



BTR2SQL

FAQ: MySQL Server Migration and Deployment

Introduction

Mertech's BTR2SQL database migration tool allows you to easily migrate a Btrieve database to a MySQL Server backend. The migration process creates the required tables and indexes and copies data to the MySQL server. This whitepaper answers frequently asked questions about the migration and deployment process, including:

- [What Objects Are Created on MySQL?](#)
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What Objects Are Created on MySQL?

Indexes

If a table has at least one non-unique index, and that table does not have a primary key defined in your DDFs, a MDS_RECNUM column is added and used as a primary key. BTR2SQL adds the MDS_RECNUM column to all non-unique indexes as the last segment. Thus, all indexes are created as unique. This guarantees proper record traversal, forward and backward, through otherwise duplicate values.

If a table has a primary key and has indexes that are not unique, the segments of the primary key are appended to the non-unique keys to make them unique.

Application Locks

Btrieve allows applications to lock records outside of a transaction. This conflicts with SQL databases' normal transaction processing. Therefore, the BTR2SQL driver can't use standard SQL server record locks after the migration. Instead, the driver uses an App Locks package to manage its own record locks.

User-defined functions are included in mds_app_lock.dll, which is a plug-in for MySQL server. You can find this DLL, and additional information on it, in the BTR2SQL installation folder, deploy\mysql.

What Files Are Used After Migration?

BTR2SQL creates a new, corresponding interface file (.INT) for each of your Btrieve data files. For example, the migration utility would create filename_ext.int to replace filename.ext. The .INT file contains metadata used at runtime and resides in the location where the original data file was located. After BTR2SQL creates the .INT files, you no longer need your original Btrieve data files.

After you migrate your data, you can also shut down the Pervasive.SQL/Btrieve engine. The BTR2SQL driver does not rely on the Pervasive.SQL engine when accessing your data.

What Might I Want to Modify in My Code Post-Migration?

You might want to modify your application to avoid creating tables using B_CREATE calls and deleting files using OS calls.

The BTR2SQL driver supports creating tables using B_CREATE calls. However, tables created using B_CREATE will not be fully defined in SQL. You can overcome this limitation by either modifying your application to create tables using the MdsAddTable function, or modifying it to read existing .INT files when working with tables created using B_CREATE. [Click here for more information on how B_CREATE works with BTR2SQL.](#)

Many apps create temp files that are used for sorting or other temporary purposes. Instead of using OS calls to delete these temp files, BTR2SQL allows you to use the MdsDropTable or B_DROP_FILE functions to delete these files ([as described in this blog post](#)).

If you want to cleanly delete all temp records at once, we suggest modifying your application to delete temp records using the B_TRUNCATE_FILE API. B_TRUNCATE_FILE is much faster than Btrieve's standard read/delete

method, which requires individually reading and deleting each record, and avoids the possibility of dropping tables (which can adversely affect the defined tablespaces).

How Do I Know if My Application Is Accessing Btrieve or SQL?

Normally, applications access the Btrieve DLL either through the import library provided by Pervasive or a LoadLibrary (w3btrv7.dll). Windows finds this DLL on the PATH and loads it. So how can you check whether your application loaded the Pervasive DLL or the BTR2SQL DLL?

To do so, use sub-functions within B_EXTENDED_VERSION (op 5026) to retrieve information about the BTR2SQL driver and attached SQL backend. If you make these calls against the BTR2SQL DLL, B_EXTENDED_VERSION shows information about the BTR2SQL driver (including version info, the DLL name, etc.) and retrieves a version string from the active SQL server, letting you know you're running against a SQL backend. If you make this call against the Pervasive access DLL, it will return a code of 1, letting you know you're running against a Btrieve backend. [Click here for more information about using B_EXTENDED_VERSION.](#)

Can My Application Handle SQL Server Login Automatically?

Yes. You can modify your application to automatically handle SQL Server login, allowing users to avoid the login dialog, using the B_SQL_LOGIN and B_SQL_LOGOUT calls. You can find full instructions on implementing the B_SQL_LOGIN and B_SQL_LOGOUT calls in the SDK section of the BTR2SQL User's Guide.

If you do not want to modify your application to use the B_SQL_LOGIN and B_SQL_LOGOUT calls, you can instead modify the MDS.INI file BTR2SQL creates during migration so that file passes login information to your server. To do so, you must include your server name, database name, username, and your server's encrypted password in the MDS.INI file. After you do so, your application will log in to your SQL server automatically.

Can My Application Execute SQL Queries Against Migrated Data?

B_SQL_* functions (such as B_SQL_OPEN_CURSOR, B_SQL_PREPARE, B_SQL_EXECUTE, and B_SQL_FETCH) allow your application to execute SQL queries and retrieve results using the same connection as the driver. You can find further information on this topic in the SDK section of the BTR2SQL User's Guide.

Are There Any MySQL Database Limitations?

MySQL servers have different database limits than Btrieve servers. Most applications aren't affected by these differences, but it's good to be aware of them.

The biggest difference is record size. Btrieve supports record sizes as large as 64K. However, MySQL has a limit of 8K. The migration process compresses records larger than 8K by converting large text fields to LONGTEXT.

MySQL servers also have the following limitations:

- The supported date range is 1000-01-01 to 9999-12-31.
- A table can have only up to 1,000 columns.
- The max_allowed_packet setting defaults to 1M on the MySQL server and 16M on the client. To allow for larger records, increase the server's max_allowed_packet setting to the size of your largest record (including the blob or variable portion).

How Do I Look at Data on the MySQL Server?

After you migrate to SQL, you'll no longer be able to use the Pervasive Control

Center to examine the data on your server. Thankfully, there are many tools that allow you to execute queries, edit data, and import/export data on a SQL server.

For most users, MySQL Query Browser is a sufficient replacement for Pervasive Control Center. There are also a number of more advanced tools available for purchase online, such as [Aqua Data Studio](#).

Contact Information

If you'd like to know more about Mertech's products, please visit our website, mertechdata.com, or contact us at:

Corporate Head Office

Mertech Data Systems, Inc.
18503 Pines Blvd. Suite 312
Pembroke Pines, FL 33029 USA
Tel: +1.954.585.9016
Fax: +1.866.228.1213
Email: sales@mertechdata.com

California Office

Mertech Data Systems, Inc.
7621 N. Del Mar Ave., Suite 101
Fresno, CA 93711 USA

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