

Complete Conversion: VSAM to Relational

VSAM files and VSAM-based applications have always presented a unique dilemma when considering conversion to a relational database technology. Automation can make light work of any VSAM conversion, whether the purpose of your conversion is to simply replace your VSAM files with open relational database structures, or whether your goal is to completely replace your VSAM-based COBOL applications with relational databases and newer languages.

Finding the Key

Unlike conversion from more structured file definitions, conversion from VSAM to relational technology has historically involved hundreds of hours of "pre-conversion analysis". VSAM keys are often "hidden" within details file definitions that include the definition and re-definition (and re-definition and re-definition) of data fields within the VSAM record layouts.

With VSAM, many of the "data relationships" are hidden within VSAM files that may contain multiple record types and hundreds of individual field definitions in a single VSAM file. VSAM clusters that were once well-known by the teams that designed and defined the structures are now a bit "mysterious" to the teams that provide the data and application maintenance today. Indexes and alternate indexes into the VSAM data provide some basis for the re-design to a fully relational database. The occurrences of data fields within the files provides additional, and sometimes differing, information about the data keys and their relationships to one another.

Without intelligent automation, the gathering and definition of the VSAM file keys and the related data is often time-consuming and error-prone. With DB-Shuttle™, VSAM key definitions and the definition of the related data fields is completed within minutes... with no manual intervention and with full confidence that the resulting database structure will function, perform and be easily maintained using the relational database tools.

Conversion Types

Most organizations plan to migrate their VSAM files to relational database technology, DB2, SQL Server or Oracle. The resulting databases are non-proprietary, easily accessible from other applications, easily accessible with other relational database tables, and easier to maintain by your skilled DB2, SQL Server or Oracle database administrators.

One-for-One. Some organizations are quite satisfied with the functionality and performance that is built into their VSAM file design. In these cases, a "one for one" conversion of the VSAM files is the right solution, and it is the least costly and lowest risk solution. The resulting SQL Server, Oracle or DB2 database contains the same data formats and table relationships that were defined into the VSAM files.

Enhanced One-for-One. Some organizations are aware of limitations within their existing VSAM files, limitations that prevent ease in using the VSAM data in newer applications. They need a method to allow changes, enhancements and modifications to be built into the new relational database structure during the VSAM conversion without impacting the functionality of the former VSAM-based applications.

Pre-defined Target Database. Still other organizations are replacing their existing VSAM-based applications with (1) off-the-shelf packages, (2) relational database structures that they have already designed and implemented for other applications, or (3) relational database structures that they have been replicating for the past several years based upon the VSAM data.

Regardless of the relational target that you have planned for your VSAM files, DB-Shuttle can provide a complete automated solution for the conversion.

Converting to Pre-Defined Formats

When the target database is not a "one-for-one" image of the VSAM files and key structures, there is a need to map each VSAM field to a new (and possibly quite different) database column in the relational target. In many cases, the VSAM fields from a single VSAM file may map to multiple tables in the target database. Some VSAM fields may be dropped altogether. The values for some relational table columns may need to be "generated out of air" based upon values in multiple VSAM files.

Off-the-shelf packages that will replace the VSAM applications generally expand processing capabilities and provide new features. They likely include more robust processing than the former VSAM-based applications. They also create the requirement to fully define the conversion requirements for the existing VSAM data to the pre-defined database structure.

Conversion Requirements

VSAM conversion generally always includes at least these three primary goals:

Full functionality - ensure that the relational application can mirror the relationships, ordering and management of VSAM data in the new relational database

Full flexibility - provide a means to modify or create relational table formats, column definitions, and table relationships that were not pre-defined within the VSAM file structures

Low risk - ensure that the existing VSAM applications function exactly as they did in the former VSAM COBOL environments, while also ensuring that the new features defined to the new relational database are available to new applications

The goal in converting VSAM file structures and VSAM-based applications to DB2, Oracle, UDB, SQL Server or other relational database technology is not always to create a one-to-one conversion. The ability to guarantee existing functionality AND flexibility has not been available in the past.

Correct and complete data conversion is the basis of any successful relational conversion. The resulting database structure is critical to future processing. Whether you are performing a VSAM

conversion, an IDMS conversion, an Adabas conversion, a Datacom conversion, or a sequential file conversion, your ability to create the data relationships and formats that will drive your applications in the future is critical. DB-Shuttle provides a complete and fool-proof methodology to perform the conversion in record time, with no errors, and at a cost that meets your budget.

Data Mapping Workbench

The DB-Shuttle Data Mapping Workbench provides the ability for our customer teams to fully define the relationships between former VSAM data fields and record types, and the new relational database.

The workbench provides the ability to:

- Denote field and column relationships using a drag-and-drop workbench
- Store notes and descriptions with each column or table to further define detailed metadata for each column or table
- Define new target column formats so that former VSAM fields can be expanded, shortened, merged or split
- Map using relationships of one field to one column, one field to multiple columns, or multiple fields to a single column
- Map from one data format to another, with translations as required

Reports from the Data Mapping Workbench provide all team members with a full definition of the former VSAM files and the new relational structure. The disposition of each VSAM field can be defined in detail. The "data source" for each relational column can be defined in detail as well. The result is an overall perspective of former processing, future processing, and the conversion requirements.

Data Mapping in the Replacement Applications

Many organizations will convert all or part of their VSAM-based applications to one or more new languages -- COBOL, C#, Visual Basic and others. Some organizations will simply replace the VSAM file access with SQL within their existing application languages.

The existing VSAM-based applications "expect" the data to be available in specific formats. They "expect" to retrieve the data using the access paths that have been in place for years. They "expect" to be able to reference the "group levels", "redefines clauses" and "occurs clauses" that were built into the VSAM file layouts. When these applications are converted to the newer languages, the new applications have the same "expectation" for the data access.

In order to keep the conversion risk as low as possible, the DB-Shuttle conversion methodology includes the automatic generation of a database IO program layer. These SQL-based programs handle the translation of the database columns to the format "expected" within the applications. They also handle conversion of the data to the new target definitions and formats when data is inserted or updated by the application. The database data is fully defined for the new target relational database. The application programs can continue to use the data formats and configurations that were defined within the VSAM file definitions.

The result is a win-win design that ensures integrity and continued functionality in the existing applications, while providing a target database that is perfectly designed for the future.

Database Access Tier

DB-Shuttle automatically generates a stand-alone, high-performance SQL program for access and update of each table in the target relational database. Whether your VSAM conversion is to SQL Server, DB2 or Oracle, the resulting SQL IO layer ensures integrity and consistent access. Maintenance is also simplified due to a single-access point for each table.

Whether your target application language is COBOL (COBOL on the mainframe, .NET COBOL, Fujitsu COBOL or Micro Focus COBOL) or another of the newer languages (C# .NET or Visual Basic .NET), your database access tier ensures data integrity and centralized control. Your converted applications contain no "black boxes". All components, even additional subroutines and processing modules, are generated and delivered to you in your language of choice. All are under the control of your applications team.

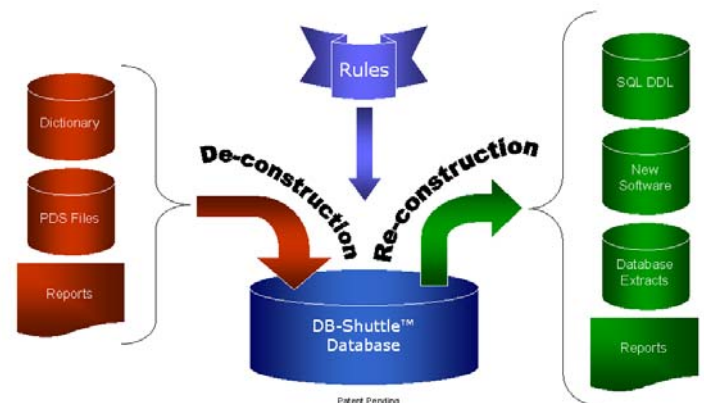
In addition, your conversions from multiple database or file types (VSAM, IDMS, Adabas, Datacom, etc.) to your relational target will be consistent and complete regardless of the original database or file structure.

Conversion...the Fast, Low-risk Solution

Rely on DB-Shuttle and the teams at Sophisticated Business Systems Inc. to ensure a fast, complete and error-free conversion of your VSAM-based applications and databases to the target database and language of your choice!

DB-Shuttle™ Automation Suite

DB-Shuttle is a fully automated database and application tool set that is designed and enhanced daily by the teams at Sophisticated Business Systems Inc. DB-Shuttle uses a "snap on" conversion methodology that allows literally any language to be converted to any other language, and that allows any database or file structure to be converted to the relational database technology of your choice... DB2, SQL Server, Oracle, UDB, and others.



Visit www.soph.com or call
800.801.9005

Headquarters

Sophisticated Business Systems Inc.
12750 Merit Drive, Suite 1105
Dallas, Texas 75251 USA
Phone: 972.664.9005
Email: info@soph.com