

The DMExpress base product will make most large-volume applications run faster. Additional, separately licensed components are available for even more speed and capabilities. These components include:

- Advanced Data Management (ADM)
- Data Source and Data Target
- Impact Analysis
- Grid Computing
- ES/MTO Support

### ADVANCED DATA MANAGEMENT

Advanced Data Management (ADM) is a separately licensed component of Syncsort's DMExpress. ADM's powerful features include:

- High-performance aggregation
- High-performance join
- Advanced data transformation capabilities (including UNICODE (UTF-\*) support, target layout mapping, external functions, arithmetic functions, date and time functions, string functions, user-defined values, data partitioning, and advanced aggregation functions)

### Advanced Technology for Faster Aggregations and Joins

ADM high-performance aggregations and joins exploit patented algorithms, state-of-the-art parallel processing technology, and dynamic optimization to speed applications and reduce computing resources. These time and resource savings increase dramatically as data volumes grow.

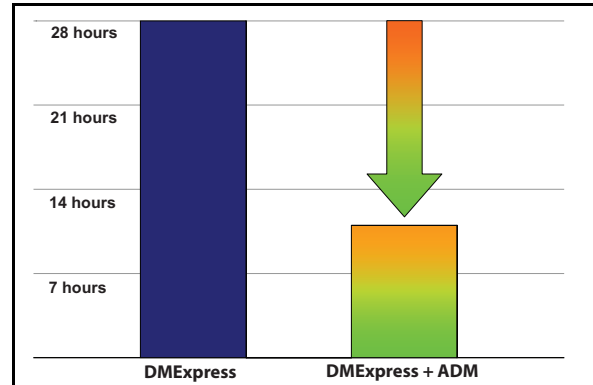
The DMExpress engine processes data far more efficiently than database functions. Through parallelization and other high-performance techniques, DMExpress automatically alerts you when performance would be improved by licensing ADM.

### High-Performance Aggregation

Data warehouse experts agree that aggregates are the best way to speed warehouse queries. A query answered from base-level data can take hours and involve millions of data records and millions of calculations. With precalculated aggregates, the same query can be answered in seconds with just a few records and calculations.

ADM high-performance aggregation simplifies the creation, administration, and execution of aggregation jobs. It summarizes data much faster than other aggregation methods, such as C programs, SQL statements, or third-party multi-purpose data warehouse packages. It provides the necessary flexibility to select the best aggregates for optimizing query performance. ADM high-performance aggregation enables you to:

- Employ advanced aggregation functions, including Min, Max, Avg, and date and time granularity



*Demonstrated Savings--Major Pharmaceutical Company Cuts Aggregation Time by 60% with DMExpress ADM*

- Generate aggregates, including multi-level hierarchical aggregations, significantly faster than with other methods
- Set up aggregates by browsing database tables or flat files through an easy-to-use interface with complete online help
- Group data on a number of dimensions, such as time, geography, sales unit, and product type

### High-Performance Join

ADM high-performance join significantly improves the efficiency of preprocessing, retrieval, and updating in a dimensional data warehouse. ADM high-performance join enables you to:

- Optimize data preparation
- Improve query performance
- Reduce the quantity of data that must be processed in response to a query
- Speed lookups and application matching
- Retrieve and summarize information more efficiently
- Minimize storage and throughput requirements
- Reduce elapsed time of changed data capture/delta processing

### Advanced Data Transformation Capabilities

Additional data transformation capabilities allow you to easily design tasks, enabling powerful data transformations and complex processing.

- Support for international encodings includes database extract and load encoding for RDBMS national character set data types. Full character support yields higher speed and capability as a result of automatic text data extraction/loading optimization. File-level encoding

includes support for UNICODE (UTF-\*)/multi-byte data, metadata, file delimiters (field separators, record terminators), and file metadata (header layouts). UNICODE (UTF-\*) support enables text encoding (encode function), comparisons across encodings, and function arguments.

- Target layout mapping allows a particular, externally defined format to be used for a DMExpress target file.
- Support for user-written external functions allows DMExpress expressions to call any existing or new functions, such as those in Java or C. Any transformation is now fully customizable.
- Arithmetic functions include +, -, \*, /, Abs, Mod, Pow, Rand, Round, Sqrt, ToNumber, and Truncate.
- Date and time functions enable arithmetic, manipulation, and validation, including DateAdd, DateDiff, DateLastDay, DatePart, and IsValidDate.
- String functions allow for the manipulation of alphanumeric strings through operations such as concatenation, case conversions, and substring searches (| |, CharacterLengthOf, LengthOf, SubString, ToLower, ToText, ToUpper, Translate, Trim, IsValidNumber).
- Support for user-defined values enables programmatic functions for storing variables in memory (like global variables). You can set and retrieve values in any number of user-defined variables. This gives you the ability to determine certain parts of your tasks at execution time rather than at design time. The logic can then be developed to use these variables in row, column, and programmatic (iterative, logical) operations (EvaluateExpressionList, GetUserDefinedValue, SetUserDefinedValue).
- Data partitioning allows data to be split by key break, by range or list of values, or by size (records, MBs, GBs, etc.).

## DATA SOURCE AND DATA TARGET

The base version of DMExpress provides support for heterogeneous sources and targets, including flat files, structured files, pipes, and data in memory. The separately licensed Data Source and Data Target components provide direct access to database tables and other data.

DMExpress Data Source and Data Target include the following:

- XML source or target
- Major RDBMS sources or targets:
  - Oracle
  - SQL Server
  - DB2
  - Teradata
  - Sybase
  - Red Brick
  - Vertica
  - Netezza
- ODBC source or target, providing direct access to MySQL, Access, and Excel
- Mainframe Source
- SAP Source

Data Source and Data Target provide significant benefits, including:

- Dramatic reduction of I/O
- Elimination of extract and load utilities
- Simplified application development
- Increased application performance

## IMPACT ANALYSIS

The separately licensed Impact Analysis component is a powerful productivity tool. It graphically displays the effect of a global variable change, identifies which input variables contribute to the value of a specific output variable, and provides global find across all jobs. For additional information, see the DMExpress *Impact Analysis* data sheet.

## GRID COMPUTING

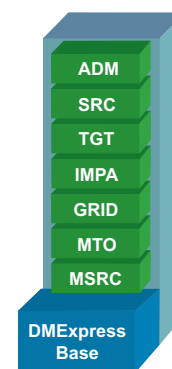
The separately licensed Grid Computing component provides a high-performance architecture for CPU-intensive applications by enabling users to harness the collective processing power of multiple computers. For additional information, see the DMExpress *Grid Computing* data sheet.

## ES/MTO SUPPORT

Support for MicroFocus Enterprise Server with Mainframe Transaction Option (ES/MTO) provides significant advantages:

- Seamless integration with ES/MTO JCL sort steps (PGM=SORT).
- Ability to set ES/MTO environment variables MF\_ALIAS and MFJEXTSM to exploit DMExpress sort technology.
- Significant reduction in elapsed time and system resource utilization (CPU, memory, disk I/O).
- Performance savings comparable to the DMExpress MicroFocus COBOL Sort verb accelerator.

DMExpress ES/MTO is supported on AIX, Windows, and Linux.



DMExpress Components

For additional information, visit: [www.syncsort.com/products/dmx](http://www.syncsort.com/products/dmx).

