



Data Replication

Setup Notes for Replicating with IBM® Db2® LUW

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<https://support.hitsw.com>

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Syniti Data Replication

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These notes provide essential information for setting up replications using **IBM Db2 for LUW**.

This guide describes the setup process using the Log Reader option for one-way mirroring and synchronization when replicating data from an IBM Db2 LUW database. For mirroring and synchronization replications using Db2 LUW as a source, Syniti Data Replication offers two approaches:

- **Log Reader:** Queries the Db2 log directly
- **Triggers:** Uses Syniti DR triggers installed on the Db2 database to log changes (Ask the Technical support team at <https://support.hitsw.com> to see if this approach would work in your application and to obtain the separate document *Setup Notes for Replicating with IBM® Db2® LUW*)

Connection Type

Ritmo/DB2 .NET Provider included with your installation of Syniti DR.

Assembly: No value required

IBM Db2 LUW User Permissions

When setting up replications that use IBM Db2 LUW as a source database, you need to use SYSADM or DBADM login to enable logging from Syniti DR and to access the log during replication. The DB2 LUW log contains details of all activities in the database, including those specifically associated with SYSADM or DBADM. Therefore, for log reading, SYSADM/DBADM privileges are required.

IBM Db2 LUW System Settings

Db2 Log Settings

By default, the IBM Db2 logging type is Circular, which means the log files are written in a circular fashion. To make the log files accessible for reading, Db2 requires the logging type to be Archive.

If the database is not already in Archive mode, you need to:

1. Change the logging type. To change the database logging type to Archive, change the parameter LOGARCHMETH1 value to either LOGRETAIN or DISK.
2. Perform a full offline backup (required by Db2 right after the logging type is changed.)

NOTE: The above actions should be carried out by the Db2 Database Administrator.

Setting Parameter LOGARCHMETH1 examples

Below are examples showing how to change the LOGARCHMETH1 parameter and to perform a backup. Again, it is highly recommended that the operations are carried out by the DBA. Refer to your database documentation for more information on the steps below.

- **Set the value of LOGARCHMETH1 to LOGRETAIN.**
CONNECT TO SAMPLE;
UPDATE DATABASE CONFIGURATION USING LOGARCHMETH1 LOGRETAIN IMMEDIATE;
CONNECT RESET;
- **Set the value of LOGARCHMETH1 to DISK**
CONNECT TO SAMPLE;
UPDATE DATABASE CONFIGURATION USING LOGARCHMETH1 DISK:f:/logs/ IMMEDIATE;
CONNECT RESET;
- **Back up the database**
Note that, depending on the size of your database, this step can take several hours.

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BACKUP DATABASE SAMPLE TO "/tmp" WITH 2 BUFFERS BUFFER 1034 PARALLELISM 1 COMPRESS WITHOUT PROMPTING;

For more information, see IBM Db2 Version 9.7's 'Configuration parameters summary' on the IBM website: <http://publib.boulder.ibm.com/infocenter/db2luw/v9r7/index.jsp?topic=/com.ibm.db2.luw.admin.config.doc/doc/r0005181.html>.

Copy File to Db2 Server

After installing Syniti DR, you need to copy a file from the Syniti DR folder to your Db2 server.

3. On your Windows desktop, open the Syniti DR install folder, and go to the `ServerFiles/DB2UDB` folder.
4. Locate the appropriate file for your operating system and Db2 version.

For example:

5. The file `aix53_9010_db2udbreadlog03` is for the IBM AIX 5.3 operating system, Db2 version 9.1
6. The file `win_10010_db2udbreadlog03.dll` is for Microsoft Windows, Db2 version 10.1.

NOTE: If you do not find a file for your operating system/Db2 version, [contact Syniti Technical Support](#).

7. Copy the appropriate file from the `ServerFiles/DB2UDB` folder in your Syniti DR install directory to:
`<Db2 Home Directory>/function`
on your Db2 server (the file contains stored procedures that Syniti DR calls to access the log).
8. Rename the copied file to `db2udbreadlog03.dll` (`db2udbreadlog03` for UNIX).

Verify Temporary Tablespace

Syniti DR makes use of a user temporary tablespace on the Db2 server. Ask the Db2 administrator to create a tablespace if it does not exist.

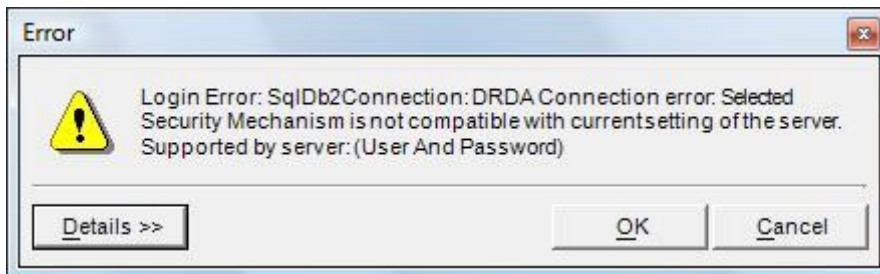
Example:

```
CREATE USER TEMPORARY TABLESPACE "UserTempTS1" IN DATABASE PARTITION GROUP
IBMDEFAULTGROUP PAGESIZE 4096 MANAGED BY AUTOMATIC STORAGE BUFFERPOOL
IBMDEFAULTBP
```

Collect Details for Syniti DR Connections

Collect the following information about the Db2 server you are using. You will need it to configure the Syniti DR source connection.

1. Security Mechanism used on the Db2 server. The value specified in Syniti DR must match whatever setting is specified on the Db2 server. The options available are User Only, User and Password, Encrypted Password and Encrypted User and Password. If the value you choose does not match the value on the Db2 server, you will see the following error when attempting to connect.



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Note: If you need to change this setting at any time, you may need to delete the connection and recreate it for the changed setting to take effect.

2. IP address and port to reach Db2
3. Name of Db2 catalog (Database Server Name)
4. Package collection (Optional)

The account used to make a connection the first time requires permissions to create a package where some prepared SQL statements (DECLARE CURSOR) will be stored. The package can be created in a collection specified in the configuration parameter “Package Collection.” The account must have CREATE, BIND and GRANT privileges for objects in the collection. These privileges are needed only for the first connection. Once the package has been created, for all users of that package the privileges are no longer required. (A package can later be dropped using the DROP PACKAGE SQL statement if needed.)

5. Host Code Page (CCSID) for the Db2 catalog: the code of the language used in Db2 (ex. 280 Italian, 037 US English, 1252 ANSI etc.) In most cases, the appropriate choice is 1208 - Unicode UTF-8. However, you should check with your Db2 administrator.

Add Source Connection Wizard

The following field(s) require specific information for IBM Db2.

Your Syniti DR installation includes Ritmo/DB2, a .NET Data Provider to connect to IBM Db2. Configure your connection to Db2 from within the Management Center using the information below. More information on the steps to configure a connection can be found in the User Guide (available from the Management Center). The following field(s) require specific information for IBM Db2.

The screenshot shows the 'Add Source Connection Wizard' interface. The main title is 'Syniti Data Replication'. The wizard is currently on the 'Select provider' step. The main area contains the following fields and options:

- Source name:** Name: Db2
- Data Provider(s):**
 - Database: IBM Db2 for LUW
 - Provider: HIT Software .Net Driver (Ritmo/DB2)
 - Assembly: Ritmo_DB2/lib/SqDb2.dll

Navigation buttons at the bottom: < Back, Next >, Cancel, Help.

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Set Connection String Screen

User ID

Use a Db2 user ID with Database Administrator privileges so that Syniti DR can access the Db2 log. Login IDs with DBADM or SYSADM are required for this stage in the setup process. Once setup has been completed, and replications are ready to run, the administrator login is no longer required.

Enable Transactional Replication Wizard

For transactional replications (mirroring and synchronization), use the Enable Transactional Replication wizard after setting up a source connection. The following field(s) require specific information for IBM Db2.

Log Type Screen

Select whether you plan to perform replications using the Log Reader (default) or Triggers. The Setup Notes for Trigger-based Transactional Replications are available in the [Help Center](#).

Log Settings Screen

Stored Procedures Schema

The default value is the ID of the user specified in the Db2 connection. The value can be edited to reflect whichever schema you want to use for the log reading stored procedures. Three procedures will be created:

LOGVER03	Identifies the version of the stored procedures/library so that we don't use a mismatched version
CURLSN03	Identifies and retrieves the current LSN or Transaction ID in the Db2 log
LOGREC03	Reads and retrieves changed records from the Db2 log

Log Reader Library Version

A read-only field that displays the version of the file that was copied to DB2 from the Syniti DR install folder during setup. See [Copy File to Db2 Server](#).

The Ritmo/DB2 .NET Provider

The Ritmo/DB2 .NET provider is included with your Syniti DR release and installed as part of the Syniti DR setup. The version of Ritmo/DB2 that is provided does not include the Toolbox or the developer tools. For more information about the different Ritmo versions available, check [the Syniti web site](#).

The Ritmo/DB2 files can be found in the Syniti DR installation folder, in a separate folder called **Ritmo_DB2**.

The following topic may be useful when using Ritmo/DB2 with Syniti DR.

Enabling a trace

The file RitmoDb2.xml contains configuration settings for Ritmo and can be found in the folder where Ritmo was installed. You can set a trace file name and enable the trace from this file. Note that the trace will run whenever Ritmo is in use, and you should set <traceflag> to False immediately after completing the operations that you wanted to trace. If you leave the trace running, it can affect performance and build up large trace files.

1. In the Windows Explorer, go to the Syniti DR installation folder, then to the Ritmo_DB2 folder.
2. Open the file RitmoDb2.xml in a text editor.
3. Modify the trace entry (in bold below) as needed:

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```
<?xml version="1.0" encoding="utf-8" standalone="yes" ?>
<configuration>
<configSections>
<section name="trace" />
</configSections>
<trace>
<tracefile>C:\Program Files\Syniti\Data Replication V9\Ritmo_DB2\logs\Ritmo_DB2.trc</tracefile>
<traceflag>True</traceflag>
</trace>
</configuration>
```

4. Save the file and exit the editor.

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