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Informatica® Multidomain MDM
10.4 HotFix 1

Zero Downtime Upgrade Guide for IBM Db2

Informatica Multidomain MDM Zero Downtime Upgrade Guide for IBM Db2
10.4 HotFix 1
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Table of Contents

Preface 4

Informatica Resources. 4

Informatica Network. 4

Informatica Knowledge Base. 4

Informatica Documentation. 4

Informatica Product Availability Matrices. 5

Informatica Velocity. 5

Informatica Marketplace. 5

Informatica Global Customer Support. 5

Chapter 1: Introduction to Zero Downtime. 6

Zero Downtime Overview. 6

Oracle GoldenGate Processes for ZDT. 6

Prerequisites for Zero Downtime. 7

Upgrade with Zero Downtime Workflow. 7

Chapter 2: Upgrading with Zero Downtime. 9

Transfer the Previous Load Table Data. 9

Upgrade Steps Controlled from the Passive Environment. 10

Upgrade Steps Controlled from the Active Environment. 16

Chapter 3: Troubleshooting. 18

Batch job fails when backfill tasks are registered. 18

Reset Matches on Target. 18

Replication is not working. 18

Index. 20

Preface

Follow the instructions in the Informatica® *Multidomain MDM Zero Downtime Upgrade Guide* to upgrade Multidomain MDM in a zero downtime environment. Zero Downtime is an optionally licensed feature that enables you to minimize disruptions while you upgrade Multidomain MDM.

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CHAPTER 1

Introduction to Zero Downtime

This chapter includes the following topics:

- Zero Downtime Overview, 6
- Oracle GoldenGate Processes for ZDT, 6
- Prerequisites for Zero Downtime, 7
- Upgrade with Zero Downtime Workflow, 7

Zero Downtime Overview

Use Zero Downtime (ZDT) to upgrade Multidomain MDM while providing uninterrupted access to the MDM Hub. Batch and Services Integration Framework (SIF) user processes can run during the ZDT upgrade process.

To use ZDT, you have two environments: a passive environment and an active environment. You use Oracle GoldenGate to manage the data replication and message streams between the environments. While you upgrade the passive environment, MDM users can access the MDM Hub in the active environment. Any change made to the MDM Hub during the upgrade does not impact the ability to replicate changes from the active environment. Backfill mechanisms handle any impact to the MDM Hub metadata caused by the upgrade.

Oracle GoldenGate Processes for ZDT

ZDT requires a set of Oracle GoldenGate processes. Some of the processes extract and replicate data from the active environment to the passive environment.

The following table identifies the prefixes that are used in the process group names:

Prefix	Process Type	Purpose
E_, P_	EXTRACT	Extracts data from the MDM Hub that is located in the active environment.
R_	REPLICAT	Replicates data to the MDM Hub that is located in the passive environment.

For example, the following list shows the processes for ENVA and ENVB, where ENVA is the active environment.

```
GGSCI (hostname) 13> info all

Program     Status      Group
MANAGER     RUNNING
EXTRACT     RUNNING     E_ENVA
REPLICAT    RUNNING     R_ENVB
REPLICAT    RUNNING     R_ENVBU
```

Prerequisites for Zero Downtime

You must identity the source system and target system, ensure the database software is on both systems, install Oracle GoldenGate on both systems, and configure the MDM Hub Store databases for replication. For information about installing ZDT, see the *Multidomain MDM Zero Downtime Installation Guide for IBM Db2*.

Upgrade with Zero Downtime Workflow

When you upgrade with zero downtime, you perform the following general activities:

1. Upgrade the passive environment.
2. Switch the passive environment and the active environment.
3. Drop the former active environment.
4. Create the new passive environment from a copy of the new active environment.
5. Replicate all data changes that occur during the upgrade so that the environments are the same at the end of the upgrade process.

In this guide, some steps are conditional. Perform these steps only when you are doing a particular type of update or upgrade.

Conditional steps have one or more of the following prefixes:

- **Schema Update**. You changed an Operational Reference Store schema based on business requirements.
- **Schema Update with Data Change**. You changed an Operational Reference Store schema and some data in the database.
- **MDM Upgrade**. You are upgrading Multidomain MDM to a new major, minor, or hotfix release, or you are applying an emergency bug fix.
- **Infrastructure Upgrade**. You are upgrading other software or hardware in the same environments in which Multidomain MDM runs.

You can run the steps for the ZDT upgrade from a command line interface, such as shell scripts, or a command-line job scheduler. The upgrade runs from a single flow of control to allow for almost complete automation of the upgrade process. The ZDT upgrade procedure includes steps for messaging between the active environment and passive environment, maintaining replication control, and integrating backfill.

Upgrading Multidomain MDM from version 9.5.0 or earlier

In Multidomain MDM version 9.5.1, the data structure for the master database schema changed. If you are upgrading from version 9.5.0 or earlier, you must go through a readiness cycle before you start the upgrade

cycle. The readiness cycle identifies data issues that you must resolve before you upgrade. After the readiness cycle, when you upgrade with ZDT, the upgrade cycle updates the data structure in the schema.

To request a version of this guide that contains the steps to upgrade from version 9.5.0 or earlier, contact Informatica Global Customer Support.

CHAPTER 2

Upgrading with Zero Downtime

This chapter includes the following topics:

- Transfer the Previous Load Table Data, 9
- Upgrade Steps Controlled from the Passive Environment, 10
- Upgrade Steps Controlled from the Active Environment, 16

Transfer the Previous Load Table Data

You can copy the data from the previous load table in the active environment to the previous load table in the passive environment. The data in the previous load table is not transferred during the replication process. If you do not replicate the previous load table, the first stage batch job that you run after the passive environment becomes active might process all the data in the landing table. The names of the previous load tables end in _PRL.

Note: Before you run a stage batch job, ensure that the upgrade is complete. If you run a stage job before the upgrade is complete, the data that the stage batch job adds to the source previous load tables is not added to the target previous load tables.

1. To export table data on the source system, run the following command:

   ```
   db2move <source database> export -aw -sn <schema name> -tn <table name>*_PRL -u <user ID>
   -p <password>
   ```

   The export action creates the files in the current directory where the command is executed.

2. Copy all files to the source system.
3. To import table data on the target system, run the following command:

   ```
   db2move <target database> import -aw -u <user ID> -p <password>
   ```

Upgrade Steps Controlled from the Passive Environment

To ensure that the systems are synchronized, you must have replication running from the active environment to the passive environment.

Important: Run all the commands in order. Unless otherwise specified, ensure that each process is finished before you run the next command.

1. **MDM Upgrade**. Stop the application server.
2. Disable read services to the passive environment.
3. In the command prompt, to start the upgrade process, enter the following swing command:

   ```
   sip_ant swing_start
   ```

   The swing command sets the `ACTIVE_UPGRADE_IND` to `1`, turns off replication replay, and removes all obsolete objects in the schema of the passive environment.
4. **MDM Upgrade**. Upgrade Multidomain MDM:
   1. Upgrade the Hub Store.
   2. Upgrade the Hub Server.
   3. Upgrade the Process Server.

   For more information about upgrading Multidomain MDM, see the *Multidomain MDM Upgrade Guide*.

   Important: After you finish the upgrade, ensure that the application server runs.
5. **Schema Update**. Run the Metadata Manager command line utility to apply the change list.

   The utility applies the changes in the change list file to the schema. For example, you can use a change list to add or remove columns in the base object table or to set the trust values on columns.
6. Run the Generate Match Tokens batch job to update all the match tokens in the tables that use _STRP as suffix.

   You can run the Generate Match Tokens batch job from the Hub Console or by using a service integration framework (SIF) API.

Run From	Steps
Hub Console	1. In the MDM Hub Console, open the Batch Viewer tool. 2. From the Batch Viewer navigation pane, expand the base object for which you want to regenerate all the match tokens. 3. Expand **Generate Match Tokens**. 4. Select the batch job that you want to use to generate match tokens. 5. Select **Re-generate All Match Tokens**. 6. Click **Execute Batch**.

Run From	Steps

API	To run the Generate Match Tokens batch job on all records, use the ExecuteBatchGenerateMatchTokens request with the `fullRestripInd` attribute set to `1`.
	The following code sample shows an ExecuteBatchGenerateMatchTokens request to create match tokens for all records in the C_PARTY base object:
	`<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"`
	`xmlns:urn="urn:siperian.api">`
	`<soapenv:Header/>`
	`<soapenv:Body>`
	`<urn:executeBatchGenerateMatchTokens>`
	`<urn:username>admin</urn:username>`
	`<urn:password>`
	`<urn:password>admin</urn:password>`
	`<urn:encrypted>false</urn:encrypted>`
	`</urn:password>`
	`<urn:orsId>localhost-orclsnl-UTSOURCE</urn:orsId>`
	`<urn:asynchronousOptions>`
	`<urn:isAsynchronous>false</urn:isAsynchronous>`
	`<urn:jmsReplyTo></urn:jmsReplyTo>`
	`<urn:jmsCorrelationId></urn:jmsCorrelationId>`
	`</urn:asynchronousOptions>`
	`<urn:tableName>C_PARTY</urn:tableName>`
	`<urn:fullRestripInd>1</urn:fullRestripInd>`
	`</urn:executeBatchGenerateMatchTokens>`
	`</soapenv:Body>`
	`</soapenv:Envelope>`

7. **MDM Upgrade** and **Schema Update**. Populate the backfill table C_REPOS_ZDT_BACKFILL_TASK to indicate that trust backfill is required on base object tables.

   Use the `sip_ant add_backfill_task` method:

   ```
   sip_ant -Dnoprompt=true -noinput  add_backfill_task -DprocedureName=<backfill type> -
   DtableName=<base object name> -DusageType=<api> -Dsequence=1
   ```

   where:

   - *backfill type* is the type of backfill. Use one of the following backfill types:
     - `TRUST_BACKFILL`. **Recommended**. Use when you add new trusted columns. This option runs the same processes that the `REVALIDATE` and `RECALCULATE` types run.
     - `REVALIDATE`. Use when you change or add validation rules.
     - `RECALCULATE`. Use when you change trust rules.
     - `TOKENIZE`. Use when you need to run the tokenize process on dirty records, but you are unable to run batch jobs.
   - *base object name* is the table name of a base object. Run the command on all base objects tables for which you want to recalculate the best version of the truth (BVT). If you are not sure which tables are affected by the schema update, run the command on all base object tables in the schema.
   - *api* specifies which API runs the backfill task. `R` is Read API, `W` is Write API, and `B` is both Read and Write APIs. Use `B`.
   - *sequence* is the order to run the backfill task in relationship to other tasks. If you are not sure, use `1` to run the backfill task first.

   For example, the following command applies trust backfill for the C_CUSTOMER base object:

   ```
   sip_ant -Dnoprompt=true -noinput add_backfill_task -DprocedureName=TRUST_BACKFILL -
   DtableName=C_CUSTOMER -DusageType=B -Dsequence=1
   ```

8. Run the backfill batch job for each base object.

   You can run the batch backfill job from the Hub Console or by using a service integration framework (SIF) API.

Run From	Steps
Hub Console	1. In the MDM Hub Console, open the Batch Viewer tool. 2. From the Batch Viewer navigation pane, select the base object that you want to backfill. If the backfill batch job does not appear in the batch viewer for the base object, select **Batch Viewer** > **Refresh**. 3. Run the backfill batch job.

API	1. Ensure that the Hub Server is running.
	2. Run one of the following APIs:
	• To backfill all base objects, use the ExecuteBatchBackfillAll API.
	Note: To run the backfill on all records, ensure that the `dirtyOnlyInd` parameter is `false`.
	• To backfill a specified base object, use the ExecuteBatchBackfill API.
	Important: Comment out the rowidObjectTable element in the request.
	
	The following code sample shows an ExecuteBatchBackfill request to backfill records in the C_BO_TRUST base object:
	`<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:urn="urn:siperian.api">`
	`  <soapenv:Header/>`
	`  <soapenv:Body>`
	`  <urn:ExecuteBatchBackfill>`
	`  <urn:username><user name></urn:username>`
	`  <urn:password>`
	`  <urn:password><password></urn:password>`
	`  </urn:password>`
	`  <urn:orsId>localhost-orclsnl-UTSOURCE</urn:orsId>`
	`  <urn:asynchronousOptions>`
	`  <urn:isAsynchronous>false</urn:isAsynchronous>`
	`  </urn:asynchronousOptions>`
	`  <urn:tableName>C_BO_TRUST</urn:tableName>`
	`  <!--urn:rowidObjectTable>?</urn:rowidObjectTable-->`
	`  <urn:dirtyOnlyInd>false</urn:dirtyOnlyInd>`
	`  </urn:ExecuteBatchBackfill>`
	`  </soapenv:Body>`
	`</soapenv:Envelope>`

9. **Schema Update with Data Change**. Disable the Oracle GoldenGate mapping for the table C_AGREEMENT and change the mapping to table C_AGREEMENT_XREF_NEW_FROM_A.

   a. Turn off mapping for the entire C_AGREEMENT base object and all related tables by using `sip_ant disable_replication` command:

      ```
      sip_ant -Dnoprompt=true -noinput disable_replication -DtableName=C_AGREEMENT
      ```

   b. Create a mapping from C_AGREEMENT_XREF to C_AGREEMENT_XREF_NEW_FROM_A by using the `sip_ant remap` command. Data in source and target tables must be the same. The `sip_ant remap` command automatically creates the table C_AGREEMENT_XREF_NEW_FROM_A. If the table exists, the command fails. Run the following command:

      ```
      sip_ant -Dnoprompt=true -noinput remap -DtableName=C_AGREEMENT_XREF -
      DmapTableName=C_AGREEMENT_XREF_A
      ```

10. **Schema Update with Data Change**. Start the reload of data to C_AGREEMENT from C_AGREEMENT_XREF. You do not need to wait for the data to reload before you proceed to the next step.
11. If you conduct user acceptance validation, perform the following steps:
    a. Note the system change number (SCN).
    b. Perform user acceptance validation.
    c. Flash back to the noted SCN.
12. To continue the upgrade process, enter the following swing command:

    ```
    sip_ant swing_continue
    ```

    The swing command executes the following processes:

    1. Processes data changes from the passive environment by starting replication replay.
    2. Detects completion of replication catch-up in the passive environment.
    3. Sends a message from the passive environment to the active environment to disallow batch processes in the active environment.
    4. Enables writeable API services in the target system.
    5. Synchronizes sequences. The new sequence values on the target system are higher than on the source system.
    6. Disables writeable SIF services in the active environment.
    7. Complete the replication processing in the passive environment.
13. Verify that the application server is running in the passive environment, and then redirect services from the active environment to the passive environment.

    The passive environment is live for read and write services.
14. **Schema Update with Data Change**. Process the delta on the C_AGREEMENT table.

    The implementation resource writes the delta to handle the data that came from the active environment after you reload the passive environment.
15. **MDM Upgrade** and **Schema Update**. Run the backfill job on dirty records for each base object.

Run From	Steps
Hub Console	1. In the MDM Hub Console, open the Batch Viewer tool. 2. From the Batch Viewer navigation pane, select the base object that you want to backfill. If the backfill batch job does not appear in the batch viewer for the base object, select **Batch Viewer** > **Refresh**. 3. To backfill only on the dirty records, select **For dirty records only**. 4. Run the backfill batch job.

Run From	Steps

API	1. Ensure that the MDM Hub Server is running.
	2. Run one of the following APIs.
	• To backfill all base objects, use the ExecuteBatchBackfillAll API.
	Note: To run the backfill only on the dirty records, set the `dirtyOnlyInd` parameter to `true`.
	• To backfill a specified base object, use the ExecuteBatchBackfill API.
	
	Important: Comment out the rowidObjectTable element in the request.
	The following code sample shows an ExecuteBatchBackfill request to backfill the dirty records in the C_BO_TRUST base object:
	`<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:urn="urn:siperian.api">`
	`<soapenv:Header/>`
	`<soapenv:Body>`
	`<urn:ExecuteBatchBackfill>`
	`<urn:username><user name></urn:username>`
	`<urn:password>`
	`<urn:password><password></urn:password>`
	`</urn:password>`
	`<urn:orsId>localhost-orclsnl-UTSOURCE</urn:orsId>`
	`<urn:asynchronousOptions>`
	`<urn:isAsynchronous>false</urn:isAsynchronous>`
	`</urn:asynchronousOptions>`
	`<urn:tableName>C_BO_TRUST</urn:tableName>`
	`<!--urn:rowidObjectTable>?</urn:rowidObjectTable-->`
	`<urn:dirtyOnlyInd>true</urn:dirtyOnlyInd>`
	`</urn:ExecuteBatchBackfill>`
	`</soapenv:Body>`
	`</soapenv:Envelope>`

16. Remove the backfill tasks from the C_REPOS_BACKFILL_TASK table. The table must be empty so that other batch jobs can run.

```
Delete from c_repos_zdt_backfill_task
COMMIT
```

17. **MDM Upgrade** and **Schema Update**. Run a tokenize batch job on dirty records for each base object.

Run From	Steps
Hub Console	1. In the MDM Hub Console, open the Batch Viewer tool. 2. From the Batch Viewer navigation pane, expand the base object for which you want to regenerate all the match tokens. 3. Expand **Generate Match Tokens**. 4. Select the batch job that you want to use to generate match tokens. 5. Clear **Re-generate All Match Tokens**. 6. Click **Execute Batch**.

Run From	Steps

API	To run the Generate Match Tokens batch job on dirty records only, use the ExecuteBatchGenerateMatchTokens request with the `fullRestripInd` attribute set to `0`.
	The following code sample shows an ExecuteBatchGenerateMatchTokens request to create match tokens for dirty records in the C_PARTY base object:
	`<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"`
	`xmlns:urn="urn:siperian.api">`
	`<soapenv:Header/>`
	`<soapenv:Body>`
	`<urn:executeBatchGenerateMatchTokens>`
	`<urn:username>admin</urn:username>`
	`<urn:password>`
	`<urn:password>admin</urn:password>`
	`<urn:encrypted>false</urn:encrypted>`
	`</urn:password>`
	`<urn:orsId>localhost-orclsnl-UTSOURCE</urn:orsId>`
	`<urn:asynchronousOptions>`
	`<urn:isAsynchronous>false</urn:isAsynchronous>`
	`<urn:jmsReplyTo></urn:jmsReplyTo>`
	`<urn:jmsCorrelationId></urn:jmsCorrelationId>`
	`</urn:asynchronousOptions>`
	`<urn:tableName>C_PARTY</urn:tableName>`
	`<urn:fullRestripInd>0</urn:fullRestripInd>`
	`</urn:executeBatchGenerateMatchTokens>`
	`</soapenv:Body>`
	`</soapenv:Envelope>`

18. Run the following command to finalize the upgrade process:

    ```
    sip_ant swing_finalize
    ```

    The swing command executes the following processes:

    1. Enables batch services in the target system.
    2. Removes the ZDT event queue from the following tables:
       - C_REPOS_ZDT_EVENT_QUEUE
       - C_REPOS_ZDT_REPLICAT_EXCEPTION
    3. Updates the following tables and sets their values:
       a. C_REPOS_ZDT_ENV_STATE; set state = NULL, state_ts = NULL, state_desc = NULL, updated_by=NULL, update_date=NULL
       b. C_REPOS_ZDT_STATUS; set REPLICATION_TARGET_IND = 0
       c. C_REPOS_ZDT_STATUS; set ACTIVE_UPGRADE_IND = 0
    4. Configures sequences on the active environment to be even.
    5. Undeploys ZDT.
    6. Configures and starts the extract on the active environment, which is the new source.

19. **Schema Update with Data Change**. If any user data foreign keys change during the update, run foreign key validation. Run the ExecuteBatchValidateFKRelationships SIF API for each base object.

    Any violations that came from the active environment after the lookup data is updated are detected.

20. **Schema Update**. If violations are detected, fix the violations.

    Tip: If the violations are not severe, you can fix the violations after you complete the upgrade. If you cannot fix some violations, contact Informatica Global Customer Support.

21. Export the passive environment by running the following command:

```
CONNECT TO <database name> USER <database user> USING <password>
BACKUP DB <source database name> ONLINE
```

22. Resume batch jobs in the passive environment.

Upgrade Steps Controlled from the Active Environment

The active environment must be prepared after you complete the upgrade steps on the passive environment. Run the steps from the active environment.

Important: During the upgrade, you must drop the source schema, re-create it from the target schema, and then import the database dump file. Do not attempt to bypass this process by applying a change list, because the schemas must be exactly the same in both databases for the replication to work. To avoid making inadvertent changes, enable Production Mode on the source and target databases. Log in to the Hub Console, select the Databases tool, select the database, and enable Production Mode. In future, if you need to apply a change list to the target database, you can disable Production Mode and apply the change list.

Before you begin, open the following repository tables and make a note of the values in the columns.

C_REPOS_ZDT_STATUS

Record the values for all columns. You need these values in step 6.

C_REPOS_DB_RELEASE

Record the values for the following columns. You need these values in step 7.

- db_password, tns_name
- connection_port
- database_host
- connect_url
- database_id
- connection_type
- proxy_ind
- db_proxy_username
- db_proxy_password
- db_replication_username
- db_replication_password
- debug_ind
- debug_level
- debug_file_name
- debug_file_pat

1. **Infrastructure Upgrade**. Upgrade hardware and third-party software in the active environment.

2. Stop the application servers, close connections, and then drop and re-create the schema in the active environment.
   a. Stop the application servers in the active environment.
   b. Close all the connections, such as Toad, db2cmd, and application server, to the active environment.
   c. Drop the database in active environment, and then create it.

      For example, use the following command to create a schema:

      ```
      <MDM Hub installation directory>/bin/sip_ant.bat create_ors
      ```
3. Re-create the Operational Reference Store by importing the dump file that was generated from the passive environment.

   ```
   CONNECT TO <target database name> USER <database user> USING <password>
   DB2 RESTORE DATABASE <source database name> INTO <target database name> REDIRECT
   GENERATE SCRIPT restore_2srcdb.db2
   ```
4. Remove event queues and drop tables.

   ```
   /* Repository tables for ZDT */
   delete from C_REPOS_ZDT_EVENT_QUEUE;
   delete from C_REPOS_ZDT_REPLICAT_EXCEPTION;
   update C_REPOS_ZDT_ENV_STATE set state = NULL, state_ts = NULL,
   state_desc = NULL, updated_by=NULL, update_date=NULL;
   ```
5. Run the following command to install the Java utility file:

   ```
   sip_ant install_utility
   ```
6. To complete the swing installation process, run the following command:

   ```
   sip_ant swing_finish
   ```

   The replication parameter files install.

   Note: The expected value for AFTERCSN or ATCSN is the LRI (Log Record Identifier).
7. Check the environment-specific settings on the active environment in the C_REPOS_DB_RELEASE table.

   All the values in the table must be local and the database entries must point to the local database. If necessary, update the values to match the values that were in the C_REPOS_DB_RELEASE table before you dropped the schema.
8. **MDM Upgrade**. On the new passive environment, upgrade the Multidomain MDM and configure the Process Server.

CHAPTER 3

Troubleshooting

This chapter includes the following topics:

- Batch job fails when backfill tasks are registered, 18
- Reset Matches on Target, 18
- Replication is not working, 18

Batch job fails when backfill tasks are registered

If you run batch jobs with backfill tasks enabled, an error occurs and the batch job fails.

The MDM Hub does not allow batch jobs to run in a target replication environment while backfill tasks are registered. The MDM Hub does not allow batch jobs to run because of the high likelihood of locking conflicts when backfill batch jobs are running concurrently with regular batch jobs. After the backfill task has completed and the backfill tasks are de-registered, you can run batch jobs.

Reset Matches on Target

The Reset Match logic is not replicated to the target environment. MET migration will not reset the match table. You must do this using a script. Tokenize backfill does not impact the match table. After a match-related change list is applied, a change must be made to the target match rules in order to trigger Reset Match.

Replication is not working

If the deploy_zdt call does not complete, the ZDT replication might not work between the source and target databases.

1. Check that all the Oracle GoldenGate processes are running. Restart any processes that are not in the RUNNING state.

In this example, ENVA contains the source database and ENVB contains the target database.

```
EXTRACT RUNNING E_ENVA
REPLICAT ABENDED R_ENVB
REPLICAT RUNNING R_ENVBU
```

In this example, the R_ENVB process is in the ABENDED state. Try restarting the process.

2. Insert an event directly into the C_REPOS_ZDT_EVENT_QUEUE table in the source database. Open the same table in the target database. If the event appears in the target database table, replication is working in this direction. Repeat the verification process from the target database to ensure that the replication works in the other direction as well.

   For example, the following code adds an event to the table on ENVA:

   ```
   insert into C_REPOS_ZDT_EVENT_QUEUE ( 'enva', -1, 'test', '', 'envb', 'test',
   CURRENT_TIMESTAMP, 'EVENT_TOKEN' )
   COMMIT
   ```

3. If the Oracle GoldenGate processes are running without errors, but the message queue replication is not working, you need to troubleshoot your environment. Navigate to the Oracle GoldenGate directory `dirrpt` and check the .rpt files for information about potential problems.
   For more information about replication issues, see the following Oracle articles on Metalink:

   1. Main Note - Oracle GoldenGate - Troubleshooting (Doc ID 1306476.1)
   2. Master Note - Oracle GoldenGate: Initial Load Techniques and References (Doc ID 1311707.1)
   3. DB Transactions Missing from Oracle GoldenGate Trail Files (Doc ID 1364852.1)
   4. POC for golden gate

INDEX

G

GoldenGate
- replication tool 6
- supported versions 7

M

MDM Hub
- supported versions 7

MDM Hub Upgrade with Zero Downtime
- overview 7

T

Troubleshooting
- executing batch jobs with backfill tasks enabled 18

Troubleshooting *(continued)*
- registered backfill tasks 18
- reset matches on target 18

Z

ZDT
- overview 6
- prerequisites 7

ZDT upgrade cycle
- copying the passive environment to the active environment 16
- steps controlled from the active environment 16
- steps controlled from the passive environment 10

Zero Downtime *See ZDT*