



SAP® Sybase® Advantage Database Server .NET Data Provider



KEY FEATURES

- Provides native client/server access to the high performance Advantage Database Server RDBMS
- Supports data access via SQL as well as direct table access and server-side control unique to Advantage
- Provides easier conversion to the .NET Framework than other database engines, because Advantage supports both the expected disconnected recordset functionality in ADO.NET as well as direct navigational access to the database
- Includes full server-based transaction processing to eliminate database corruption, drastically minimizing support costs
- Provides complete referential integrity support including primary/foreign key definition and cascaded updates and deletes
- Includes database security functionality and encryption support
- Includes triggers that provide a powerful means to maintain business rules at the database level — independent of the client application
- Designed for use with Microsoft Visual Studio .NET including support for the Visual Studio .NET component designer
- Provides support for the ADO .NET Entity Framework.

OVERVIEW

The high performance Advantage OLE DB Provider provides access to the Advantage Database Server and Advantage Local Server directly or via ADO. The Advantage OLE DB Provider creates a seamless interface between the Advantage Database Server or Advantage Local Server and any development environment that can use ADO or OLE DB directly including Visual FoxPro, Visual Basic, Access, Visual C++, Delphi and C++Builder. The Advantage OLE DB Provider enables easy and reliable access to business-critical data for local, peer-to-peer, client/server, distributed, and Web-based applications.

SERVERS

The Advantage OLE DB Provider ties in seamlessly with the Advantage Database Server, a true client/server solution that adds performance and stability to multi-user applications. The Advantage OLE DB Provider also provides access to the Advantage Local Server. The Advantage Local Server provides in-process access to your data, which is perfect for local and small multi-user networked environments, and ideal for customers who may later want the enhanced performance and security capability of a client/server RDBMS with the Advantage Database Server. Distribution of the Advantage OLE DB Provider and the Advantage Local Server is royalty-free for applications deployed in both standalone and peer-to-peer environments.

Advantage Database Server is a complete, high performance data management solution. The Advantage Database Server supports Windows and Linux networks and requires no database administrator. Advantage Database Server allows developers the flexibility to combine powerful SQL statements and relational data access methods with the performance and control of navigational commands. The Advantage SQL engine enables developers to execute queries and other SQL commands. The Recordset returned from an SQL query or from a table opened directly can be navigated via the highly optimized Advantage ISAM database engine. The result is an easy-to-use interface that supports SQL commands and direct Recordset navigation, all in one integrated solution.

FULL SCALABILITY — WRITE ONCE, DEPLOY ANYWHERE

Advantage applications can be deployed in stand-alone, peer-to-peer, client/server, and Internet environments with one set of source code. Advantage does not require a different OLE DB Provider or different set of code for different network environments. The Advantage OLE DB Provider will automatically determine if the Advantage Database Server is available directly or whether the Advantage Local Server should be used. You only need to write one application with one version of code for local, peer-to-peer, client/server, or Internet file access.

SPECIFICATIONS

ADO objects

The following ADO objects are supported with the Advantage OLE DB Provider. Each object has a list of supported methods, properties, and collections that are directly supported by the Advantage OLE DB Provider. The Advantage OLE DB Provider is ADO 2.1 compliant.

Connection object

Methods

BeginTrans
Close
CommitTrans
Execute
Open
OpenSchema
RollbackTrans

Properties

Attributes
CommandTimeout
ConnectionString
ConnectionTimeout
CursorLocation
DefaultDatabase
IsolationLevel
Mode
Provider
State
Version

Collections

Errors
Properties

Recordset object: can open directly or via SQL query

Methods

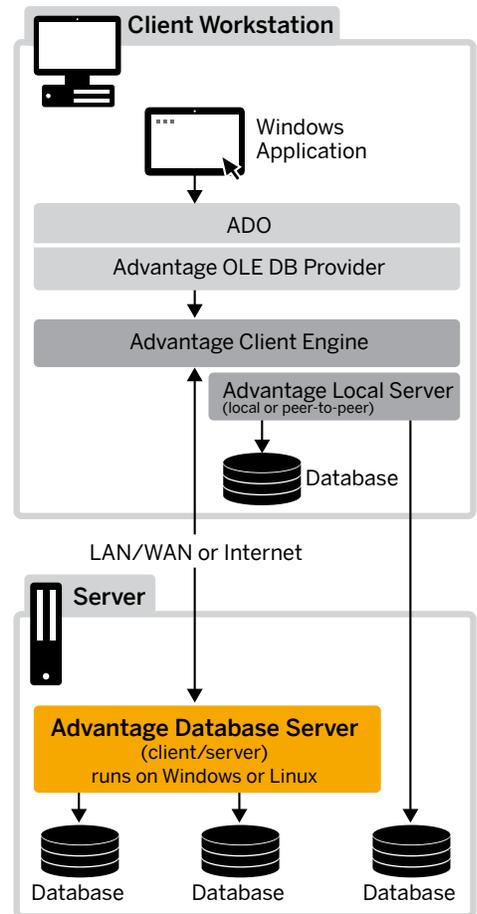
AddNew
CancelBatch
CancelUpdate
Clone
Close
CompareBookmarks
Delete
Find
GetRows
GetString
Move
MoveFirst
MoveLast
MoveNext
MovePrevious
Open
Requery
Resync
Seek
Supports
Update
UpdateBatch

Properties

AbsolutePage
AbsolutePosition
ActiveCommand
ActiveConnection
BOF
Bookmark
CacheSize
CursorLocation
CursorType
DataMember
DataSource
EditMode
EOF
Filter
Index
LockType
MaxRecords
PageCount
PageSize
RecordCount
Sort
State
Status
StayInSync

Collections

Fields
Properties



Command object

Methods	Properties	Collections
Cancel	ActiveConnection	Parameters
CreateParameter	CommandText	Properties
Execute	CommandTimeout	
	CommandType	
	Name	
	Prepared	
	State	

SPECIFICATIONS**Server Operating Systems (via the Advantage Database Server)**

- Microsoft Windows x86 (IP, IPX)
- Microsoft Windows x86_64 (IP)
- Linux x86, x86_64 (IP)

Client Operating Systems

- Microsoft Windows x86 and x86_64

SUPPORTED DATA TYPES**Advantage ADT table data types**

AutoIncrement	4-byte read-only integer value from 1 to 4,294,967,296 unique for each record in the table.
Binary	Variable length BLOB containing binary data. The size of each field is limited to 4 GB. The binary image data is actually stored in a separate file, called a memo file, to reduce table bloat.
Character	Fixed length character field from 1 to 65,530 bytes that is stored entirely in the table.
Cicharacter	Case insensitive fixed length character field from 1 to 65,530 bytes that is stored entirely in the table.
Date	4-byte date field.
Double	8-byte IEEE floating point value in the range 1.7E +/-308 (15 digits of precision).
Image	Variable length BLOB containing image data. The size of each field is limited to 4 GB. The binary image data is actually stored in a separate file, called a memo file, to reduce table bloat.
Integer	4-byte long integer values from -2,147,483,647 to 2,147,483,647
Logical	1-byte logical (boolean) field.
Memo	Variable length memo field containing character data. The size of each field is limited to 4 GB. The memo data is actually stored in a separate file, called a memo file, to reduce table bloat.
ModTime	Timestamp field automatically updated when a record is updated
Money	Currency data stored internally as a 64-bit integer, with 4 implied decimal digits from -922,337,203,685,477.5807 to +922,337,203,685,477.5807. The Money data type will not lose precision.
NChar	Fixed length Unicode character field stored entirely in the table.
NMemo	Variable length Unicode character data stored in the separate memo file.
Numeric	Fixed length (exact representation) numeric up to 32 bytes.
NVarChar	Variable length Unicode character data stored entirely in the table.

Raw	Fixed length data-typeless raw data field from 1 to 65,530 bytes.
RowVersion	64-bit auto-incrementing integer value
ShortInteger	2-byte short integer value from -32,767 to 32,767.
Time	4-byte value representing time of day.
TimeStamp	8-byte value representing date and time of day.
VarBinary	Variable length binary data stored entirely in the table.
VarChar	Variable length character data stored entirely in the table.

DBF table data types

AutoIncrement	4-byte read-only integer value from 1 to 4,294,967,296 unique for each record in the table.
Binary	Variable length BLOB containing binary data. The size of each field is limited to 4 GB. The binary image data is actually stored in a separate file, called a memo file, to reduce table bloat.
Character	Fixed length character field from 1 to 65,530 bytes that is stored entirely in the table.
Date	8-byte date field.
Double	8-byte IEEE floating point value in the range 1.7E+/-308 (15 digits of precision).
Image	Variable length BLOB containing image data. The size of each field is limited to 4 GB. The binary image data is actually stored in a separate file, called a memo file, to reduce table bloat.
Integer	4 byte-Integer values from -2,147,483,648 to 2,147,483,647.
Logical	1-byte logical (boolean) field.
Memo	Variable length memo field of up to 65,530 bytes. The size of each field is limited to 4 GB. The memo data is actually stored in a separate file, called a memo file, to reduce table bloat.
Money	Currency data stored internally as a 64-bit integer, with 4 implied decimal digits from -922,337,203,685,477.5807 to +922,337,203,685,477.5807. The Money data type will not lose precision.
NChar	Fixed length Unicode character field stored entirely in the table.
NMemo	Variable length Unicode character data stored in the separate memo file.
Numeric	Fixed length (exact representation) numeric up to 32 bytes.
NVarChar	Variable length Unicode character data stored entirely in the table.
TimeStamp	8-byte value representing date and time of day.
VarBinary	Variable length binary data stored entirely in the table.
VarChar	Variable length character data stored entirely in the table.

Database maximums

- Maximum ADT table size
 - Windows with NTFS — 16 exabytes (18,446,744,073,709,551,616 bytes)
 - Windows with FAT32 — 4 gigabytes (4,294,967,296 bytes)
 - Linux pre-2.1.2 — 11 glibc and pre-2.4 kernel — 2 gigabytes (2,147,483,648 bytes)
 - Linux glibc 2.1.2 — 11+ with kernel 2.4+ — 8 exabytes (9,223,372,036,854,775,807 bytes)
- Maximum DBF table size — Maximum Record Count (2,147,483,648) multiplied by Record Length (depending upon operating system and file system)
- Maximum number of records — 2.2 billion
- Maximum record length — 65,530 bytes
- Maximum field name length — 128 characters for ADT tables, 10 characters for DBF tables (dictionary-bound Visual FoxPro tables can have names up to 128 characters)
- Maximum number of columns per table — 3,500 for ADT tables, 2,035 for DBF tables

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