation, such as SAPphone RFC Interface specification or Analytics Processing Information, visit:

- The SAP Help Portal at `http://help.sap.com`.
- The SAP Service Marketplace at `http://service.sap.com`.

For example, to see the information about Analytics processing:

1. Open `http://help.sap.com`.
2. Select `mySAP Business Suite`.
3. Select `SAP Customer Relationship Mgmt`.
4. Select SAP CRM `5.0` `Support Release 1` > `English`. The `SAP Library` opens.
5. From the left navigation select: `mySAP Customer Relationship Management` > `Analytics` > `BI Content` > `Interaction Channel Analyses` > `Interaction Statistics`

Note: To find out which version of SAP CRM you are using, select `System` > `Status` from the SAP CRM GUI, or check with your system administrator.

- Release Notes and Product Advisories for this product, which are available on the Genesys Customer Care website at http://genesyslab.com/support.

Genesys

- *Genesys Technical Publications Glossary,* which ships on the Genesys Documentation Library DVD, provides a comprehensive list of the Genesys and computer-telephony integration (CTI) terminology and acronyms used in this document.
- *Genesys Migration Guide*, which ships on the Genesys Documentation Library DVD, provides documented migration strategies for Genesys product releases. Contact Genesys Customer Care for more information.

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

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

Consult the following additional resources as necessary:

- *Genesys Hardware Sizing Guide,* which provides information about Genesys hardware sizing guidelines for the Genesys 8.x releases.
- *Genesys Interoperability Guide,* which provides information on the compatibility of Genesys products with various Configuration Layer Environments; Interoperability of Reporting Templates and Solutions; and Gplus Adapters Interoperability.
- *Genesys Licensing Guide,* which introduces you to the concepts, terminology, and procedures that are relevant to the Genesys licensing system.
- *Genesys Database Sizing Estimator 8.x Worksheets,* which provides a range of expected database sizes for various Genesys products.

For additional system-wide planning tools and information, see the release-specific listings of System-Level Documents on the Genesys Documentation website (docs.genesyslab.com).

Genesys product documentation is available on the:

- Genesys Customer Care website at http://genesyslab.com/support.
- Genesys Documentation site at http://docs.genesyslab.com/.
- Genesys Documentation Library DVD and/or the Developer Documentation CD, which you can order by e-mail from Genesys Order Management at orderman@genesyslab.com.

Document Conventions

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

Document Version Number

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

80fr_ref_06-2008_v8.0.001.00

You will need this number when you are talking with Genesys Customer Care about this product.

Screen Captures Used in This Document

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

Type Styles

Table 13 describes and illustrates the type conventions that are used in this document.

Table 13: Type Styles

Type Style	Used For	Examples
Italic	• Document titles • Emphasis • Definitions of (or first references to) unfamiliar terms • Mathematical variables Also used to indicate placeholder text within code samples or commands, in the special case where angle brackets are a required part of the syntax (see the note about angle brackets on page 108).	Please consult the *Genesys Migration Guide* for more information. Do *not* use this value for this option. A *customary and usual* practice is one that is widely accepted and used within a particular industry or profession. The formula, $x + 1 = 7$ where *x* stands for . . .

Table 13: Type Styles (Continued)

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

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