

MERTECH DATA SYSTEMS, INC

18503 Pines Boulevard, Suite 312 | Pembroke Pines, Florida 33029 | USA

Tel: (954)585-9016 | Fax: (866)228-1213

[www.mertechdata.com](http://www.mertechdata.com)

## ISAM TO SQL MIGRATION

Enabling ISAM-based Applications to work with relational databases without source level changes

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## Introduction

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The objective of this white paper is to familiarize the reader with Mertech Data System's latest product offering—a set of data migration tool and high-performance database drivers that allow quick and efficient migration of applications developed around Pervasive Software's Btrieve® transactional engine to an MS SQL Server backend.

### Background

The Internet revolution has underscored the importance of making data available reliably and at a high speed to an ever-growing user base. Corporations continue to consolidate their data into single, corporate-wide database so that information about its customers, products, and market can be easily extracted and manipulated and at the same time allow customers and mobile work force to update and retrieve information anytime, anywhere. These new, data-intensive demands of today's businesses requires a database server that is robust, is scalable, gives excellent response time in extracting and manipulating data, has great disaster recovery features and above all provides excellent security features and guarantees 24X7 availability.

*"IDC estimates that SQL-based relational databases hold a 90% market share. In the Windows market, Oracle and Microsoft combined have 80% of the market"*

Relational or SQL (Structured Query Language) based databases from companies like Oracle, Microsoft, IBM and others meet these criteria. Indeed the features of these databases, combined with the marketing might of the "software heavyweights" have helped make relational database engines a de facto standard in the business application market.

Companies using or developing applications written around the transactional engines of Btrieve® and Pervasive.SQL, which utilizes the Index Sequential Access Method (ISAM) or transactional approach to data storage and retrieval, find that moving their applications to the industry leading SQL database engines presents significant challenges. There are two obvious migration paths; 1) rewriting entire applications written around the transactional paradigm to support relational approach using SQL or set paradigm 2) write a new application from scratch. Both require significant resources and time and may not be feasible for many companies.

### A New Approach

Mertech is offering a third option that is both flexible and cost efficient to handle this migration issue. Mertech's new product offering for the developers will allow them to deploy their applications with Btrieve® and Pervasive.SQL® engines as well as with MS SQL Server backend without requiring recompilation or code rewrite. This means that an application currently working exclusively with Btrieve® or Pervasive.SQL® engines will be able to work with an MS SQL Server database server in very little time, following a few easy steps! Mertech already offers a similar solution for the DataFlex market. Over 1000 companies on five continents have saved millions of dollars by using Mertech's solution.

## A Case for Relational Databases

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The case for relational databases can be made on two fronts.

First, the relational model for data storage and retrieval has proven to be superior at handling large amounts of data and turning that data into useful information without requiring special programming techniques. The reason for that superiority is the Structured Query Language (SQL). This relatively simple language allows complex data manipulation using only a few simple commands.

Second, because of that superiority and simplicity as well as the standardization of the SQL language, almost all major software providers support SQL-based backend through Open Database Connectivity (ODBC), OLEDB or native programming interfaces. Companies switching to a SQL database not only get a robust, more efficient enterprise-wide data solution, but they also get access to a variety of tools and applications that work seamlessly with these SQL databases.

## Dilemma for Developers and Users

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### Issues Facing Corporate Users

To meet the stringent demands placed on database servers due to data consolidation, corporate users of database applications want the power, scalability and reliability offered by industry leading relational database engines. Corporations who have their data scattered over disparate databases often face difficulties in using business analysis, reporting and other business tools that are crucial from a corporate perspective.

In many cases, companies may already be using an SQL-based database with newer applications yet still have some applications using Btrieve® and Pervasive.SQL® engines. This lack of standardization often presents integration issues to the IT department. Applications can be modified or rewritten to support a single corporate database standard. However, this can be an expensive and time-consuming option.

In an effort to consolidate data quickly, companies maybe willing to pull the plug on their existing applications and opt for an off-the-shelf solution that integrates well with mainstream database engines. But adopting a new application is more than just buying a piece of software and installing it. IT departments have to contend with implementing the new product, testing it, rolling it out to select users, further testing, Q&A, and, finally, deploying it. And then there is the cost associated with retraining end-users on the new software.

## Issues Facing Developers

Developers face two hurdles in the SQL-standardizing market. First, their already established customers often want the ability to run their applications on a mainstream database server. Second, to expand their customer base these developers need to find new customers. Since 90% of the customers buying database servers chose an SQL-based solution, it is imperative that application developers who are looking to attract new customers support RDBMS database servers.

These hurdles have left the developers using Btrieve® and transactional engine of Pervasive.SQL® with only one option—roll up learn to program with SQL and potentially re-code thousands of lines of code to accommodate the set-based paradigm of SQL. Not an easy task!

## Mertech's Solution

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Recognizing the enterprise demand for MS SQL Server and the hurdles that developers supporting transactional engines must overcome to work with industry leading databases, Mertech has created a family of middle-ware applications designed to:

*“Mertech’s solution allows the developer to still effectively program with Btrieve® API, thus using the same source-base for both Btrieve® and MS SQL Server backend”*

- Alleviate the costs associated with migrating applications working against existing transactional data sources to MS SQL Server databases
- Provide developers with a cost-effective, efficient, and platform independent solution to use their existing code with MS SQL Server database servers
- Create the opportunity for the developer to leverage existing applications with an MS SQL Server backend immediately
- Accomplish all of the above without compromising the stability or speed of the application.

Mertech accomplishes these objectives with a family of high performance database drivers designed to translate calls made to the Btrieve® and Pervasive.SQL® transactional API into SQL statements that work with the target SQL-backend. Whether it’s for MS SQL Server or any other databases, these database drivers replace the existing Btrieve®’s dynamic link libraries and effectively intercept and relay application commands to the SQL data source as optimized, efficient SQL statements.

With this solution, Mertech has successfully provided both corporate users and developers the most cost-effective and efficient method to work with an MS SQL Server or other SQL databases. Apart from significant cost and time savings,

developers can use this efficient solution to make their applications “database independent” – they can deploy the same application using Btrieve® engines, transactional engines of Pervasive.SQL® engines or with MS SQL Server. No source code changes are needed!

### BTR2SQL—Data Migration Tool

To handle migration of existing Btrieve® file structures and data to MS SQL Server, Mertech provides a database migration tool to simplify the data migration, table, and index creation process. The tool, **BTR2SQL**, is an integral part of the product bundle and is included with the purchase.

BTR2SQL is a standard 32-bit application that runs on the Microsoft® Windows™ platform.

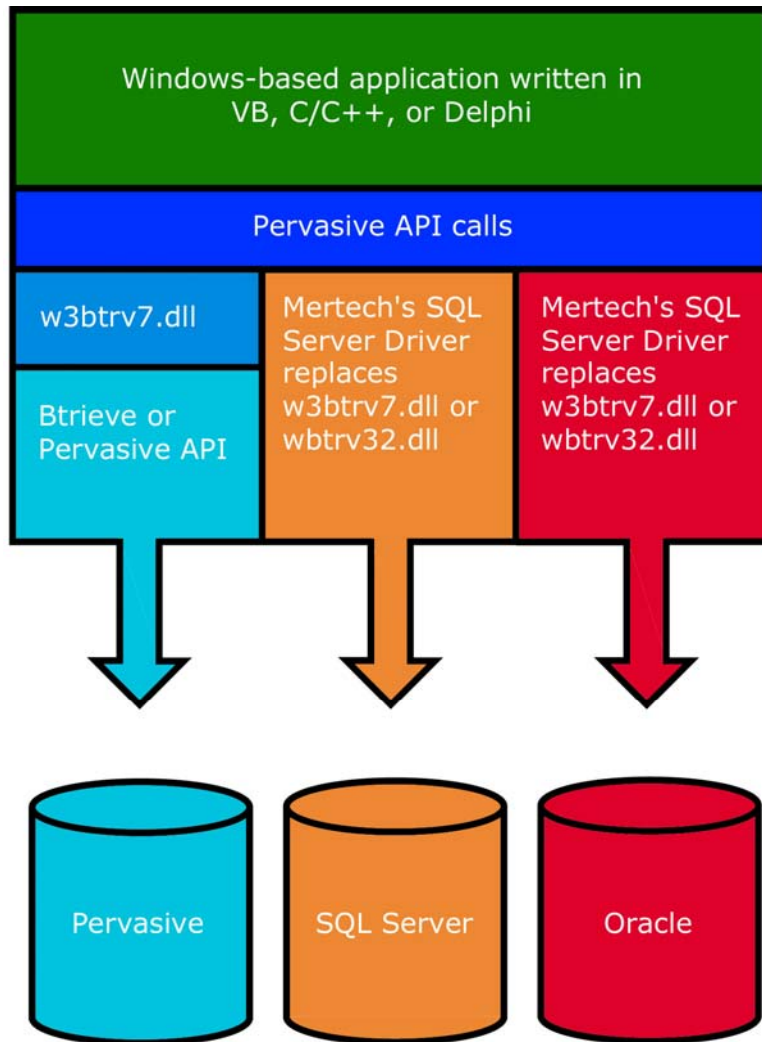


Illustration 2: Application Layers

### Mertech' ISDBC Driver for MS SQL Server

Mertech's ISDBC Driver for MS SQL Server uses an OLEDB programming interface for communicating and accessing the MS SQL Server database. This is a direct connection to the server and doesn't require any ODBC drivers or DSN entries.

Mertech's Driver supports MS SQL Server version 6.5, 7.x and 2000.

### Mertech's ISDBC Driver for Oracle

Mertech's ISDBC driver uses Oracle Call Interface (OCI) for communicating and accessing the Oracle® database. ORAFlex communicates directly with the Oracle® server through Oracle's® network interface SQL\*Net.

The driver supports Oracle® version 8.0x and higher.

## Benefits of Using Mertech's Solution

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Mertech's ISDBC Driver for MS SQL Server product provides a number of critical benefits for both businesses and developers.

### Benefits to Developers

- Cut down implementation time — run existing application against MS SQL Server databases immediately.
- Continue to program in a familiar environment — because no changes are required to the source code, the developer can continue to program in Btrieve® using their existing development tools and then deploy on multiple databases.
- Open doors to new markets— With Mertech's approach, the developer will be able to continue to support Btrieve®-based applications and still have flexibility to offer solutions both for Btrieve® and MS SQL Server databases.
- Speed and reliability—every developer is concerned about the speed and efficiency of applications. With Mertech's high-performance drivers, all translated functions are optimized to work as effectively as possible with an MS SQL Server backend.

### Benefits to Corporate Users

- Easy Migration— the fact that the Btrieve®-based applications can work concurrently with MS SQL Server and Btrieve® databases ensures that customers and employees won't be severed from the data while the migration moves forward
- Corporate wide data consolidation—with the scalability provided by MS SQL Server, data from Btrieve® files can now be moved to a single corporate wide database.
- Faster reporting by using Crystal Reports or other reporting tools directly with MS SQL Server.

- Integration with other applications—access data from other applications.
- Zero retraining cost — users can continue to use familiar applications.

## Contact Information

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If you would like to know more about Mertech’s products, please visit our web site at [www.mertechdata.com](http://www.mertechdata.com) or contact us at:

### Corporate Headquarters:

Mertech Data Systems, Inc.  
18503 Pines Boulevard, Suite 312  
Pembroke Pines, FL 33029  
USA

Tel: +001 (305) 270 1340

Fax: +001 (305) 270 1372

e-mail: [sales@mertechdata.com](mailto:sales@mertechdata.com)

### Brazilian Subsidiary:

Al. Rio Negro 1105,  
cj 63 Alphaville  
Barueri, SP 06454-000  
Brazil

Tel: +55 (11) 4191 0289/4193 5956

Fax: +55 (11) 4688 0544

e-mail: [mertechbrasil@mertechdata.com](mailto:mertechbrasil@mertechdata.com)