Genesys Info Mart Business Continuity Deployment Guide

Genesys Info Mart 8.1.4

1/6/2022

Table of Contents

Genesys Info Mart Business Continuity Deployment Guide

This guide provides information and procedures that are relevant to deploying Genesys Info Mart in an environment that requires support for Business Continuity.

You can find the information that you need in the topics below.

Genesys Info Mart Support for Business Continuity

Find descriptions of two sample architectures, modes of operation, and possible reasons for data loss.

Disaster Recovery with Active-Active Info Marts

Find information and instructions relevant to Genesys Info Mart Disaster Recovery in a deployment with active-active instances.

Disaster Recovery with Active-Standby Info Marts

Find information and instructions relevant to Genesys Info Mart database replication with Oracle GoldenGate and Disaster Recovery with active-standby instances.

Genesys Info Mart Support for Business Continuity

Genesys Info Mart can be deployed in an environment that requires support for Business Continuity. The two approaches discussed in this wiki document help to preserve reporting data in the event of a loss of a particular site: active-active architecture and active-standby architecture. Database replication of the Genesys Info Mart database that is achieved through Oracle GoldenGate plays a crucial role in the active-standby architecture. Database replication is not required in the active-active architecture.

Business Continuity provides protection to enterprise operations in the following situations:

- Disaster Recovery (Site Failure)
- Networking Failure Between Sites
- Graceful Migration

For information about these functions, refer to the Business Continuity section of the SIP Server High-Availability Deployment Guide.

Genesys Info Mart supports Business Continuity by providing contact-center reporting in all three scenarios. In other words, the setup described in this document ensures that Genesys Info Mart continues to gather and process data when one of the sites fails, a network connection fails between the sites, or another Genesys component that supports Graceful Migration is migrated in this manner.

Note, however, that Genesys Info Mart, as an individual component, only supports the Disaster Recovery (Site Failure) scenario. For this reason, instructions in this document do not cover the switchover between Genesys Info Mart instances during a networking failure or for the purposes of application migration.

The Genesys Info Mart setup that is described in this document can be used in conjunction with the Genesys SIP Business Continuity solution.

Terminology Note

Throughout this document, the word *database* has different meaning, depending on the context. It may refer to Genesys components, such as "Interaction Database" or "Info Mart database." It may also be used in reference to general relational database management system (RDBMS) concepts and procedures, such as "database export" or "database replication." Where it is significant to refer to a particular organization of tables, views, indexes, and other database objects, the term *database schema* is used. Where it is significant to refer to the RDBMS that manages database files, the term *database instance* is used. This terminology may not necessarily match the terminology used by leading RDBMS vendors.

Architecture

Two Approaches: Active-Active vs. Active-Standby

A typical Business Continuity architecture relies on the deployment of two or more sites to ensure continuous enterprise operations in the event of a site failure.

Two approaches to achieve Business Continuity architecture for Genesys Info Mart are the following:

- Active-active architecture, in which active Genesys Info Mart instances operate in parallel at different active data centers and populate reporting data in respective Info Mart databases independently.
- Active-standby architecture, in which an active Genesys Info Mart instance operates at an active data center and populates reporting data in its respective Info Mart database. A standby Genesys Info Mart instance is deployed at another data center, but is not active until a disaster. A special database replication process ensures that a copy of the Info Mart database at the other data center is up-to-date for the standby Genesys Info Mart instance to take over during Disaster Recovery.

Genesys recommends the active-active architecture for Genesys Info Mart because it minimizes data loss at Disaster Recovery, requires smaller network bandwidth, and requires no replication software, which is often expensive in deployment and maintenance. However, Genesys continues to support the active-standby architecture, which may be more suitable for customers whose existing deployments are based on Oracle GoldenGate replication or who require Info Mart database key numbers to be preserved during Disaster Recovery.

The detailed description of each architecture is provided below. Either setup can be used in conjunction with the Genesys SIP Business Continuity solution. To learn about the overall SIP Business Continuity architecture, refer to the SIP Business Continuity Architecture.

Sample Two-Site Architectures

The sample Business Continuity architectures that are described in this section use a synchronized, two-site deployment, where Genesys switch and server architecture is mirrored at each site in an active-active configuration, so that any agent can log in to either switch, at any time. One or several Oracle RDBMS instances are deployed at each data center to host Genesys databases.

Sample Business Continuity architectures show only two sites. Particular deployments may vary in distribution of Genesys components across the sites.

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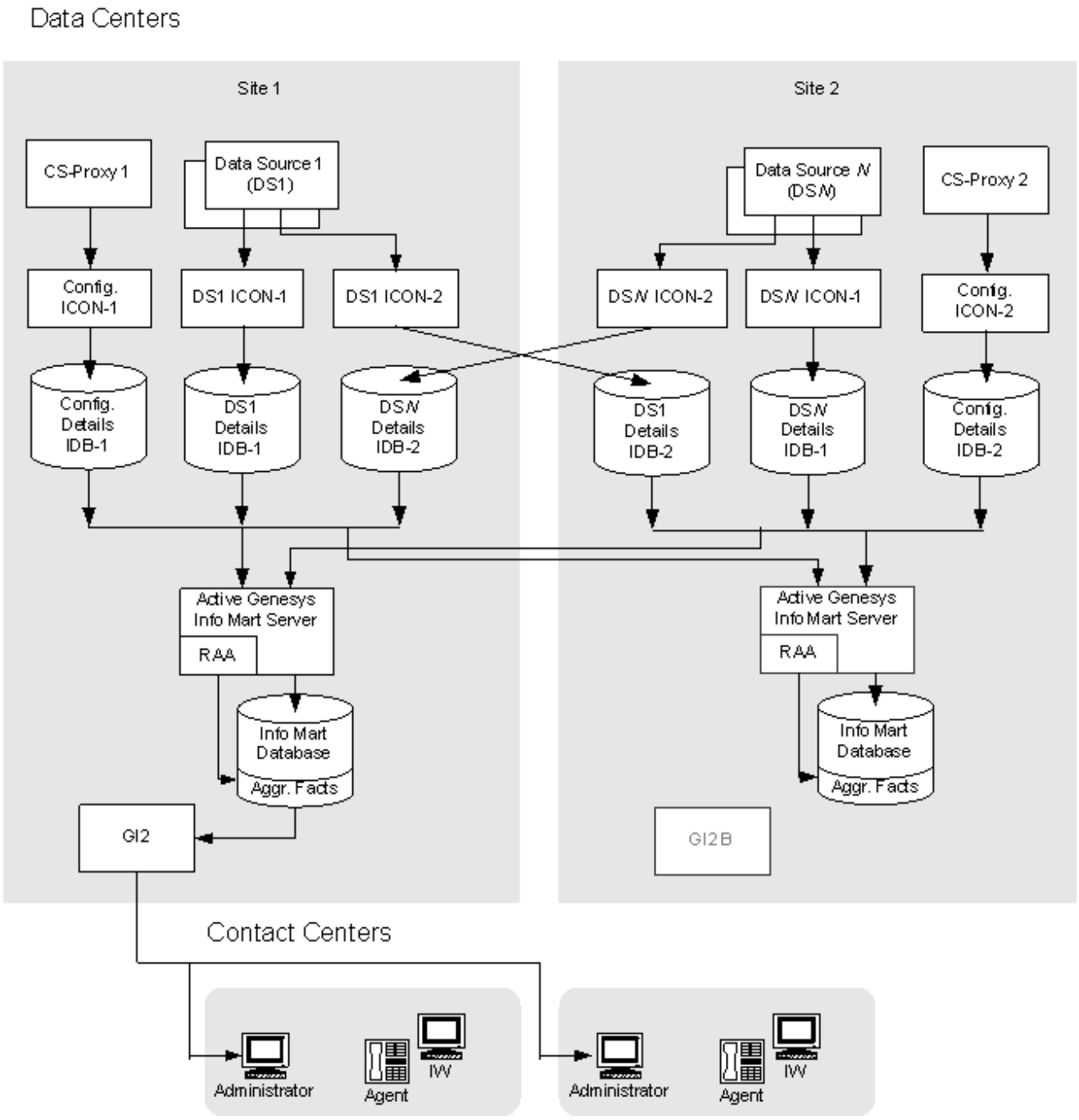
Active-Active=

Architecture with Active-Active Genesys Info Mart Instances

The "active-active" architecture of Genesys Info Mart instances is recommended for use with the Genesys-provided SIP Business Continuity solution.



To provide reporting in this deployment, Interaction Concentrator at each site collects unique data

from the local data sources. For example, SIP Server can serve as a data source for the Voice data domain and Interaction Server can serve as a data source for the Multimedia data domain. Configuration Server Proxy serves as a data source for the Configuration data domain. Outbound Contact Server (OCS) serves as a data source for the Outbound data domain in an environment with Outbound Contact.

An Interaction Concentrator instance consists of ICON server (or just ICON) and Interaction Database (IDB). ICON operates at the same site as the data source and stores data in a corresponding IDB. A separate instance of Interaction Concentrator is required at each site to store Voice or Multimedia details. Another, separate instance of Interaction Concentrator is required at each site to store Configuration details. Depending on the Outbound Contact data volume, one or more instances of Interaction Concentrator per OCS are required at each site to store Outbound details. Each IDB in the deployment uses a separate, dedicated database schema.

To provide high availability (HA) of reporting data, a redundant pair of Interaction Concentrators receives events from the same data source. Both ICONs in an HA pair operate in parallel as stand-alone servers; they process incoming data independently and store data in two independent IDBs. In this sample architecture, one IDB from the HA pair is located at the same (local) site as the HA pair of ICON servers, while the other IDB from the HA pair is located at the other (remote) site.

Two Genesys Info Mart Server instances are active and database replication is not required between the two instances. In other words, the two Genesys Info Mart Servers operate in parallel as stand-alone servers at their respective sites (Site 1 and Site 2). Both Genesys Info Mart Servers access all the IDBs at both sites and, for each HA pair, extract data from the IDB that has the best quality data from a particular data source. Each Genesys Info Mart Server stores extracted data at its own Info Mart database independently. Both Info Mart databases, therefore, contain data that is nearly identical and that reflects activity of the entire contact center.

To achieve as close similarity of data as possible, both Genesys Info Mart Servers must have identical configuration. Even then, the data sets in two databases would differ in key numbers because the data is processed independently. If preserving key numbers is essential when switching from one Genesys Info Mart instance to the other, consider deploying the active-standby architecture instead.

The data from Genesys Info Mart at Site 2 is not used by downstream Reporting applications unless Site 1 fails. An active instance of Genesys Interactive Insights (GI2) at Site 1 retrieves data from the Info Mart database at Site 1 to provide historical reports for all users. A standby GI2 instance at Site 2 can be brought into service in the event that Site 1 fails.

In the event that Site 1 fails, the disaster recovery procedure for the site must be started. As part of this procedure:

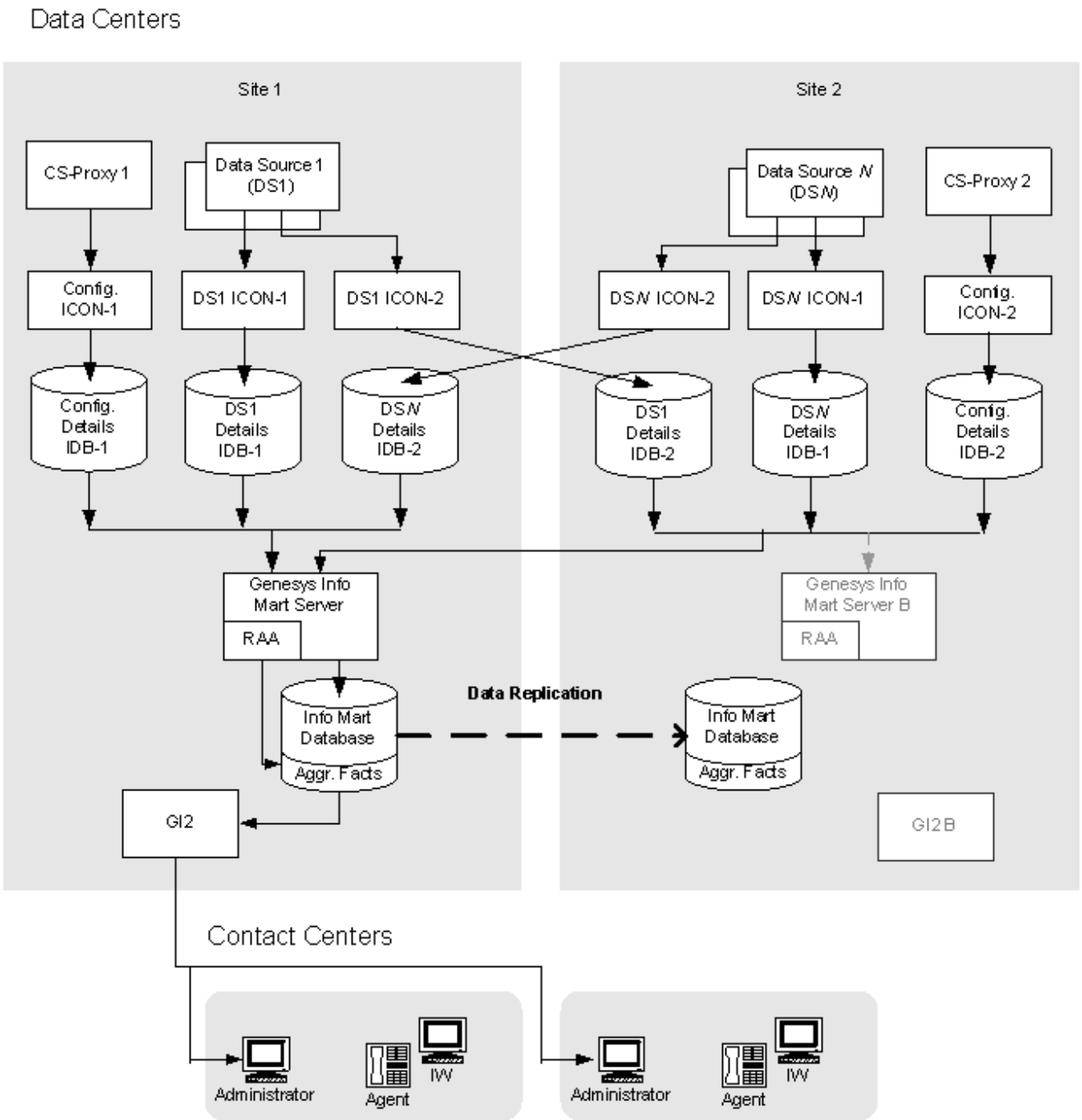
- Genesys Info Mart at Site 2 is configured to ignore data sources at the failed Site 1.
- GI2 instance is brought into service at Site 2.

When the failed site, or its replacement, is back in service, another active Genesys Info Mart instance can be added to the deployment again.

|-| Active-Standby=

Architecture with Active-Standby Genesys Info Mart Instances

The "active-standby" architecture of Genesys Info Mart instances requires a database replication between the active and standby instances; it is, therefore, more expensive in deployment, maintenance, and network bandwidth than the active-active architecture.



To provide reporting in this deployment, Interaction Concentrator at each site collects unique data from the local data sources. For example, SIP Server can serve as a data source for the Voice data domain and Interaction Server can serve as a data source for the Multimedia data domain. Configuration Server Proxy serves as a data source for the Configuration data domain. Outbound Contact Server (OCS) serves as a data source for the Outbound data domain in an environment with Outbound Contact.

An Interaction Concentrator instance consists of ICON server (or just ICON) and Interaction Database (IDB). ICON operates at the same site as the data source and stores data in a corresponding IDB. A separate instance of Interaction Concentrator is required at each site to store Voice or Multimedia details. Another, separate instance of Interaction Concentrator is required at each site to store Configuration details. Depending on the Outbound Contact data volume, one or more instances of Interaction Concentrator per OCS are required at each site to store Outbound details. Each IDB in the deployment uses a separate, dedicated database schema.

To provide high availability (HA) of reporting data, a redundant pair of Interaction Concentrators receives events from the same data source. Both ICONs in an HA pair operate in parallel as stand-alone servers; they process incoming data independently and store data in two independent IDBs. In this sample architecture, one IDB from the HA pair is located at the same (local) site as the HA pair of ICON servers, while the other IDB from the HA pair is located at the other (remote) site.

The active Genesys Info Mart at the primary site (Site 1) accesses all the IDBs at both sites and, for each HA pair, extracts data from the IDB that has the best quality data from a particular data source. The extracted data is stored at the active Info Mart database at Site 1. The data from the Info Mart database at Site 1 is replicated to the standby Info Mart database at Site 2 by means of Oracle GoldenGate. An active instance of Genesys Interactive Insights (GI2) at Site 1 provides historical reports for all users.

The standby Genesys Info Mart at Site 2 can be brought into service in the event that Site 1 fails. This Genesys Info Mart must not access the Info Mart database while replication is in progress. (To prevent accidental access, do not configure the database connection until the server at Site 2 has to be brought into service.) A standby GI2 instance at Site 2 can be brought into service in the event that Site 1 fails.

In the event that Site 1 fails, the disaster recovery procedure for the site must be started. As part of this procedure:

- Genesys Info Mart at Site 2 is activated and configured to write data into the Info Mart database at Site 2.
- The replication configuration at Oracle GoldenGate at Site 2 is modified to account for the absence of the replication source.
- GI2 instance is brought into service at Site 2.

When the failed site, or its replacement, is back in service, Oracle GoldenGate replication must be set up once again between the active Info Mart database and the standby Info Mart database.

Operation Modes

A deployment that supports Business Continuity goes through the following operational and transitional phases:

1. Normal operation
2. Disaster Recovery
3. Emergency operation
4. Return to normal operation

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Active-Active=

Operations with Active-Active Genesys Info Mart Instances

Normal (Two-Site) Operation

During normal operation, both sites are available to handle contact center activity. Interaction Concentrators at both sites collect the reporting data, while one of the active Genesys Info Mart instances provides the processed data that is suitable for reports. The normal operation phase continues until one of the sites fails, causing all Genesys components at this site to become unavailable.

Note on Connectivity Loss

In the scenario when network connectivity is lost between two sites, ICON at each site continues to collect data from the data sources that it monitors at the local site. The HA ICON that has its IDB at the same site continues writing data to the IDB. The HA ICON that has its IDB located at a remote site, writes data into a persistent queue until the connection to the IDB is restored.

While Genesys Info Mart at Site 1 cannot access IDBs at Site 2, and Genesys Info Mart at Site 2 cannot access IDBs at Site 1, data transformation is delayed and new data is not available for report generation. This results in one of the following two scenarios:

- If the network outage time is less than the `extract-data-stuck-threshold` value (which, by default, is set to 8 hours), Genesys Info Mart instances access IDBs at the other site when the network connection is restored and resume reporting without data loss.
- If the network outage time becomes greater than the `extract-data-stuck-threshold` value, the reporting data from the other site for this time difference is lost. Once the network outage time exceeds the `extract-data-stuck-threshold` value, Genesys Info Mart continues to operate by extracting only the data at the site where it operates, until the network connection is restored. When the connection to

the IDBs at the other site is restored, Genesys Info Mart extracts that site's data as far back from the reconnection time as the `extract-data-stuck-threshold` value specifies.

Disaster Recovery

In the event of a catastrophic failure of one of the sites—in other words, a failure in which all Genesys components on that site become unavailable, including locally paired HA servers—operations switch over to the surviving site to provide ongoing support for all logged in agents, as well as ongoing reporting on contact-center activity. The Disaster Recovery procedure results in all required components being brought into service at the surviving site and the remaining active Genesys Info Mart instance providing data for contact center reports. For information about Disaster Recovery steps required for Genesys Info Mart in an active-active deployment, refer to Disaster Recovery Procedure.

Some loss of customer interactions may occur at the failed site. The loss of reporting data during Disaster Recovery is minimized in the active-active Genesys Info Mart deployment.

Emergency (One-Site) Operation

During emergency operation following a site failure, the components at a surviving site handle all contact-center activity and reporting. The emergency operation phase continues until the failed site or its replacement is brought back into service.

Return to Normal Operation

When the failed site or its replacement is brought back into service, normal operation can resume at the two sites.

When setting up the replacement site, you have to decide:

- Which site will host the active Genesys Info Mart that provides reporting data for the contact center.
- How you will transfer a copy of the Info Mart database to the replacement site, and whether Genesys Info Mart must be operational while the transfer is in progress.

Choice of Active Site

With the active-active Genesys Info Mart deployment, it is not essential which Info Mart database serves as a source for reports as long as all reports are based on the data from the same database. It is advisable to run GI2 at the same site where Genesys Info Mart is located.

Database Transfer

You may choose to populate the new Genesys Info Mart database with previously collected data by transferring a copy of the Info Mart database from the surviving site to the new site. The Info Mart database in a large environment grows over time to a significant size, and it may take a significant amount of time to transfer a copy to a different location. The time required for transfer depends on the size of the Info Mart database and the channel speed that is to be used for the database transfer. Genesys recommends that you stop purging IDBs until the Genesys Info Mart Server at Site 2 has processed the IDB data that is collected during the transfer.

|-| Active-Standby=

Operations with Active-Standby Genesys Info Mart Instances

Normal (Two-Site) Operation

During normal operation, both sites are available to handle contact center activity. Interaction Concentrators at both sites collect the reporting data, while the active Genesys Info Mart at one site provides the processed data that is suitable for reports. The normal operation phase continues until one of the sites fails, causing all Genesys components at this site to become unavailable.

Note on Connectivity Loss

In the scenario when network connectivity is lost between two sites, ICON at each site continues to collect data from the data sources that it monitors at the local site. The HA ICON that has its IDB at the same site continues writing data to the IDB. The HA ICON that has its IDB located at a remote site, writes data into a persistent queue until the connection to the IDB is restored.

While Genesys Info Mart at Site 1 cannot access IDBs at Site 2, data transformation is delayed and new data is not available for report generation. This results in one of the following two scenarios:

- If the network outage time is less than the `extract-data-stuck-threshold` value (which, by default, is set to 8 hours), Genesys Info Mart accesses IDBs at Site 2 when the network connection is restored and resumes reporting without data loss.
- If the network outage time becomes greater than the `extract-data-stuck-threshold` value, the Site 2 reporting data for this time difference is lost. Once the network outage time exceeds the `extract-data-stuck-threshold` value, Genesys Info Mart continues to operate by extracting only Site 1 data, until the network connection is restored. When the connection to the IDBs at Site 2 is restored, Genesys Info Mart extracts Site 2 data as far back from the reconnection time as the `extract-data-stuck-threshold` value specifies.

Warning! Do not bring Genesys Info Mart at Site 2 into service during network outages. Doing so would result in de-synchronization of the Info Mart databases at the two sites.

Disaster Recovery

In the event of a catastrophic failure of one of the sites—in other words, a failure in which all Genesys components on that site become unavailable, including locally paired HA servers—operations switch over to the surviving site to provide ongoing support for all logged in agents, as well as ongoing reporting on contact-center activity. The Disaster Recovery procedure results in all required components being brought into service at the surviving site. For information about Disaster Recovery steps required for Genesys Info Mart in a deployment with Oracle GoldenGate, refer to Disaster Recovery Procedure.

Some loss of customer interactions may occur at the failed site. Certain reporting data may be lost during Disaster Recovery. See Potential Data Loss.

Emergency (One-Site) Operation

During emergency operation following a site failure, the components at a surviving site handle all contact-center activity and reporting. The emergency operation phase continues until the failed site or its replacement is brought back into service.

Return to Normal Operation

When the failed site or its replacement is brought back into service, normal operation can resume at the two sites.

When setting up the replacement site, you have to decide:

- Which site will host the active Genesys Info Mart and, thus, store all the data about the entire contact center.
- How you will transfer a copy of the Info Mart database to the replacement site, and whether Genesys Info Mart must be operational while the transfer is in progress.

Choice of Active Site

The two options for hosting the active Genesys Info Mart are as follows:

1. A new site, Site 3 or recovered Site 1, hosts the active Genesys Info Mart, while Genesys Info Mart at Site 2 (the surviving site) returns to standby mode.
2. The surviving site, Site 2, hosts the active Genesys Info Mart while the new site, Site 3 or recovered

Site 1, hosts the standby Genesys Info Mart.

For details on the required configuration, see Procedure to Return to Normal Operation.

Database Transfer

To establish database replication between the new active and standby sites, with either of the above options, you must transfer a copy of the Info Mart database from the surviving site to the new site. The Info Mart database in a large environment grows over time to a significant size and it may take a significant amount of time to transfer a copy to a different location. Depending on the size of the Info Mart database and the channel speed that is to be used for the database transfer, you must evaluate whether it is acceptable to have Genesys Info Mart server shut down while the database transfer takes place. If you choose Option 1, and if Genesys Info Mart at Site 2 continues to operate during the transfer of the database copy, you must also plan for additional synchronization of the data that is collected during the transfer.

Potential Data Loss

Disaster Recovery scenarios may result in loss of some reporting data, for two main reasons:

- In the event of a site failure, any active calls at the failed site are terminated at the moment of failure.
- A site failure can occur while extraction, transformation, or replication of the data for recently completed calls is still in progress.

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Active-Active Deployment=

Data Loss in Active-Active Deployment

The data loss associated with Disaster Recovery scenarios is minimized in deployments with active-active Genesys Info Mart instances.

For information about potential data loss that network connectivity issues may cause during normal two-site operation, see the Note on Connectivity Loss.

Active Calls

A site failure results in termination of any calls that are active at the failed site at the moment of failure. The reporting data about these calls will not be available. Similarly, data about any agent states that are active at the time of a site failure will be lost.

Data In Processing

When a site failure occurs, reporting data for some of the recent contact-center activities may not be complete because extraction or transformation is likely to be interrupted by the failure.

After a site failure, the remaining active Genesys Info Mart will continue extracting data from the data sources on the remaining site. Thus, only data that has not been extracted from the data sources at the failed site is lost.

|-| Active-Standby Deployment=

Data Loss in Active-Standby Deployment

In active-standby deployments, the timing of extraction, transformation, or replication of the data for recently completed calls becomes a factor in data loss.

As discussed further in Info Mart Database Replication, certain tables, which are mostly internal, are not replicated to the standby database. Excluding these tables from replication optimizes network bandwidth utilization between the sites and replication performance during day-to-day operations; however, this setup implies that a subset of the Info Mart tables do not have identical data between the two sites. Because the subset of tables that are excluded from replication do not contain the data used in reports, unavailability of data from these tables does not constitute data loss.

For information about potential data loss that network connectivity issues may cause during normal two-site operation, see the Note on Connectivity Loss.

Active Calls

A site failure results in termination of any calls that are active at the failed site at the moment of failure. The reporting data about these calls will not be available. Similarly, data about any agent states that are active at the time of a site failure will be lost.

Data In Processing

When a site failure occurs in an active-standby Genesys Info Mart deployment, reporting data for some of the recent contact-center activities may not be complete because extraction, transformation, or replication is likely to be interrupted by the failure.

Extraction of data for any given time period is a one-time operation: Genesys Info Mart does not re-extract data for a time period that has already been extracted. After a site failure, the newly active Genesys Info Mart will not re-extract the data that the failed Genesys Info Mart had previously extracted. This design, which is intended to improve performance, brings a risk of reporting data being lost during Disaster Recovery.

In essence, any data that has not been delivered to the standby Info Mart database by the time of the disaster event may be lost.

- In the case that some data has not been extracted yet, and an HA Interaction Database (IDB) was set up at Site 2, any data that has not been extracted previously will be extracted after Genesys Info Mart at Site 2 is brought into service. When no HA IDB is available at Site 2, all Site 1 data that was not extracted will be lost.

- In the case that IDB data was extracted, the data might or might not have been transformed, or if the data was transformed, it might or might not yet have been replicated to the standby database. All extracted data that has not been transformed will be lost. Similarly, all extracted data that was transformed but, because of some delays, has not been delivered to the standby database by the time the disaster occurred, will be lost.

The time that it takes to replicate the processed data to the standby database also plays a role in

data availability. Under certain circumstances, delay in data replication may result in the standby Info Mart database having an earlier high-water mark than the active database has for extracted data. In this case, Genesys Info Mart that is brought into service at Site 2 can potentially extract from the redundant IDB at Site 2 a subset of data that was previously extracted from the Site 1 IDB.

Disaster Recovery with Active Genesys Info Mart

This section briefly describes the deployment instructions for active-active Genesys Info Mart instances in an environment with Business Continuity and provides a procedure for Disaster Recovery.

Setting Up Active-Active Genesys Info Mart Instances

The following are high-level instructions on how to deploy two active Genesys Info Mart instances for the purpose of the Business Continuity architecture.

Deployment Prerequisites

The following instructions assume that the Genesys Info Mart at one of the sites is operational. The existing Genesys Info Mart Server can continue to run.

Deployment Instructions

Task Summary

Deploy the second Genesys Info Mart Server application at the second site.

The configuration of the second Genesys Info Mart Server application must be identical to the application configuration at the active site, including connections to applications at both sites. The exceptions are a host name which must be unique in a configuration environment and database access point (DAP) for the connection to the Info Mart database. With these considerations in mind, follow the deployment instructions in the *Genesys Info Mart 8.1 Deployment Guide.*

Install a management user interface of your choice at the second site.

Install either the Genesys Info Mart Administration Console or, starting with release 8.1.4, Genesys Info Mart Manager to control the ETL jobs at the second site. Follow the deployment instructions in the *Genesys Info Mart 8.1 Deployment Guide.*

Set up the Genesys Info Mart database at the second site.

Refer to the *Genesys Info Mart 8.1 Deployment Guide* for general instructions. Keep in mind that the second active Info Mart database must have a schema identical to the first active database.

Start the second Genesys Info Mart Server.

For instructions, refer to the *Genesys Info Mart 8.1 Deployment Guide.*

After completion of the above tasks, two Genesys Info Mart instances will be ready to operate in parallel at their respective sites and collect reporting data for the entire contact center. You must keep the configuration of the two Genesys Info Mart Server applications in sync during operations.

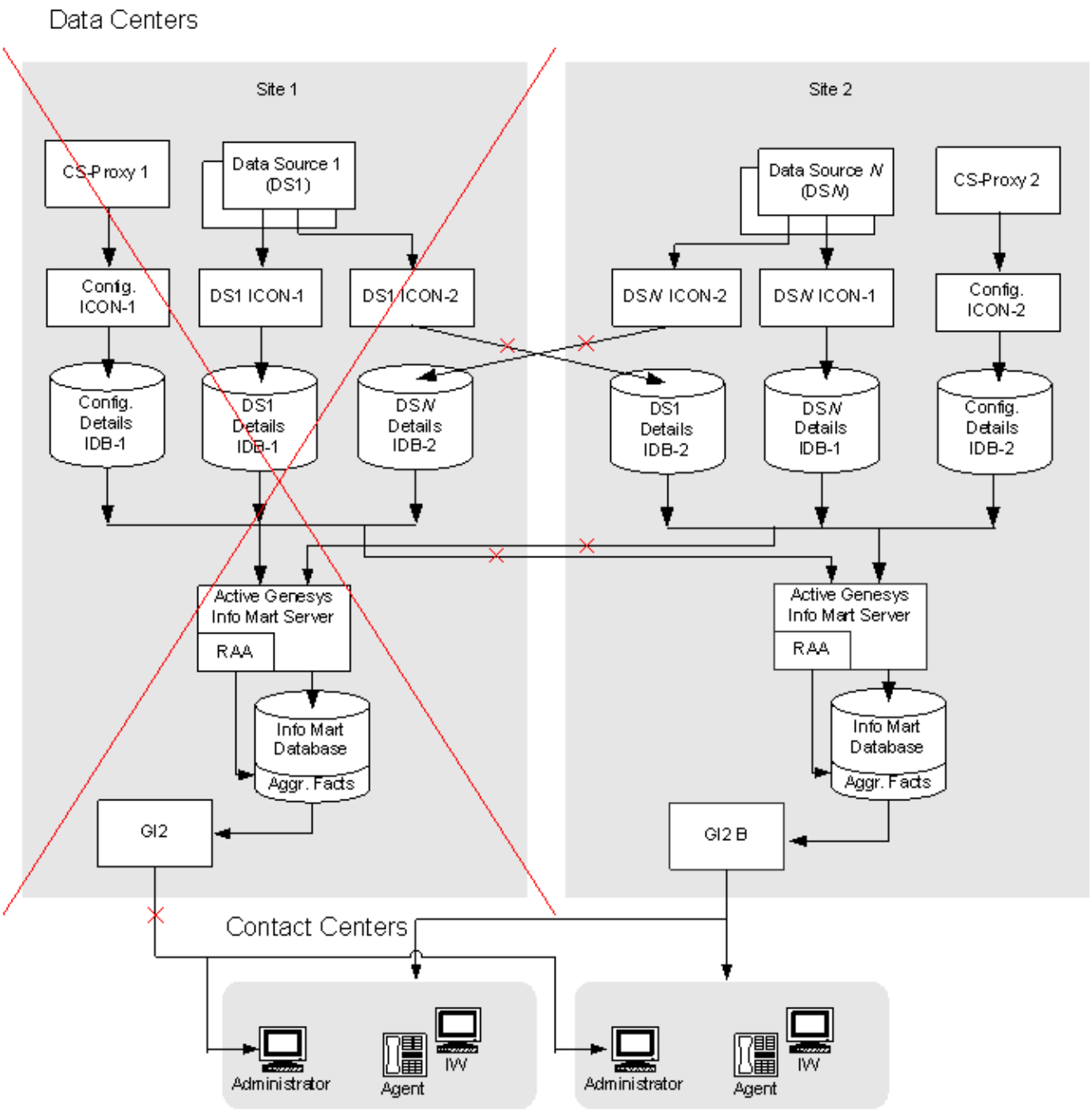
DR Procedure with Active Info Mart

Disaster Recovery is intended to ensure that an enterprise continues to operate in the event of a Site Failure.

Genesys Info Mart supports the Site Failure scenario in a deployment with active-active Genesys Info Mart instances as described in this section. The steps that you need to take in the event of disaster and to restore normal operations are also covered.

Site Failure

In the event of a catastrophic failure of one of the sites—in other words, a failure in which all Genesys components on that site become unavailable, including locally paired HA servers—site redundancy is used to provide ongoing reporting on contact-center activity. The recommended SIP Business Continuity architecture also enables ongoing support for all logged in agents.



All contact-center activity is redirected to Site 2. Interaction Concentrators at Site 2 continue to store data about Site 2 activity, which now represents the entire contact center. The Genesys Info Mart at Site 2 remains operational and you must configure it to ignore data sources located at Site 1. You also need to bring a standby GI2 instance at Site 2 into service to provide historical reports for all users.

As a result of the disaster, some reporting data may be lost. See Potential Data Loss.

Disaster Recovery Procedure

In the event that Site 1 fails in a deployment with active-active Genesys Info Mart instances, perform the following Disaster Recovery procedure.

1. Adjust the configuration of connections for the Genesys Info Mart Application at Site 2 as follows:
   - Remove any connections to the ICON Applications that collect data from data sources at Site 1.
   - Remove any connections to the Database Access Point (DAP) Applications that provide access to IDBs located at Site 1.
     Note: In Genesys Info Mart release 8.1.2 and later, you can disable configuration objects for ICON Applications and DAPs in the Configuration Layer, rather than remove them from the Genesys Info Mart Application connections.
2. Review Genesys Info Mart logs to verify that the updated configuration is correct.

Procedure to Return to Normal Operation

Once a replacement site with required infrastructure is set up after the disaster (or the original site is operational again), the contact center can return to normal, two-site operation.

To restore two-site operations with active-active Genesys Info Mart architecture:

1. Decide which of the two active Genesys Info Mart instances will serve as a source for reports and whether you transfer a copy of the Info Mart database to the replacement site.
   For background information, see Operation Modes.
2. Follow instructions in the Setting Up Active-Active Genesys Info Mart Instances.

Disaster Recovery with Oracle GoldenGate

Genesys recommends that you use Oracle GoldenGate to achieve database replication for Genesys Info Mart if you deploy the active-standby Genesys Info Mart architecture for the purpose of Disaster Recovery (Site Failure).

Info Mart Database Replication

About Oracle GoldenGate

Genesys recommends that you use Oracle GoldenGate to achieve database replication for Genesys Info Mart in the active-standby architecture. Oracle GoldenGate was selected as the replication tool because it is able to replicate a subset of database tables, thus saving the bandwidth that is required for data replication.

Note: Genesys has verified the Info Mart replication with Oracle GoldenGate version 11.2.1.0.1.

Tables Excluded from Replication

The Info Mart database in a large environment grows over time to a significant size. A large portion of the Info Mart tables contain raw data that Genesys Info Mart uses for internal processing and that is not suitable for end-user reports. For this reason, Genesys recommends that you limit the set of tables that are replicated to the standby site, replicating only the dimensional model and aggregate tables, and excluding from replication all Temporary tables, as well as certain GIDB, Merge, Staging, and Control tables.

Genesys recommends that you exclude the following tables from Oracle GoldenGate database replication—with regard to both the data (DML) and schema (DDL) changes—for performance reasons.

Temporary tables

Exclude all Temporary tables (that is, all tables that have names that start with TMP_*).

GIDB tables
Exclude the majority of GIDB tables.

[+] See tables

- GIDB_G_AGENT_STATE_HISTORY_MM
- GIDB_G_AGENT_STATE_HISTORY_V
- GIDB_G_AGENT_STATE_RC_MM
- GIDB_G_AGENT_STATE_RC_V
- GIDB_G_CALL_HISTORY_MM
- GIDB_G_CALL_HISTORY_V
- GIDB_G_CALL_MM
- GIDB_G_CALL_STAT_V

- GIDB_G_CALL_V
- GIDB_G_CUSTOM_DATA_S_MM
- GIDB_G_CUSTOM_DATA_S_V
- GIDB_G_DND_HISTORY_MM
- GIDB_G_DND_HISTORY_V
- GIDB_G_IR_HISTORY_MM
- GIDB_G_IR_HISTORY_V
- GIDB_G_IR_MM
- GIDB_G_IR_V
- GIDB_G_IS_LINK_HISTORY_V
- GIDB_G_IS_LINK_V
- GIDB_G_LOGIN_SESSION_MM
- GIDB_G_LOGIN_SESSION_V
- GIDB_G_PARTY_HISTORY_MM
- GIDB_G_PARTY_HISTORY_V
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- GIDB_G_PARTY_V
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- GIDB_G_ROUTE_RES_VQ_HIST_V
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- GIDB_G_ROUTE_RESULT_V
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- GIDB_G_SECURE_UD_HISTORY_V
- GIDB_G_USERDATA_HISTORY_MM
- GIDB_G_USERDATA_HISTORY_V
- GIDB_G_VIRTUAL_QUEUE_MM
- GIDB_G_VIRTUAL_QUEUE_V
- GIDB_GM_F_USERDATA
- GIDB_GM_L_USERDATA
- GIDB_GO_CAMPAIGN
- GIDB_GO_CAMPAIGNHISTORY
- GIDB_GO_CHAIN
- GIDB_GO_CHAINREC_HIST
- GIDB_GO_FIELDHIST
- GIDB_GO_METRICS

- GIDB_GO_RECORD (applies to release 8.1.0)
- GIDB_GO_SEC_FIELDHIST
- GIDB_GOX_CHAIN_CALL

Aggregate tables

In deployments with RAA/GI2, exclude certain aggregate tables.

[+] See tables

- AGR_JUNK_NOTIFICATION
- AGR_LOCK
- AGR_NOTIFICATION

Merge tables

Exclude the majority of Merge tables.

[+] See tables

- G_CALL
- G_IR
- G_IS_LINK

Staging tables

Exclude several Staging tables.

[+] See tables

- STG_ACW
- STG_ACTIVE_ACW
- STG_IDB_FK_VIOLATION
- STG_SM_RES_ST_REASON_FACT_MM
- STG_SM_RES_ST_REASON_FACT_V
- STG_SM_RES_STATE_FACT_MM
- STG_SM_RES_STATE_FACT_V
- STG_TRANSFORM_DISCARDS
- STG_UDH_CID_V
- STG_UDH_V
- STG_UDH_V_UNP
- STG_UDH_V2
- STG_UDH_V2_UNP

- STG_UDH_MM (applies to release 8.1.0)

Control tables

Exclude certain Control tables.

[+] See tables

- CTL_TRANSFORM_HISTORY
- CTL_EXTRACT_HISTORY
- CTL_PURGE_HISTORY
- CTL_SCHEMA_INFO

Setting Up Replication

The following task summary provides instructions on how to deploy a standby Genesys Info Mart instance for the purpose of the Business Continuity architecture.

In the description and in the following procedure, the term "replication source" is used to refer to the Info Mart database at the active site (the source of data replication) while the term "replication target" is used to refer to the Info Mart database at the standby site (the target of data replication).

The following three major processes are used in Oracle GoldenGate for data replication between the source and target databases:

- Extract
- DataPump
- Replicat

Use GoldenGate data-definitions files to configure each of these processes (refer to *Oracle® GoldenGate Windows and UNIX Administrator's Guide* for instructions). The following Task Summary provides Genesys-specific recommendations.

> **Important**
>
> The instructions for the replication setup and Disaster Recovery do not cover Genesys Info Mart tenant views. If it is important for your environment to preserve tenant views for the purposes of Disaster Recovery, contact Genesys for recommendations.

Deployment Prerequisites

The following instructions assume that the Genesys Info Mart deployment at the active site is operational. The active Genesys Info Mart server can continue to run until the step in which you copy the Info Mart database to the standby site.

As a prerequisite, you need to do the following:

- Deploy the standby Genesys Info Mart Server application at the standby site. To avoid the synchronization task for Application objects between the active and standby sites, use the same Application configuration object for the standby Genesys Info Mart Server application as already configured for the active Genesys Info Mart Server application. It is recommended to stop Genesys Info Mart Server at the active site for the period while the standby Genesys Info Mart Server is being deployed. Once the deployment is complete at the standup site, check that the Application object in the Configuration Layer references the host on which the active Genesys Info Mart Server application must be running and start the active Genesys Info Mart Server. You will change the host association to point to the standby Genesys Info Mart Server application as part of the Disaster Recovery procedure.
- Configure Database Access Points (DAPs) to extract IDB data after Disaster Recovery.

- Install the Genesys Info Mart Administration Console at the standby site.
  Note: Starting with release 8.1.4, you can use Genesys Info Mart Manager to perform the administrative and management functions.

With these considerations in mind, follow the deployment instructions in the *Genesys Info Mart 8.1 Deployment Guide* to deploy the Genesys Info Mart components at the standby site before you proceed with the replication configuration.

Configuring Database Replication for Info Mart Database

Task Summary

Set up the Genesys Info Mart database at the standby site.
Refer to the *Genesys Info Mart 8.1 Deployment Guide* for general instructions. Keep in mind that the standby Info Mart database must have a schema identical to the active database.

Deploy Oracle GoldenGate at both sites.
Oracle GoldenGate must be deployed at both sites, on the hosts where the Info Mart database instances reside, according to the Oracle documentation.

Configure the Extract, DataPump, and Replicat modules.
The following Info Mart-specific samples demonstrate how to exclude Info Mart tables from replication.
Substitute the following variables in the configuration file examples: **[+] See variables**

- <Info_Mart> with the name of your Info Mart schema.
- <Extract_name> with the name of your Extract file.
- <DataPump_name> with the name of your DataPump file.
- <Replicat_name> with the name of your Replicat file.
- <GGate_schema> with the name of your GoldenGate schema.
- <Password> with the password of the GoldenGate database user.
- <Target_Host> with the machine name of the database host for the replication target.

For configuration instructions, refer to the Oracle GoldenGate documentation.

Extract [+] See configuration

```
EXTRACT <Extract_name>

EXTTRAIL ./dirdat/em
```

```
USERID <GGate_schema>, PASSWORD <Password>
TRACE ./trace/<Extract_name>.trc
WILDCARDRESOLVE DYNAMIC
DBOPTIONS ALLOWUNUSEDCOLUMN
DDL INCLUDE OBJNAME <Info_Mart>.* &
    EXCLUDE OBJNAME <Info_Mart>.TMP* &
    EXCLUDE OBJNAME <Info_Mart>.DBMS_TAB* &
    EXCLUDE OBJNAME <Info_Mart>.GIDB_G_* &
    EXCLUDE OBJNAME <Info_Mart>.GIDB_GM* &
    EXCLUDE OBJNAME <Info_Mart>.GIDB_GO* &
    EXCLUDE OBJNAME <Info_Mart>.AGR_JUNK_NOTIFICATION &
    EXCLUDE OBJNAME <Info_Mart>.AGR_LOCK &
    EXCLUDE OBJNAME <Info_Mart>.AGR_NOTIFICATION &
    EXCLUDE OBJNAME <Info_Mart>.G_CALL &
    EXCLUDE OBJNAME <Info_Mart>.G_IR &
    EXCLUDE OBJNAME <Info_Mart>.G_IS_LINK &
    EXCLUDE OBJNAME <Info_Mart>.STG_ACW &
    EXCLUDE OBJNAME <Info_Mart>.STG_ACTIVE_ACW &
    EXCLUDE OBJNAME <Info_Mart>.STG_SM_RES_ST_REASON_FACT_MM &
    EXCLUDE OBJNAME <Info_Mart>.STG_SM_RES_ST_REASON_FACT_V &
    EXCLUDE OBJNAME <Info_Mart>.STG_SM_RES_STATE_FACT_MM &
    EXCLUDE OBJNAME <Info_Mart>.STG_SM_RES_STATE_FACT_V &
    EXCLUDE OBJNAME <Info_Mart>.STG_TRANSFORM_DISCARDS &
    EXCLUDE OBJNAME <Info_Mart>.STG_UDH_* &
```

```
    EXCLUDE OBJNAME <Info_Mart>.CTL_TRANSFORM_HISTORY &
    EXCLUDE OBJNAME <Info_Mart>.CTL_EXTRACT_HISTORY &
    EXCLUDE OBJNAME <Info_Mart>.CTL_PURGE_HISTORY &
    EXCLUDE OBJNAME <Info_Mart>.CTL_SCHEMA_INFO
DDLOPTIONS ADDTRANDATA RETRYOP RETRYDELAY 20 MAXRETRIES 60 REPORT
STATOPTIONS RESETREPORTSTATS
REPORT AT 00:01
REPORTROLLOVER AT 00:01
REPORTCOUNT EVERY 60 SECONDS, RATE
TABLEEXCLUDE <Info_Mart>.TMP*;
TABLEEXCLUDE <Info_Mart>.DBMS_TAB*;
TABLEEXCLUDE <Info_Mart>.GIDB_G_*;
TABLEEXCLUDE <Info_Mart>.GIDB_GM*;
TABLEEXCLUDE <Info_Mart>.GIDB_GO*;
TABLEEXCLUDE <Info_Mart>.AGR_JUNK_NOTIFICATION;
TABLEEXCLUDE <Info_Mart>.AGR_LOCK;
TABLEEXCLUDE <Info_Mart>.AGR_NOTIFICATION;
TABLEEXCLUDE <Info_Mart>.G_CALL;
TABLEEXCLUDE <Info_Mart>.G_IR;
TABLEEXCLUDE <Info_Mart>.G_IS_LINK;
TABLEEXCLUDE <Info_Mart>.STG_ACW;
TABLEEXCLUDE <Info_Mart>.STG_ACTIVE_ACW;
TABLEEXCLUDE <Info_Mart>.STG_IDB_FK_VIOLATION;
TABLEEXCLUDE <Info_Mart>.STG_SM_RES_ST_REASON_FACT_MM;
TABLEEXCLUDE <Info_Mart>.STG_SM_RES_ST_REASON_FACT_V;
TABLEEXCLUDE <Info_Mart>.STG_SM_RES_STATE_FACT_MM;
TABLEEXCLUDE <Info_Mart>.STG_SM_RES_STATE_FACT_V;
```

TABLEEXCLUDE <Info_Mart>.STG_TRANSFORM_DISCARDS;

TABLEEXCLUDE <Info_Mart>.STG_UDH_*;

TABLEEXCLUDE <Info_Mart>.CTL_TRANSFORM_HISTORY;

TABLEEXCLUDE <Info_Mart>.CTL_EXTRACT_HISTORY;

TABLEEXCLUDE <Info_Mart>.CTL_PURGE_HISTORY;

TABLEEXCLUDE <Info_Mart>.CTL_SCHEMA_INFO;

SEQUENCE <Info_Mart>.*;

TABLE <Info_Mart>.*;

DataPump [+] See configuration

`EXTRACT <DataPump_name>`

RMTHOST <Target_Host>, MGRPORT 7809, COMPRESS

RMTTRAIL ./dirdat/dp

TRACE ./trace/<DataPump_name>.trc

PASSTHRU

TABLEEXCLUDE <Info_Mart>.TMP*;

TABLEEXCLUDE <Info_Mart>.DBMS_TAB*;

TABLEEXCLUDE <Info_Mart>.GIDB_G_*;

TABLEEXCLUDE <Info_Mart>.GIDB_GM*;

TABLEEXCLUDE <Info_Mart>.GIDB_GO*;

TABLEEXCLUDE <Info_Mart>.AGR_NOTIFICATION;

TABLEEXCLUDE <Info_Mart>.G_CALL;

TABLEEXCLUDE <Info_Mart>.G_IR;

TABLEEXCLUDE <Info_Mart>.G_IS_LINK;

TABLEEXCLUDE <Info_Mart>.STG_ACW;

TABLEEXCLUDE <Info_Mart>.STG_ACTIVE_ACW;

TABLEEXCLUDE <Info_Mart>.STG_IDB_FK_VIOLATION;

TABLEEXCLUDE <Info_Mart>.STG_SM_RES_ST_REASON_FACT_MM;

TABLEEXCLUDE <Info_Mart>.STG_SM_RES_ST_REASON_FACT_V;

TABLEEXCLUDE <Info_Mart>.STG_SM_RES_STATE_FACT_MM;

TABLEEXCLUDE <Info_Mart>.STG_SM_RES_STATE_FACT_V;

TABLEEXCLUDE <Info_Mart>.STG_TRANSFORM_DISCARDS;

TABLEEXCLUDE <Info_Mart>.STG_UDH_*;

TABLEEXCLUDE <Info_Mart>.CTL_TRANSFORM_HISTORY;

TABLEEXCLUDE <Info_Mart>.CTL_EXTRACT_HISTORY;

TABLEEXCLUDE <Info_Mart>.CTL_PURGE_HISTORY;

TABLEEXCLUDE <Info_Mart>.CTL_SCHEMA_INFO;

SEQUENCE <Info_Mart>.*;

TABLE <Info_Mart>.*;

Replicat [+] See configuration

`REPLICAT <Replicat_name>`

HANDLECOLLISIONS

USERID <GGate_schema>, PASSWORD <Password>

ASSUMETARGETDEFS

DISCARDFILE ./dirrpt/<Replicat_name>.dsc, purge

TRACE ./trace/<Replicat_name>.trc

STATOPTIONS RESETREPORTSTATS

DDL &

INCLUDE ALL

DBOPTIONS DEFERREFCONST

REPORT AT 00:01

REPORTROLLOVER AT 00:01

REPORTCOUNT EVERY 60 SECONDS, RATE

DDLOPTIONS REPORT

DDLERROR DEFAULT IGNORE

REPERROR (DEFAULT, EXCEPTION)

```
REPERROR (DEFAULT2, ABEND)
REPERROR (-1, EXCEPTION)
MAPEXCLUDE <Info_Mart>.TMP*;
MAPEXCLUDE <Info_Mart>.DBMS_TAB*;
MAPEXCLUDE <Info_Mart>.GIDB_G_*;
MAPEXCLUDE <Info_Mart>.GIDB_GM*;
MAPEXCLUDE <Info_Mart>.GIDB_GO*;
MAPEXCLUDE <Info_Mart>.AGR_JUNK_NOTIFICATION;
MAPEXCLUDE <Info_Mart>.AGR_LOCK;
MAPEXCLUDE <Info_Mart>.AGR_NOTIFICATION;
MAPEXCLUDE <Info_Mart>.G_CALL;
MAPEXCLUDE <Info_Mart>.G_IR;
MAPEXCLUDE <Info_Mart>.G_IS_LINK;
MAPEXCLUDE <Info_Mart>.STG_ACW;
MAPEXCLUDE <Info_Mart>.STG_ACTIVE_ACW;
MAPEXCLUDE <Info_Mart>.STG_IDB_FK_VIOLATION;
MAPEXCLUDE <Info_Mart>.STG_SM_RES_ST_REASON_FACT_MM;
MAPEXCLUDE <Info_Mart>.STG_SM_RES_ST_REASON_FACT_V;
MAPEXCLUDE <Info_Mart>.STG_SM_RES_STATE_FACT_MM;
MAPEXCLUDE <Info_Mart>.STG_SM_RES_STATE_FACT_V;
MAPEXCLUDE <Info_Mart>.STG_TRANSFORM_DISCARDS;
MAPEXCLUDE <Info_Mart>.STG_UDH_*;
MAPEXCLUDE <Info_Mart>.CTL_TRANSFORM_HISTORY;
MAPEXCLUDE <Info_Mart>.CTL_EXTRACT_HISTORY;
MAPEXCLUDE <Info_Mart>.CTL_PURGE_HISTORY;
MAPEXCLUDE <Info_Mart>.CTL_SCHEMA_INFO;
MAP <Info_Mart>.*, TARGET <Info_Mart>.*;
```

(For Genesys Info Mart release 8.1.0 or 8.1.1 only) Create an additional

index on the CTL_EXTRACT_HWM table on both Info Mart database schemas.

If you are using Genesys Info Mart release 8.1.0 or 8.1.1, perform this step before you execute the `ADD TRANDATA` command in the following step.
To create the index, use the following commands: **[+] See commands**

```
create unique index I_C_EXTR_HWM_ID ON CTL_EXTRACT_HWM (

TABLE_NAME ASC,

DATA_SOURCE_KEY ASC,

MAX_TS ASC

);
```

Configure the replication source according to the Oracle GoldenGate documentation.

Configure the Oracle RDBMS that hosts the active Info Mart database as a replication source.

In particular, enable supplemental logging at the table level for all tables that are to be replicated to the target database. Use the following command within the GoldenGate SCI, substituting <Info_Mart> with the name of your Info Mart schema:

```
ggsci> ADD TRANDATA <Info_Mart>.*
```

Note: It is essential that the `ADD TRANDATA` command captures all of the changes in the Info Mart database before replication is started. If you have to upgrade Genesys Info Mart in the time window between performing this step and starting replication, repeat this command after you upgrade Genesys Info Mart and before you start replication.

Before you start Oracle GoldenGate processing, copy the Info Mart database from the replication source to the target.

To do so, use the following steps as an example, substituting <Info_Mart> with the name of your Info Mart schema:
[+] See steps

1. Stop the Genesys Info Mart server.

   For instructions, refer to the *Genesys Info Mart 8.1 Deployment Guide.*

2. Retrieve the current SCN number from the replication source by using the following commands:

   >sqlplus SYSTEM as sysdba

   SQL> select current_scn from v$database;

3. Create the `exp-gim.par` file:

LOGFILE=gim-exp.log

PARALLEL=2

SCHEMAS=<Info_Mart>

flashback_scn=<value of current_scn>

STATUS=100000

4. Execute the export script:

expdp system parfile=exp-gim.par

5. Start the Genesys Info Mart server at the active site.

For instructions, refer to the *Genesys Info Mart 8.1 Deployment Guide.*

6. Transfer the export file to the system that is the replication target.

7. Create the `imp-gim.par` file:

DUMPFILE=gim.dmp

LOGFILE=gim-imp.log

SCHEMAS=<Info_Mart>

STATUS=100000

TABLE_EXISTS_ACTION=REPLACE

8. Remove the sequence values from the target Info Mart database, to facilitate the import of the sequence values from the source Info Mart database. To do so, execute the following script at the target database using the credentials of the appropriate Info Mart database user:

```
SET SERVEROUTPUT ON;

BEGIN
    FOR rec IN (
        select 'drop sequence ' || SEQUENCE_NAME as V

        from user_sequences
```

```
        )

    LOOP
        dbms_output.put_line(TO_CHAR(SYSTIMESTAMP , 'mm.dd.yyyy
        hh24:mi:ss.ff3') || ' Running ' || rec.V || '...');

        execute immediate rec.V;

    END LOOP;

END;

/
```

9. Execute the import script:

```
impdp system parfile=imp-gim.par
```

10. Check the gim-imp.log file.

- Ignore any error messages regarding the tables that already exist.
- Re-create any missing indexes on the target database.

Note: Certain versions of Oracle may have specific requirements to the patch level and settings in order to enable proper creation of indexes. For example, Oracle v11.2.0.1.0 requires patch p8795792_112010_Generic.

Start Replicat on the target database.

Use the following commands, substituting the following variables: **[+] See variables**

- <User_ID> with the name of the GoldenGate database user.
- <Password> with the password of the GoldenGate database user.
- <Replicat_name> with the name of your Replicat file.
- <Value of current_scn> with the current SCN number.

[+] See commands

```
ggsci> dblogin userid <User_ID> password <Password>

ggsci> ADD REPLICAT <Replicat_name>, EXTTRAIL ./dirdat/dp

ggsci> START REPLICAT <Replicat_name>, AFTERCSN <Value of current_scn>
```

Start Extract and DataPump on the replication source.

Use the following commands, substituting the following variables: **[+] See variables**

- <User_ID> with the name of the GoldenGate database user.
- <Password> with the password of the GoldenGate database user.
- <Extract_name> with the name of your Extract file.
- <DataPump_name> with the name of your DataPump file.

[+] See commands

```
ggsci> dblogin userid <User_ID> password <Password>
```

ggsci> ADD EXTRACT <Extract_name>, TRANLOG, THREADS 1, BEGIN NOW

ggsci> ADD EXTTRAIL ./dirdat/em, EXTRACT <Extract_name>, MEGABYTES 2000

ggsci> ADD EXTRACT <DataPump_name>, EXTTRAILSOURCE ./dirdat/em

ggsci> ADD RMTTRAIL ./dirdat/DP, EXTRACT <DataPump_name>, MEGABYTES 2000

ggsci> START EXTRACT <Extract_name>

ggsci> START EXTRACT <DataPump_name>

Check the GoldenGate `ggserr.log` file for any reported issues and correct them, if necessary.

After completion of the above tasks, all Info Mart tables that are mapped for replication will be synchronized regularly between the replication source and target databases. For the tables that are excluded from replication, neither data nor database schema changes will be replicated.

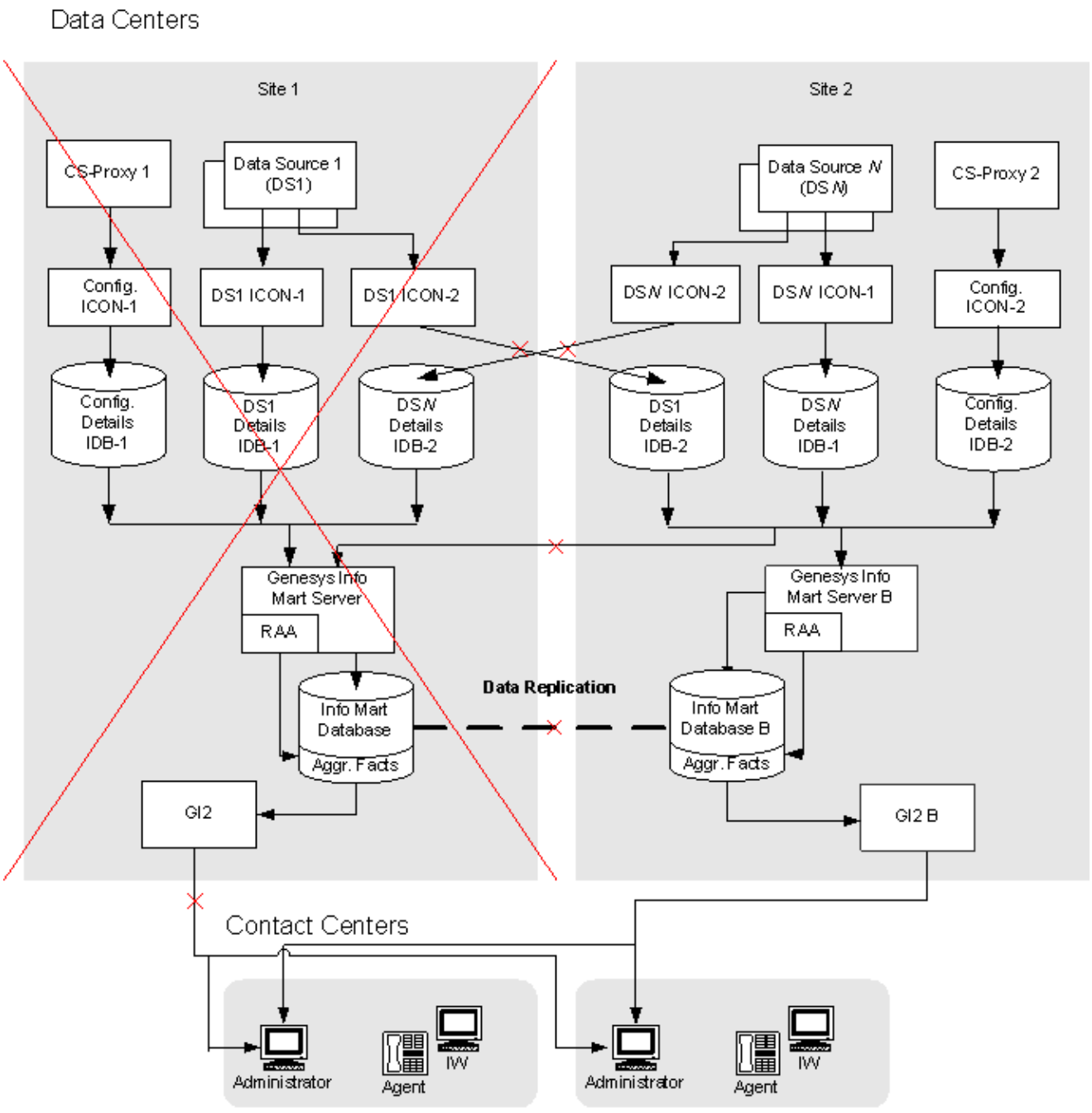
DR Procedure with Oracle GoldenGate

Disaster Recovery is intended to ensure that an enterprise continues to operate in the event of a Site Failure.

Genesys Info Mart supports the Site Failure scenario in a deployment with active-standby Genesys Info Mart instances as described in this section. The steps that you need to take in the event of disaster and to restore normal operations are also covered.

Site Failure

In the event of a catastrophic failure of one of the sites—in other words, a failure in which all Genesys components on that site become unavailable, including locally paired HA servers—site redundancy is used to provide ongoing reporting on contact-center activity. The recommended SIP Business Continuity architecture also enables ongoing support for all logged in agents.



All contact-center activity is redirected to Site 2. Interaction Concentrators at Site 2 continue to store data about Site 2 activity, which now represents the entire contact center. You must bring the standby Genesys Info Mart at Site 2 into service and configure it to write data into the Info Mart database at Site 2. You must stop Oracle GoldenGate components at Site 2 because the replication source database is absent. You also need to bring a standby GI2 instance at Site 2 into service to provide historical reports for all users.

As a result of the disaster, some reporting data may be lost. See Potential Data Loss.

Disaster Recovery Procedure

In the event that Site 1 fails in a deployment with active-standby Genesys Info Mart instances, perform the following Disaster Recovery procedure.

> **Note:** In the steps that mention Genesys Info Mart Administration Console, you can use either the Console or, starting with release 8.1.4, Genesys Info Mart Manager—whichever is installed in your environment.

1. Stop the Oracle GoldenGate components at Site 2, to account for the fact that the replication source is no longer available.
2. Modify the Application configuration object for Genesys Info Mart Server to operate with the Genesys Info Mart Server application at Site 2 as follows:
   a. Update the Host property to point to the host on which the Genesys Info Mart Server application is installed at Site 2.
   b. Update the Startup Command Line property to point to the host and port of the Configuration Server running at Site 2.
3. Adjust the configuration of connections for the Genesys Info Mart Application as follows:
   - Remove any connections to the ICON Applications that collect data from data sources at Site 1.
   - Remove any connections to the Database Access Point (DAP) Applications that provide access to IDBs located at Site 1.
     Note: Starting with Genesys Info Mart release 8.1.2, you can disable configuration objects for ICON Applications and DAPs in the Configuration Layer, rather than remove them from the Genesys Info Mart Application connections.
   - Remove the DAP Application that provides access to the Info Mart database at Site 1.
   - Add the DAP Application that provides access to the Info Mart database at Site 2.
4. If the Info Mart database is partitioned, set the `run-scheduler` option to `false` in the [schedule] section of the Genesys Info Mart Application configuration object. This setting prevents Genesys Info Mart from running ETL jobs until after partitions are created in Step 8.
5. In a deployment with GI2 or RAA, temporarily disable the aggregation as follows:
   a. Set the `run-aggregates` option to `false` in the [schedule] section of the Genesys Info Mart Application configuration object.
   b. Stop the aggregation job from the Genesys Info Mart Administration Console.
6. Start the Genesys Info Mart Server application at Site 2.
7. If Genesys Info Mart has been upgraded since the replication started, run the migration job as follows, to synchronize any schema (DDL) changes that were not replicated to Site 2. Otherwise, proceed to the next step.
   a. Check the Genesys Info Mart Server log to confirm that the server entered the migration state. If the latest log has no indication of the migration state (log message 55-20152 or 55-20034), running the migration job is not necessary and you can proceed to the next step.

b. From the Genesys Info Mart Administration Console, start Job_MigrateGIM.

c. Check the job status in the Genesys Info Mart Administration Console to ensure that Job_MigrateGIM completes successfully.

8. If the Info Mart database is partitioned, run the maintenance job to create up-to-date partitions at Site 2 as follows. Otherwise, proceed to the next step.

   a. From the Genesys Info Mart Administration Console, start Job_MaintainGIM.

   b. Check the job status in the Genesys Info Mart Administration Console to ensure that Job_MaintainGIM completes successfully.

   c. Set the `run-scheduler` option to `true` in the Genesys Info Mart Application configuration object to enable a regular schedule for ETL jobs.

9. Check the Genesys Info Mart Server logs to verify that the configuration is correct.

10. In a deployment with GI2 or RAA, re-aggregate the data from the last 24 hours before the site failure until the current time.
    To re-aggregate the data:

    a. Run the following command manually from the Genesys Info Mart Server root directory:

    - Starting with RAA release 8.1.4:
      ```
      java -jar agg\GIMAgg.jar -user=<Info Mart user> -pass=<Info Mart password>
      -jdbcurl= jdbc:oracle:thin:@<Oracle host>:1521/<Info Mart Oracle Service Name>
      -insertPendingAgg ALLSETS:<YYYY-MM-DD value from the DATE_TIME table 24 hours
      ago>:<current YYYY-MM-DD value from the DATE_TIME table>
      ```

    - In RAA releases earlier than 8.1.4:
      ```
      java -jar .\agg\GIMAgg.jar -user=<Info Mart user> -pass=<Info Mart password>
      -jdbcurl=jdbc:oracle:thin:@<Oracle host>:1521/<Info Mart Oracle Service Name>
      -insertPendingAggRaw ALLTENANTS:ALLSETS:<Unix epoch time 24 hours ago>:<current
      Unix epoch time>
      ```

    Note: Starting with Genesys Info Mart release 8.1.4, instead of manually executing the command from the command line, you can issue re-aggregation requests from either Genesys Info Mart Manager or the Genesys Info Mart Administration Console. For more information, see the *Genesys Info Mart 8.1 Operations Guide*.

    b. Set the `run-aggregates` option to `true` in the [schedule] section of the Genesys Info Mart Application configuration object.

    c. Run Genesys Info Mart with RAA enabled as usual.

    Note: The 24-hour period ensures that all pending notifications are accounted for, assuming that both Genesys Info Mart and RAA were operating successfully before the site failure.

Procedure to Return to Normal Operation

Once a replacement site with required infrastructure is set up after the disaster (or the original site is operational again), the contact center can return to normal, two-site operation.

As explained in Operation Modes, you have to decide which site will host the active Genesys Info Mart and how you transfer a copy of the Info Mart database to the replacement site.

- (Option 1) With Site 3 hosting the active Genesys Info Mart, you have to set up Oracle GoldenGate at

Site 3 and configure it as a replication source. You can reuse the existing Oracle GoldenGate configuration at Site 2, with potential modifications (if Oracle GoldenGate replication is used to accomplish database synchronization for the new site).

- (Option 2) With Site 2 hosting the active Genesys Info Mart, you have to set up Oracle GoldenGate at Site 3 and configure it as a replication target. You also have to reconfigure Oracle GoldenGate at Site 2 to serve as a replication source.

To establish database replication between the new active and standby sites, with either of the above options, you must transfer a copy of the Info Mart database from the surviving site to the new site. If it is unacceptable to stop the Genesys Info Mart server for the long period of time that the transfer of a large database may take, and if you choose Option 1, synchronization of Info Mart databases is an additional task that is required before you can start normal replication. You can use Oracle GoldenGate for database synchronization.

The instructions below describe the steps to make Genesys Info Mart active at Site 3 (Option 1). Additional steps are required for synchronization of large Info Mart databases if you run Genesys Info Mart at Site 2 during the database transfer from Site 2 to Site 3. If you decide to use Oracle GoldenGate functionality for database synchronization, you have to run Oracle GoldenGate in reverse direction first (from Site 2 to Site 3). This means that Oracle GoldenGate at both sites needs to be configured for replication in both directions. After the Info Mart databases are synchronized, you must switch the replication direction to normal (from Site 3 to Site 2) at both sites.

Note: The steps for making Genesys Info Mart active at Site 2 (Option 2) differ to some extent from the procedure described below.

> In the steps for restoring two-site operations that mention Genesys Info Mart Administration Console, you can use either the Console or, starting with release 8.1.4, Genesys Info Mart Manager—whichever is installed on the currently operational site.

To restore two-site operations with active-standby Genesys Info Mart architecture:

1. If it is acceptable to stop Genesys Info Mart at Site 2 for the time required for database transfer, do this now.
2. Copy the Info Mart database from Site 2 to Site 3. To do so, use the Export/Import RDBMS functionality.
   Note: To avoid data inconsistency in the exported Info Mart database, Genesys recommends that you do not run Genesys Info Mart during the export procedure. You can run Genesys Info Mart at Site 2 after export is completed and while the database copy is being transferred to the new site. In this case, you must synchronize the Info Mart databases at Site 2 and Site 3 before continuing with the remaining steps.
3. Deploy Interaction Concentrators to collect reporting data from data sources at Site 3.
   Notes:
   - Deploy a redundant pair of ICON server applications at Site 3 per data source.
   - Consider reusing the Application configuration objects that were created for ICONs servers and ICON DAPs at the failed site. Make sure the objects are Enabled.
   - For redundant instances, deploy one of the IDBs at Site 3 and the other, at Site 2.
4. Deploy the Genesys Info Mart server application and Genesys Info Mart Administration Console at Site 3.
   Notes:
   - Do not create a new Application configuration object because you will reuse the Application object

that currently represents the Genesys Info Mart Server at Site 2.

- Skip the deployment of the Info Mart database because you will copy the database from Site 2.

5. Install and configure Oracle GoldenGate at Site 3. Follow instructions in Setting Up Replication, performing only the steps required for the replication source.
6. Clean up the Oracle GoldenGate working folders at Site 2, such as `dirchk, dirdat, dirrpt,` and `TRACE.`
7. Drop and re-create the Oracle GoldenGate schema at Site 2.
8. Stop Genesys Info Mart at Site 2, if it is currently running.
9. (For deployments with a large Info Mart database) If you plan to use Oracle GoldenGate replication in reverse direction for data synchronization immediately following the database transfer, configure Oracle GoldenGate for the replication in both directions (as source and target) at each site.
10. Start Replicat at Site 2 (the target database) from the new value of `current_scn` (retrieved from the source database) as described in Setting Up Replication.
11. Start Extract and DataPump at Site 3 (the source database) as described in Setting Up Replication.
12. Make sure the Info Mart databases at Site 2 and Site 3 are completely in sync.
13. Configure the DAP Application to provide access to the Info Mart database at Site 3.
14. Modify the Application configuration object for Genesys Info Mart Server to operate with the Genesys Info Mart Server application at Site 3 as follows:
    a. Update the Host property to point to the host on which the Genesys Info Mart Server application is installed at Site 3.
    b. Update the Startup Command Line property to point to the host and port of the Configuration Server running at Site 3.
    c. If any new objects are created for ICONs servers and ICON DAPs, add all new connections to the Genesys Info Mart Application configuration object.
    d. Remove the Info Mart DAP object for the Info Mart database at Site 2 from the connections of the Genesys Info Mart Application.
    e. Add the Info Mart DAP object for the Info Mart database at Site 3 to the connections of the Genesys Info Mart Application.
15. Start Genesys Info Mart at Site 3 and run ETL jobs.
16. Check the Genesys Info Mart server logs to verify that configuration is correct and deployment is successful.
17. Verify that replication runs as expected at Site 3 (new replication source).
18. Check the Oracle GoldenGate logs and the Info Mart database at Site 2 to verify that the data is replicated to the target database as expected.
19. In a deployment with GI2 or RAA, re-aggregate the data from the last 24 hours before the site failure until the current time.
    To re-aggregate the data:
    a. Run the following command manually from the Genesys Info Mart Server root directory:
       - Starting with RAA release 8.1.4:

```
java -jar agg\GIMAgg.jar -user=<Info Mart user> -pass=<Info Mart password>
-jdbcurl= jdbc:oracle:thin:@<Oracle host>:1521/<Info Mart Oracle Service Name>
-insertPendingAgg ALLSETS:<YYYY-MM-DD value from the DATE_TIME table 24 hours
```

```
ago>:<current YYYY-MM-DD value from the DATE_TIME table>
```

- In RAA releases earlier than 8.1.4:
  ```
  java -jar .\agg\GIMAgg.jar -user=<Info Mart user> -pass=<Info Mart password>
  -jdbcurl=jdbc:oracle:thin:@<Oracle host>:1521/<Info Mart Oracle Service Name>
  -insertPendingAggRaw ALLTENANTS:ALLSETS:<Unix epoch time 24 hours ago>:<current
  Unix epoch time>
  ```

Note: Starting with Genesys Info Mart release 8.1.4, instead of manually executing the command from the command line, you can issue re-aggregation requests from either Genesys Info Mart Manager or the Genesys Info Mart Administration Console. For more information, see the *Genesys Info Mart 8.1 Operations Guide*.

b. Run Genesys Info Mart with RAA enabled as usual.

Note: The 24-hour period ensures that all pending notifications are accounted for, assuming that both Genesys Info Mart and RAA were operating successfully before the site failure.

Change History

This topic lists all high-level changes between the 8.1.3 and 8.1.4 versions of this document.

In Genesys Info Mart release 8.1.4, information has been added about the "active-active" architecture of parallel Genesys Info Mart instances for purposes of Business Continuity. To distinguish between the new and the previously described architectures, the architecture with database replication is now being referred to as "active-standby."

Updated Pages

The following topics have been updated to reflect the support for the active-active architecture:

- Genesys Info Mart Support for Business Continuity
- Architecture
- Operation Modes
- Potential Data Loss

New Pages

A new section, Disaster Recovery with Active Genesys Info Mart, has been added to cover deployment and Disaster Recovery procedures for the active-active architecture in the following topics:

- Setting Up Active-Active Genesys Info Mart Instances
- DR Procedure with Active Info Mart