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1 What's New

New Features in VirtualDAC 14.0

- Added support for RAD Studio 13 Florence
- Added support for Lazarus 4.2

New Features in VirtualDAC 13.4

- Added support for RAD Studio 12 Athens Release 3
- Added support for the RAD Studio 64-bit IDE
- Added support for Lazarus 3.8
- Added support for the JSON file format in the LoadFromFile method of the VirtualTable component
- Added support for the TurboPack SynEdit package in component editors
- Added support for syntax highlighting in component editors in Lazarus on the Windows platform
- Added the IndentFormat argument to the SaveToXML method of the dataset to decrease file size
- Added the SaveToJSON method for serializing a dataset to the JSON format
- Added the ability to use readonly fields in the SQL Generator at design-time
- Improved work with design-time editors in the High DPI mode

New Features in VirtualDAC 13.3

- Added support for RAD Studio 12 Athens Release 2
- Added support for C++Builder 64-bit Windows (Modern) Application Development
- Added support for Lazarus 3.6

New Features in VirtualDAC 13.2

- Added support for RAD Studio 12 Athens Release 1
- Added support for Lazarus 3.2

- Added voResetAutoInc in the VirtualTable component that allows to reset AutoInc values on Clear
- Now Release 1 for RAD Studio 12 Athens, Delphi 12 Athens, and C++Builder 12 Athens is required

New Features in VirtualDAC 13.1

- Lazarus 3.0 is supported

New Features in VirtualDAC 13.0

- Added support for RAD Studio 12
- Added support for macOS Sonoma
- Added support for iOS 17
- Added support for Android 13
- Added support for DBMonitor in the VirtualQuery component
- Added support for storing AutoInc fields when saving TVirtualTable to XML
- Added support for nested Macros in SQL queries
- Added support Display Format for Aggregate fields
- Added SHA-2(SHA-256, SHA-512) in hash algorithm for encryption

New Features in VirtualDAC 12.3

- Added support for RAD Studio 11 Alexandria Release 3
- Added support for Lazarus 2.2.6
- Added support for Charset and UseUnicode properties in FastReport components
- Added support for the YEAR, MONTH, DAY, HOUR, MINUTE, SECOND, GETDATE, DATE, TIME, TRIM, TRIMLEFT, TRIMRIGHT statements in TDADataset.Filter
- Added support for the mathematical operations in TDADataset.Filter
- Added support for Aggregate Fields and InternalCalc Fields
- Added ability to restore from file with TEncoding via the Dump component
- Improved work with alias

- Now the SetRange will function according to the case sensitivity of keywords in IndexFieldNames

New Features in VirtualDAC 12.2

- Added support for RAD Studio 11 Alexandria Release 2
- Added support for Lazarus 2.2.2
- Added support for iOS 15
- Added support for Android 12
- Added support of standard collations in a SQL statement in the VirtualQuery component
- Added the CloneCursor method for Query and Table components that allows sharing data between datasets
- Improved the performance of exporting to XML

New Features in VirtualDAC 12.1

- RAD Studio 11 Alexandria Release 1 is supported
- Lazarus 2.2.0 is supported
- Windows 11 is supported
- macOS Monterey is supported

New Features in VirtualDAC 12.0

- RAD Studio 11 Alexandria is supported
- macOS ARM is supported

New Features in VirtualDAC 11.4

- RAD Studio 10.4.2 Sydney is supported
- macOS 11 Big Sur is supported
- iOS 14 is supported
- Android 11 is supported
- The UseUnicode option in the VirtualQuery component is added

New Features in VirtualDAC 11.3

- Lazarus 2.0.10 and FPC 3.2.0 are supported

New Features in VirtualTable 11.2

- RAD Studio 10.4 Sydney is supported
- Lazarus 2.0.8 is supported
- macOS 64-bit in Lazarus is supported

New Features in VirtualDAC 11.1

- Android 64-bit is supported
- Lazarus 2.0.6 is supported
- Now Trial edition for macOS and Linux is fully functional

New Features in VirtualDAC 11.0

- macOS 64-bit is supported
- Release 2 for RAD Studio 10.3 Rio, Delphi 10.3 Rio, and C++Builder 10.3 Rio is now required

New Features in VirtualDAC 10.6

- Lazarus 2.0.2 is supported
- The DefaultSortType property for TVirtualTable is added
- Performance of the SaveToFile/LoadFromFile methods of TVirtualTable is significantly increased

New Features in VirtualDAC 10.5

- RAD Studio 10.3 Rio is supported
- Support of UPPER and LOWER functions for Unified SQL is added

New Features in VirtualDAC 10.4

- Lazarus 1.8.4 is supported

- The LocalUpdate property for TVirtualQuery is added
- The AutoOpenSources option for TVirtualQuery is added

New Features in VirtualTable 10.3

- Lazarus is supported

New Features in VirtualDAC 10.2

- The performance of TVirtualQuery is significantly improved
- Application-defined functions in TVirtualQuery are supported
- Application-defined collations in TVirtualQuery are supported
- AutoInc fields in TVirtualTable are supported

New Features in VirtualDAC 10.1

- RAD Studio 10.2 Tokyo is supported
- Linux in RAD Studio 10.2 Tokyo is supported

08-Sep-16 Release of VirtualDAC 10.0

- VirtualTable is renamed to VirtualDAC
- TVirtualDataSet component is added
- TVirtualQuery component is added

New Features in VirtualTable 9.7

- RAD Studio 10.1 Berlin is supported
- Lazarus 1.6 and FPC 3.0.0 is supported

New Features in VirtualTable 9.6

- RAD Studio 10 Seattle is supported

New Features in VirtualTable 9.5

- RAD Studio XE8 is supported

- AppMethod is supported

New Features in VirtualTable 9.4

- RAD Studio XE7 is supported
- Lazarus 1.2.2 and FPC 2.6.4 is supported

New Features in VirtualTable 9.3

- RAD Studio XE6 is supported
- Android in C++Builder XE6 is supported
- Lazarus 1.2.2 and FPC 2.6.4 is supported
- An option for saving all data avoiding filter is added

New Features in VirtualTable 9.2

- iOS in C++Builder XE5 is supported
- RAD Studio XE5 Update 2 is now required
- Now .obj and .o files are supplied for C++Builder

New Features in VirtualTable 9.1

- RAD Studio XE5 is supported
- Application development for Android is supported
- Lazarus 1.0.12 is supported
- Performance is improved
- Automatic checking for new versions is added
- The ReadOnly property is added
- The voSetEmptyStrToNull option is added
- Support of the IN keyword in the TDataSet.Filter property is added
- Like operator behaviour when used in the Filter property is now similar to TClientDataSet
- The possibility to use ranges is added

New Features in VirtualTable 9.0

- RAD Studio XE4 is supported
- NEXTGEN compiler is supported
- Application development for iOS is supported
- Support of TimeStamp, Single and Extended fields is added

New Features in VirtualTable 8.6

- RAD Studio XE3 Update 2 is now required
- C++Builder 64-bit for Windows is supported

New Features in VirtualTable 8.5

- RAD Studio XE3 is supported
- Windows 8 is supported

New Features in VirtualTable 8.2

- Update 4 Hotfix 1 for RAD Studio XE2, Delphi XE2, and C++Builder XE2 is now required

New Features in VirtualTable 8.1

- Lazarus 0.9.30.4 and FPC 2.6.0 are supported
- Bug with saving BCD fields to a Stream is fixed
- Update 4 for RAD Studio XE2, Delphi XE2, and C++Builder XE2 is now required
- macOS in RAD Studio XE2 is supported
- FireMonkey support is improved

New Features in VirtualTable 8.0

- Embarcadero RAD Studio XE2 is supported
- Application development for 64-bit Windows is supported
- FireMonkey application development platform is supported
- Support of master/detail relationship is added
- OnProgress event is added

New Features in VirtualTable 7.20

- Possibility to load data without recreating persistent fields is added
- Working in design time editor is improved
- Lazarus 0.9.30 and FPC 2.4.2 is supported

New Features in VirtualTable 7.10

- Delphi & C++Builder XE Starter Edition supported

New Features in VirtualTable 7.00

- Embarcadero RAD Studio XE supported

New Features in VirtualTable 6.90

- Embarcadero RAD Studio 2010 supported

New Features in VirtualTable 6.80

- Added distinction between empty string and null value when saving/loading string fields
- Added support for Free Pascal under Linux

New Features in VirtualTable 6.70

- Delphi 2009 and C++Builder 2009 supported
- Extended Unicode support for Delphi 2007 added (special Unicode build)
- Free Pascal 2.2 supported

New Features in VirtualTable 6.25

- CodeGear RAD Studio 2007 supported
- Added support for TVariantField

New Features in VirtualTable 6.10

- C++Builder 2007 supported

New Features in VirtualTable 6.00

- Delphi 2007 for Win32 supported
- LargeInt fields supported
- WideMemo field type in Delphi 2006 supported
- General performance improved

New Features in VirtualTable 5.80

- Added support for Professional editions of Turbo Delphi, Turbo Delphi for .NET, Turbo C++

New Features in VirtualTable 5.70

- Support for Delphi 2006 added
- Performance of SaveToFile and LoadFromFile functions improved (12435)
- Modifying FieldDefs is accelerated

New Features in VirtualTable 5.50

- Support for Delphi 2005 added
- Update Pack 3 is required for Delphi 8

New Features in VirtualTable 5.00

- Support for Delphi 8 added

New Features in VirtualTable 4.00

- Delphi 7 support added

New Features in VirtualTable 3.90

- Kylix3 support

New Features in VirtualTable 3.50

- Support for Kylix 2 is added

New Features in VirtualTable 3.00

- Support for Kylix is added

New Features in VirtualTable 2.20

- Support for C++ Builder 5 is added

New Features in VirtualTable 2.00

- Smart refreshing is added

01-Mar-99 First release of VirtualTable 1.00

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2 General Information

This section contains general information about Virtual Data Access Components

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2.1 Overview

Virtual Data Access Components Overview

Virtual Data Access Components (VirtualDAC) is a library of components that extends data processing capabilities in Delphi, C++Builder and Lazarus (FPC) on Windows, macOS, Linux, iOS, Android, for both 32-bit and 64-bit platforms. VirtualDAC consists of components that provides such capabilities as working with non-tabular data, performing SQL-queries to data in memory or to data from sources in different RDBMS'es etc., that are not available for standard data access components.

VirtualQuery

The [TVirtualQuery](#) component is used to retrieve data with SQL queries from sources, that are any TDataSet descendants. Due to this, you can build complex SQL queries to in-memory data (data sources are TVirtualTable, TVirtualDataSet or another TVirtualQuery) or to data stored in different RDBMS'es (data sources can be TUniQuery, TOraQuery, TMSQuery, TMyQuery, etc. at the same time).

VirtualTable

The [TVirtualTable](#) component represents an in-memory data storage that does not have linked data files. TVirtualTable allows to load data from a XML file, or from an existing dataset, and then process the data in the usual way, as in any TDataSet descendant.

VirtualDataSet

The [TVirtualDataSet](#) component is data wrapper that doesn't store data in memory and interacts with data using event handlers. It allows to represent arbitrary data (arrays, lists, objects, etc.) as TDataSet descendants and link it with any DB-aware components to display data or modify it.

Desription of VirtualDAC package

The [TVirtualTable](#) component represents an in-memory data storage that does not have linked data files. TVirtualTable allows to load data from a XML file, or from an existing dataset, and then process the data in the usual way, as in any TDataSet descendant.

The [TVirtualDataSet](#) component does not store data in memory and interacts with data using event handlers. It can be used to represent of arbitrary data (arrays, lists etc.) in tabular form, and for modifying the data using usual TDataSet methods.

The [TVirtualQuery](#) component is used to retrieve data simultaneously from several different

RDBMS'es. Instead of a database connection, it use a collection of TDataSet descendants as the data source, to which a SQL-query can be performed.

Key Features

The following list describes the main features of Virtual Data Access Components.

- Performing SQL queries simultaneously to non-RDBMS data sources
- Working with non-tabular data using familiar data-access components
- Easy visualizing and editing arbitrary data with standard data-aware controls without writing extra code
- 32-bit and 64-bit OS support
- macOS support
- iOS support
- Android support
- FireMonkey support
- All types of local sorting and filtering, including by calculated and lookup fields
- Automatic data updating
- Unicode and national charset support
- Support for using macros and parameters in SQL
- Absolutely free Express edition that consists of TVirtualTable and TVirtualDataSet components
- Includes annual VirtualDAC Subscription with Priority Support
- Licensed royalty-free per developer, per team, or per site

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2.2 Features

In this topic you will find the complete VirtualDAC feature list sorted by categories

General usability

- Interface compatible with standard data access methods, such as BDE and ADO
- VCL, FMX, LCL development platforms are available
- Separated run-time and GUI specific parts allow you to create pure console applications such as CGI
- Unicode and national charset support

TVirtualQuery

- Building complex SQL queries to data from different TDataSet descendants
- Database-independent SQL engine with TMemoryTable as a source
- Ability for querying non-database data using TVirtualDataSet as a source
- Almost full supporting of the SQLite SQL dialect

TVirtualTable

- Database-independent in-memory data storage
- Can save and load the table structure and record data into/from the file at run-time
- Can store the table structure and record data in dfm at design-time
- Allows to add and remove fields to the existing data
- Optimized string and row data storing

TVirtualDataSet

- Represents arbitrary data (arrays, lists, objects, etc.) as a TDataSet descendant
- Allows to display data using any DB-aware controls
- Ability for modifying data using trivial TDataSet methods

Data storage operations

- Local sorting and filtering, including by calculated and lookup fields
- Local master/detail relationship
- Extended capabilities for record locating

Data exchange

- Data export and import to/from XML (ADO format)

Design-time enhancements

- Advanced design-time component and property editors

Product clarity

- Complete documentation sets
- Helpful demo projects

Licensing and support

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2.3 Requirements

An application based on VirtualDAC does not require any additional files or client libraries. If the TVirtualQuery component is used in an application, the need for additional libraries depends on data-access components which are used as source datasets for TVirtualQuery.

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2.4 Compatibility

IDE Compatibility

VirtualDAC is compatible with the following IDEs:

Embarcadero RAD Studio 13 Athens

- Embarcadero Delphi 13 Florence for Windows
- Embarcadero Delphi 13 Florence for macOS
- Embarcadero Delphi 13 Florence for Linux
- Embarcadero Delphi 13 Florence for iOS

- Embarcadero Delphi 13 Florence for Android
- Embarcadero C++Builder 13 Florence for Windows
- Embarcadero C++Builder 13 Florence for iOS
- Embarcadero C++Builder 13 Florence for Android

Embarcadero RAD Studio 12 Athens (Requires Release, Release 2, or Release 3)

- Embarcadero Delphi 12 Athens for Windows
- Embarcadero Delphi 12 Athens for macOS
- Embarcadero Delphi 12 Athens for Linux
- Embarcadero Delphi 12 Athens for iOS
- Embarcadero Delphi 12 Athens for Android
- Embarcadero C++Builder 12 Athens for Windows
- Embarcadero C++Builder 12 Athens for iOS
- Embarcadero C++Builder 12 Athens for Android

Embarcadero RAD Studio 11.1 Alexandria

- Embarcadero Delphi 11.1 Alexandria for Windows
- Embarcadero Delphi 11.1 Alexandria for macOS
- Embarcadero Delphi 11.1 Alexandria for Linux
- Embarcadero Delphi 11.1 Alexandria for iOS
- Embarcadero Delphi 11.1 Alexandria for Android
- Embarcadero C++Builder 11.1 Alexandria for Windows
- Embarcadero C++Builder 11.1 Alexandria for iOS
- Embarcadero C++Builder 11.1 Alexandria for Android

Embarcadero RAD Studio 10.4 Sydney (Requires Release 1 or Release 2)

- Embarcadero Delphi 10.4 Sydney for Windows
- Embarcadero Delphi 10.4 Sydney for macOS
- Embarcadero Delphi 10.4 Sydney for Linux
- Embarcadero Delphi 10.4 Sydney for iOS
- Embarcadero Delphi 10.4 Sydney for Android

- Embarcadero C++Builder 10.4 Sydney for Windows
- Embarcadero C++Builder 10.4 Sydney for iOS
- Embarcadero C++Builder 10.4 Sydney for Android

Embarcadero RAD Studio 10.3 Rio (Requires [Release 2](#) or [Release 3](#))

- Embarcadero Delphi 10.3 Rio for Windows
- Embarcadero Delphi 10.3 Rio for macOS
- Embarcadero Delphi 10.3 Rio for Linux
- Embarcadero Delphi 10.3 Rio for iOS
- Embarcadero Delphi 10.3 Rio for Android
- Embarcadero C++Builder 10.3 Rio for Windows
- Embarcadero C++Builder 10.3 Rio for macOS
- Embarcadero C++Builder 10.3 Rio for iOS
- Embarcadero C++Builder 10.3 Rio for Android

Embarcadero RAD Studio 10.2 Tokyo (Incompatible with Release 1)

- Embarcadero Delphi 10.2 Tokyo for Windows
- Embarcadero Delphi 10.2 Tokyo for macOS
- Embarcadero Delphi 10.2 Tokyo for Linux
- Embarcadero Delphi 10.2 Tokyo for iOS
- Embarcadero Delphi 10.2 Tokyo for Android
- Embarcadero C++Builder 10.2 Tokyo for Windows
- Embarcadero C++Builder 10.2 Tokyo for macOS
- Embarcadero C++Builder 10.2 Tokyo for iOS
- Embarcadero C++Builder 10.2 Tokyo for Android

Embarcadero RAD Studio 10.1 Berlin

- Embarcadero Delphi 10.1 Berlin for Windows
- Embarcadero Delphi 10.1 Berlin for macOS
- Embarcadero Delphi 10.1 Berlin for iOS
- Embarcadero Delphi 10.1 Berlin for Android

- Embarcadero C++Builder 10.1 Berlin for Windows
- Embarcadero C++Builder 10.1 Berlin for macOS
- Embarcadero C++Builder 10.1 Berlin for iOS
- Embarcadero C++Builder 10.1 Berlin for Android

Embarcadero RAD Studio 10 Seattle

- Embarcadero Delphi 10 Seattle for Windows
- Embarcadero Delphi 10 Seattle for macOS
- Embarcadero Delphi 10 Seattle for iOS
- Embarcadero Delphi 10 Seattle for Android
- Embarcadero C++Builder 10 Seattle for Windows
- Embarcadero C++Builder 10 Seattle for macOS
- Embarcadero C++Builder 10 Seattle for iOS
- Embarcadero C++Builder 10 Seattle for Android

Embarcadero RAD Studio XE8

- Embarcadero Delphi XE8 for Windows
- Embarcadero Delphi XE8 for macOS
- Embarcadero Delphi XE8 for iOS
- Embarcadero Delphi XE8 for Android
- Embarcadero C++Builder XE8 for Windows
- Embarcadero C++Builder XE8 for macOS
- Embarcadero C++Builder XE8 for iOS
- Embarcadero C++Builder XE8 for Android

Embarcadero RAD Studio XE7

- Embarcadero Delphi XE7 for Windows
- Embarcadero Delphi XE7 for macOS
- Embarcadero Delphi XE7 for iOS
- Embarcadero Delphi XE7 for Android
- Embarcadero C++Builder XE7 for Windows

- Embarcadero C++Builder XE7 for macOS
- Embarcadero C++Builder XE7 for iOS
- Embarcadero C++Builder XE7 for Android

Embarcadero RAD Studio XE6

- Embarcadero Delphi XE6 for Windows
- Embarcadero Delphi XE6 for macOS
- Embarcadero Delphi XE6 for iOS
- Embarcadero Delphi XE6 for Android
- Embarcadero C++Builder XE6 for Windows
- Embarcadero C++Builder XE6 for macOS
- Embarcadero C++Builder XE6 for iOS
- Embarcadero C++Builder XE6 for Android

Embarcadero RAD Studio XE5 (Requires [Update 2](#))

- Embarcadero Delphi XE5 for Windows
- Embarcadero Delphi XE5 for macOS
- Embarcadero Delphi XE5 for iOS
- Embarcadero Delphi XE5 for Android
- Embarcadero C++Builder XE5 for Windows
- Embarcadero C++Builder XE5 for macOS
- Embarcadero C++Builder XE5 for iOS

Embarcadero RAD Studio XE4

- Embarcadero Delphi XE4 for Windows
- Embarcadero Delphi XE4 for macOS
- Embarcadero Delphi XE4 for iOS
- Embarcadero C++Builder XE4 for Windows
- Embarcadero C++Builder XE4 for macOS

Embarcadero RAD Studio XE3 (Requires [Update 2](#))

- Embarcadero Delphi XE3 for Windows

- Embarcadero Delphi XE3 for macOS
- Embarcadero C++Builder XE3 for Windows
- Embarcadero C++Builder XE3 for macOS

Embarcadero RAD Studio XE2 (Requires [Update 4 Hotfix 1](#))

- Embarcadero Delphi XE2 for Windows
- Embarcadero Delphi XE2 for macOS
- Embarcadero C++Builder XE2 for Windows
- Embarcadero C++Builder XE2 for macOS

Embarcadero RAD Studio XE

- Embarcadero Delphi XE
- Embarcadero C++Builder XE

Embarcadero RAD Studio 2010

- Embarcadero Delphi 2010
- Embarcadero C++Builder 2010

CodeGear RAD Studio 2009 (Requires [Update 3](#))

- CodeGear Delphi 2009
- CodeGear C++Builder 2009

CodeGear RAD Studio 2007

- CodeGear Delphi 2007
- CodeGear C++Builder 2007

Borland Developer Studio 2006

- Borland Delphi 2006
- Borland C++Builder 2006

Borland Delphi 7

Borland Delphi 6 (Requires [Update Pack 2](#) – Delphi 6 Build 6.240)

Borland C++Builder 6 (Requires [Update Pack 4](#) – C++Builder 6 Build 10.166)

[Lazarus](#) 4.2 and [Free Pascal](#) 3.2.2 for Windows, macOS, and Linux.

All the existing Delphi and C++Builder editions are supported: Architect, Enterprise, Professional, Community, and Starter.

Lazarus and Free Pascal are supported only in Trial Edition and Professional Edition with

source code.

Supported Target Platforms

- Windows 32-bit and 64-bit
- macOS 64-bit and ARM (Apple Silicon M1)
- Linux 32-bit (only in Lazarus and Free Pascal) and 64-bit
- iOS 64-bit
- iOS Simulator ARM 64-bit
- Android 32-bit and 64-bit

Support for Windows 64-bit is available since RAD Studio XE2. Support for iOS 64-bit is available since RAD Studio XE8. Support for Android 32-bit is available since RAD Studio XE5. Support for Linux 64-bit is available since RAD Studio 10.2 Tokyo. Support for macOS 64-bit is available since RAD Studio 10.3 Rio. Support for Android 64-bit is available since RAD Studio 10.3.3 Rio.

Supported GUI Frameworks

- FireMonkey (FMX)
- Visual Component Library (VCL)
- Lazarus Component Library (LCL)

DAC products compatibility

All DAC products are compatible with each other.

But, to install several DAC products to the same IDE, it is necessary to make sure that all DAC products have the same common engine (BPL files) version. The latest versions of DAC products or versions with the same release date always have the same version of the common engine and can be installed to the same IDE.

Note that VirtualDAC Express Edition is not compatible with the following Data Access Components, as they already contain TVirtualTable and TVirtualDataSet components:

- [Universal Data Access Components](#)
- [Oracle Data Access Components](#)

- [SQL Server Data Access Components](#)
- [MySQL Data Access Components](#)
- [InterBase Data Access Components](#)
- [PostgreSQL Data Access Components](#)
- [SQLite Data Access Components](#)

VirtualDAC Standard Edition is not compatible with [Universal Data Access Components](#), as it already contains [TVirtualTable](#), [TVirtualDataSet](#) and [TVirtualQuery](#) components.

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2.5 Using Several DAC Products in One IDE

UniDAC, ODAC, SDAC, MyDAC, IBDAC, PgDAC, LiteDAC and VirtualDAC components use common base packages listed below:

Packages:

- dacXX.bpl
- dacvclXX.bpl
- dcldacXX.bpl

Note that product compatibility is provided for the current build only. In other words, if you upgrade one of the installed products, it may conflict with older builds of other products. In order to continue using the products simultaneously, you should upgrade all of them at the same time.

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2.6 Component List



This topic presents a brief description of the components included in the Virtual Data Access Components library. Click on the name of each component for more information. These components does not have its own page, and are added to the Data Access page of the Component palette. TVirtualTable component is included in all VirtualDAC editions.

VirtualDAC Express Edition includes only the TVirtualTable component and is absolutely free. TVirtualTable and TVirtualDataSet components are also included in all editions of other Devart Data Access Components.

VirtualDAC Express Edition components

	TVirtualTable	Dataset that stores data in memory.
---	-------------------------------	-------------------------------------

VirtualDAC Standard Edition components

	TVirtualDataSet	Dataset that processes arbitrary non-tabular data.
	TVirtualQuery	Dataset that allows to use SQL statements to retrieve data from in-memory datasets or simultaneously from several different RDBMS'es.

See Also

- [Hierarchy chart](#)

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2.7 Hierarchy Chart

Many LiteDAC classes are inherited from standard VCL/LCL classes. The inheritance hierarchy chart for LiteDAC is shown below. The LiteDAC classes are represented by hyperlinks that point to their description in this documentation. A description of the standard classes can be found in the documentation of your IDE.

- TObject
 - TPersistent
 - TComponent
 - TDataSet
 - [TMemDataSet](#)
 - [TCustomDADataset](#)

- [TCustomVirtualQuery](#)
- [TVirtualQuery](#)
- [TCustomVirtualDataSet](#)
- [TVirtualDataSet](#)
- [TVirtualTable](#)

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2.8 Editions

Virtual Data Access Components comes in three editions: VirtualDAC **Express Edition**, VirtualDAC **Standard Edition**, and VirtualDAC **Trial Edition**.

VirtualDAC Express Edition includes only the TVirtualTable component and is absolutely free.

VirtualDAC Standard Edition includes all the VirtualDAC components.

VirtualDAC Trial Edition is the evaluation version of VirtualDAC. It includes all the functionality of VirtualDAC Standard Edition with a trial limitation of 60 days. C++Builder has additional trial limitations.

You can get **Source Access** to the VirtualDAC Standard Edition by purchasing the special **VirtualDAC Standard Edition with Source Code**. The Standard edition include the source code for all component classes.

FreePascal support is available in the **Standard Edition with Source Code** and **Trial Edition**.

VirtualDAC Edition Matrix

Feature	Express	Standard
Virtual Data Access Components		
TVirtualTable	✓	✓

TVirtualDataSet	×	✓	
TVirtualQuery	×	✓	
Desktop Application Development			
Windows	✓	✓	
macOS	×	✓	
Linux	×	✓	
Mobile Application Development			
iOS	×	✓	
Android	×	✓	
Design-Time Features			
Enhanced component and property editors	✓	✓	

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2.10 Getting Support

This page lists several ways you can find help with using VirtualDAC and describes the VirtualDAC Priority Support program.

Support Options

There are a number of resources for finding help on installing and using VirtualDAC.

- You can find out more about VirtualDAC installation or licensing by consulting the [Licensing](#) and [Installation](#) sections.
- You can get community assistance and technical support on the [VirtualDAC Community Forum](#).
- You can get advanced technical assistance by VirtualDAC developers through the **VirtualDAC Priority Support** program.

If you have a question about ordering VirtualDAC or any other Devart product, please contact sales@devart.com.

VirtualDAC Priority Support

VirtualDAC Priority Support is an advanced product support service for getting expedited

individual assistance with VirtualDAC-related questions from the VirtualDAC developers themselves. Priority Support is carried out over email and has two business days response policy. Priority Support is available for users with an active [VirtualDAC Subscription](#).

To get help through the VirtualDAC Priority Support program, please send an email to support@devart.com describing the problem you are having. Make sure to include the following information in your message:

- The version of Delphi, C++Builder you are using.
- Your VirtualDAC Registration number.
- Full VirtualDAC edition name and version number. You can find both of these from the VirtualDAC | VirtualDAC About menu in the IDE.
- A detailed problem description.
- If possible, a small test project that reproduces the problem. Please include definitions for all and avoid using third-party components.

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3 Getting Started

This section contains installation and deployment instructions for Virtual Data Access Components

- [Installation](#)
- [Deployment](#)

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3.1 Installation

This topic contains the environment changes made by the VirtualDAC installer. If you are having problems using VirtualDAC or compiling VirtualDAC-based applications, check this list to make sure your system is properly configured.

Compiled versions of VirtualDAC can be installed automatically for all supported IDEs except

Lazarus. VirtualDAC with Source Code must be installed manually. Installation of VirtualDAC from the source code is described in the *ReadmeSrc.html* file.

Before installing VirtualDAC

Two versions of VirtualDAC cannot be installed in parallel for the same IDE, and, since the Devart Data Access Components products have some shared bpl files, newer versions of VirtualDAC may be incompatible with older versions of ODAC, IBDAC, SDAC, MyDAC, PgDAC, LiteDAC and UniDAC.

So before installing a new version of VirtualDAC, uninstall all previous versions of VirtualDAC you may have, and check if your new install is compatible with other Devart Data Access Components products you have installed. For more information, see [Using several products in one IDE](#). If you have any questions, send us an email at support@devart.com.

Note: You can avoid uninstalling VirtualDAC manually when upgrading to a new version by overwriting the previous version. To do this, run the installer from the command line with the `/force` parameter (Start | Run and type `virtualdacXX.exe /force`, specifying the full path to the appropriate version of the installer.

Installed packages

Note: `%virtualdac%` denotes the path to your VirtualDAC installation directory.

Delphi/C++Builder Win32 project packages

Name	Description	Location
dacXX.bpl	DAC runtime package	Windows\System32
dcl dacXX.bpl	DAC design-time package	Delphi\Bin
dacvclXX.bpl	DAC VCL support package	Delphi\Bin
vqueryXX.bpl	DAC runtime package	Windows\System32
dcl vqueryXX.bpl	DAC design-time package	Delphi\Bin

Environment Changes

To compile VirtualDAC-based applications, your environment must be configured to have

access to the VirtualDAC libraries. Environment changes are IDE-dependent.

For all instructions, replace %VirtualDAC% with the path to your VirtualDAC installation directory

Delphi

- %VirtualDAC%Lib should be included in the Library Path accessible from Tools | Environment options | Library.

The VirtualDAC Installer performs Delphi environment changes automatically for compiled versions of VirtualDAC.

C++Builder

C++Builder 6:

- \$(BCB)\VirtualDAC\Lib should be included in the Library Path of the Default Project Options accessible from Project | Options | Directories/Conditionals.
- \$(BCB)\VirtualDAC\Include should be included in the Include Path of the Default Project Options accessible from Project | Options | Directories/Conditionals.

C++Builder 2006, 2007:

- \$(BCB)\VirtualDAC\Lib should be included in the Library search path of the Default Project Options accessible from Project | Default Options | C++Builder | Linker | Paths and Defines.
- \$(BCB)\VirtualDAC\Include should be included in the Include search path of the Default Project Options accessible from Project | Default Options | C++Builder | C++ Compiler | Paths and Defines.

The installer performs C++Builder environment changes automatically for compiled versions of VirtualDAC.

Lazarus

The installer only copies VirtualDAC files. You need to install VirtualDAC packages to the Lazarus IDE manually. Open %VirtualDAC%\Source\Lazarus1\dclvquery10.lpk in Lazarus and click Install. Lazarus will be rebuilt with VirtualDAC packages.

Do not click Compile for the package. Compiling will fail because there are no VirtualDAC source code files.

To verify your environment has been properly configured, try to compile one of the VirtualDAC demo projects which can be found in %VirtualDAC%/Demos.

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3.2 Deployment

VirtualDAC applications can be built and deployed with or without run-time libraries. Using run-time libraries is managed with the "Build with runtime packages" check box in the Project Options dialog box.

Deploying Windows applications built without run-time packages

You do not need to deploy any files with VirtualDAC-based applications built without run-time packages, provided you are using a registered version of VirtualDAC.

You can check if your application does not require run-time packages by making sure the "Build with runtime packages" check box is not selected in the Project Options dialog box.

Trial Limitation Warning

If you are evaluating deploying Windows applications with VirtualDAC Trial Edition, you will need to deploy the following DAC BPL files:

dacXX.bpl	always
virtualdacXX.bpl	always

and their dependencies (required IDE BPL files) with your application, even if it is built without run-time packages:

rtlXX.bpl	always
dbrtlXX.bpl	always
vcldbXXX.bpl	always

Deploying Windows applications built with run-time

packages

You can set your application to be built with run-time packages by selecting the "Build with runtime packages" check box in the Project Options dialog box before compiling your application.

In this case, you will also need to deploy the following BPL files with your Windows application:

dacXX.bpl	always
virtualdacXX.bpl	always

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3.3 Syntax Highlighting in Component Editors

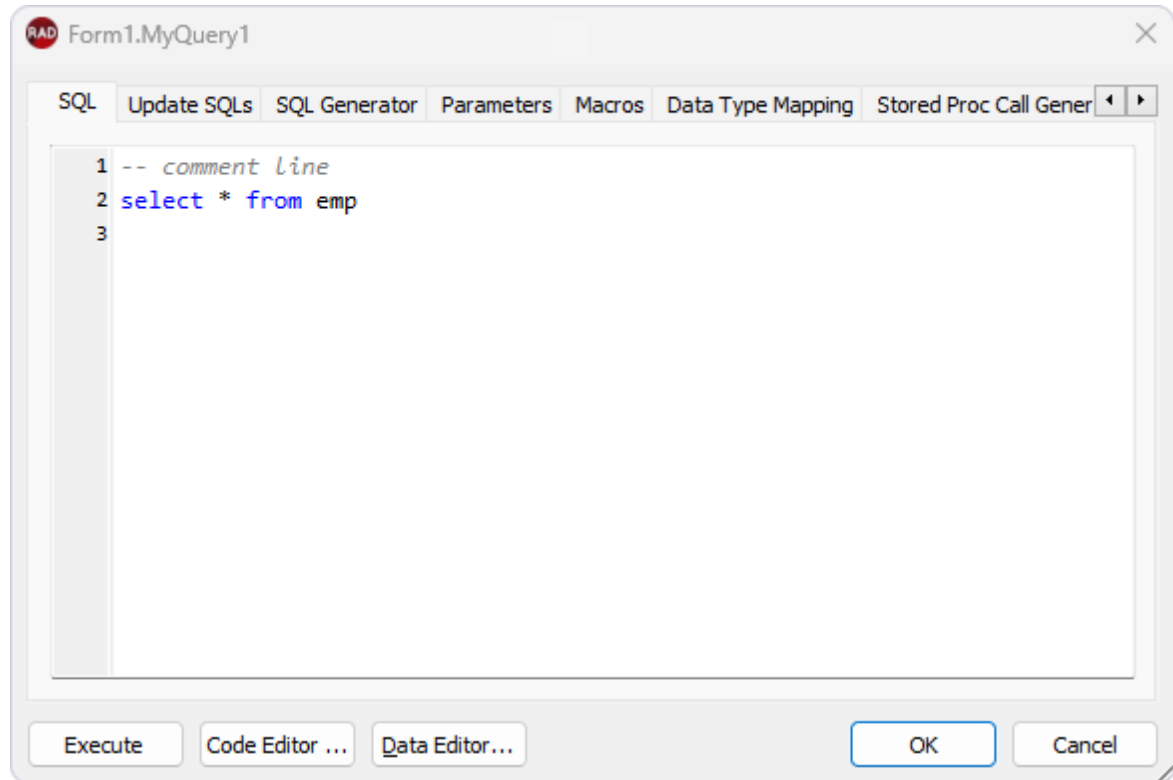
VirtualDAC supports syntax highlighting in component editors at design time. This topic explains how to enable or disable this feature in VirtualDAC component editors.

- [Enable syntax highlighting](#)
 - [Delphi](#)
 - [Lazarus](#)
- [Disable syntax highlighting in Delphi](#)

Enable syntax highlighting

Delphi

To enable syntax highlighting for Delphi, install the freeware SynEdit component set. You can download SynEdit from the [official website](#) or install it using the [GetIt Package Manager](#). Once installed, syntax highlighting will be enabled automatically in all component editors.



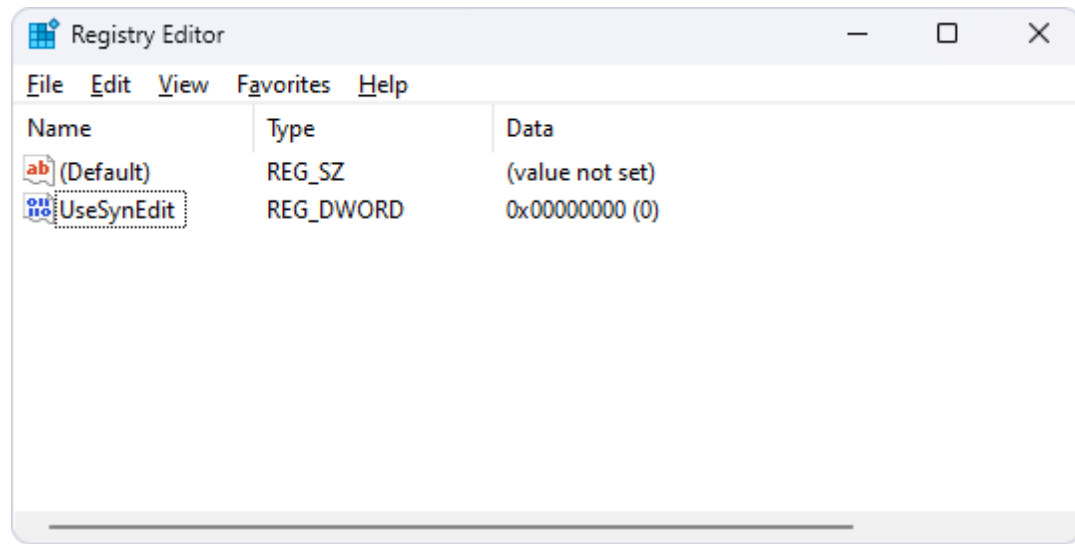
Lazarus

In Lazarus, SynEdit is a system package integrated into the IDE. This means that syntax highlighting for VirtualDAC component editors is enabled automatically and requires no additional setup.

Disable syntax highlighting in Delphi

If you have SynEdit installed but prefer not to use syntax highlighting in VirtualDAC component editors, you can disable it in the following way:

1. Open the Registry Editor.
2. Navigate to the **HKEY_CURRENT_USER\Software\Devart\VirtualDAC\Editors** registry key.
3. Create a **DWORD** value named **UseSynEdit** and set its value to **0**.



Syntax highlighting is now disabled for VirtualDAC. To enable syntax highlighting again, delete the **UseSynEdit** value or set it to 1.

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4 Reference

This page shortly describes units that exist in VirtualDAC.

Units

Unit Name	Description
CRGrid	Description is not available at the moment.
DALoader	Description is not available at the moment.
DASQLMonitor	Description is not available at the moment.
DBAccess	Description is not available at the moment.
MemData	Description is not available at the moment.
MemDS	Description is not available at the moment.

VirtualDataSet	Description is not available at the moment.
VirtualQuery	Description is not available at the moment.
VirtualTable	Description is not available at the moment.

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4.1 CRGrid

4.1.1 Classes

Classes in the **CRGrid** unit.

Classes

Name	Description
TCRDBGrid	Extends the functionality of the TDBGrid component.

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4.1.1.1 TCRDBGrid Class

Extends the functionality of the TDBGrid component.

For a list of all members of this type, see [TCRDBGrid](#) members.

Unit

CRGrid

Syntax

```
TCRDBGrid = class(TCustomDBGrid);
```

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4.1.1.1.1 Members

[TCRDBGrid](#) class overview.

Properties

Name	Description
Columns	To provide extended functionality TCRDBGrid component is shipped with a TCRColumn class, which is derived from the standard TColumn class but is tailored to work with TCRDBGrid only.
Filtered	Set Filtered property to specify whether record entries are filtered according to the conditional statements of individual columns or not.
LevelDelimiterChar	Set LevelDelimiterChar to set the character symbol which TCRDBGrid looks for in column captions to resolve multilevel nested columns.
OnMemoClick	Write an OnMemoClick event handler to provide custom processing of Memo fields instead of built-in Memo field editor.
OptionsEx	OptionsEx property provides control over TCRDBGrid-specific features. They complement inherited options found in Options property.
OptionsMenu	TCRDBGrid has local menu is situated in the left upper corner. Standard menu has items to show or hide filter bar and search bars. User can change content of this menu using OptionsMenu property.

Methods

Name	Description
ActivateFilterEdit	Use ActivateFilterEdit at run-time to move input focus to the filter bar. It activates edit control that belongs to the column, specified by Column property.
ActivateSearchEdit	Use ActivateSearchEdit at run-time to move input focus to the search bar. It activates edit control that belongs to the column, specified by Column property.
AdjustColumns	Call AdjustColumns method at run-time to stretch all columns in a grid so that they become wide enough to accommodate every visible field value. Widths of column captions restrict minimum column sizes for this operation.
ApplyFilter	Call ApplyFilter method at run-time to update TCRDBGrid component taking into account filter statements defined for every column.
CalcTitleLevel	Call CalcTitleLevel method to set Top and Bottom values of aRect parameter record depending on Level parameter value.
ClearFilters	Call CalcFilters method to clear all filter statements for grid columns.
ClearSorting	Call ClearSorting method to discard sorting previously applied to the grid data.
DataChanged	Call DataChanged method to update displayed data and status information for

	the grid.
GetGridSize	Call GetGridSize method to obtain width of a client area for the grid component.
GetTitleLevel	GetTitleLevel method returns TRect structure filled with top and bottom coordinates for the specified title level.

Events

Name	Description
OnGetCellParams	Write an OnGetCellParams event handler to provide custom background colors while the grid redraws individual cells.

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4.1.1.1.2 Properties

Properties of the **TCRDBGrid** class.

For a complete list of the **TCRDBGrid** class members, see the [TCRDBGrid Members](#) topic.

Public

Name	Description
OptionsMenu	TCRDBGrid has local menu is situated in the left upper corner. Standard menu has items to show or hide filter bar and search bars. User can change content of this menu using OptionsMenu property.

Published

Name	Description
------	-------------

Columns	To provide extended functionality TCRDBGrid component is shipped with a TCRColumn class, which is derived from the standard TColumn class but is tailored to work with TCRDBGrid only.
Filtered	Set Filtered property to specify whether record entries are filtered according to the conditional statements of individual columns or not.
LevelDelimiterChar	Set LevelDelimiterChar to set the character symbol which TCRDBGrid looks for in column captions to resolve multilevel nested columns.
OnMemoClick	Write an OnMemoClick event handler to provide custom processing of Memo fields instead of built-in Memo field editor.
OptionsEx	OptionsEx property provides control over TCRDBGrid-specific features. They complement inherited options found in Options property.

See Also

- [TCRDBGrid Class](#)
- [TCRDBGrid Class Members](#)

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4.1.1.1.2.1 Columns Property

To provide extended functionality TCRDBGrid component is shipped with a TCRColumn class, which is derived from the standard TColumn class but is tailored to work with

TCRDBGrid only.

Class

[TCRDBGrid](#)

Syntax

```
property Columns: TCRDBGridColumns stored False;
```

Remarks

When browsing TDBGridColumns remember that its Items property actually returns TCRColumn objects when indexed.

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4.1.1.1.2.2 Filtered Property

Set Filtered property to specify whether record entries are filtered according to the conditional statements of individual columns or not.

Class

[TCRDBGrid](#)

Syntax

```
property Filtered: boolean default True;
```

Remarks

Conditional statements of all columns are combined to form a single filter.

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4.1.1.1.2.3 LevelDelimiterChar Property

Set LevelDelimiterChar to set the character symbol which TCRDBGrid looks for in column captions to resolve multilevel nested columns.

Class

[TCRDBGrid](#)

Syntax

```
property LevelDelimiterChar: char default '|';
```

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4.1.1.1.2.4 OnMemoClick Property

Write an OnMemoClick event handler to provide custom processing of Memo fields instead of built-in Memo field editor.

Class

[TCRDBGrid](#)

Syntax

```
property OnMemoClick: TOnMemoClick;
```

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4.1.1.1.2.5 OptionsEx Property

OptionsEx property provides control over TCRDBGrid-specific features. They complement inherited options found in Options property.

Class

[TCRDBGrid](#)

Syntax

```
property OptionsEx: TCRDBGridOptionsEx default [dgeEnableSort,  
dgeLocalFilter, dgeLocalSorting, dgeRecordCount];
```

Remarks

Following values are supported for the OptionsEx set:

dgeEnableSort - enables sorting of records by the specified column clicking on the column

title.

dgeFilterBar - shows filter bar below grid caption where filter expressions for every column are entered manually.

dgeLocalFilter - records are filtered using associated dataset component facilities. Otherwise database server processes all filter operations.

dgeLocalSorting - records are sorted using associated dataset component facilities. Otherwise database server processes all sorting operations.

dgeRecordCount - displays status bar with current record number in respect to the total number of records. This option is mutually exclusive with *dgeSummary* option.

dgeSearchBar - shows search bar below grid caption where incremental search expression is entered for every column.

dgeStretch - makes all columns adjust their widths so that they fit onto entire grid area.

dgeSummary - displays status bar with summary information for every column. See *TCRColumn.SummaryMode* property on description of available options for individual columns. *dgeSummary* is mutually exclusive with *dgeRecordCount* option.

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4.1.1.1.2.6 OptionsMenu Property

TCRDBGrid has local menu is situated in the left upper corner. Standard menu has items to show or hide filter bar and search bars. User can change content of this menu using OptionsMenu property.

Class

[TCRDBGrid](#)

Syntax

property OptionsMenu: TPopupMenu;

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4.1.1.1.3 Methods

Methods of the **TCRDBGrid** class.

For a complete list of the **TCRDBGrid** class members, see the [TCRDBGrid Members](#) topic.

Public

Name	Description
ActivateFilterEdit	Use ActivateFilterEdit at run-time to move input focus to the filter bar. It activates edit control that belongs to the column, specified by Column property.
ActivateSearchEdit	Use ActivateSearchEdit at run-time to move input focus to the search bar. It activates edit control that belongs to the column, specified by Column property.
AdjustColumns	Call AdjustColumns method at run-time to stretch all columns in a grid so that they become wide enough to accommodate every visible field value. Widths of column captions restrict minimum column sizes for this operation.
ApplyFilter	Call ApplyFilter method at run-time to update TCRDBGrid component taking into account filter statements defined for every column.
CalcTitleLevel	Call CalcTitleLevel method to set Top and Bottom values of aRect parameter record depending on Level parameter value.
ClearFilters	Call CalcFilters method to clear all filter statements for grid columns.
ClearSorting	Call ClearSorting method to

	discard sorting previously applied to the grid data.
DataChanged	Call DataChanged method to update displayed data and status information for the grid.
GetGridSize	Call GetGridSize method to obtain width of a client area for the grid component.
GetTitleLevel	GetTitleLevel method returns TRect structure filled with top and bottom coordinates for the specified title level.

See Also

- [TCRDBGrid Class](#)
- [TCRDBGrid Class Members](#)

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4.1.1.1.3.1 ActivateFilterEdit Method

Use ActivateFilterEdit at run-time to move input focus to the filter bar. It activates edit control that belongs to the column, specified by Column property.

Class

[TCRDBGrid](#)

Syntax

```
procedure ActivateFilterEdit(Column: TColumn);
```

Parameters

Column

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4.1.1.1.3.2 ActivateSearchEdit Method

Use ActivateSearchEdit at run-time to move input focus to the search bar. It activates edit control that belongs to the column, specified by Column property.

Class

[TCRDBGrid](#)

Syntax

```
procedure ActivateSearchEdit(Column: TColumn);
```

Parameters

Column

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4.1.1.1.3.3 AdjustColumns Method

Call AdjustColumns method at run-time to stretch all columns in a grid so that they become wide enough to accommodate every visible field value. Widths of column captions restrict minimum column sizes for this operation.

Class

[TCRDBGrid](#)

Syntax

```
procedure AdjustColumns;
```

Remarks

Visual feedback is immediate if OptionsEx property includes dgeLocalFilter option.

Note: Since filtering is performed at session level then other data-aware controls may also be updated.

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4.1.1.1.3.4 ApplyFilter Method

Call ApplyFilter method at run-time to update TCRDBGrid component taking into account filter statements defined for every column.

Class

[TCRDBGrid](#)

Syntax

```
procedure ApplyFilter;
```

Remarks

Visual feedback is immediate if OptionsEx property includes dgeLocalFilter option.

Note: Since filtering is performed at session level then other data-aware controls may also be updated.

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4.1.1.1.3.5 CalcTitleLevel Method

Call CalcTitleLevel method to set Top and Bottom values of aRect parameter record depending on Level parameter value.

Class

[TCRDBGrid](#)

Syntax

```
procedure CalcTitleLevel(Level: integer; var aRect: TRect);
```

Parameters

Level

aRect

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4.1.1.1.3.6 ClearFilters Method

Call CalcFilters method to clear all filter statements for grid columns.

Class

[TCRDBGrid](#)

Syntax

```
procedure ClearFilters;
```

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4.1.1.1.3.7 ClearSorting Method

Call ClearSorting method to discard sorting previously applied to the grid data.

Class

[TCRDBGrid](#)

Syntax

```
procedure ClearSorting;
```

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4.1.1.1.3.8 DataChanged Method

Call DataChanged method to update displayed data and status information for the grid.

Class

[TCRDBGrid](#)

Syntax

```
procedure DataChanged;
```

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4.1.1.1.3.9 GetGridSize Method

Call GetGridSize method to obtain width of a client area for the grid component.

Class

[TCRDBGrid](#)

Syntax

```
function GetGridSize: integer;
```

Remarks

Client area accommodates cell values only without column grid lines.

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4.1.1.1.3.10 GetTitleLevel Method

GetTitleLevel method returns TRect structure filled with top and bottom coordinates for the specified title level.

Class

[TCRDBGrid](#)

Syntax

```
function GetTitleLevel(Level: integer): TRect;
```

Parameters

Level

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4.1.1.1.4 Events

Events of the **TCRDBGrid** class.

For a complete list of the **TCRDBGrid** class members, see the [TCRDBGrid Members](#) topic.

Published

Name	Description
OnGetCellParams	Write an OnGetCellParams event handler to provide custom background colors while the grid redraws individual cells.

See Also

- [TCRDBGrid Class](#)
- [TCRDBGrid Class Members](#)

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4.1.1.1.4.1 OnGetCellParams Event

Write an OnGetCellParams event handler to provide custom background colors while the grid redraws individual cells.

Class

[TCRDBGrid](#)

Syntax

```
property OnGetCellParams: TGetCellParamsEvent;
```

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4.2 DALoader

4.2.1 Classes

Classes in the **DALoader** unit.

Classes

Name	Description
TDALoaderOptions	Allows loading external data into database.

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4.2.1.1 TDALoaderOptions Class

Allows loading external data into database.

For a list of all members of this type, see [TDALoaderOptions](#) members.

Unit

DALoader

Syntax

```
TDALoaderOptions = class(TPersistent);
```

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4.2.1.1.1 Members

[TDALoaderOptions](#) class overview.

Properties

Name	Description
UseBlankValues	Forces VirtualDAC to fill the buffer with null values after loading a row to the database.

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4.2.1.1.2 Properties

Properties of the **TDALoaderOptions** class.

For a complete list of the **TDALoaderOptions** class members, see the [TDALoaderOptions Members](#) topic.

Public

Name	Description
UseBlankValues	Forces VirtualDAC to fill the buffer with null values after loading a row to the database.

See Also

- [TDALoaderOptions Class](#)
- [TDALoaderOptions Class Members](#)

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4.2.1.1.2.1 UseBlankValues Property

Forces VirtualDAC to fill the buffer with null values after loading a row to the database.

Class

[TDALoaderOptions](#)

Syntax

```
property UseBlankValues: boolean default True;
```

Remarks

Used to force VirtualDAC to fill the buffer with null values after loading a row to the database.

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4.3 DASQLMonitor

4.3.1 Classes

Classes in the **DASQLMonitor** unit.

Classes

Name	Description
------	-------------

TCustomDASQLMonitor	A base class that introduces properties and methods to monitor dynamic SQL execution in database applications interactively.
TDBMonitorOptions	This class holds options for dbMonitor.

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4.3.1.1 TCustomDASQLMonitor Class

A base class that introduces properties and methods to monitor dynamic SQL execution in database applications interactively.

For a list of all members of this type, see [TCustomDASQLMonitor](#) members.

Unit

DASQLMonitor

Syntax

```
TCustomDASQLMonitor = class(TComponent);
```

Remarks

TCustomDASQLMonitor is a base class that introduces properties and methods to monitor dynamic SQL execution in database applications interactively. TCustomDASQLMonitor provides two ways of displaying debug information. It monitors either by dialog window or by Borland's proprietary SQL Monitor. Furthermore to receive debug information use the [TCustomDASQLMonitor.OnSQL](#) event.

In applications use descendants of TCustomDASQLMonitor.

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4.3.1.1.1 Members

[TCustomDASQLMonitor](#) class overview.

Properties

Name	Description
Active	Used to activate monitoring of SQL.
DBMonitorOptions	Used to set options for dbMonitor.
Options	Used to include the desired properties for TCustomDASQLMonitor.
TraceFlags	Used to specify which database operations the monitor should track in an application at runtime.

Events

Name	Description
OnSQL	Occurs when tracing of SQL activity on database components is needed.

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4.3.1.1.2 Properties

Properties of the **TCustomDASQLMonitor** class.

For a complete list of the **TCustomDASQLMonitor** class members, see the [TCustomDASQLMonitor Members](#) topic.

Public

Name	Description
Active	Used to activate monitoring of SQL.
DBMonitorOptions	Used to set options for dbMonitor.
Options	Used to include the desired properties for TCustomDASQLMonitor.

[TraceFlags](#)

Used to specify which database operations the monitor should track in an application at runtime.

See Also

- [TCustomDASQLMonitor Class](#)
- [TCustomDASQLMonitor Class Members](#)

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4.3.1.1.2.1 Active Property

Used to activate monitoring of SQL.

Class

[TCustomDASQLMonitor](#)

Syntax

```
property Active: boolean default True;
```

Remarks

Set the Active property to True to activate monitoring of SQL.

See Also

- [OnSQL](#)

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4.3.1.1.2.2 DBMonitorOptions Property

Used to set options for dbMonitor.

Class

[TCustomDASQLMonitor](#)

Syntax

```
property DBMonitorOptions: TDBMonitorOptions;
```

Remarks

Use DBMonitorOptions to set options for dbMonitor.

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4.3.1.1.2.3 Options Property

Used to include the desired properties for TCustomDASQLMonitor.

Class

[TCustomDASQLMonitor](#)

Syntax

```
property Options: TMonitorOptions default [moDialog,  
moSQLMonitor, moDBMonitor, moCustom];
```

Remarks

Set Options to include the desired properties for TCustomDASQLMonitor.

See Also

- [OnSQL](#)

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4.3.1.1.2.4 TraceFlags Property

Used to specify which database operations the monitor should track in an application at runtime.

Class

[TCustomDASQLMonitor](#)

Syntax

```
property TraceFlags: TDATraceFlags default [tfQPrepare,  
tfQExecute, tfError, tfConnect, tfTransact, tfParams, tfMisc];
```

Remarks

Use the TraceFlags property to specify which database operations the monitor should track in an application at runtime.

See Also

- [OnSQL](#)

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4.3.1.1.3 Events

Events of the **TCustomDASQLMonitor** class.

For a complete list of the **TCustomDASQLMonitor** class members, see the [TCustomDASQLMonitor Members](#) topic.

Public

Name	Description
OnSQL	Occurs when tracing of SQL activity on database components is needed.

See Also

- [TCustomDASQLMonitor Class](#)
- [TCustomDASQLMonitor Class Members](#)

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4.3.1.1.3.1 OnSQL Event

Occurs when tracing of SQL activity on database components is needed.

Class

[TCustomDASQLMonitor](#)

Syntax

```
property OnSQL: TOnSQLEvent;
```

Remarks

Write the OnSQL event handler to let an application trace SQL activity on database components. The Text parameter holds the detected SQL statement. Use the Flag parameter to make selective processing of SQL in the handler body.

See Also

- [TraceFlags](#)

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4.3.1.2 TDBMonitorOptions Class

This class holds options for dbMonitor.

For a list of all members of this type, see [TDBMonitorOptions](#) members.

Unit

DASQLMonitor

Syntax

```
TDBMonitorOptions = class(TPersistent);
```

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4.3.1.2.1 Members

[TDBMonitorOptions](#) class overview.

Properties

Name	Description
Host	Used to set the host name or IP address of the computer where dbMonitor application runs.
Port	Used to set the port number for connecting to dbMonitor.
ReconnectTimeout	Used to set the minimum time that should be spent before reconnecting to dbMonitor is allowed.
SendTimeout	Used to set timeout for sending events to dbMonitor.

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4.3.1.2.2 Properties

Properties of the **TDBMonitorOptions** class.

For a complete list of the **TDBMonitorOptions** class members, see the [TDBMonitorOptions Members](#) topic.

Published

Name	Description
Host	Used to set the host name or IP address of the computer where dbMonitor application runs.
Port	Used to set the port number for connecting to dbMonitor.
ReconnectTimeout	Used to set the minimum time that should be spent before reconnecting to dbMonitor is allowed.
SendTimeout	Used to set timeout for sending events to dbMonitor.

See Also

- [TDBMonitorOptions Class](#)
- [TDBMonitorOptions Class Members](#)

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4.3.1.2.2.1 Host Property

Used to set the host name or IP address of the computer where dbMonitor application runs.

Class

[TDBMonitorOptions](#)

Syntax

```
property Host: string;
```

Remarks

Use the Host property to set the host name or IP address of the computer where dbMonitor application runs.

dbMonitor supports remote monitoring. You can run dbMonitor on a different computer than monitored application runs. In this case you need to set the Host property to the corresponding computer name.

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4.3.1.2.2.2 Port Property

Used to set the port number for connecting to dbMonitor.

Class

[TDBMonitorOptions](#)

Syntax

```
property Port: integer default DBMonitorPort;
```

Remarks

Use the Port property to set the port number for connecting to dbMonitor.

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4.3.1.2.2.3 ReconnectTimeout Property

Used to set the minimum time that should be spent before reconnecting to dbMonitor is allowed.

Class

[TDBMonitorOptions](#)

Syntax

```
property ReconnectTimeout: integer default  
DefaultReconnectTimeout;
```

Remarks

Use the ReconnectTimeout property to set the minimum time (in milliseconds) that should be spent before allowing reconnecting to dbMonitor. If an error occurs when the component sends an event to dbMonitor (dbMonitor is not running), next events are ignored and the component does not restore the connection until ReconnectTimeout is over.

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4.3.1.2.2.4 SendTimeout Property

Used to set timeout for sending events to dbMonitor.

Class

[TDBMonitorOptions](#)

Syntax

```
property SendTimeout: integer default DefaultSendTimeout;
```

Remarks

Use the `SendTimeout` property to set timeout (in milliseconds) for sending events to `dbMonitor`. If `dbMonitor` does not respond in the specified timeout, event is ignored.

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4.3.2 Types

Types in the **DASQLMonitor** unit.

Types

Name	Description
TDATraceFlags	Represents the set of TDATraceFlag .
TMonitorOptions	Represents the set of TMonitorOption .
TOnSQLEvent	This type is used for the TCustomDASQLMonitor.OnSQL event.

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4.3.2.1 TDATraceFlags Set

Represents the set of [TDATraceFlag](#).

Unit

DASQLMonitor

Syntax

```
TDATraceFlags = set of TDATraceFlag;
```

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4.3.2.2 TMonitorOptions Set

Represents the set of [TMonitorOption](#).

Unit

DASQLMonitor

Syntax

```
TMonitorOptions = set of TMonitorOption;
```

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4.3.2.3 TOnSQLEvent Procedure Reference

This type is used for the [TCustomDASQLMonitor.OnSQL](#) event.

Unit

DASQLMonitor

Syntax

```
TOnSQLEvent = procedure (Sender: TObject; Text: string; Flag:  
TDATraceFlag) of object;
```

Parameters

Sender

An object that raised the event.

Text

Holds the detected SQL statement.

Flag

Use the Flag parameter to make selective processing of SQL in the handler body.

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4.3.3 Enumerations

Enumerations in the **DASQLMonitor** unit.

Enumerations

Name	Description
TDATraceFlag	Use TraceFlags to specify which database operations the monitor should track in an application at runtime.
TMonitorOption	Used to define where information from SQLMonitor will be dispalyed.

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4.3.3.1 TDATraceFlag Enumeration

Use TraceFlags to specify which database operations the monitor should track in an application at runtime.

Unit

DASQLMonitor

Syntax

```
TDATraceFlag = (tfQPrepare, tfQExecute, tfQFetch, tfError, tfStmt, tfConnect, tfTransact, tfBlob, tfService, tfMisc, tfParams, tfObjDestroy, tfPool);
```

Values

Value	Meaning
tfBlob	This option is declared for future use.
tfConnect	Establishing a connection.
tfError	Errors of query execution.
tfMisc	This option is declared for future use.
tfObjDestroy	Destroying of components.
tfParams	Representing parameter values for tfQPrepare and tfQExecute.
tfPool	Connection pool operations.
tfQExecute	Execution of the queries.
tfQFetch	This option is declared for future use.
tfQPrepare	Queries preparation.
tfService	This option is declared for future use.

tfStmt	This option is declared for future use.
tfTransact	Processing transactions.

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4.3.3.2 TMonitorOption Enumeration

Used to define where information from SQLMonitor will be displayed.

Unit

DASQLMonitor

Syntax

```
TMonitorOption = (moDialog, moSQLMonitor, moDBMonitor, moCustom, moHandled);
```

Values

Value	Meaning
moCustom	Monitoring of SQL for individual components is allowed. Set Debug properties in SQL-related components to True to let TCustomDASQLMonitor instance to monitor their behavior. Has effect when moDialog is included.
moDBMonitor	Debug information is displayed in A:Using_DBMonitor.
moDialog	Debug information is displayed in debug window.
moHandled	Component handle is included into the event description string.
moSQLMonitor	Debug information is displayed in Borland SQL Monitor.

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4.4 DBAccess

4.4.1 Classes

Classes in the **DBAccess** unit.

Classes

Name	Description
EDAEError	A base class for exceptions that are raised when an error occurs on the server side.
TCustomConnectDialog	A base class for the connect dialog components.
TCustomDAConnection	A base class for components used to establish connections.
TCustomDADataset	Encapsulates general set of properties, events, and methods for working with data accessed through various database engines.
TCustomDASQL	A base class for components executing SQL statements that do not return result sets.
TCustomDAUpdateSQL	A base class for components that provide DML statements for more flexible control over data modifications.
TDACondition	Represents a condition from the TDAConditions list.
TDAConditions	Holds a collection of TDACondition objects.
TDAConnectionOptions	This class allows setting up the behaviour of the TDAConnection class.
TDAConnectionSSLOptions	This class is used to set up the SSL options.
TDADatasetOptions	This class allows setting up the behaviour of the TDADataset class.
TDAMapRule	Class that forms rules for Data Type Mapping.
TDAMapRules	Used for adding rules for DataSet fields mapping with both identifying by field name and by field type and Delphi field types.
TDAMetaData	A class for retrieving metainformation of the

	specified database objects in the form of dataset.
TDAParam	A class that forms objects to represent the values of the parameters set .
TDAParams	This class is used to manage a list of TDAParam objects for an object that uses field parameters.
TMacro	Object that represents the value of a macro.
TMacros	Controls a list of TMacro objects for the TCustomDASQL.Macros or TCustomDADataSet components.
TPoolingOptions	This class allows setting up the behaviour of the connection pool.
TSmartFetchOptions	Smart fetch options are used to set up the behavior of the SmartFetch mode.

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4.4.1.1 EDAError Class

A base class for exceptions that are raised when an error occurs on the server side.

For a list of all members of this type, see [EDAError](#) members.

Unit

DBAccess

Syntax

```
EDAError = class(EDatabaseError);
```

Remarks

EDAError is a base class for exceptions that are raised when an error occurs on the server side.

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4.4.1.1.1 Members

[EDAEError](#) class overview.

Properties

Name	Description
Component	Contains the component that caused the error.
ErrorCode	Determines the error code returned by the server.

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4.4.1.1.2 Properties

Properties of the **EDAEError** class.

For a complete list of the **EDAEError** class members, see the [EDAEError Members](#) topic.

Public

Name	Description
Component	Contains the component that caused the error.
ErrorCode	Determines the error code returned by the server.

See Also

- [EDAEError Class](#)
- [EDAEError Class Members](#)

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4.4.1.1.2.1 Component Property

Contains the component that caused the error.

Class

[EDAEError](#)

Syntax

```
property Component: TObject;
```

Remarks

The Component property contains the component that caused the error.

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4.4.1.1.2.2 ErrorCode Property

Determines the error code returned by the server.

Class

[EDAEError](#)

Syntax

```
property ErrorCode: integer;
```

Remarks

Use the ErrorCode property to determine the error code returned by SQLite. This value is always positive.

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4.4.1.2 TCustomConnectDialog Class

A base class for the connect dialog components.

For a list of all members of this type, see [TCustomConnectDialog](#) members.

Unit

DBAccess

Syntax

```
TCustomConnectDialog = class(TComponent);
```

Remarks

TCustomConnectDialog is a base class for the connect dialog components. It provides functionality to show a dialog box where user can edit username, password and server name before connecting to a database. You can customize captions of buttons and labels by their properties.

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4.4.1.2.1 Members

[TCustomConnectDialog](#) class overview.

Properties

Name	Description
CancelButton	Used to specify the label for the Cancel button.
Caption	Used to set the caption of dialog box.
ConnectButton	Used to specify the label for the Connect button.
DialogClass	Used to specify the class of the form that will be displayed to enter login information.
LabelSet	Used to set the language of buttons and labels captions.
PasswordLabel	Used to specify a prompt for password edit.
Retries	Used to indicate the number of retries of failed connections.

SavePassword	Used for the password to be displayed in ConnectDialog in asterisks.
ServerLabel	Used to specify a prompt for the server name edit.
StoreLogInfo	Used to specify whether the login information should be kept in system registry after a connection was established.
UsernameLabel	Used to specify a prompt for username edit.

Methods

Name	Description
Execute	Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.
GetServerList	Retrieves a list of available server names.

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4.4.1.2.2 Properties

Properties of the **TCustomConnectDialog** class.

For a complete list of the **TCustomConnectDialog** class members, see the

[TCustomConnectDialog Members](#) topic.

Public

Name	Description
CancelButton	Used to specify the label for the Cancel button.
Caption	Used to set the caption of dialog box.
ConnectButton	Used to specify the label for the Connect button.

DialogClass	Used to specify the class of the form that will be displayed to enter login information.
LabelSet	Used to set the language of buttons and labels captions.
PasswordLabel	Used to specify a prompt for password edit.
Retries	Used to indicate the number of retries of failed connections.
SavePassword	Used for the password to be displayed in ConnectDialog in asterisks.
ServerLabel	Used to specify a prompt for the server name edit.
StoreLogInfo	Used to specify whether the login information should be kept in system registry after a connection was established.
UsernameLabel	Used to specify a prompt for username edit.

See Also

- [TCustomConnectDialog Class](#)
- [TCustomConnectDialog Class Members](#)

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4.4.1.2.2.1 CancelButton Property

Used to specify the label for the Cancel button.

Class

[TCustomConnectDialog](#)

Syntax

```
property CancelButton: string;
```

Remarks

Use the CancelButton property to specify the label for the Cancel button.

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4.4.1.2.2.2 Caption Property

Used to set the caption of dialog box.

Class

[TCustomConnectDialog](#)

Syntax

```
property Caption: string;
```

Remarks

Use the Caption property to set the caption of dialog box.

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4.4.1.2.2.3 ConnectButton Property

Used to specify the label for the Connect button.

Class

[TCustomConnectDialog](#)

Syntax

```
property ConnectButton: string;
```

Remarks

Use the ConnectButton property to specify the label for the Connect button.

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4.4.1.2.2.4 DialogClass Property

Used to specify the class of the form that will be displayed to enter login information.

Class

[TCustomConnectDialog](#)

Syntax

```
property DialogClass: string;
```

Remarks

Use the DialogClass property to specify the class of the form that will be displayed to enter login information. When this property is blank, TCustomConnectDialog uses the default form - TConnectForm. You can write your own login form to enter login information and assign its class name to the DialogClass property. Each login form must have ConnectDialog: TCustomConnectDialog published property to access connection information. For details see the implementation of the connect form which sources are in the Lib subdirectory of the VirtualDAC installation directory.

See Also

- [GetServerList](#)

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4.4.1.2.2.5 LabelSet Property

Used to set the language of buttons and labels captions.

Class

[TCustomConnectDialog](#)

Syntax

```
property LabelSet: TLabelSet default lsEnglish;
```

Remarks

Use the LabelSet property to set the language of labels and buttons captions.

The default value is IsEnglish.

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4.4.1.2.2.6 PasswordLabel Property

Used to specify a prompt for password edit.

Class

[TCustomConnectDialog](#)

Syntax

```
property PasswordLabel: string;
```

Remarks

Use the PasswordLabel property to specify a prompt for password edit.

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4.4.1.2.2.7 Retries Property

Used to indicate the number of retries of failed connections.

Class

[TCustomConnectDialog](#)

Syntax

```
property Retries: word default 3;
```

Remarks

Use the Retries property to determine the number of retries of failed connections.

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4.4.1.2.2.8 SavePassword Property

Used for the password to be displayed in ConnectDialog in asterisks.

Class

[TCustomConnectDialog](#)

Syntax

```
property SavePassword: boolean default False;
```

Remarks

If True, and the Password property of the connection instance is assigned, the password in ConnectDialog is displayed in asterisks.

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4.4.1.2.2.9 ServerLabel Property

Used to specify a prompt for the server name edit.

Class

[TCustomConnectDialog](#)

Syntax

```
property ServerLabel: string;
```

Remarks

Use the ServerLabel property to specify a prompt for the server name edit.

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4.4.1.2.2.10 StoreLogInfo Property

Used to specify whether the login information should be kept in system registry after a connection was established.

Class

[TCustomConnectDialog](#)

Syntax

```
property StoreLogInfo: boolean default True;
```

Remarks

Use the StoreLogInfo property to specify whether to keep login information in system registry after a connection was established using provided username, password and servername.

Set this property to True to store login information.

The default value is True.

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4.4.1.2.2.11 UsernameLabel Property

Used to specify a prompt for username edit.

Class

[TCustomConnectDialog](#)

Syntax

```
property UsernameLabel: string;
```

Remarks

Use the UsernameLabel property to specify a prompt for username edit.

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4.4.1.2.3 Methods

Methods of the **TCustomConnectDialog** class.

For a complete list of the **TCustomConnectDialog** class members, see the

[TCustomConnectDialog Members](#) topic.

Public

Name	Description
Execute	Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.
GetServerList	Retrieves a list of available server names.

See Also

- [TCustomConnectDialog Class](#)
- [TCustomConnectDialog Class Members](#)

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4.4.1.2.3.1 Execute Method

Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.

Class

[TCustomConnectDialog](#)

Syntax

```
function Execute: boolean; virtual;
```

Return Value

True, if connected.

Remarks

Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button. Returns True if connected. If user clicks Cancel, Execute returns False.

In the case of failed connection Execute offers to connect repeat [Retries](#) times.

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4.4.1.2.3.2 GetServerList Method

Retrieves a list of available server names.

Class

[TCustomConnectDialog](#)

Syntax

```
procedure GetServerList(List: TStrings); virtual;
```

Parameters

List

Holds a list of available server names.

Remarks

Call the GetServerList method to retrieve a list of available server names. It is particularly relevant for writing custom login form.

See Also

- [DialogClass](#)

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4.4.1.3 TCustomDACConnection Class

A base class for components used to establish connections.

For a list of all members of this type, see [TCustomDACConnection](#) members.

Unit

DBAccess

Syntax

```
TCustomDACConnection = class(TCustomConnection);
```

Remarks

TCustomDACConnection is a base class for components that establish connection with database, provide customised login support, and perform transaction control.

Do not create instances of TCustomDACConnection. To add a component that represents a connection to a source of data, use descendants of the TCustomDACConnection class.

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4.4.1.3.1 Members

[TCustomDACConnection](#) class overview.

Properties

Name	Description
ConnectDialog	Allows to link a TCustomConnectDialog component.
ConnectString	Used to specify the connection information, such as: UserName, Password, Server, etc.
ConvertEOL	Allows customizing line breaks in string fields and parameters.
InTransaction	Indicates whether the transaction is active.
LoginPrompt	Specifies whether a login dialog appears immediately before opening a new connection.
Options	Specifies the connection behavior.
Password	Serves to supply a password for login.
Pooling	Enables or disables using connection pool.
PoolingOptions	Specifies the behaviour of connection pool.
Server	Serves to supply the server

	name for login.
Username	Used to supply a user name for login.

Methods

Name	Description
ApplyUpdates	Overloaded. Applies changes in datasets.
Commit	Commits current transaction.
Connect	Establishes a connection to the server.
CreateSQL	Creates a component for queries execution.
Disconnect	Performs disconnect.
ExecProc	Allows to execute stored procedure or function providing its name and parameters.
ExecProcEx	Allows to execute a stored procedure or function.
ExecSQL	Executes a SQL statement with parameters.
ExecSQLEx	Executes any SQL statement outside the TQuery or TSQL components.
GetDatabaseNames	Returns a database list from the server.
GetKeyFieldNames	Provides a list of available key field names.
GetStoredProcNames	Returns a list of stored procedures from the server.
GetTableNames	Provides a list of available tables names.
MonitorMessage	Sends a specified message through the TCustomDASQLMonitor component.
Ping	Used to check state of connection to the server.

RemoveFromPool	Marks the connection that should not be returned to the pool after disconnect.
Rollback	Discards all current data changes and ends transaction.
StartTransaction	Begins a new user transaction.

Events

Name	Description
OnConnectionLost	This event occurs when connection was lost.
OnError	This event occurs when an error has arisen in the connection.

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4.4.1.3.2 Properties

Properties of the **TCustomDACConnection** class.

For a complete list of the **TCustomDACConnection** class members, see the [TCustomDACConnection Members](#) topic.

Public

Name	Description
ConnectDialog	Allows to link a TCustomConnectDialog component.
ConnectionString	Used to specify the connection information, such as: UserName, Password, Server, etc.
ConvertEOL	Allows customizing line breaks in string fields and parameters.
InTransaction	Indicates whether the transaction is active.

LoginPrompt	Specifies whether a login dialog appears immediately before opening a new connection.
Options	Specifies the connection behavior.
Password	Serves to supply a password for login.
Pooling	Enables or disables using connection pool.
PoolingOptions	Specifies the behaviour of connection pool.
Server	Serves to supply the server name for login.
Username	Used to supply a user name for login.

See Also

- [TCustomDAConnection Class](#)
- [TCustomDAConnection Class Members](#)

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4.4.1.3.2.1 ConnectDialog Property

Allows to link a [TCustomConnectDialog](#) component.

Class

[TCustomDAConnection](#)

Syntax

```
property ConnectDialog: TCustomConnectDialog;
```

Remarks

Use the ConnectDialog property to assign to connection a [TCustomConnectDialog](#) component.

See Also

- [TCustomConnectDialog](#)

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4.4.1.3.2.2 ConnectString Property

Used to specify the connection information, such as: UserName, Password, Server, etc.

Class

[TCustomDACConnection](#)

Syntax

```
property ConnectString: string stored False;
```

Remarks

VirtualDAC recognizes an ODBC-like syntax in provider string property values. Within the string, elements are delimited by using a semicolon. Each element consists of a keyword, an equal sign character, and the value passed on initialization. For example:

```
Server=London1;User ID=nancyd
```

Connection parameters

The following connection parameters can be used to customize connection:

Parameter Name	Description
LoginPrompt	Specifies whether a login dialog appears immediately before opening a new connection.
Pooling	Enables or disables using connection pool.
ConnectionLifeTime	Used to specify the maximum time during which an opened connection can be used by connection pool.
MaxPoolSize	Used to specify the maximum number of connections that can be opened in connection pool.
MinPoolSize	Used to specify the minimum number of connections that can be opened in connection pool.
Validate Connection	Used for a connection to be validated when

	it is returned from the pool.
--	-------------------------------

See Also

- [Password](#)
- [Username](#)
- [Server](#)
- [Connect](#)

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4.4.1.3.2.3 ConvertEOL Property

Allows customizing line breaks in string fields and parameters.

Class

[TCustomDACConnection](#)

Syntax

```
property ConvertEOL: boolean default False;
```

Remarks

Affects the line break behavior in string fields and parameters. When fetching strings (including the TEXT fields) with ConvertEOL = True, dataset converts their line breaks from the LF to CRLF form. And when posting strings to server with ConvertEOL turned on, their line breaks are converted from CRLF to LF form. By default, strings are not converted.

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4.4.1.3.2.4 InTransaction Property

Indicates whether the transaction is active.

Class

[TCustomDACConnection](#)

Syntax

```
property InTransaction: boolean;
```

Remarks

Examine the InTransaction property at runtime to determine whether user transaction is currently in progress. In other words InTransaction is set to True when user explicitly calls [StartTransaction](#). Calling [Commit](#) or [Rollback](#) sets InTransaction to False. The value of the InTransaction property cannot be changed directly.

See Also

- [StartTransaction](#)
- [Commit](#)
- [Rollback](#)

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4.4.1.3.2.5 LoginPrompt Property

Specifies whether a login dialog appears immediately before opening a new connection.

Class

[TCustomDACConnection](#)

Syntax

```
property LoginPrompt default DefValLoginPrompt;
```

Remarks

Specifies whether a login dialog appears immediately before opening a new connection. If [ConnectDialog](#) is not specified, the default connect dialog will be shown. The connect dialog will appear only if the VirtualDACVcl unit appears to the uses clause.

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4.4.1.3.2.6 Options Property

Specifies the connection behavior.

Class

[TCustomDACConnection](#)

Syntax

```
property Options: TDACConnectionOptions;
```

Remarks

Set the properties of Options to specify the behaviour of the connection.

Descriptions of all options are in the table below.

Option Name	Description
AllowImplicitConnect	Specifies whether to allow or not implicit connection opening.
DefaultSortType	Specifies the default type of local sorting for string fields. It is used when a sort type is not explicitly set after the field name in the TMemDataSet.IndexFieldNames property of a dataset.
DisconnectedMode	Opens a connection only when needed to perform a server call, and closes that connection after the operation is complete.
KeepDesignConnected	Prevents an application from establishing a connection at the time of startup.
LocalFailover	If True, the OnConnectionLost event occurs, and a failover operation can be performed after the connection is lost.

See Also

- A:Work_DisconnectMode
- A:Unstable_Network

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4.4.1.3.2.7 Password Property

Serves to supply a password for login.

Class

[TCustomDACConnection](#)

Syntax

```
property Password: string stored False;
```

Remarks

Use the Password property to supply a password to handle server's request for a login.

Warning: Storing hard-coded user name and password entries as property values or in code for the OnLogin event handler can compromise server security.

See Also

- [Username](#)
- [Server](#)

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4.4.1.3.2.8 Pooling Property

Enables or disables using connection pool.

Class

[TCustomDACConnection](#)

Syntax

```
property Pooling: boolean default DefValPooling;
```

Remarks

Normally, when TCustomDACConnection establishes connection with the server it takes server memory and time resources for allocating new server connection. For example, pooling can be very useful when using disconnect mode. If an application has wide user

activity that forces many connect/disconnect operations, it may spend a lot of time on creating connection and sending requests to the server. TCustomDACConnection has software pool which stores open connections with identical parameters.

Connection pool uses separate thread that validates the pool every 30 seconds. Pool validation consists of checking each connection in the pool. If a connection is broken due to a network problem or another reason, it is deleted from the pool. The validation procedure removes also connections that are not used for a long time even if they are valid from the pool.

Set Pooling to True to enable pooling. Specify correct values for PoolingOptions. Two connections belong to the same pool if they have identical values for the parameters:

[MinPoolSize](#), [MaxPoolSize](#), [Validate](#), [ConnectionLifeTime](#)

Note: Using Pooling := True can cause errors with working with temporary tables.

See Also

- [Username](#)
- [Password](#)
- [PoolingOptions](#)
- A:work_pooling

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4.4.1.3.2.9 PoolingOptions Property

Specifies the behaviour of connection pool.

Class

[TCustomDACConnection](#)

Syntax

```
property PoolingOptions: TPoolingOptions;
```

Remarks

Set the properties of PoolingOptions to specify the behaviour of connection pool.

Descriptions of all options are in the table below.

Option Name	Description
ConnectionLifetime	Used to specify the maximum time during which an open connection can be used by connection pool.
MaxPoolSize	Used to specify the maximum number of connections that can be opened in connection pool.
MinPoolSize	Used to specify the minimum number of connections that can be opened in the connection pool.
PoolId	Used to specify an ID for a connection pool.
Validate	Used for a connection to be validated when it is returned from the pool.

See Also

- [Pooling](#)

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4.4.1.3.2.10 Server Property

Serves to supply the server name for login.

Class

[TCustomDACConnection](#)

Syntax

```
property Server: string;
```

Remarks

Use the Server property to supply server name to handle server's request for a login.

See Also

- [Username](#)
- [Password](#)

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4.4.1.3.2.11 Username Property

Used to supply a user name for login.

Class

[TCustomDACConnection](#)

Syntax

```
property Username: string;
```

Remarks

Use the Username property to supply a user name to handle server's request for login. If this property is not set, VirtualDAC tries to connect with the user name.

Warning: Storing hard-coded user name and password entries as property values or in code for the OnLogin event handler can compromise server security.

See Also

- [Password](#)
- [Server](#)

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4.4.1.3.3 Methods

Methods of the **TCustomDACConnection** class.

For a complete list of the **TCustomDACConnection** class members, see the [TCustomDACConnection Members](#) topic.

Public

Name	Description
ApplyUpdates	Overloaded. Applies changes in datasets.

Commit	Commits current transaction.
Connect	Establishes a connection to the server.
CreateSQL	Creates a component for queries execution.
Disconnect	Performs disconnect.
ExecProc	Allows to execute stored procedure or function providing its name and parameters.
ExecProcEx	Allows to execute a stored procedure or function.
ExecSQL	Executes a SQL statement with parameters.
ExecSQLEx	Executes any SQL statement outside the TQuery or TSQL components.
GetDatabaseNames	Returns a database list from the server.
GetKeyFieldNames	Provides a list of available key field names.
GetStoredProcNames	Returns a list of stored procedures from the server.
GetTableNames	Provides a list of available tables names.
MonitorMessage	Sends a specified message through the TCustomDASQLMonitor component.
Ping	Used to check state of connection to the server.
RemoveFromPool	Marks the connection that should not be returned to the pool after disconnect.
Rollback	Discards all current data changes and ends transaction.
StartTransaction	Begins a new user transaction.

See Also

- [TCustomDACConnection Class](#)
- [TCustomDACConnection Class Members](#)

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4.4.1.3.3.1 ApplyUpdates Method

Applies changes in datasets.

Class

[TCustomDACConnection](#)

Overload List

Name	Description
ApplyUpdates	Applies changes from all active datasets.
ApplyUpdates(const DataSets: array of TCustomDADataset)	Applies changes from the specified datasets.

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Applies changes from all active datasets.

Class

[TCustomDACConnection](#)

Syntax

```
procedure ApplyUpdates; overload; virtual;
```

Remarks

Call the ApplyUpdates method to write all pending cached updates from all active datasets attached to this connection to a database or from specific datasets. The ApplyUpdates method passes cached data to the database for storage, takes care of committing or rolling back transactions, and clearing the cache when the operation is successful.

Using ApplyUpdates for connection is a preferred method of updating datasets rather than

calling each individual dataset's ApplyUpdates method.

See Also

- [TMemDataSet.CachedUpdates](#)
- [TMemDataSet.ApplyUpdates](#)

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Applies changes from the specified datasets.

Class

[TCustomDAConnection](#)

Syntax

```
procedure ApplyUpdates(const DataSets: array of  
TCustomDADataSet); overload; virtual;
```

Parameters

DataSets

A list of datasets changes in which are to be applied.

Remarks

Call the ApplyUpdates method to write all pending cached updates from the specified datasets. The ApplyUpdates method passes cached data to the database for storage, takes care of committing or rolling back transactions and clearing the cache when operation is successful.

Using ApplyUpdates for connection is a preferred method of updating datasets rather than calling each individual dataset's ApplyUpdates method.

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4.4.1.3.3.2 Commit Method

Commits current transaction.

Class

[TCustomDACConnection](#)

Syntax

```
procedure Commit; virtual;
```

Remarks

Call the Commit method to commit current transaction. On commit server writes permanently all pending data updates associated with the current transaction to the database and then ends the transaction. The current transaction is the last transaction started by calling StartTransaction.

See Also

- [Rollback](#)
- [StartTransaction](#)
- P:Devart.VirtualDac.TCustomVirtualDataSet.FetchAll

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4.4.1.3.3.3 Connect Method

Establishes a connection to the server.

Class

[TCustomDACConnection](#)

Syntax

```
procedure Connect; overload; procedure Connect(const  
ConnectionString: string); overload;
```

Remarks

Call the Connect method to establish a connection to the server. Connect sets the Connected property to True. If LoginPrompt is True, Connect prompts user for login information as required by the server, or otherwise tries to establish a connection using values provided in the [Username](#), [Password](#), and [Server](#) properties.

See Also

- [Disconnect](#)
- [Username](#)
- [Password](#)
- [Server](#)
- [ConnectDialog](#)

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4.4.1.3.3.4 CreateSQL Method

Creates a component for queries execution.

Class

[TCustomDAConnection](#)

Syntax

```
function CreateSQL: TCustomDASQL; virtual;
```

Return Value

A new instance of the class.

Remarks

Call the CreateSQL to return a new instance of the [TCustomDASQL](#) class and associates it with this connection object. In the descendant classes this method should be overridden to create an appropriate descendant of the TCustomDASQL component.

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4.4.1.3.3.5 Disconnect Method

Performs disconnect.

Class

[TCustomDACConnection](#)

Syntax

```
procedure Disconnect;
```

Remarks

Call the Disconnect method to drop a connection to database. Before the connection component is deactivated, all associated datasets are closed. Calling Disconnect is similar to setting the Connected property to False.

In most cases, closing a connection frees system resources allocated to the connection.

If user transaction is active, e.g. the [InTransaction](#) flag is set, calling to Disconnect the current user transaction.

Note: If a previously active connection is closed and then reopened, any associated datasets must be individually reopened; reopening the connection does not automatically reopen associated datasets.

See Also

- [Connect](#)

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4.4.1.3.3.6 ExecProc Method

Allows to execute stored procedure or function providing its name and parameters.

Class

[TCustomDACConnection](#)

Syntax

```
function ExecProc(const Name: string; const Params: array of  
variant): variant; virtual;
```

Parameters

Name

Holds the name of the stored procedure or function.

Params

Holds the parameters of the stored procedure or function.

Return Value

the result of the stored procedure.

Remarks

Allows to execute stored procedure or function providing its name and parameters.

Use the following Name value syntax for executing specific overloaded routine:

"StoredProcName:1" or "StoredProcName:5". The first example executes the first overloaded stored procedure, while the second example executes the fifth overloaded procedure.

Assign parameters' values to the Params array in exactly the same order and number as they appear in the stored procedure declaration. Out parameters of the procedure can be accessed with the ParamByName procedure.

If the value of an input parameter was not included to the Params array, parameter default value is taken. Only parameters at the end of the list can be unincluded to the Params array. If the parameter has no default value, the NULL value is sent.

Note: Stored functions unlike stored procedures return result values that are obtained internally through the RESULT parameter. You will no longer have to provide anonymous value in the Params array to describe the result of the function. The stored function result is obtained from the Params[0] indexed property or with the ParamByName('RESULT') method call.

For further examples of parameter usage see [ExecSQL](#), [ExecSQLEx](#).

Example

For example, having stored function declaration presented in Example 1), you may execute it and retrieve its result with commands presented in Example 2):

Example 1)

```
CREATE procedure MY_SUM (
```

```

        A INTEGER,
        B INTEGER)
    RETURNS (
        RESULT INTEGER)
as
begin
    Result = a + b;
end;
Example 2)
Label1.Caption:= MyVirtualConnection1.ExecProc('My_Sum', [10, 20]);
Label2.Caption:= MyVirtualConnection1.ParamByName('Result').AsString;
```

See Also

- [ExecProcEx](#)
- [ExecSQL](#)
- [ExecSQLEx](#)

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4.4.1.3.3.7 ExecProcEx Method

Allows to execute a stored procedure or function.

Class

[TCustomDACConnection](#)

Syntax

```
function ExecProcEx(const Name: string; const Params: array of
variant): variant; virtual;
```

Parameters

Name

Holds the stored procedure name.

Params

Holds an array of pairs of parameters' names and values.

Return Value

the result of the stored procedure.

Remarks

Allows to execute a stored procedure or function. Provide the stored procedure name and its

parameters to the call of ExecProcEx.

Use the following Name value syntax for executing specific overloaded routine:

"StoredProcName:1" or "StoredProcName:5". The first example executes the first overloaded stored procedure, while the second example executes the fifth overloaded procedure.

Assign pairs of parameters' names and values to a Params array so that every name comes before its corresponding value when an array is being indexed.

Out parameters of the procedure can be accessed with the ParamByName procedure. If the value for an input parameter was not included to the Params array, the parameter default value is taken. If the parameter has no default value, the NULL value is sent.

Note: Stored functions unlike stored procedures return result values that are obtained internally through the RESULT parameter. You will no longer have to provide anonymous value in the Params array to describe the result of the function. Stored function result is obtained from the Params[0] indexed property or with the ParamByName('RESULT') method call.

For an example of parameters usage see [ExecSQLEx](#).

Example

If you have some stored procedure accepting four parameters, and you want to provide values only for the first and fourth parameters, you should call ExecProcEx in the following way:

```
Connection.ExecProcEx('Some_Stored_Procedure', ['Param_Name1', 'Param_Value1
```

See Also

- [ExecSQL](#)
- [ExecSQLEx](#)
- [ExecProc](#)

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4.4.1.3.3.8 ExecSQL Method

Executes a SQL statement with parameters.

Class

[TCustomDACConnection](#)

Syntax

```
function ExecSQL(const Text: string): variant;  
overload; function ExecSQL(const Text: string; const Params:  
array of variant): variant; overload; virtual;
```

Parameters

Text

a SQL statement to be executed.

Params

Array of parameter values arranged in the same order as they appear in SQL statement.

Return Value

Out parameter with the name Result will hold the result of function having data type dtString. Otherwise returns Null.

Remarks

Use the ExecSQL method to execute any SQL statement outside the [TCustomDADataset](#) or [TCustomDASQL](#) components. Supply the Params array with the values of parameters arranged in the same order as they appear in a SQL statement which itself is passed to the Text string parameter.

See Also

- [ExecSQLEx](#)
- [ExecProc](#)

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4.4.1.3.3.9 ExecSQLEx Method

Executes any SQL statement outside the TQuery or TSQL components.

Class

TCustomDAConnection

Syntax

```
function ExecSQLEx(const Text: string; const Params: array of  
variant): variant; virtual;
```

Parameters

Text

a SQL statement to be executed.

Params

Array of parameter values arranged in the same order as they appear in SQL statement.

Return Value

Out parameter with the name Result will hold the result of a function having data type dtString. Otherwise returns Null.

Remarks

Call the ExecSQLEx method to execute any SQL statement outside the TQuery or TSQL components. Supply the Params array with values arranged in pairs of parameter name and its value. This way each parameter name in the array is found on even index values whereas parameter value is on odd index value but right after its parameter name. The parameter pairs must be arranged according to their occurrence in a SQL statement which itself is passed in the Text string parameter.

The Params array must contain all IN and OUT parameters defined in the SQL statement. For OUT parameters provide any values of valid types so that they are explicitly defined before call to the ExecSQLEx method.

Out parameter with the name Result will hold the result of a function having data type dtString. If neither of the parameters in the Text statement is named Result, ExecSQLEx will return Null.

To get the values of OUT parameters use the ParamByName function.

Example

```
VirtualConnection.ExecSQLEx('begin :A:= :B + :C; end;',  
    ['A', 0, 'B', 5, 'C', 3]);  
A:= VirtualConnection.ParamByName('A').AsInteger;
```

See Also

- [ExecSQL](#)

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4.4.1.3.3.10 GetDatabaseNames Method

Returns a database list from the server.

Class

[TCustomDACConnection](#)

Syntax

```
procedure GetDatabaseNames(List: TStrings); virtual;
```

Parameters

List

A TStrings descendant that will be filled with database names.

Remarks

Populates a string list with the names of databases.

Note: Any contents already in the target string list object are eliminated and overwritten by data produced by GetDatabaseNames.

See Also

- [GetTableNames](#)
- [GetStoredProcNames](#)

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4.4.1.3.3.11 GetKeyFieldNames Method

Provides a list of available key field names.

Class

[TCustomDACConnection](#)

Syntax

```
procedure GetKeyFieldNames(const TableName: string; List: TStrings); virtual;
```

Parameters

TableName

Holds the table name

List

The list of available key field names

Return Value

Key field name

Remarks

Call the GetKeyFieldNames method to get the names of available key fields. Populates a string list with the names of key fields in tables.

See Also

- [GetTableNames](#)
- [GetStoredProcNames](#)

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4.4.1.3.3.12 GetStoredProcNames Method

Returns a list of stored procedures from the server.

Class

[TCustomDAConnection](#)

Syntax

```
procedure GetStoredProcNames(List: TStrings; AllProcs: boolean = False); virtual;
```

Parameters

List

A TStrings descendant that will be filled with the names of stored procedures in the database.

AllProcs

True, if stored procedures from all schemas or including system procedures (depending on the server) are returned. False otherwise.

Remarks

Call the `GetStoredProcNames` method to get the names of available stored procedures and functions. `GetStoredProcNames` populates a string list with the names of stored procs in the database. If `AllProcs = True`, the procedure returns to the `List` parameter the names of the stored procedures that belong to all schemas; otherwise, `List` will contain the names of functions that belong to the current schema.

Note: Any contents already in the target string list object are eliminated and overwritten by data produced by `GetStoredProcNames`.

See Also

- [GetDatabaseNames](#)
- [GetTableNames](#)

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4.4.1.3.3.13 GetTableNames Method

Provides a list of available tables names.

Class

[TCustomDACConnection](#)

Syntax

```
procedure GetTableNames(List: TStrings; AllTables: boolean = False; OnlyTables: boolean = False); virtual;
```

Parameters

List

A `TStrings` descendant that will be filled with table names.

AllTables

True, if procedure returns all table names including the names of system tables to the `List` parameter.

OnlyTables

Remarks

Call the `GetTableNames` method to get the names of available tables. Populates a string list with the names of tables in the database. If `AllTables = True`, procedure returns all table names including the names of system tables to the `List` parameter, otherwise `List` will not contain the names of system tables. If `AllTables = True`, the procedure returns to the `List` parameter the names of the tables that belong to all schemas; otherwise, `List` will contain the names of the tables that belong to the current schema.

Note: Any contents already in the target string list object are eliminated and overwritten by the data produced by `GetTableNames`.

See Also

- [GetDatabaseNames](#)
- [GetStoredProcNames](#)

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4.4.1.3.3.14 MonitorMessage Method

Sends a specified message through the [TCustomDASQLMonitor](#) component.

Class

[TCustomDAConnection](#)

Syntax

```
procedure MonitorMessage(const Msg: string);
```

Parameters

Msg

Message text that will be sent.

Remarks

Call the `MonitorMessage` method to output specified message via the [TCustomDASQLMonitor](#) component.

See Also

- [TCustomDASQLMonitor](#)

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4.4.1.3.3.15 Ping Method

Used to check state of connection to the server.

Class

[TCustomDACConnection](#)

Syntax

```
procedure Ping;
```

Remarks

The method is used for checking server connection state.

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4.4.1.3.3.16 RemoveFromPool Method

Marks the connection that should not be returned to the pool after disconnect.

Class

[TCustomDACConnection](#)

Syntax

```
procedure RemoveFromPool;
```

Remarks

Call the RemoveFromPool method to mark the connection that should be deleted after disconnect instead of returning to the connection pool.

See Also

- [Pooling](#)

- [PoolingOptions](#)

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4.4.1.3.3.17 Rollback Method

Discards all current data changes and ends transaction.

Class

[TCustomDACConnection](#)

Syntax

```
procedure Rollback; virtual;
```

Remarks

Call the Rollback method to discard all updates, insertions, and deletions of data associated with the current transaction to the database server and then end the transaction. The current transaction is the last transaction started by calling [StartTransaction](#).

See Also

- [Commit](#)
- [StartTransaction](#)
- P:Devart.VirtualDac.TCustomVirtualDataSet.FetchAll

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4.4.1.3.3.18 StartTransaction Method

Begins a new user transaction.

Class

[TCustomDACConnection](#)

Syntax

```
procedure StartTransaction; virtual;
```

Remarks

Call the `StartTransaction` method to begin a new user transaction against the database server. Before calling `StartTransaction`, an application should check the status of the [InTransaction](#) property. If `InTransaction` is `True`, indicating that a transaction is already in progress, a subsequent call to `StartTransaction` without first calling [Commit](#) or [Rollback](#) to end the current transaction raises `EDatabaseError`. Calling `StartTransaction` when connection is closed also raises `EDatabaseError`.

Updates, insertions, and deletions that take place after a call to `StartTransaction` are held by the server until an application calls `Commit` to save the changes, or `Rollback` to cancel them.

See Also

- [Commit](#)
- [Rollback](#)
- [InTransaction](#)

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4.4.1.3.4 Events

Events of the **TCustomDACConnection** class.

For a complete list of the **TCustomDACConnection** class members, see the [TCustomDACConnection Members](#) topic.

Public

Name	Description
OnConnectionLost	This event occurs when connection was lost.
OnError	This event occurs when an error has arisen in the connection.

See Also

- [TCustomDACConnection Class](#)

- [TCustomDACConnection Class Members](#)

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4.4.1.3.4.1 OnConnectionLost Event

This event occurs when connection was lost.

Class

[TCustomDACConnection](#)

Syntax

```
property OnConnectionLost: TConnectionLostEvent;
```

Remarks

Write the OnConnectionLost event handler to process fatal errors and perform failover.

Note: To use the OnConnectionLost event handler, you should explicitly add the MemData unit to the 'uses' list and set the TCustomDACConnection.Options.LocalFailover property to True.

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4.4.1.3.4.2 OnError Event

This event occurs when an error has arisen in the connection.

Class

[TCustomDACConnection](#)

Syntax

```
property OnError: TDACConnectionErrorEvent;
```

Remarks

Write the OnError event handler to respond to errors that arise with connection. Check the E parameter to get the error code. Set the Fail parameter to False to prevent an error dialog

from being displayed and to raise the EAbort exception to cancel current operation. The default value of Fail is True.

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4.4.1.4 TCustomDADataset Class

Encapsulates general set of properties, events, and methods for working with data accessed through various database engines.

For a list of all members of this type, see [TCustomDADataset](#) members.

Unit

DBAccess

Syntax

```
TCustomDADataset = class (TMemDataSet);
```

Remarks

TCustomDADataset encapsulates general set of properties, events, and methods for working with data accessed through various database engines. All database-specific features are supported by descendants of TCustomDADataset.

Applications should not use TCustomDADataset objects directly.

Inheritance Hierarchy

[TMemDataSet](#)

TCustomDADataset

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4.4.1.4.1 Members

[TCustomDADataset](#) class overview.

Properties

Name	Description
BaseSQL	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Conditions	Used to add WHERE conditions to a query
Connection	Used to specify a connection object to use to connect to a data store.
DataTypeMap	Used to set data type mapping rules
Debug	Used to display the statement that is being executed and the values and types of its parameters.
DetailFields	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
Disconnected	Used to keep dataset opened after connection is closed.
FetchRows	Used to define the number of rows to be transferred across the network at the same time.
FilterSQL	Used to change the WHERE clause of SELECT statement and reopen a query.
FinalSQL	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
IsQuery	Used to check whether SQL

	statement returns rows.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
KeyFields	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MacroCount	Used to get the number of macros associated with the Macros property.
Macros	Makes it possible to change SQL queries easily.
MasterFields	Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.
MasterSource	Used to specify the data source component which binds current dataset to the master one.
Options	Used to specify the behaviour of TCustomDADataset object.
ParamCheck	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
ParamCount	Used to indicate how many parameters are there in the Params property.

Params	Used to view and set parameter names, values, and data types dynamically.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
ReadOnly	Used to prevent users from updating, inserting, or deleting data in the dataset.
RefreshOptions	Used to indicate when the editing record is refreshed.
RowsAffected	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SQL	Used to provide a SQL statement that a query component executes when its Open method is called.
SQLDelete	Used to specify a SQL statement that will be used when applying a deletion to a record.
SQLInsert	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
SQLLock	Used to specify a SQL statement that will be used to perform a record lock.
SQLRecCount	Used to specify the SQL statement that is used to get the record count when opening a dataset.
SQLRefresh	Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.
SQLUpdate	Used to specify a SQL statement that will be used

	when applying an update to a dataset.
UniDirectional	Used if an application does not need bidirectional access to records in the result set.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Methods

Name	Description
AddWhere	Adds condition to the WHERE clause of SELECT statement in the SQL property.
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
BreakExec	Breaks execution of the SQL statement on the server.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CloneCursor	Shares data from another dataset.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
CreateBlobStream	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.

DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
DeleteWhere	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
Execute	Overloaded. Executes a SQL statement on the server.
Executing	Indicates whether SQL statement is still being executed.
Fetched	Used to find out whether TCustomDADataset has fetched all rows.
Fetching	Used to learn whether TCustomDADataset is still fetching rows.
FetchingAll	Used to learn whether TCustomDADataset is fetching all rows to the end.
FindKey	Searches for a record which contains specified field values.
FindNearest	Moves the cursor to a specific record or to the first record in the dataset that matches or is greater than the values specified in the KeyValues parameter.
FindParam	Determines if a parameter with the specified name exists in a dataset.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.

GetDataType	Returns internal field types defined in the MemData and accompanying modules.
GetFieldObject	Returns a multireference shared object from field.
GetFieldPrecision	Retrieves the precision of a number field.
GetFieldScale	Retrieves the scale of a number field.
GetKeyFieldNames	Provides a list of available key field names.
GetOrderBy	Retrieves an ORDER BY clause from a SQL statement.
GotoCurrent	Sets the current record in this dataset similar to the current record in another dataset.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Lock	Locks the current record.
MacroByName	Finds a macro with the specified name.
ParamByName	Sets or uses parameter information for a specific parameter based on its name.
Prepare	Allocates, opens, and parses cursor for a query.
RefreshRecord	Actualizes field values for the current record.
RestoreSQL	Restores the SQL property modified by AddWhere and SetOrderBy.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.

RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveSQL	Saves the SQL property value to BaseSQL.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetOrderBy	Builds an ORDER BY clause of a SELECT statement.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
SQLSaved	Determines if the SQL property value was saved to the BaseSQL property.
UnLock	Releases a record lock.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.

UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.
--	--

Events

Name	Description
AfterExecute	Occurs after a component has executed a query to database.
AfterFetch	Occurs after dataset finishes fetching data from server.
AfterUpdateExecute	Occurs after executing insert, delete, update, lock and refresh operations.
BeforeFetch	Occurs before dataset is going to fetch block of records from the server.
BeforeUpdateExecute	Occurs before executing insert, delete, update, lock, and refresh operations.
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.4.1.4.2 Properties

Properties of the **TCustomDADataset** class.

For a complete list of the **TCustomDADataset** class members, see the [TCustomDADataset Members](#) topic.

Public

Name	Description
------	-------------

BaseSQL	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Conditions	Used to add WHERE conditions to a query
Connection	Used to specify a connection object to use to connect to a data store.
DataTypeMap	Used to set data type mapping rules
Debug	Used to display the statement that is being executed and the values and types of its parameters.
DetailFields	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
Disconnected	Used to keep dataset opened after connection is closed.
FetchRows	Used to define the number of rows to be transferred across the network at the same time.
FilterSQL	Used to change the WHERE clause of SELECT statement and reopen a query.
FinalSQL	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
IsQuery	Used to check whether SQL statement returns rows.

KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
KeyFields	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MacroCount	Used to get the number of macros associated with the Macros property.
Macros	Makes it possible to change SQL queries easily.
MasterFields	Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.
MasterSource	Used to specify the data source component which binds current dataset to the master one.
Options	Used to specify the behaviour of TCustomDADataset object.
ParamCheck	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
ParamCount	Used to indicate how many parameters are there in the Params property.

Params	Used to view and set parameter names, values, and data types dynamically.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
ReadOnly	Used to prevent users from updating, inserting, or deleting data in the dataset.
RefreshOptions	Used to indicate when the editing record is refreshed.
RowsAffected	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SQL	Used to provide a SQL statement that a query component executes when its Open method is called.
SQLDelete	Used to specify a SQL statement that will be used when applying a deletion to a record.
SQLInsert	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
SQLLock	Used to specify a SQL statement that will be used to perform a record lock.
SQLRecCount	Used to specify the SQL statement that is used to get the record count when opening a dataset.
SQLRefresh	Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.
SQLUpdate	Used to specify a SQL statement that will be used

	when applying an update to a dataset.
UniDirectional	Used if an application does not need bidirectional access to records in the result set.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

See Also

- [TCustomDADataset Class](#)
- [TCustomDADataset Class Members](#)

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4.4.1.4.2.1 BaseSQL Property

Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.

Class

[TCustomDADataset](#)

Syntax

```
property BaseSQL: string;
```

Remarks

Use the BaseSQL property to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL, only macros are expanded. SQL text with all these changes can be returned by [FinalSQL](#).

See Also

- [FinalSQL](#)

- [AddWhere](#)
- [SaveSQL](#)
- [SQLSaved](#)
- [RestoreSQL](#)

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4.4.1.4.2.2 Conditions Property

Used to add WHERE conditions to a query

Class

[TCustomDADataset](#)

Syntax

```
property Conditions: TDAConditions stored False;
```

See Also

- [TDAConditions](#)

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4.4.1.4.2.3 Connection Property

Used to specify a connection object to use to connect to a data store.

Class

[TCustomDADataset](#)

Syntax

```
property Connection: TCustomDAConnection;
```

Remarks

Use the Connection property to specify a connection object that will be used to connect to a

data store.

Set at design-time by selecting from the list of provided TCustomDACConnection or its descendant class objects.

At runtime, link an instance of a TCustomDACConnection descendant to the Connection property.

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4.4.1.4.2.4 DataTypeMap Property

Used to set data type mapping rules

Class

[TCustomDADataset](#)

Syntax

```
property DataTypeMap: TDAMapRules stored IsMapRulesStored;
```

See Also

- [TDAMapRules](#)

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4.4.1.4.2.5 Debug Property

Used to display the statement that is being executed and the values and types of its parameters.

Class

[TCustomDADataset](#)

Syntax

```
property Debug: boolean default False;
```

Remarks

Set the Debug property to True to display the statement that is being executed and the values and types of its parameters.

See Also

- [TCustomDASQL.Debug](#)

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4.4.1.4.2.6 DetailFields Property

Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.

Class

[TCustomDADataset](#)

Syntax

```
property DetailFields: string;
```

Remarks

Use the DetailFields property to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship. DetailFields is a string containing one or more field names in the detail table. Separate field names with semicolons.

Use Field Link Designer to set the value in design time.

See Also

- [MasterFields](#)
- [MasterSource](#)

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4.4.1.4.2.7 Disconnected Property

Used to keep dataset opened after connection is closed.

Class

[TCustomDADataset](#)

Syntax

```
property Disconnected: boolean;
```

Remarks

Set the Disconnected property to True to keep dataset opened after connection is closed.

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4.4.1.4.2.8 FetchRows Property

Used to define the number of rows to be transferred across the network at the same time.

Class

[TCustomDADataset](#)

Syntax

```
property FetchRows: integer default 25;
```

Remarks

The number of rows that will be transferred across the network at the same time. This property can have a great impact on performance. So it is preferable to choose the optimal value of the FetchRows property for each SQL statement and software/hardware configuration experimentally.

The default value is 25.

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4.4.1.4.2.9 FilterSQL Property

Used to change the WHERE clause of SELECT statement and reopen a query.

Class

[TCustomDADataset](#)

Syntax

```
property FilterSQL: string;
```

Remarks

The FilterSQL property is similar to the Filter property, but it changes the WHERE clause of SELECT statement and reopens query. Syntax is the same to the WHERE clause.

Note: the FilterSQL property adds a value to the WHERE condition as is. If you expect this value to be enclosed in brackets, you should bracket it explicitly.

Example

```
Query1.FilterSQL := 'Dept >= 20 and DName LIKE 'M%''';
```

See Also

- [AddWhere](#)

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4.4.1.4.2.10 FinalSQL Property

Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.

Class

[TCustomDADataset](#)

Syntax

```
property FinalSQL: string;
```

Remarks

Use FinalSQL to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros. This is the exact statement that will be passed on to the database server.

See Also

- [FinalSQL](#)
- [AddWhere](#)
- [SaveSQL](#)
- [SQLSaved](#)
- [RestoreSQL](#)
- [BaseSQL](#)

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4.4.1.4.2.11 IsQuery Property

Used to check whether SQL statement returns rows.

Class

[TCustomDADataset](#)

Syntax

```
property IsQuery: boolean;
```

Remarks

After the TCustomDADataset component is prepared, the IsQuery property returns True if SQL statement is a SELECT query.

Use the IsQuery property to check whether the SQL statement returns rows or not.

IsQuery is a read-only property. Reading IsQuery on unprepared dataset raises an exception.

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4.4.1.4.2.12 KeyFields Property

Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.

Class

[TCustomDADataset](#)

Syntax

```
property KeyFields: string;
```

Remarks

TCustomDADataset uses the KeyFields property to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database. For this feature KeyFields may hold a list of semicolon-delimited field names. If KeyFields is not defined before opening a dataset, TCustomDADataset requests information about primary key from source dataset.

See Also

- [SQLDelete](#)
- [SQLInsert](#)
- [SQLRefresh](#)
- [SQLUpdate](#)

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4.4.1.4.2.13 MacroCount Property

Used to get the number of macros associated with the Macros property.

Class

[TCustomDADataset](#)

Syntax

```
property MacroCount: word;
```

Remarks

Use the MacroCount property to get the number of macros associated with the Macros property.

See Also

- [Macros](#)

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4.4.1.4.2.14 Macros Property

Makes it possible to change SQL queries easily.

Class

[TCustomDADataset](#)

Syntax

```
property Macros: TMacro stored False;
```

Remarks

With the help of macros you can easily change SQL query text at design- or runtime. Macros extend abilities of parameters and allow to change conditions in a WHERE clause or sort order in an ORDER BY clause. You just insert &MacroName in the SQL query text and change value of macro in the Macro property editor at design time or call the MacroByName function at run time. At the time of opening the query macro is replaced by its value.

Example

```
VirtualQuery.SQL.Text := 'SELECT * FROM Dept ORDER BY &Order';  
VirtualQuery.MacroByName('Order').Value:= 'DeptNo';  
VirtualQuery.Open;
```

See Also

- [TMacro](#)
- [MacroByName](#)
- [Params](#)

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4.4.1.4.2.15 MasterFields Property

Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.

Class

[TCustomDADataset](#)

Syntax

```
property MasterFields: string;
```

Remarks

Use the MasterFields property after setting the [MasterSource](#) property to specify the names of one or more fields that are used as foreign keys for this dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.

MasterFields is a string containing one or more field names in the master table. Separate field names with semicolons.

Each time the current record in the master table changes, the new values in these fields are used to select corresponding records in this table for display.

Use Field Link Designer to set the values at design time after setting the MasterSource property.

See Also

- [DetailFields](#)
- [MasterSource](#)
- A:Work_MD

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4.4.1.4.2.16 MasterSource Property

Used to specify the data source component which binds current dataset to the master one.

Class

[TCustomDADataset](#)

Syntax

```
property MasterSource: TDataSource;
```

Remarks

The MasterSource property specifies the data source component which binds current dataset to the master one.

TCustomDADataset uses MasterSource to extract foreign key fields values from the master dataset when building master/detail relationship between two datasets. MasterSource must point to another dataset; it cannot point to this dataset component.

When MasterSource is not **nil** dataset fills parameter values with corresponding field values from the current record of the master dataset.

Note: Do not set the DataSource property when building master/detail relationships. Although it points to the same object as the MasterSource property, it may lead to undesirable results.

See Also

- [MasterFields](#)
- [DetailFields](#)
- A:Work_MD

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4.4.1.4.2.17 Options Property

Used to specify the behaviour of TCustomDADataset object.

Class

[TCustomDADataset](#)

Syntax

property Options: [TDADatasetOptions](#);

Remarks

Set the properties of Options to specify the behaviour of a TCustomDADataset object.

Descriptions of all options are in the table below.

Option Name	Description
AutoPrepare	Used to execute automatic Prepare on the query execution.
CacheCalcFields	Used to enable caching of the TField.Calculated and TField.Lookup fields.
CompressBlobMode	Used to store values of the BLOB fields in compressed form.
DefaultValues	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
DetailDelay	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.
FieldsOrigin	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
FlatBuffers	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
InsertAllSetFields	Used to include all set dataset fields in the generated INSERT statement
LocalMasterDetail	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
LongStrings	Used to represent string fields with the length that is greater than 255 as TStringField.
MasterFieldsNullable	Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).
NumberRange	Used to set the MaxValue and MinValue

	properties of TIntegerField and TFloatField to appropriate values.
QueryRecCount	Used for TCustomDADataset to perform additional query to get the record count for this SELECT, so the RecordCount property reflects the actual number of records.
QuoteNames	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
RemoveOnRefresh	Used for a dataset to locally remove a record that can not be found on the server.
RequiredFields	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
ReturnParams	Used to return the new value of fields to dataset after insert or update.
SetFieldsReadOnly	Used for a dataset to set the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated.
StrictUpdate	Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.
TrimFixedChar	Specifies whether to discard all trailing spaces in the string fields of a dataset.
UpdateAllFields	Used to include all dataset fields in the generated UPDATE and INSERT statements.
UpdateBatchSize	Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.

See Also

- A:Work_MD
- [TMemDataSet.CachedUpdates](#)

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4.4.1.4.2.18 ParamCheck Property

Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.

Class

[TCustomDADataset](#)

Syntax

```
property ParamCheck: boolean default True;
```

Remarks

Use the ParamCheck property to specify whether parameters for the Params property are generated automatically after the SQL property was changed.

Set ParamCheck to True to let dataset automatically generate the Params property for the dataset based on a SQL statement.

Setting ParamCheck to False can be used if the dataset component passes to a server the DDL statements that contain, for example, declarations of stored procedures which themselves will accept parameterized values. The default value is True.

See Also

- [Params](#)

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4.4.1.4.2.19 ParamCount Property

Used to indicate how many parameters are there in the Params property.

Class

[TCustomDADataset](#)

Syntax

```
property ParamCount: word;
```

Remarks

Use the ParamCount property to determine how many parameters are there in the Params property.

See Also

- [Params](#)

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4.4.1.4.2.20 Params Property

Used to view and set parameter names, values, and data types dynamically.

Class

[TCustomDADataset](#)

Syntax

```
property Params: TDAParams stored False;
```

Remarks

Contains the parameters for a query's SQL statement.

Access Params at runtime to view and set parameter names, values, and data types dynamically (at design time use the Parameters editor to set the parameter information).

Params is a zero-based array of parameter records. Index specifies the array element to access.

An easier way to set and retrieve parameter values when the name of each parameter is known is to call ParamByName.

See Also

- [ParamByName](#)
- [Macros](#)

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4.4.1.4.2.21 ReadOnly Property

Used to prevent users from updating, inserting, or deleting data in the dataset.

Class

[TCustomDADataset](#)

Syntax

```
property ReadOnly: boolean default False;
```

Remarks

Use the ReadOnly property to prevent users from updating, inserting, or deleting data in the dataset. By default, ReadOnly is False, meaning that users can potentially alter data stored in the dataset.

To guarantee that users cannot modify or add data to a dataset, set ReadOnly to True.

When ReadOnly is True, the dataset's CanModify property is False.

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4.4.1.4.2.22 RefreshOptions Property

Used to indicate when the editing record is refreshed.

Class

[TCustomDADataset](#)

Syntax

```
property RefreshOptions: TRefreshOptions default [];
```

Remarks

Use the RefreshOptions property to determine when the editing record is refreshed.

Refresh is performed by the [RefreshRecord](#) method.

It queries the current record and replaces one in the dataset. Refresh record is useful when the table has triggers or the table fields have default values. Use roBeforeEdit to get actual

data before editing.

The default value is [].

See Also

- [RefreshRecord](#)

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4.4.1.4.2.23 RowsAffected Property

Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.

Class

[TCustomDADataset](#)

Syntax

```
property RowsAffected: integer;
```

Remarks

Check RowsAffected to determine how many rows were inserted, updated, or deleted during the last query operation. If RowsAffected is -1, the query has not inserted, updated, or deleted any rows.

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4.4.1.4.2.24 SQL Property

Used to provide a SQL statement that a query component executes when its Open method is called.

Class

[TCustomDADataset](#)

Syntax

property SQL: TStrings;

Remarks

Use the SQL property to provide a SQL statement that a query component executes when its Open method is called. At the design time the SQL property can be edited by invoking the String List editor in Object Inspector.

When SQL is changed, TCustomDADataset calls Close and UnPrepare.

See Also

- [SQLInsert](#)
- [SQLUpdate](#)
- [SQLDelete](#)
- [SQLRefresh](#)

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4.4.1.4.2.25 SQLDelete Property

Used to specify a SQL statement that will be used when applying a deletion to a record.

Class

[TCustomDADataset](#)

Syntax

property SQLDelete: TStrings;

Remarks

Use the SQLDelete property to specify the SQL statement that will be used when applying a deletion to a record. Statements can be parameterized queries.

To create a SQLDelete statement at design-time, use the query statements editor.

Example

```
DELETE FROM Orders
WHERE
```

```
orderID = :old_orderID
```

See Also

- [SQL](#)
- [SQLInsert](#)
- [SQLUpdate](#)
- [SQLRefresh](#)

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4.4.1.4.2.26 SQLInsert Property

Used to specify the SQL statement that will be used when applying an insertion to a dataset.

Class

[TCustomDADataset](#)

Syntax

```
property SQLInsert: TStrings;
```

Remarks

Use the SQLInsert property to specify the SQL statement that will be used when applying an insertion to a dataset. Statements can be parameterized queries. Names of the parameters should be the same as field names. Parameters prefixed with OLD_ allow using current values of fields prior to the actual operation.

Use ReturnParam to return OUT parameters back to dataset.

To create a SQLInsert statement at design-time, use the query statements editor.

See Also

- [SQL](#)
- [SQLUpdate](#)
- [SQLDelete](#)
- [SQLRefresh](#)

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4.4.1.4.2.27 SQLLock Property

Used to specify a SQL statement that will be used to perform a record lock.

Class

[TCustomDADataset](#)

Syntax

```
property SQLLock: TStrings;
```

Remarks

Use the SQLLock property to specify a SQL statement that will be used to perform a record lock. Statements can be parameterized queries. Names of the parameters should be the same as field names. The parameters prefixed with OLD_ allow to use current values of fields prior to the actual operation.

To create a SQLLock statement at design-time, the use query statement editor.

See Also

- [SQL](#)
- [SQLInsert](#)
- [SQLUpdate](#)
- [SQLDelete](#)
- [SQLRefresh](#)

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4.4.1.4.2.28 SQLRecCount Property

Used to specify the SQL statement that is used to get the record count when opening a dataset.

Class

[TCustomDADataset](#)

Syntax

```
property SQLRecCount: TStrings;
```

Remarks

Use the SQLRecCount property to specify the SQL statement that is used to get the record count when opening a dataset. The SQL statement is used if the TDADatasetOptions.QueryRecCount property is True, and the TCustomDADataset.FetchAll property is False. Is not used if the FetchAll property is True.

To create a SQLRecCount statement at design-time, use the query statements editor.

See Also

- [SQLInsert](#)
- [SQLUpdate](#)
- [SQLDelete](#)
- [SQLRefresh](#)
- [TDADatasetOptions](#)
- [FetchingAll](#)

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4.4.1.4.2.29 SQLRefresh Property

Used to specify a SQL statement that will be used to refresh current record by calling the [RefreshRecord](#) procedure.

Class

[TCustomDADataset](#)

Syntax

```
property SQLRefresh: TStrings;
```

Remarks

Use the SQLRefresh property to specify a SQL statement that will be used to refresh current record by calling the [RefreshRecord](#) procedure.

Different behavior is observed when the SQLRefresh property is assigned with a single WHERE clause that holds frequently altered search condition. In this case the WHERE clause from SQLRefresh is combined with the same clause of the SELECT statement in a SQL property and this final query is then sent to the database server.

To create a SQLRefresh statement at design-time, use the query statements editor.

Example

```
SELECT Shipname FROM Orders
WHERE
    OrderID = :OrderID
```

See Also

- [RefreshRecord](#)
- [SQL](#)
- [SQLInsert](#)
- [SQLUpdate](#)
- [SQLDelete](#)

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4.4.1.4.2.30 SQLUpdate Property

Used to specify a SQL statement that will be used when applying an update to a dataset.

Class

[TCustomDADataset](#)

Syntax

```
property SQLUpdate: TStrings;
```

Remarks

Use the SQLUpdate property to specify a SQL statement that will be used when applying an update to a dataset. Statements can be parameterized queries. Names of the parameters should be the same as field names. The parameters prefixed with OLD_ allow to use current values of fields prior to the actual operation.

Use ReturnParam to return OUT parameters back to the dataset.

To create a SQLUpdate statement at design-time, use the query statement editor.

Example

```
UPDATE Orders
  set
    ShipName = :ShipName
  WHERE
    OrderID = :old_OrderID
```

See Also

- [SQL](#)
- [SQLInsert](#)
- [SQLDelete](#)
- [SQLRefresh](#)

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4.4.1.4.2.31 UniDirectional Property

Used if an application does not need bidirectional access to records in the result set.

Class

[TCustomDADataset](#)

Syntax

```
property UniDirectional: boolean default False;
```

Remarks

Traditionally SQL cursors are unidirectional. They can travel only forward through a dataset. TCustomDADataset, however, permits bidirectional travelling by caching records. If an

application does not need bidirectional access to the records in the result set, set `UniDirectional` to `True`. When `UniDirectional` is `True`, an application requires less memory and performance is improved. However, `UniDirectional` datasets cannot be modified. In `FetchAll=False` mode data is fetched on demand. When `UniDirectional` is set to `True`, data is fetched on demand as well, but obtained rows are not cached except for the current row. In case if the `Unidirectional` property is `True`, the `FetchAll` property will be automatically set to `False`. And if the `FetchAll` property is `True`, the `Unidirectional` property will be automatically set to `False`. The default value of `UniDirectional` is `False`, enabling forward and backward navigation.

Note: Pay attention to the specificity of using the `FetchAll` property=`False`

See Also

- [TVirtualQuery.FetchAll](#)

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4.4.1.4.3 Methods

Methods of the **TCustomDADataset** class.

For a complete list of the **TCustomDADataset** class members, see the [TCustomDADataset Members](#) topic.

Public

Name	Description
AddWhere	Adds condition to the WHERE clause of SELECT statement in the SQL property.
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
BreakExec	Breaks execution of the SQL statement on the server.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a

	dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CloneCursor	Shares data from another dataset.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
CreateBlobStream	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
DeleteWhere	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
Execute	Overloaded. Executes a SQL statement on the server.
Executing	Indicates whether SQL statement is still being executed.
Fetched	Used to find out whether TCustomDADataset has fetched all rows.
Fetching	Used to learn whether TCustomDADataset is still fetching rows.
FetchingAll	Used to learn whether TCustomDADataset is fetching all rows to the end.
FindKey	Searches for a record which contains specified field values.

FindNearest	Moves the cursor to a specific record or to the first record in the dataset that matches or is greater than the values specified in the KeyValues parameter.
FindParam	Determines if a parameter with the specified name exists in a dataset.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
GetDataType	Returns internal field types defined in the MemData and accompanying modules.
GetFieldObject	Returns a multireference shared object from field.
GetFieldPrecision	Retrieves the precision of a number field.
GetFieldScale	Retrieves the scale of a number field.
GetKeyFieldNames	Provides a list of available key field names.
GetOrderBy	Retrieves an ORDER BY clause from a SQL statement.
GotoCurrent	Sets the current record in this dataset similar to the current record in another dataset.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Lock	Locks the current record.
MacroByName	Finds a macro with the specified name.

ParamByName	Sets or uses parameter information for a specific parameter based on its name.
Prepare	Allocates, opens, and parses cursor for a query.
RefreshRecord	Actualizes field values for the current record.
RestoreSQL	Restores the SQL property modified by AddWhere and SetOrderBy.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveSQL	Saves the SQL property value to BaseSQL.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetOrderBy	Builds an ORDER BY clause of a SELECT statement.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.

SQLSaved	Determines if the SQL property value was saved to the BaseSQL property.
UnLock	Releases a record lock.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

See Also

- [TCustomDADataset Class](#)
- [TCustomDADataset Class Members](#)

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4.4.1.4.3.1 AddWhere Method

Adds condition to the WHERE clause of SELECT statement in the SQL property.

Class

[TCustomDADataset](#)

Syntax

```
procedure AddWhere(const Condition: string);
```

Parameters

Condition

Holds the condition that will be added to the WHERE clause.

Remarks

Call the AddWhere method to add a condition to the WHERE clause of SELECT statement in the SQL property.

If SELECT has no WHERE clause, AddWhere creates it.

Note: the AddWhere method is implicitly called by [RefreshRecord](#). The AddWhere method works for the SELECT statements only.

Note: the AddWhere method adds a value to the WHERE condition as is. If you expect this value to be enclosed in brackets, you should bracket it explicitly.

See Also

- [DeleteWhere](#)

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4.4.1.4.3.2 BreakExec Method

Breaks execution of the SQL statement on the server.

Class

[TCustomDADataset](#)

Syntax

```
procedure BreakExec; virtual;
```

Remarks

Call the BreakExec method to break execution of the SQL statement on the server. It makes sense to only call BreakExec from another thread.

See Also

- [TCustomDADataset.Execute](#)
- [TCustomDASQL.BreakExec](#)

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4.4.1.4.3.3 CloneCursor Method

Shares data from another dataset.

Class

[TCustomDADataset](#)

Syntax

```
procedure CloneCursor(Source: TMemDataSet; Reset: boolean = False;  
KeepSettings: boolean = False); override;
```

Parameters

Source

Specifies the dataset whose data will be shared.

Reset

Defines how to set values for such events and properties: Filter, Filtered, FilterOptions, and OnFilterRecord; IndexName; MasterSource and MasterFields; ReadOnly; RemoteServer and ProviderName. If Reset is True, the properties are all set to their default values.

KeepSettings

Outlines how to assign values for the same events and properties as those of the Reset parameter.

Remarks

Call CloneCursor to provide a dataset with data from another dataset. After calling the method, the internal data storage is identical to both datasets.

If Reset and KeepSettings are False, the values of the properties are configured to match the source dataset. If Reset is False and KeepSettings is True, the properties remain unmodified. In this scenario, the application needs to verify that the current indexes, filters, and related settings are consistent with the cloned data.

The CloneCursor method has the following restrictions:

- * When the source dataset is closed, all cloned datasets will be closed too.
- * The cloned dataset will have the read-only status.
- * The source dataset must not be UniDirectional.
- * It's not allowed to clone a dataset from another thread as the behavior will be undefined.
- * Filter and IndexFieldNames must not be used in the cloned dataset.

* Applying Filter and/or IndexFieldNames in the source dataset will affect the contents of the cloned datasets.

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4.4.1.4.3.4 CreateBlobStream Method

Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.

Class

[TCustomDADataset](#)

Syntax

```
function CreateBlobStream(Field: TField; Mode: TBlobStreamMode):  
TStream; override;
```

Parameters

Field

Holds the BLOB field for reading data from or writing data to from a stream.

Mode

Holds the stream mode, for which the stream will be used.

Return Value

The BLOB Stream.

Remarks

Call the CreateBlobStream method to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter. It must be a TBlobField component. You can specify whether the stream will be used for reading, writing, or updating the contents of the field with the Mode parameter.

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4.4.1.4.3.5 DeleteWhere Method

Removes WHERE clause from the SQL property and assigns the BaseSQL property.

Class

[TCustomDADataset](#)

Syntax

```
procedure Deletewhere;
```

Remarks

Call the DeleteWhere method to remove WHERE clause from the the SQL property and assign BaseSQL.

See Also

- [AddWhere](#)
- [BaseSQL](#)

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4.4.1.4.3.6 Execute Method

Executes a SQL statement on the server.

Class

[TCustomDADataset](#)

Overload List

Name	Description
Execute	Executes a SQL statement on the server.
Execute(Itrs: integer; Offset: integer)	Used to perform the specified SQL query.

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Executes a SQL statement on the server.

Class

[TCustomDADataset](#)

Syntax

```
procedure Execute; overload; virtual;
```

Remarks

Call the Execute method to execute an SQL statement on the server. If SQL statement is a SELECT query, Execute calls the Open method.

Execute implicitly prepares SQL statement by calling the [TCustomDADataset.Prepare](#) method if the [TCustomDADataset.Options](#) option is set to True and the statement has not been prepared yet. To speed up the performance in case of multiple Execute calls, an application should call Prepare before calling the Execute method for the first time.

See Also

- [TCustomDADataset.AfterExecute](#)
- [TCustomDADataset.Executing](#)
- [TCustomDADataset.Prepare](#)

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Used to perform the specified SQL query.

Class

[TCustomDADataset](#)

Syntax

```
procedure Execute(Iter: integer; Offset: integer = 0); overload;  
virtual;
```

Parameters

Iter

Specifies the number of inserted rows.

Offset

Points the array element, which the Batch operation starts from. 0 by default.

Remarks

The Execute method executes the specified SQL query.

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4.4.1.4.3.7 Executing Method

Indicates whether SQL statement is still being executed.

Class

[TCustomDADataset](#)

Syntax

```
function Executing: boolean;
```

Return Value

True, if SQL statement is still being executed.

Remarks

Check Executing to learn whether TCustomDADataset is still executing SQL statement.

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4.4.1.4.3.8 Fetched Method

Used to find out whether TCustomDADataset has fetched all rows.

Class

[TCustomDADataset](#)

Syntax

```
function Fetched: boolean; virtual;
```

Return Value

True, if all rows have been fetched.

Remarks

Call the Fetched method to find out whether TCustomDADataset has fetched all rows.

See Also

- [Fetching](#)

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4.4.1.4.3.9 Fetching Method

Used to learn whether TCustomDADataset is still fetching rows.

Class

[TCustomDADataset](#)

Syntax

```
function Fetching: boolean;
```

Return Value

True, if TCustomDADataset is still fetching rows.

Remarks

Check Fetching to learn whether TCustomDADataset is still fetching rows. Use the Fetching method if NonBlocking is True.

See Also

- [Executing](#)

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4.4.1.4.3.10 FetchingAll Method

Used to learn whether TCustomDADataset is fetching all rows to the end.

Class

[TCustomDADataset](#)

Syntax

```
function FetchingAll: boolean;
```

Return Value

True, if TCustomDADataset is fetching all rows to the end.

Remarks

Check FetchingAll to learn whether TCustomDADataset is fetching all rows to the end.

See Also

- [Executing](#)

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4.4.1.4.3.11 FindKey Method

Searches for a record which contains specified field values.

Class

[TCustomDADataset](#)

Syntax

```
function FindKey(const KeyValues: array of System.TVarRec):  
boolean;
```

Parameters

KeyValues

Holds a key.

Remarks

Call the FindKey method to search for a specific record in a dataset. KeyValues holds a comma-delimited array of field values, that is called a key.

This function is provided for BDE compatibility only. It is recommended to use functions [TMemDataSet.Locate](#) and [TMemDataSet.LocateEx](#) for the record search.

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4.4.1.4.3.12 FindNearest Method

Moves the cursor to a specific record or to the first record in the dataset that matches or is greater than the values specified in the KeyValues parameter.

Class

[TCustomDADataset](#)

Syntax

```
procedure FindNearest(const KeyValues: array of System.TVarRec);
```

Parameters

KeyValues

Holds the values of the record key fields to which the cursor should be moved.

Remarks

Call the FindNearest method to move the cursor to a specific record or to the first record in the dataset that matches or is greater than the values specified in the KeyValues parameter. If there are no records that match or exceed the specified criteria, the cursor will not move.

This function is provided for BDE compatibility only. It is recommended to use functions [TMemDataSet.Locate](#) and [TMemDataSet.LocateEx](#) for the record search.

See Also

- [TMemDataSet.Locate](#)
- [TMemDataSet.LocateEx](#)
- [FindKey](#)

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4.4.1.4.3.13 FindParam Method

Determines if a parameter with the specified name exists in a dataset.

Class

[TCustomDADataset](#)

Syntax

```
function FindParam(const value: string): TDAParam;
```

Parameters

Value

Holds the name of the param for which to search.

Return Value

the TDAParam object for the specified Name. Otherwise it returns nil.

Remarks

Call the FindParam method to determine if a specified param component exists in a dataset. Name is the name of the param for which to search. If FindParam finds a param with a matching name, it returns a TDAParam object for the specified Name. Otherwise it returns nil.

See Also

- [Params](#)
- [ParamByName](#)

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4.4.1.4.3.14 GetDataType Method

Returns internal field types defined in the MemData and accompanying modules.

Class

[TCustomDADataset](#)

Syntax

```
function GetDataType(const FieldName: string): integer; virtual;
```

Parameters*FieldName*

Holds the name of the field.

Return Value

internal field types defined in MemData and accompanying modules.

Remarks

Call the GetDataType method to return internal field types defined in the MemData and accompanying modules. Internal field data types extend the TFieldType type of VCL by specific database server data types. For example, ftString, ftFile, ftObject.

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4.4.1.4.3.15 GetFieldObject Method

Returns a multireference shared object from field.

Class

[TCustomDADataset](#)

Syntax

```
function GetFieldObject(Field: TField): TSharedObject;  
overload;function GetFieldObject(Field: TField; RecBuf:  
TRecordBuffer): TSharedObject; overload;function  
GetFieldObject(FieldDesc: TFieldDesc): TSharedObject;  
overload;function GetFieldObject(FieldDesc: TFieldDesc; RecBuf:  
TRecordBuffer): TSharedObject; overload;function  
GetFieldObject(const FieldName: string): TSharedObject; overload;
```

Parameters*FieldName*

Holds the field name.

Return Value

multireference shared object.

Remarks

Call the GetFieldObject method to return a multireference shared object from field. If field

does not hold one of the TSharedObject descendants, GetFieldObject raises an exception.

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4.4.1.4.3.16 GetFieldPrecision Method

Retrieves the precision of a number field.

Class

[TCustomDADataset](#)

Syntax

```
function GetFieldPrecision(const FieldName: string): integer;
```

Parameters

FieldName

Holds the existing field name.

Return Value

precision of number field.

Remarks

Call the GetFieldPrecision method to retrieve the precision of a number field. FieldName is the name of an existing field.

See Also

- [GetFieldScale](#)

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4.4.1.4.3.17 GetFieldScale Method

Retrieves the scale of a number field.

Class

[TCustomDADataset](#)

Syntax

```
function GetFieldScale(const FieldName: string): integer;
```

Parameters*FieldName*

Holds the existing field name.

Return Value

the scale of the number field.

Remarks

Call the GetFieldScale method to retrieve the scale of a number field. FieldName is the name of an existing field.

See Also

- [GetFieldPrecision](#)

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4.4.1.4.3.18 GetKeyFieldNames Method

Provides a list of available key field names.

Class

[TCustomDADataset](#)

Syntax

```
procedure GetKeyFieldNames(List: TStrings);
```

Parameters*List*

The list of available key field names

Return Value

Key field name

Remarks

Call the GetKeyFieldNames method to get the names of available key fields. Populates a string list with the names of key fields in tables.

See Also

- [TCustomDACConnection.GetTableNames](#)
- [TCustomDACConnection.GetStoredProcNames](#)

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4.4.1.4.3.19 GetOrderBy Method

Retrieves an ORDER BY clause from a SQL statement.

Class

[TCustomDADataset](#)

Syntax

```
function GetOrderBy: string;
```

Return Value

an ORDER BY clause from the SQL statement.

Remarks

Call the GetOrderBy method to retrieve an ORDER BY clause from a SQL statement.

Note: GetOrderBy and SetOrderBy methods serve to process only quite simple queries and don't support, for example, subqueries.

See Also

- [SetOrderBy](#)

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4.4.1.4.3.20 GotoCurrent Method

Sets the current record in this dataset similar to the current record in another dataset.

Class

[TCustomDADataset](#)

Syntax

```
procedure GotoCurrent(DataSet: TCustomDADataset);
```

Parameters

DataSet

Holds the TCustomDADataset descendant to synchronize the record position with.

Remarks

Call the GotoCurrent method to set the current record in this dataset similar to the current record in another dataset. The key fields in both these DataSets must be coincident.

See Also

- [TMemDataSet.Locate](#)
- [TMemDataSet.LocateEx](#)

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4.4.1.4.3.21 Lock Method

Locks the current record.

Class

[TCustomDADataset](#)

Syntax

```
procedure Lock; virtual;
```

Remarks

Call the Lock method to lock the current record by executing the statement that is defined in the SQLLock property.

The Lock method sets the savepoint with the name LOCK_ + <component_name>.

See Also

- [UnLock](#)

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4.4.1.4.3.22 MacroByName Method

Finds a macro with the specified name.

Class

[TCustomDADataset](#)

Syntax

```
function MacroByName(const Value: string): TMacro;
```

Parameters

Value

Holds the name of a macro to search for.

Return Value

TMacro object if a match is found.

Remarks

Call the MacroByName method to find a macro with the specified name. If a match is found, MacroByName returns the macro. Otherwise, an exception is raised. Use this method instead of a direct reference to the [TMacros.Items](#) property to avoid depending on the order of the items.

To locate a parameter by name without raising an exception if the parameter is not found, use the FindMacro method.

To set a value to a macro, use the [TMacro.Value](#) property.

Example

```
VirtualQuery.SQL:= 'SELECT * FROM Scott.Dept ORDER BY &Order';  
VirtualQuery.MacroByName('Order').Value:= 'DeptNo';  
VirtualQuery.Open;
```

See Also

- [TMacro](#)
- [Macros](#)

- M:Devart.Dac.TCustomDADataset.FindMacro(System.String)

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4.4.1.4.3.23 ParamByName Method

Sets or uses parameter information for a specific parameter based on its name.

Class

[TCustomDADataset](#)

Syntax

```
function ParamByName(const Value: string): TDAParam;
```

Parameters

Value

Holds the name of the parameter for which to retrieve information.

Return Value

a TDAParam object.

Remarks

Call the ParamByName method to set or use parameter information for a specific parameter based on its name. Name is the name of the parameter for which to retrieve information. ParamByName is used to set a parameter's value at runtime and returns a [TDAParam](#) object.

Example

The following statement retrieves the current value of a parameter called "Contact" into an edit box:

```
Edit1.Text := Query1.ParamsByName('Contact').AsString;
```

See Also

- [Params](#)
- [FindParam](#)

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4.4.1.4.3.24 Prepare Method

Allocates, opens, and parses cursor for a query.

Class

[TCustomDADataset](#)

Syntax

```
procedure Prepare; override;
```

Remarks

Call the Prepare method to allocate, open, and parse cursor for a query. Calling Prepare before executing a query improves application performance.

The UnPrepare method unprepares a query.

Note: When you change the text of a query at runtime, the query is automatically closed and unprepared.

See Also

- [TMemDataSet.Prepared](#)
- [TMemDataSet.UnPrepare](#)
- [Options](#)

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4.4.1.4.3.25 RefreshRecord Method

Actualizes field values for the current record.

Class

[TCustomDADataset](#)

Syntax

```
procedure RefreshRecord;
```

Remarks

Call the RefreshRecord method to actualize field values for the current record.

RefreshRecord performs query to database and refetches new field values from the returned cursor.

See Also

- [RefreshOptions](#)
- [SQLRefresh](#)

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4.4.1.4.3.26 RestoreSQL Method

Restores the SQL property modified by AddWhere and SetOrderBy.

Class

[TCustomDADataset](#)

Syntax

```
procedure RestoreSQL;
```

Remarks

Call the RestoreSQL method to restore the SQL property modified by AddWhere and SetOrderBy.

See Also

- [AddWhere](#)
- [SetOrderBy](#)
- [SaveSQL](#)
- [SQLSaved](#)

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4.4.1.4.3.27 SaveSQL Method

Saves the SQL property value to BaseSQL.

Class

[TCustomDADataset](#)

Syntax

```
procedure SaveSQL;
```

Remarks

Call the SaveSQL method to save the SQL property value to the BaseSQL property.

See Also

- [SQLSaved](#)
- [RestoreSQL](#)
- [BaseSQL](#)

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4.4.1.4.3.28 SetOrderBy Method

Builds an ORDER BY clause of a SELECT statement.

Class

[TCustomDADataset](#)

Syntax

```
procedure SetOrderBy(const Fields: string);
```

Parameters

Fields

Holds the names of the fields which will be added to the ORDER BY clause.

Remarks

Call the SetOrderBy method to build an ORDER BY clause of a SELECT statement. The

fields are identified by the comma-delimited field names.

Note: The `GetOrderBy` and `SetOrderBy` methods serve to process only quite simple queries and don't support, for example, subqueries.

Example

```
Query1.SetOrderBy('DeptNo;DName');
```

See Also

- [GetOrderBy](#)

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4.4.1.4.3.29 SQLSaved Method

Determines if the [SQL](#) property value was saved to the [BaseSQL](#) property.

Class

[TCustomDADataset](#)

Syntax

```
function SQLSaved: boolean;
```

Return Value

True, if the SQL property value was saved to the BaseSQL property.

Remarks

Call the `SQLSaved` method to know whether the [SQL](#) property value was saved to the [BaseSQL](#) property.

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4.4.1.4.3.30 UnLock Method

Releases a record lock.

Class

[TCustomDADataset](#)

Syntax

```
procedure UnLock;
```

Remarks

Call the UnLock method to release the record lock made by the [Lock](#) method before.

UnLock is performed by rolling back to the savepoint set by the Lock method.

See Also

- [Lock](#)

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4.4.1.4.4 Events

Events of the **TCustomDADataset** class.

For a complete list of the **TCustomDADataset** class members, see the [TCustomDADataset Members](#) topic.

Public

Name	Description
AfterExecute	Occurs after a component has executed a query to database.
AfterFetch	Occurs after dataset finishes fetching data from server.
AfterUpdateExecute	Occurs after executing insert, delete, update, lock and refresh operations.
BeforeFetch	Occurs before dataset is going to fetch block of records from the server.
BeforeUpdateExecute	Occurs before executing insert, delete, update, lock, and refresh operations.

OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

See Also

- [TCustomDADataset Class](#)
- [TCustomDADataset Class Members](#)

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4.4.1.4.4.1 AfterExecute Event

Occurs after a component has executed a query to database.

Class

[TCustomDADataset](#)

Syntax

```
property AfterExecute: TAfterExecuteEvent;
```

Remarks

Occurs after a component has executed a query to database.

See Also

- [TCustomDADataset.Execute](#)

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4.4.1.4.4.2 AfterFetch Event

Occurs after dataset finishes fetching data from server.

Class

[TCustomDADataset](#)

Syntax

```
property AfterFetch: TAfterFetchEvent;
```

Remarks

The AfterFetch event occurs after dataset finishes fetching data from server.

See Also

- [BeforeFetch](#)

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4.4.1.4.4.3 AfterUpdateExecute Event

Occurs after executing insert, delete, update, lock and refresh operations.

Class

[TCustomDADataset](#)

Syntax

```
property AfterUpdateExecute: TUpdateExecuteEvent;
```

Remarks

Occurs after executing insert, delete, update, lock, and refresh operations. You can use AfterUpdateExecute to set the parameters of corresponding statements.

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4.4.1.4.4.4 BeforeFetch Event

Occurs before dataset is going to fetch block of records from the server.

Class

[TCustomDADataset](#)

Syntax

```
property BeforeFetch: TBeforeFetchEvent;
```

Remarks

The BeforeFetch event occurs every time before dataset is going to fetch a block of records from the server. Set Cancel to True to abort current fetch operation.

See Also

- [AfterFetch](#)

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4.4.1.4.4.5 BeforeUpdateExecute Event

Occurs before executing insert, delete, update, lock, and refresh operations.

Class

[TCustomDADataset](#)

Syntax

```
property BeforeUpdateExecute: TUpdateExecuteEvent;
```

Remarks

Occurs before executing insert, delete, update, lock, and refresh operations. You can use BeforeUpdateExecute to set the parameters of corresponding statements.

See Also

- [AfterUpdateExecute](#)

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4.4.1.5 TCustomDASQL Class

A base class for components executing SQL statements that do not return result sets.

For a list of all members of this type, see [TCustomDASQL](#) members.

Unit

DBAccess

Syntax

```
TCustomDASQL = class(TComponent);
```

Remarks

TCustomDASQL is a base class that defines functionality for descendant classes which access database using SQL statements. Applications never use TCustomDASQL objects directly. Instead they use descendants of TCustomDASQL.

Use TCustomDASQL when client application must execute SQL statement or call stored procedure on the database server. The SQL statement should not retrieve rows from the database.

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4.4.1.5.1 Members

[TCustomDASQL](#) class overview.

Properties

Name	Description
ChangeCursor	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
Connection	Used to specify a connection object to use to connect to a data store.
Debug	Used to display the statement that is being executed and the values and types of its parameters.
FinalSQL	Used to return a SQL statement with expanded

	macros.
MacroCount	Used to get the number of macros associated with the Macros property.
Macros	Makes it possible to change SQL queries easily.
ParamCheck	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
ParamCount	Indicates the number of parameters in the Params property.
Params	Used to contain parameters for a SQL statement.
ParamValues	Used to get or set the values of individual field parameters that are identified by name.
Prepared	Used to indicate whether a query is prepared for execution.
RowsAffected	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SQL	Used to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called.

Methods

Name	Description
BreakExec	Breaks execution of an SQL statement on the server.
Execute	Overloaded. Executes a SQL statement on the server.
Executing	Checks whether TCustomDASQL still

	executes a SQL statement.
FindParam	Finds a parameter with the specified name.
MacroByName	Finds a macro with the specified name.
ParamByName	Finds a parameter with the specified name.
Prepare	Allocates, opens, and parses cursor for a query.
UnPrepare	Frees the resources allocated for a previously prepared query on the server and client sides.
WaitExecuting	Waits until TCustomDASQL executes a SQL statement.

Events

Name	Description
AfterExecute	Occurs after a SQL statement has been executed.

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4.4.1.5.2 Properties

Properties of the **TCustomDASQL** class.

For a complete list of the **TCustomDASQL** class members, see the [TCustomDASQL Members](#) topic.

Public

Name	Description
ChangeCursor	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
Connection	Used to specify a connection object to use to connect to a data store.

Debug	Used to display the statement that is being executed and the values and types of its parameters.
FinalSQL	Used to return a SQL statement with expanded macros.
MacroCount	Used to get the number of macros associated with the Macros property.
Macros	Makes it possible to change SQL queries easily.
ParamCheck	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
ParamCount	Indicates the number of parameters in the Params property.
Params	Used to contain parameters for a SQL statement.
ParamValues	Used to get or set the values of individual field parameters that are identified by name.
Prepared	Used to indicate whether a query is prepared for execution.
RowsAffected	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SQL	Used to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called.

See Also

- [TCustomDASQL Class](#)
- [TCustomDASQL Class Members](#)

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4.4.1.5.2.1 ChangeCursor Property

Enables or disables changing screen cursor when executing commands in the NonBlocking mode.

Class

[TCustomDASQL](#)

Syntax

```
property ChangeCursor: boolean;
```

Remarks

Set the ChangeCursor property to False to prevent the screen cursor from changing to crSQLArrow when executing commands in the NonBlocking mode. The default value is True.

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4.4.1.5.2.2 Connection Property

Used to specify a connection object to use to connect to a data store.

Class

[TCustomDASQL](#)

Syntax

```
property Connection: TCustomDAConnection;
```

Remarks

Use the Connection property to specify a connection object that will be used to connect to a data store.

Set at design-time by selecting from the list of provided TCustomDAConnection or its descendant class objects.

At runtime, link an instance of a TCustomDACConnection descendant to the Connection property.

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4.4.1.5.2.3 Debug Property

Used to display the statement that is being executed and the values and types of its parameters.

Class

[TCustomDASQL](#)

Syntax

```
property Debug: boolean default False;
```

Remarks

Set the Debug property to True to display the statement that is being executed and the values and types of its parameters.

See Also

- [TCustomDADataset.Debug](#)

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4.4.1.5.2.4 FinalSQL Property

Used to return a SQL statement with expanded macros.

Class

[TCustomDASQL](#)

Syntax

```
property FinalSQL: string;
```

Remarks

Read the FinalSQL property to return a SQL statement with expanded macros. This is the exact statement that will be passed on to the database server.

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4.4.1.5.2.5 MacroCount Property

Used to get the number of macros associated with the Macros property.

Class

[TCustomDASQL](#)

Syntax

```
property MacroCount: word;
```

Remarks

Use the MacroCount property to get the number of macros associated with the Macros property.

See Also

- [Macros](#)

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4.4.1.5.2.6 Macros Property

Makes it possible to change SQL queries easily.

Class

[TCustomDASQL](#)

Syntax

```
property Macros: TMacros stored False;
```

Remarks

With the help of macros you can easily change SQL query text at design- or runtime. Marcos extend abilities of parameters and allow to change conditions in a WHERE clause or sort order in an ORDER BY clause. You just insert &MacroName in the SQL query text and change value of macro in the Macro property editor at design time or call the MacroByName function at run time. At the time of opening the query macro is replaced by its value.

See Also

- [TMacro](#)
- [MacroByName](#)
- [Params](#)

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4.4.1.5.2.7 ParamCheck Property

Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.

Class

[TCustomDASQL](#)

Syntax

```
property ParamCheck: boolean default True;
```

Remarks

Use the ParamCheck property to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.

Set ParamCheck to True to let TCustomDASQL generate the Params property for the dataset based on a SQL statement automatically.

Setting ParamCheck to False can be used if the dataset component passes to a server the DDL statements that contain, for example, declarations of the stored procedures that will accept parameterized values themselves. The default value is True.

See Also

- [Params](#)

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4.4.1.5.2.8 ParamCount Property

Indicates the number of parameters in the Params property.

Class

[TCustomDASQL](#)

Syntax

```
property ParamCount: word;
```

Remarks

Use the ParamCount property to determine how many parameters are there in the Params property.

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4.4.1.5.2.9 Params Property

Used to contain parameters for a SQL statement.

Class

[TCustomDASQL](#)

Syntax

```
property Params: TDAParams stored False;
```

Remarks

Access the Params property at runtime to view and set parameter names, values, and data types dynamically (at design-time use the Parameters editor to set parameter properties).

Params is a zero-based array of parameter records. Index specifies the array element to access. An easier way to set and retrieve parameter values when the name of each

parameter is known is to call ParamByName.

Example

Setting parameters at runtime:

```
procedure TForm1.Button1Click(Sender: TObject);
begin
with VirtualSQL do
begin
    SQL.Clear;
    SQL.Add('INSERT INTO Temp_Table(Id, Name)');
    SQL.Add('VALUES (:id, :Name)');
    ParamByName('Id').AsInteger := 55;
    Params[1].AsString := 'Green';
    Execute;
end;
end;
```

See Also

- [TDAParam](#)
- [FindParam](#)
- [Macros](#)

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4.4.1.5.2.10 ParamValues Property(Indexer)

Used to get or set the values of individual field parameters that are identified by name.

Class

[TCustomDASQL](#)

Syntax

```
property ParamValues[const ParamName: string]: Variant; default;
```

Parameters

ParamName

Holds parameter names separated by semicolon.

Remarks

Use the ParamValues property to get or set the values of individual field parameters that are identified by name.

Setting ParamValues sets the Value property for each parameter listed in the ParamName string. Specify the values as Variants.

Getting ParamValues retrieves an array of variants, each of which represents the value of one of the named parameters.

Note: The Params array is generated implicitly if ParamCheck property is set to True. If ParamName includes a name that does not match any of the parameters in Items, an exception is raised.

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4.4.1.5.2.11 Prepared Property

Used to indicate whether a query is prepared for execution.

Class

[TCustomDASQL](#)

Syntax

```
property Prepared: boolean;
```

Remarks

Check the Prepared property to determine if a query is already prepared for execution. True means that the query has already been prepared. As a rule prepared queries are executed faster, but the preparation itself also takes some time. One of the proper cases for using preparation is parametrized queries that are executed several times.

See Also

- [Prepare](#)

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4.4.1.5.2.12 RowsAffected Property

Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.

Class

[TCustomDASQL](#)

Syntax

```
property RowsAffected: integer;
```

Remarks

Check RowsAffected to determine how many rows were inserted, updated, or deleted during the last query operation. If RowsAffected is -1, the query has not inserted, updated, or deleted any rows.

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4.4.1.5.2.13 SQL Property

Used to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called.

Class

[TCustomDASQL](#)

Syntax

```
property SQL: TStrings;
```

Remarks

Use the SQL property to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called. At design time the SQL property can be edited by invoking the String List editor in Object Inspector.

See Also

- [FinalSQL](#)

- [TCustomDASQL.Execute](#)

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4.4.1.5.3 Methods

Methods of the **TCustomDASQL** class.

For a complete list of the **TCustomDASQL** class members, see the [TCustomDASQL Members](#) topic.

Public

Name	Description
BreakExec	Breaks execution of an SQL statement on the server.
Execute	Overloaded. Executes a SQL statement on the server.
Executing	Checks whether TCustomDASQL still executes a SQL statement.
FindParam	Finds a parameter with the specified name.
MacroByName	Finds a macro with the specified name.
ParamByName	Finds a parameter with the specified name.
Prepare	Allocates, opens, and parses cursor for a query.
UnPrepare	Frees the resources allocated for a previously prepared query on the server and client sides.
WaitExecuting	Waits until TCustomDASQL executes a SQL statement.

See Also

- [TCustomDASQL Class](#)
- [TCustomDASQL Class Members](#)

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4.4.1.5.3.1 BreakExec Method

Breaks execution of an SQL statement on the server.

Class

[TCustomDASQL](#)

Syntax

```
procedure BreakExec;
```

Remarks

Call the BreakExec method to break execution of an SQL statement on the server. It makes sense to call BreakExec only from another thread. Useful when NonBlocking is True.

See Also

- [TCustomDASQL.Execute](#)
- [TCustomDADataset.BreakExec](#)

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4.4.1.5.3.2 Execute Method

Executes a SQL statement on the server.

Class

[TCustomDASQL](#)

Overload List

Name	Description
Execute	Executes a SQL statement on the server.
Execute(Iters: integer; Offset: integer)	Used to perform the specified SQL query.

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Executes a SQL statement on the server.

Class

[TCustomDASQL](#)

Syntax

```
procedure Execute; overload; virtual;
```

Remarks

Call the Execute method to execute a SQL statement on the server. If the SQL statement has OUT parameters, use the [TCustomDASQL.ParamByName](#) method or the [TCustomDASQL.Params](#) property to get their values. Iters argument specifies the number of times this statement is executed for the DML array operations.

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Used to perform the specified SQL query.

Class

[TCustomDASQL](#)

Syntax

```
procedure Execute(Iters: integer; Offset: integer = 0); overload;  
virtual;
```

Parameters

Iters

Specifies the number of inserted rows.

Offset

Points the array element, which the Batch operation starts from. 0 by default.

Remarks

The Execute method executes the specified SQL query.

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4.4.1.5.3.3 Executing Method

Checks whether TCustomDASQL still executes a SQL statement.

Class

[TCustomDASQL](#)

Syntax

```
function Executing: boolean;
```

Return Value

True, if a SQL statement is still being executed by TCustomDASQL.

Remarks

Check Executing to find out whether TCustomDASQL still executes a SQL statement.

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4.4.1.5.3.4 FindParam Method

Finds a parameter with the specified name.

Class

[TCustomDASQL](#)

Syntax

```
function FindParam(const value: string): TDAParm;
```

Parameters

Value

Holds the parameter name to search for.

Return Value

a TDAParm object, if a parameter with the specified name has been found. If it has not, returns nil.

Remarks

Call the FindParam method to find a parameter with the specified name in a dataset.

See Also

- [ParamByName](#)

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4.4.1.5.3.5 MacroByName Method

Finds a macro with the specified name.

Class

[TCustomDASQL](#)

Syntax

```
function MacroByName(const Value: string): TMacro;
```

Parameters

Value

Holds the name of a macro to search for.

Return Value

TMacro object if a match is found.

Remarks

Call the MacroByName method to find a macro with the specified name. If a match is found, MacroByName returns the macro. Otherwise, an exception is raised. Use this method instead of a direct reference to the [TMacros.Items](#) property to avoid depending on the order of the items.

To locate a parameter by name without raising an exception if the parameter is not found, use the FindMacro method.

To set a value to a macro, use the [TMacro.Value](#) property.

See Also

- [TMacro](#)
- [Macros](#)

- M:Devart.Dac.TCustomDASQL.FindMacro(System.String)

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4.4.1.5.3.6 ParamByName Method

Finds a parameter with the specified name.

Class

[TCustomDASQL](#)

Syntax

```
function ParamByName(const Value: string): TDAParam;
```

Parameters

Value

Holds the name of the parameter to search for.

Return Value

a TDAParam object, if a match was found. Otherwise, an exception is raised.

Remarks

Use the ParamByName method to find a parameter with the specified name. If no parameter with the specified name found, an exception is raised.

Example

```
VirtualSQL.Execute;  
Edit1.Text := VirtualSQL.ParamsByName('Contact').AsString;
```

See Also

- [FindParam](#)

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4.4.1.5.3.7 Prepare Method

Allocates, opens, and parses cursor for a query.

Class

[TCustomDASQL](#)

Syntax

```
procedure Prepare; virtual;
```

Remarks

Call the Prepare method to allocate, open, and parse cursor for a query. Calling Prepare before executing a query improves application performance.

The UnPrepare method unprepares a query.

Note: When you change the text of a query at runtime, the query is automatically closed and unprepared.

See Also

- [Prepared](#)
- [UnPrepare](#)

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4.4.1.5.3.8 UnPrepare Method

Frees the resources allocated for a previously prepared query on the server and client sides.

Class

[TCustomDASQL](#)

Syntax

```
procedure UnPrepare; virtual;
```

Remarks

Call the UnPrepare method to free resources allocated for a previously prepared query on the server and client sides.

See Also

- [Prepare](#)

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4.4.1.5.3.9 WaitExecuting Method

Waits until TCustomDASQL executes a SQL statement.

Class

[TCustomDASQL](#)

Syntax

```
function waitExecuting(Timeout: integer = 0): boolean;
```

Parameters

Timeout

Holds the time in seconds to wait while TCustomDASQL executes the SQL statement. Zero means infinite time.

Return Value

True, if the execution of a SQL statement was completed in the preset time.

Remarks

Call the WaitExecuting method to wait until TCustomDASQL executes a SQL statement.

See Also

- [Executing](#)

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4.4.1.5.4 Events

Events of the **TCustomDASQL** class.

For a complete list of the **TCustomDASQL** class members, see the [TCustomDASQL Members](#) topic.

Public

Name	Description
------	-------------

AfterExecute	Occurs after a SQL statement has been executed.
------------------------------	---

See Also

- [TCustomDASQL Class](#)
- [TCustomDASQL Class Members](#)

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4.4.1.5.4.1 AfterExecute Event

Occurs after a SQL statement has been executed.

Class

[TCustomDASQL](#)

Syntax

```
property AfterExecute: TAfterExecuteEvent;
```

Remarks

Occurs after a SQL statement has been executed. This event may be used for descendant components which use multithreaded environment.

See Also

- [TCustomDASQL.Execute](#)

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4.4.1.6 TCustomDAUpdateSQL Class

A base class for components that provide DML statements for more flexible control over data modifications.

For a list of all members of this type, see [TCustomDAUpdateSQL](#) members.

Unit

DBAccess

Syntax

```
TCustomDAUpdateSQL = class(TComponent);
```

Remarks

TCustomDAUpdateSQL is a base class for components that provide DML statements for more flexible control over data modifications. Besides providing BDE compatibility, this component allows to associate a separate component for each update command.

See Also

- P:Devart.VirtualDac.TCustomVirtualDataSet.UpdateObject

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4.4.1.6.1 Members

[TCustomDAUpdateSQL](#) class overview.

Properties

Name	Description
DataSet	Used to hold a reference to the TCustomDADataset object that is being updated.
DeleteObject	Provides ability to perform advanced adjustment of the delete operations.
DeleteSQL	Used when deleting a record.
InsertObject	Provides ability to perform advanced adjustment of insert operations.
InsertSQL	Used when inserting a record.
LockObject	Provides ability to perform advanced adjustment of lock

	operations.
LockSQL	Used to lock the current record.
ModifyObject	Provides ability to perform advanced adjustment of modify operations.
ModifySQL	Used when updating a record.
RefreshObject	Provides ability to perform advanced adjustment of refresh operations.
RefreshSQL	Used to specify an SQL statement that will be used for refreshing the current record by TCustomDADataSet.RefreshRecord procedure.
SQL	Used to return a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties.

Methods

Name	Description
Apply	Sets parameters for a SQL statement and executes it to update a record.
ExecSQL	Executes a SQL statement.

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4.4.1.6.2 Properties

Properties of the **TCustomDAUpdateSQL** class.

For a complete list of the **TCustomDAUpdateSQL** class members, see the

[TCustomDAUpdateSQL Members](#) topic.

Public

Name	Description
DataSet	Used to hold a reference to the TCustomDADataset object that is being updated.
SQL	Used to return a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties.

Published

Name	Description
DeleteObject	Provides ability to perform advanced adjustment of the delete operations.
DeleteSQL	Used when deleting a record.
InsertObject	Provides ability to perform advanced adjustment of insert operations.
InsertSQL	Used when inserting a record.
LockObject	Provides ability to perform advanced adjustment of lock operations.
LockSQL	Used to lock the current record.
ModifyObject	Provides ability to perform advanced adjustment of modify operations.
ModifySQL	Used when updating a record.
RefreshObject	Provides ability to perform advanced adjustment of refresh operations.
RefreshSQL	Used to specify an SQL statement that will be used for refreshing the current record by TCustomDADataset.RefreshRecord procedure.

See Also

- [TCustomDAUpdateSQL Class](#)
- [TCustomDAUpdateSQL Class Members](#)

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4.4.1.6.2.1 DataSet Property

Used to hold a reference to the TCustomDADataset object that is being updated.

Class

[TCustomDAUpdateSQL](#)

Syntax

```
property DataSet: TCustomDADataset;
```

Remarks

The DataSet property holds a reference to the TCustomDADataset object that is being updated. Generally it is not used directly.

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4.4.1.6.2.2 DeleteObject Property

Provides ability to perform advanced adjustment of the delete operations.

Class

[TCustomDAUpdateSQL](#)

Syntax

```
property DeleteObject: TComponent;
```

Remarks

Assign SQL component or a TCustomVirtualQuery descendant to this property to perform advanced adjustment of the delete operations. In some cases this can give some additional performance. Use the same principle to set the SQL property of an object as for setting the

[DeleteSQL](#) property.

See Also

- [DeleteSQL](#)

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4.4.1.6.2.3 DeleteSQL Property

Used when deleting a record.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property DeleteSQL: TStrings;
```

Remarks

Set the DeleteSQL property to a DELETE statement to use when deleting a record. Statements can be parameterized queries with parameter names corresponding to the dataset field names.

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4.4.1.6.2.4 InsertObject Property

Provides ability to perform advanced adjustment of insert operations.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property InsertObject: TComponent;
```

Remarks

Assign SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of insert operations. In some cases this can give some additional performance. Set the SQL property of the object in the same way as used for the [InsertSQL](#) property.

See Also

- [InsertSQL](#)

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4.4.1.6.2.5 InsertSQL Property

Used when inserting a record.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property InsertSQL: TStrings;
```

Remarks

Set the InsertSQL property to an INSERT INTO statement to use when inserting a record. Statements can be parameterized queries with parameter names corresponding to the dataset field names.

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4.4.1.6.2.6 LockObject Property

Provides ability to perform advanced adjustment of lock operations.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property LockObject: TComponent;
```

Remarks

Assign a SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of lock operations. In some cases that can give some additional performance. Set the SQL property of an object in the same way as used for the [LockSQL](#) property.

See Also

- [LockSQL](#)

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4.4.1.6.2.7 LockSQL Property

Used to lock the current record.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property LockSQL: TStrings;
```

Remarks

Use the LockSQL property to lock the current record. Statements can be parameterized queries with parameter names corresponding to the dataset field names.

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4.4.1.6.2.8 ModifyObject Property

Provides ability to perform advanced adjustment of modify operations.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property ModifyObject: TComponent;
```

Remarks

Assign a SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of modify operations. In some cases this can give some additional performance. Set the SQL property of the object in the same way as used for the [ModifySQL](#) property.

See Also

- [ModifySQL](#)

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4.4.1.6.2.9 ModifySQL Property

Used when updating a record.

Class

[TCustomDAUpdatesQL](#)

Syntax

```
property ModifySQL: TStrings;
```

Remarks

Set ModifySQL to an UPDATE statement to use when updating a record. Statements can be parameterized queries with parameter names corresponding to the dataset field names.

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4.4.1.6.2.10 RefreshObject Property

Provides ability to perform advanced adjustment of refresh operations.

Class

[TCustomDAUpdatesSQL](#)

Syntax

```
property RefreshObject: TComponent;
```

Remarks

Assign a SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of refresh operations. In some cases that can give some additional performance. Set the SQL property of the object in the same way as used for the [RefreshSQL](#) property.

See Also

- [RefreshSQL](#)

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4.4.1.6.2.11 RefreshSQL Property

Used to specify an SQL statement that will be used for refreshing the current record by [TCustomDADataset.RefreshRecord](#) procedure.

Class

[TCustomDAUpdatesSQL](#)

Syntax

```
property RefreshSQL: TStrings;
```

Remarks

Use the RefreshSQL property to specify a SQL statement that will be used for refreshing the current record by the [TCustomDADataset.RefreshRecord](#) procedure.

You can assign to SQLRefresh a WHERE clause only. In such a case it is added to SELECT defined by the SQL property by [TCustomDADataset.AddWhere](#).

To create a RefreshSQL statement at design time, use the query statements editor.

See Also

- [TCustomDADataset.RefreshRecord](#)

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4.4.1.6.2.12 SQL Property(Indexer)

Used to return a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties.

Class

[TCustomDAUpdateSQL](#)

Syntax

```
property SQL[UpdateKind: TUpdateKind]: TStrings;
```

Parameters

UpdateKind

Specifies which of update SQL statements to return.

Remarks

Returns a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties, depending on the value of the UpdateKind index.

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4.4.1.6.3 Methods

Methods of the **TCustomDAUpdateSQL** class.

For a complete list of the **TCustomDAUpdateSQL** class members, see the [TCustomDAUpdateSQL Members](#) topic.

Public

Name	Description
Apply	Sets parameters for a SQL

	statement and executes it to update a record.
ExecSQL	Executes a SQL statement.

See Also

- [TCustomDAUpdateSQL Class](#)
- [TCustomDAUpdateSQL Class Members](#)

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4.4.1.6.3.1 Apply Method

Sets parameters for a SQL statement and executes it to update a record.

Class

[TCustomDAUpdateSQL](#)

Syntax

```
procedure Apply(UpdateKind: TUpdateKind); virtual;
```

Parameters

UpdateKind

Specifies which of update SQL statements to execute.

Remarks

Call the Apply method to set parameters for a SQL statement and execute it to update a record. UpdateKind indicates which SQL statement to bind and execute.

Apply is primarily intended for manually executing update statements from an OnUpdateRecord event handler.

Note: If a SQL statement does not contain parameters, it is more efficient to call ExecSQL instead of Apply.

See Also

- [ExecSQL](#)

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4.4.1.6.3.2 ExecSQL Method

Executes a SQL statement.

Class

[TCustomDAUpdateSQL](#)

Syntax

```
procedure ExecSQL(UpdateKind: TUpdateKind);
```

Parameters

UpdateKind

Specifies the kind of update statement to be executed.

Remarks

Call the ExecSQL method to execute a SQL statement, necessary for updating the records belonging to a read-only result set when cached updates is enabled. UpdateKind specifies the statement to execute.

ExecSQL is primarily intended for manually executing update statements from the OnUpdateRecord event handler.

Note: To both bind parameters and execute a statement, call [Apply](#).

See Also

- [Apply](#)

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4.4.1.7 TDACondition Class

Represents a condition from the [TDAConditions](#) list.

For a list of all members of this type, see [TDACondition](#) members.

Unit

DBAccess

Syntax

```
TDACondition = class(TCollectionItem);
```

Remarks

Manipulate conditions using [TDAConditions](#).

See Also

- [TDAConditions](#)

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4.4.1.7.1 Members

[TDACondition](#) class overview.

Properties

Name	Description
Enabled	Indicates whether the condition is enabled or not
Name	The name of the condition
Value	The value of the condition

Methods

Name	Description
Disable	Disables the condition
Enable	Enables the condition

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4.4.1.7.2 Properties

Properties of the **TDACondition** class.

For a complete list of the **TDACondition** class members, see the [TDACondition Members](#) topic.

Published

Name	Description
Enabled	Indicates whether the condition is enabled or not
Name	The name of the condition
Value	The value of the condition

See Also

- [TDACondition Class](#)
- [TDACondition Class Members](#)

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4.4.1.7.2.1 Enabled Property

Indicates whether the condition is enabled or not

Class

[TDACondition](#)

Syntax

```
property Enabled: Boolean default True;
```

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4.4.1.7.2.2 Name Property

The name of the condition

Class

[TDACondition](#)

Syntax

```
property Name: string;
```

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4.4.1.7.2.3 Value Property

The value of the condition

Class

[TDACondition](#)

Syntax

```
property value: string;
```

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4.4.1.7.3 Methods

Methods of the **TDACondition** class.

For a complete list of the **TDACondition** class members, see the [TDACondition Members](#) topic.

Public

Name	Description
Disable	Disables the condition
Enable	Enables the condition

See Also

- [TDACondition Class](#)
- [TDACondition Class Members](#)

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4.4.1.7.3.1 Disable Method

Disables the condition

Class

[TDACondition](#)

Syntax

```
procedure Disable;
```

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4.4.1.7.3.2 Enable Method

Enables the condition

Class

[TDACondition](#)

Syntax

```
procedure Enable;
```

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4.4.1.8 TDAConditions Class

Holds a collection of [TDACondition](#) objects.

For a list of all members of this type, see [TDAConditions](#) members.

Unit

DBAccess

Syntax

```
TDAConditions = class(TCollection);
```

Remarks

The given example code

```
UniTable1.Conditions.Add('1','JOB="MANAGER"');
UniTable1.Conditions.Add('2','SAL>2500');
UniTable1.Conditions.Enable;
UniTable1.Open;
```

will return the following SQL:

```
SELECT * FROM EMP
WHERE (JOB="MANAGER")
and
(SAL<2500)
```

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4.4.1.8.1 Members

[TDAConditions](#) class overview.

Properties

Name	Description
Condition	Used to iterate through all the conditions.
Enabled	Indicates whether the condition is enabled
Items	Used to iterate through all conditions.
Text	The property returns condition names and values as CONDITION_NAME=CONDITION
WhereSQL	Returns the SQL WHERE condition added in the Conditions property.

Methods

Name	Description
Add	Overloaded. Adds a condition to the WHERE clause of the query.
Delete	Deletes the condition
Disable	Disables the condition
Enable	Enables the condition
Find	Search for TDACondition (the condition) by its name. If found, the TDACondition object is returned, otherwise - nil.
Get	Retrieving a TDACondition object by its name. If found, the TDACondition object is returned, otherwise - an exception is raised.
IndexOf	Retrieving condition index by its name. If found, this condition index is returned, otherwise - the method returns -1.
Remove	Removes the condition

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4.4.1.8.2 Properties

Properties of the **TDAConditions** class.

For a complete list of the **TDAConditions** class members, see the [TDAConditions Members](#) topic.

Public

Name	Description
Condition	Used to iterate through all

	the conditions.
Enabled	Indicates whether the condition is enabled
Items	Used to iterate through all conditions.
Text	The property returns condition names and values as CONDITION_NAME=CONDITION
WhereSQL	Returns the SQL WHERE condition added in the Conditions property.

See Also

- [TDAConditions Class](#)
- [TDAConditions Class Members](#)

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4.4.1.8.2.1 Condition Property(Indexer)

Used to iterate through all the conditions.

Class

[TDAConditions](#)

Syntax

```
property Condition[Index: Integer]: TDACondition;
```

Parameters

Index

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4.4.1.8.2.2 Enabled Property

Indicates whether the condition is enabled

Class

[TDAConditions](#)

Syntax

```
property Enabled: Boolean;
```

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4.4.1.8.2.3 Items Property(Indexer)

Used to iterate through all conditions.

Class

[TDAConditions](#)

Syntax

```
property Items[Index: Integer]: TDACondition; default;
```

Parameters

Index

Holds an index in the range 0..Count - 1.

Remarks

Use the Items property to iterate through all conditions. Index identifies the index in the range 0..Count - 1. Items can reference a particular condition by its index, but the [Condition](#) property is preferred in order to avoid depending on the order of the conditions.

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4.4.1.8.2.4 Text Property

The property returns condition names and values as CONDITION_NAME=CONDITION

Class

[TDAConditions](#)

Syntax

```
property Text: string;
```

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4.4.1.8.2.5 WhereSQL Property

Returns the SQL WHERE condition added in the Conditions property.

Class

[TDAConditions](#)

Syntax

```
property whereSQL: string;
```

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4.4.1.8.3 Methods

Methods of the **TDAConditions** class.

For a complete list of the **TDAConditions** class members, see the [TDAConditions Members](#) topic.

Public

Name	Description
Add	Overloaded. Adds a condition to the WHERE clause of the query.
Delete	Deletes the condition
Disable	Disables the condition
Enable	Enables the condition
Find	Search for TDACondition (the condition) by its name. If

	found, the TDACondition object is returned, otherwise - nil.
Get	Retrieving a TDACondition object by its name. If found, the TDACondition object is returned, otherwise - an exception is raised.
IndexOf	Retrieving condition index by its name. If found, this condition index is returned, otherwise - the method returns -1.
Remove	Removes the condition

See Also

- [TDAConditions Class](#)
- [TDAConditions Class Members](#)

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4.4.1.8.3.1 Add Method

Adds a condition to the WHERE clause of the query.

Class

[TDAConditions](#)

Overload List

Name	Description
Add(const Value: string; Enabled: Boolean)	Adds a condition to the WHERE clause of the query.
Add(const Name: string; const Value: string; Enabled: Boolean)	Adds a condition to the WHERE clause of the query.

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Adds a condition to the WHERE clause of the query.

Class

[TDAConditions](#)

Syntax

```
function Add(const value: string; Enabled: Boolean = True):  
TDACondition; overload;
```

Parameters

Value

The value of the condition

Enabled

Indicates that the condition is enabled

Remarks

If you want then to access the condition, you should use [Add](#) and its name in the Name parameter.

The given example code will return the following SQL:

```
SELECT * FROM EMP  
WHERE (JOB="MANAGER")  
and  
(SAL<2500)
```

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Adds a condition to the WHERE clause of the query.

Class

[TDAConditions](#)

Syntax

```
function Add(const Name: string; const value: string; Enabled:  
Boolean = True): TDACondition; overload;
```

Parameters

Name

Sets the name of the condition

Value

The value of the condition

Enabled

Indicates that the condition is enabled

Remarks

The given example code will return the following SQL:

```
SELECT * FROM EMP
WHERE (JOB="MANAGER")
and
(SAL<2500)
```

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4.4.1.8.3.2 Delete Method

Deletes the condition

Class

[TDAConditions](#)

Syntax

```
procedure Delete(Index: integer);
```

Parameters

Index

Index of the condition

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4.4.1.8.3.3 Disable Method

Disables the condition

Class

[TDAConditions](#)

Syntax

```
procedure Disable;
```

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4.4.1.8.3.4 Enable Method

Enables the condition

Class

[TDAConditions](#)

Syntax

```
procedure Enable;
```

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4.4.1.8.3.5 Find Method

Search for TDACondition (the condition) by its name. If found, the TDACondition object is returned, otherwise - nil.

Class

[TDAConditions](#)

Syntax

```
function Find(const Name: string): TDACondition;
```

Parameters

Name

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4.4.1.8.3.6 Get Method

Retrieving a TDACondition object by its name. If found, the TDACondition object is returned, otherwise - an exception is raised.

Class

[TDAConditions](#)

Syntax

```
function Get(const Name: string): TDACondition;
```

Parameters

Name

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4.4.1.8.3.7 IndexOf Method

Retrieving condition index by its name. If found, this condition index is returned, otherwise - the method returns -1.

Class

[TDAConditions](#)

Syntax

```
function IndexOf(const Name: string): Integer;
```

Parameters

Name

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4.4.1.8.3.8 Remove Method

Removes the condition

Class

[TDAConditions](#)

Syntax

```
procedure Remove(const Name: string);
```

Parameters

Name

Specifies the name of the removed condition

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4.4.1.9 TDAConnectionOptions Class

This class allows setting up the behaviour of the TDAConnection class.

For a list of all members of this type, see [TDAConnectionOptions](#) members.

Unit

DBAccess

Syntax

```
TDAConnectionOptions = class(TPersistent);
```

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4.4.1.9.1 Members

[TDAConnectionOptions](#) class overview.

Properties

Name	Description
AllowImplicitConnect	Specifies whether to allow or not implicit connection opening.
DefaultSortType	Specifies the default type of local sorting for string fields. It is used when a sort type is not explicitly set after the field name in the TMemDataSet.IndexFieldNames property of a dataset.
DisconnectedMode	Opens a connection only when needed to perform a server call, and closes that

	connection after the operation is complete.
KeepDesignConnected	Prevents an application from establishing a connection at the time of startup.
LocalFailover	If True, the TCustomDACConnection.OnConnectionLost event occurs, and a failover operation can be performed after the connection is lost.

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4.4.1.9.2 Properties

Properties of the **TDACConnectionOptions** class.

For a complete list of the **TDACConnectionOptions** class members, see the

[TDACConnectionOptions Members](#) topic.

Public

Name	Description
DefaultSortType	Specifies the default type of local sorting for string fields. It is used when a sort type is not explicitly set after the field name in the TMemDataSet.IndexFieldNames property of a dataset.
DisconnectedMode	Opens a connection only when needed to perform a server call, and closes that connection after the operation is complete.
KeepDesignConnected	Prevents an application from establishing a connection at the time of startup.
LocalFailover	If True, the TCustomDACConnection.OnConnectionLost event occurs, and a failover

operation can be performed after the connection is lost.

Published

Name	Description
AllowImplicitConnect	Specifies whether to allow or not implicit connection opening.

See Also

- [TDAConnectionOptions Class](#)
- [TDAConnectionOptions Class Members](#)

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4.4.1.9.2.1 Allow ImplicitConnect Property

Specifies whether to allow or not implicit connection opening.

Class

[TDAConnectionOptions](#)

Syntax

```
property AllowImplicitConnect: boolean default True;
```

Remarks

Use the AllowImplicitConnect property to specify whether allow or not implicit connection opening.

If a closed connection has AllowImplicitConnect set to True and a dataset that uses the connection is opened, the connection is opened implicitly to allow opening the dataset.

If a closed connection has AllowImplicitConnect set to False and a dataset that uses the connection is opened, an exception is raised.

The default value is True.

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4.4.1.9.2.2 DefaultSortType Property

Specifies the default type of local sorting for string fields. It is used when a sort type is not explicitly set after the field name in the [TMemDataSet.IndexFieldNames](#) property of a dataset.

Class

[TDACConnectionOptions](#)

Syntax

```
property DefaultSortType: TSortType default stCaseSensitive;
```

Remarks

Use the DefaultSortType property to determine the default type of local sorting for string fields. It is used when a sort type is not specified explicitly after the field name in the [TMemDataSet.IndexFieldNames](#) property of a dataset.

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4.4.1.9.2.3 DisconnectedMode Property

Opens a connection only when needed to perform a server call, and closes that connection after the operation is complete.

Class

[TDACConnectionOptions](#)

Syntax

```
property DisconnectedMode: boolean default False;
```

Remarks

If True, connection opens only when needed for performing a server call and closes after performing the operation. Datasets remain opened when connection closes. May be useful to save server resources and operate in unstable or expensive network. Drawback of using

disconnect mode is that each connection establishing requires some time for authorization. If connection is often closed and opened it can slow down the application work. See the [A:Work_DisconnectMode](#) topic for more information.

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4.4.1.9.2.4 KeepDesignConnected Property

Prevents an application from establishing a connection at the time of startup.

Class

[TDACconnectionOptions](#)

Syntax

```
property KeepDesignConnected: boolean default True;
```

Remarks

At the time of startup prevents application from establishing a connection even if the Connected property was set to True at design-time. Set KeepDesignConnected to False to initialize the connected property to False, even if it was True at design-time.

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4.4.1.9.2.5 LocalFailover Property

If True, the [TCustomDACconnection.OnConnectionLost](#) event occurs, and a failover operation can be performed after the connection is lost.

Class

[TDACconnectionOptions](#)

Syntax

```
property LocalFailover: boolean default False;
```

Remarks

If True, the [TCustomDACConnection.OnConnectionLost](#) event occurs and a failover operation can be performed after connection breaks. Read the [A:Unstable_Network](#) topic for more information about using failover.

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4.4.1.10 TDAConnectionSSLOptions Class

This class is used to set up the SSL options.

For a list of all members of this type, see [TDAConnectionSSLOptions](#) members.

Unit

DBAccess

Syntax

```
TDAConnectionSSLOptions = class(TPersistent);
```

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4.4.1.10.1 Members

[TDAConnectionSSLOptions](#) class overview.

Properties

Name	Description
CACert	Holds the path to the certificate authority file.
Cert	Holds the path to the client certificate.
CipherList	Holds the list of allowed SSL ciphers.
Key	Holds the path to the private client key.

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4.4.1.10.2 Properties

Properties of the **TDACConnectionSSLOptions** class.

For a complete list of the **TDACConnectionSSLOptions** class members, see the [TDACConnectionSSLOptions Members](#) topic.

Published

Name	Description
CACert	Holds the path to the certificate authority file.
Cert	Holds the path to the client certificate.
CipherList	Holds the list of allowed SSL ciphers.
Key	Holds the path to the private client key.

See Also

- [TDACConnectionSSLOptions Class](#)
- [TDACConnectionSSLOptions Class Members](#)

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4.4.1.10.2.1 CACert Property

Holds the path to the certificate authority file.

Class

[TDACConnectionSSLOptions](#)

Syntax

```
property CACert: string;
```

Remarks

Use the CACert property to specify the path to the certificate authority file.

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4.4.1.10.2.2 Cert Property

Holds the path to the client certificate.

Class

[TDAConnectionSSLOptions](#)

Syntax

```
property Cert: string;
```

Remarks

Use the Cert property to specify the path to the client certificate.

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4.4.1.10.2.3 CipherList Property

Holds the list of allowed SSL ciphers.

Class

[TDAConnectionSSLOptions](#)

Syntax

```
property CipherList: string;
```

Remarks

Use the CipherList property to specify the list of allowed SSL ciphers.

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4.4.1.10.2.4 Key Property

Holds the path to the private client key.

Class

[TDAConnectionSSLOptions](#)

Syntax

```
property Key: string;
```

Remarks

Use the Key property to specify the path to the private client key.

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4.4.1.11 TDADatasetOptions Class

This class allows setting up the behaviour of the TDADataset class.

For a list of all members of this type, see [TDADatasetOptions](#) members.

Unit

DBAccess

Syntax

```
TDADatasetOptions = class(TPersistent);
```

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4.4.1.11.1 Members

[TDADatasetOptions](#) class overview.

Properties

Name	Description
AutoPrepare	Used to execute automatic TCustomDADataset.Prepar

	e on the query execution.
<u>CacheCalcFields</u>	Used to enable caching of the TField.Calculated and TField.Lookup fields.
<u>CompressBlobMode</u>	Used to store values of the BLOB fields in compressed form.
<u>DefaultValues</u>	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
<u>DetailDelay</u>	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.
<u>FieldsOrigin</u>	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
<u>FlatBuffers</u>	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
<u>InsertAllSetFields</u>	Used to include all set dataset fields in the generated INSERT statement
<u>LocalMasterDetail</u>	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
<u>LongStrings</u>	Used to represent string fields with the length that is greater than 255 as TStringField.
<u>MasterFieldsNullable</u>	Allows to use NULL values in the fields by which the relation is built, when generating the query for the

	Detail tables (when this option is enabled, the performance can get worse).
NumberRange	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
QueryRecCount	Used for TCustomDADataset to perform additional query to get the record count for this SELECT, so the RecordCount property reflects the actual number of records.
QuoteNames	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
RemoveOnRefresh	Used for a dataset to locally remove a record that can not be found on the server.
RequiredFields	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
ReturnParams	Used to return the new value of fields to dataset after insert or update.
SetFieldsReadOnly	Used for a dataset to set the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated.
StrictUpdate	Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.

TrimFixedChar	Specifies whether to discard all trailing spaces in the string fields of a dataset.
UpdateAllFields	Used to include all dataset fields in the generated UPDATE and INSERT statements.
UpdateBatchSize	Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.

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4.4.1.11.2 Properties

Properties of the **TDADatasetOptions** class.

For a complete list of the **TDADatasetOptions** class members, see the [TDADatasetOptions Members](#) topic.

Public

Name	Description
AutoPrepare	Used to execute automatic TCustomDADataset.Prepare on the query execution.
CacheCalcFields	Used to enable caching of the TField.Calculated and TField.Lookup fields.
CompressBlobMode	Used to store values of the BLOB fields in compressed form.
DefaultValues	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
DetailDelay	Used to get or set a delay in milliseconds before refreshing detail dataset

	while navigating master dataset.
FieldsOrigin	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
FlatBuffers	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
InsertAllSetFields	Used to include all set dataset fields in the generated INSERT statement
LocalMasterDetail	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
LongStrings	Used to represent string fields with the length that is greater than 255 as TStringField.
MasterFieldsNullable	Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).
NumberRange	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
QueryRecCount	Used for TCustomDADataset to perform additional query to get the record count for this SELECT, so the RecordCount property reflects the actual number of

	records.
QuoteNames	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
RemoveOnRefresh	Used for a dataset to locally remove a record that can not be found on the server.
RequiredFields	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
ReturnParams	Used to return the new value of fields to dataset after insert or update.
SetFieldsReadOnly	Used for a dataset to set the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated.
StrictUpdate	Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.
TrimFixedChar	Specifies whether to discard all trailing spaces in the string fields of a dataset.
UpdateAllFields	Used to include all dataset fields in the generated UPDATE and INSERT statements.
UpdateBatchSize	Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.

See Also

- [TDADatasetOptions Class](#)
- [TDADatasetOptions Class Members](#)

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4.4.1.11.2.1 AutoPrepare Property

Used to execute automatic [TCustomDADataset.Prepare](#) on the query execution.

Class

[TDADatasetOptions](#)

Syntax

```
property AutoPrepare: boolean default False;
```

Remarks

Use the AutoPrepare property to execute automatic [TCustomDADataset.Prepare](#) on the query execution. Makes sense for cases when a query will be executed several times, for example, in Master/Detail relationships.

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4.4.1.11.2.2 CacheCalcFields Property

Used to enable caching of the TField.Calculated and TField.Lookup fields.

Class

[TDADatasetOptions](#)

Syntax

```
property CacheCalcFields: boolean default False;
```

Remarks

Use the CacheCalcFields property to enable caching of the TField.Calculated and TField.Lookup fields. It can be useful for reducing CPU usage for calculated fields. Using

caching of calculated and lookup fields increases memory usage on the client side.

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4.4.1.11.2.3 CompressBlobMode Property

Used to store values of the BLOB fields in compressed form.

Class

[TDADatasetOptions](#)

Syntax

```
property CompressBlobMode: TCompressBlobMode default cbNone;
```

Remarks

Use the CompressBlobMode property to store values of the BLOB fields in compressed form. Add the MemData unit to uses list to use this option. Compression rate greatly depends on stored data, for example, usually graphic data compresses badly unlike text.

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4.4.1.11.2.4 DefaultValues Property

Used to request default values/expressions from the server and assign them to the DefaultExpression property.

Class

[TDADatasetOptions](#)

Syntax

```
property DefaultValues: boolean default False;
```

Remarks

If True, the default values/expressions are requested from the server and assigned to the DefaultExpression property of TField objects replacing already existent values.

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4.4.1.11.2.5 DetailDelay Property

Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.

Class

[TDADatasetOptions](#)

Syntax

```
property DetailDelay: integer default 0;
```

Remarks

Use the DetailDelay property to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset. If DetailDelay is 0 (the default value) then refreshing of detail dataset occurs immediately. The DetailDelay option should be used for detail dataset.

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4.4.1.11.2.6 FieldsOrigin Property

Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.

Class

[TDADatasetOptions](#)

Syntax

```
property FieldsOrigin: boolean;
```

Remarks

If True, TCustomDADataset fills the Origin property of the TField objects by appropriate value when opening a dataset.

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4.4.1.11.2.7 FlatBuffers Property

Used to control how a dataset treats data of the ftString and ftVarBytes fields.

Class

[TDADatasetOptions](#)

Syntax

```
property FlatBuffers: boolean default False;
```

Remarks

Use the FlatBuffers property to control how a dataset treats data of the ftString and ftVarBytes fields. When set to True, all data fetched from the server is stored in record pdata without unused tails.

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4.4.1.11.2.8 InsertAllSetFields Property

Used to include all set dataset fields in the generated INSERT statement

Class

[TDADatasetOptions](#)

Syntax

```
property InsertAllSetFields: boolean default False;
```

Remarks

If True, all set dataset fields, including those set to NULL explicitly, will be included in the generated INSERT statements. Otherwise, only set fields containing not NULL values will be included to the generated INSERT statement.

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4.4.1.11.2.9 LocalMasterDetail Property

Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.

Class

[TDADatasetOptions](#)

Syntax

```
property LocalMasterDetail: boolean default False;
```

Remarks

If True, for detail dataset in master-detail relationship TCustomDADataset uses local filtering for establishing master/detail relationship and does not refer to the server. Otherwise detail dataset performs query each time a record is selected in master dataset. This option is useful for reducing server calls number, server resources economy. It can be useful for slow connection. The [TMemDataSet.CachedUpdates](#) mode can be used for detail dataset only when this option is set to true. Setting the LocalMasterDetail option to True is not recommended when detail table contains too many rows, because when it is set to False, only records that correspond to the current record in master dataset are fetched.

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4.4.1.11.2.10 LongStrings Property

Used to represent string fields with the length that is greater than 255 as TStringField.

Class

[TDADatasetOptions](#)

Syntax

```
property LongStrings: boolean default True;
```

Remarks

Use the LongStrings property to represent string fields with the length that is greater than 255 as TStringField, not as TMemoField.

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4.4.1.11.2.11 MasterFieldsNullable Property

Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).

Class

[TDADatasetOptions](#)

Syntax

```
property MasterFieldsNullable: boolean default False;
```

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4.4.1.11.2.12 NumberRange Property

Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.

Class

[TDADatasetOptions](#)

Syntax

```
property NumberRange: boolean default False;
```

Remarks

Use the NumberRange property to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.

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4.4.1.11.2.13 QueryRecCount Property

Used for TCustomDADataset to perform additional query to get the record count for this

SELECT, so the RecordCount property reflects the actual number of records.

Class

[TDADatasetOptions](#)

Syntax

```
property QueryRecCount: boolean default False;
```

Remarks

If True, and the FetchAll property is False, TCustomDADataset performs additional query to get the record count for this SELECT, so the RecordCount property reflects the actual number of records. Does not have any effect if the FetchAll property is True.

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4.4.1.11.2.14 QuoteNames Property

Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.

Class

[TDADatasetOptions](#)

Syntax

```
property QuoteNames: boolean default False;
```

Remarks

If True, TCustomDADataset quotes all database object names in autogenerated SQL statements such as update SQL.

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4.4.1.11.2.15 RemoveOnRefresh Property

Used for a dataset to locally remove a record that can not be found on the server.

Class

[TDADatasetOptions](#)

Syntax

```
property RemoveOnRefresh: boolean default True;
```

Remarks

When the RefreshRecord procedure can't find necessary record on the server and RemoveOnRefresh is set to True, dataset removes the record locally. Usually RefreshRecord can't find necessary record when someone else dropped the record or changed the key value of it.

This option makes sense only if the StrictUpdate option is set to False. If the StrictUpdate option is True, error will be generated regardless of the RemoveOnRefresh option value.

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4.4.1.11.2.16 RequiredFields Property

Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.

Class

[TDADatasetOptions](#)

Syntax

```
property RequiredFields: boolean default True;
```

Remarks

If True, TCustomDADataset sets the Required property of the TField objects for the NOT NULL fields. It is useful when table has a trigger which updates the NOT NULL fields.

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4.4.1.11.2.17 ReturnParams Property

Used to return the new value of fields to dataset after insert or update.

Class

[TDADatasetOptions](#)

Syntax

```
property ReturnParams: boolean default False;
```

Remarks

Use the ReturnParams property to return the new value of fields to dataset after insert or update. The actual value of field after insert or update may be different from the value stored in the local memory if the table has a trigger. When ReturnParams is True, OUT parameters of the SQLInsert and SQLUpdate statements is assigned to the corresponding fields.

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4.4.1.11.2.18 SetFieldsReadOnly Property

Used for a dataset to set the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated.

Class

[TDADatasetOptions](#)

Syntax

```
property SetFieldsReadOnly: boolean default True;
```

Remarks

If True, dataset sets the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated. Set this option for datasets that use automatic generation of the update SQL statements only.

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4.4.1.11.2.19 StrictUpdate Property

Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.

Class

[TDADatasetOptions](#)

Syntax

```
property StrictUpdate: boolean default True;
```

Remarks

If True, TCustomDADataset raises an exception when the number of updated or deleted records is not equal 1. Setting this option also causes the exception if the RefreshRecord procedure returns more than one record. The exception does not occur when you execute SQL query, that doesn't return resultset.

Note: There can be problems if this option is set to True and triggers for UPDATE, DELETE, REFRESH commands that are defined for the table. So it is recommended to disable (set to False) this option with triggers.

TrimFixedChar specifies whether to discard all trailing spaces in the string fields of a dataset.

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4.4.1.11.2.20 TrimFixedChar Property

Specifies whether to discard all trailing spaces in the string fields of a dataset.

Class

[TDADatasetOptions](#)

Syntax

```
property TrimFixedChar: boolean default True;
```

Remarks

Specifies whether to discard all trailing spaces in the string fields of a dataset.

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4.4.1.11.2.21 UpdateAllFields Property

Used to include all dataset fields in the generated UPDATE and INSERT statements.

Class

[TDADatasetOptions](#)

Syntax

```
property updateAllFields: boolean default False;
```

Remarks

If True, all dataset fields will be included in the generated UPDATE and INSERT statements. Unspecified fields will have NULL value in the INSERT statements. Otherwise, only updated fields will be included to the generated update statements.

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4.4.1.11.2.22 UpdateBatchSize Property

Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.

Class

[TDADatasetOptions](#)

Syntax

```
property UpdateBatchSize: Integer default 1;
```

Remarks

Use the UpdateBatchSize property to get or set a value that enables or disables batch

processing support, and specifies the number of commands that can be executed in a batch. Takes effect only when updating dataset in the [TMemDataSet.CachedUpdates](#) mode. The default value is 1.

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4.4.1.12 TDAMapRule Class

Class that forms rules for Data Type Mapping.

For a list of all members of this type, see [TDAMapRule](#) members.

Unit

DBAccess

Syntax

```
TDAMapRule = class(TMapRule);
```

Remarks

Using properties of this class, it is possible to change parameter values of the specified rules from the TDAMapRules set.

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4.4.1.12.1 Members

[TDAMapRule](#) class overview.

Properties

Name	Description
DBLengthMax	Maximum DB field length, until which the rule is applied.
DBLengthMin	Minimum DB field length, starting from which the rule is applied.
DBScaleMax	Maximum DB field scale,

	until which the rule is applied to the specified DB field.
DBScaleMin	Minimum DB field Scale, starting from which the rule is applied to the specified DB field.
DBType	DB field type, that the rule is applied to.
FieldLength	The resultant field length in Delphi.
FieldName	DataSet field name, for which the rule is applied.
FieldScale	The resultant field Scale in Delphi.
FieldType	Delphi field type, that the specified DB type or DataSet field will be mapped to.
IgnoreErrors	Ignoring errors when converting data from DB to Delphi type.

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4.4.1.12.2 Properties

Properties of the **TDAMapRule** class.

For a complete list of the **TDAMapRule** class members, see the [TDAMapRule Members](#) topic.

Published

Name	Description
DBLengthMax	Maximum DB field length, until which the rule is applied.
DBLengthMin	Minimum DB field length, starting from which the rule is applied.
DBScaleMax	Maximum DB field scale, until which the rule is applied

	to the specified DB field.
DBScaleMin	Minimum DB field Scale, starting from which the rule is applied to the specified DB field.
DBType	DB field type, that the rule is applied to.
FieldLength	The resultant field length in Delphi.
FieldName	DataSet field name, for which the rule is applied.
FieldScale	The resultant field Scale in Delphi.
FieldType	Delphi field type, that the specified DB type or DataSet field will be mapped to.
IgnoreErrors	Ignoring errors when converting data from DB to Delphi type.

See Also

- [TDAMapRule Class](#)
- [TDAMapRule Class Members](#)

4.4.1.12.2.1 DBLengthMax Property

Maximum DB field length, until which the rule is applied.

Class

[TDAMapRule](#)

Syntax

```
property DBLengthMax default r1Any;
```

Remarks

Setting maximum DB field length, until which the rule is applied to the specified DB field.

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4.4.1.12.2.2 DBLengthMin Property

Minimum DB field length, starting from which the rule is applied.

Class

[TDAMapRule](#)

Syntax

```
property DBLengthMin default r1Any;
```

Remarks

Setting minimum DB field length, starting from which the rule is applied to the specified DB field.

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4.4.1.12.2.3 DBScaleMax Property

Maximum DB field scale, until which the rule is applied to the specified DB field.

Class

[TDAMapRule](#)

Syntax

```
property DBScaleMax default r1Any;
```

Remarks

Setting maximum DB field scale, until which the rule is applied to the specified DB field.

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4.4.1.12.2.4 DBScaleMin Property

Minimum DB field Scale, starting from which the rule is applied to the specified DB field.

Class

[TDAMapRule](#)

Syntax

```
property DBScaleMin default r1Any;
```

Remarks

Setting minimum DB field Scale, starting from which the rule is applied to the specified DB field.

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4.4.1.12.2.5 DBType Property

DB field type, that the rule is applied to.

Class

[TDAMapRule](#)

Syntax

```
property DBType default dtUnknown;
```

Remarks

Setting DB field type, that the rule is applied to. If the current rule is set for Connection, the rule will be applied to all fields of the specified type in all DataSets related to this Connection.

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4.4.1.12.2.6 FieldLength Property

The resultant field length in Delphi.

Class

[TDAMapRule](#)

Syntax

```
property FieldLength default r1Any;
```

Remarks

Setting the Delphi field length after conversion.

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4.4.1.12.2.7 FieldName Property

DataSet field name, for which the rule is applied.

Class

[TDAMapRule](#)

Syntax

```
property FieldName;
```

Remarks

Specifies the DataSet field name, that the rule is applied to. If the current rule is set for Connection, the rule will be applied to all fields with such name in DataSets related to this Connection.

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4.4.1.12.2.8 FieldScale Property

The resultant field Scale in Delphi.

Class

[TDAMapRule](#)

Syntax

```
property FieldScale default r1Any;
```

Remarks

Setting the Delphi field Scale after conversion.

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4.4.1.12.2.9 FieldType Property

Delphi field type, that the specified DB type or DataSet field will be mapped to.

Class

[TDAMapRule](#)

Syntax

```
property FieldType: TFieldType stored IsFieldTypeStored default  
ftUnknown;
```

Remarks

Setting Delphi field type, that the specified DB type or DataSet field will be mapped to.

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4.4.1.12.2.10 IgnoreErrors Property

Ignoring errors when converting data from DB to Delphi type.

Class

[TDAMapRule](#)

Syntax

```
property IgnoreErrors default False;
```

Remarks

Allows to ignore errors while data conversion in case if data or DB data format cannot be recorded to the specified Delphi field type. The default value is false.

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4.4.1.13 TDAMapRules Class

Used for adding rules for DataSet fields mapping with both identifying by field name and by field type and Delphi field types.

For a list of all members of this type, see [TDAMapRules](#) members.

Unit

DBAccess

Syntax

```
TDAMapRules = class(TMapRules);
```

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4.4.1.13.1 Members

[TDAMapRules](#) class overview.

Properties

Name	Description
IgnoreInvalidRules	Used to avoid raising exception on mapping rules that can't be applied.

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4.4.1.13.2 Properties

Properties of the **TDAMapRules** class.

For a complete list of the **TDAMapRules** class members, see the [TDAMapRules Members](#) topic.

Published

Name	Description
IgnoreInvalidRules	Used to avoid raising exception on mapping rules that can't be applied.

See Also

- [TDAMapRules Class](#)
- [TDAMapRules Class Members](#)

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4.4.1.13.2.1 IgnoreInvalidRules Property

Used to avoid raising exception on mapping rules that can't be applied.

Class

[TDAMapRules](#)

Syntax

```
property IgnoreInvalidRules: boolean default False;
```

Remarks

Allows to ignore errors (not to raise exception) during data conversion in case if the data or DB data format cannot be recorded to the specified Delphi field type. The default value is false.

Note: In order to ignore errors occurring during data conversion, use the [TDAMapRule.IgnoreErrors](#) property

See Also

- [TDAMapRule.IgnoreErrors](#)

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4.4.1.14 TDAMetaData Class

A class for retrieving metainformation of the specified database objects in the form of dataset.

For a list of all members of this type, see [TDAMetaData](#) members.

Unit

DBAccess

Syntax

```
TDAMetaData = class (TMemDataSet);
```

Remarks

TDAMetaData is a TDataSet descendant standing for retrieving metainformation of the specified database objects in the form of dataset. First of all you need to specify which kind of metainformation you want to see. For this you need to assign the [TDAMetaData.MetaDataKind](#) property. Provide one or more conditions in the [TDAMetaData.Restrictions](#) property to diminish the size of the resultset and get only information you are interested in.

Use the [TDAMetaData.GetMetaDataKinds](#) method to get the full list of supported kinds of meta data. With the [TDAMetaData.GetRestrictions](#) method you can find out what restrictions are applicable to the specified MetaDataKind.

Example

The code below demonstrates how to get information about columns of the 'emp' table:

```
MetaData.Connection := Connection;  
MetaData.MetaDataKind := 'Columns';  
MetaData.Restrictions.Values['TABLE_NAME'] := 'Emp';
```

```
MetaData.Open;
```

Inheritance Hierarchy

[TMemDataSet](#)

TDAMetaData

See Also

- [TDAMetaData.MetaDataKind](#)
- [TDAMetaData.Restrictions](#)
- [TDAMetaData.GetMetaDataKinds](#)
- [TDAMetaData.GetRestrictions](#)

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4.4.1.14.1 Members

[TDAMetaData](#) class overview.

Properties

Name	Description
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Connection	Used to specify a connection object to use to connect to a data store.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database

	server.
MetaDataKind	Used to specify which kind of metainformation to show.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
Restrictions	Used to provide one or more conditions restricting the list of objects to be described.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Methods

Name	Description
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.

GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
GetMetaDataKinds	Used to get values acceptable in the MetaDataKind property.
GetRestrictions	Used to find out which restrictions are applicable to a certain MetaDataKind.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare (inherited from TMemDataSet)	Allocates resources and creates field components for a dataset.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range

	of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

Events

Name	Description
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.4.1.14.2 Properties

Properties of the **TDAMetaData** class.

For a complete list of the **TDAMetaData** class members, see the [TDAMetaData Members](#) topic.

Public

Name	Description
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Connection	Used to specify a connection object to use to connect to a data store.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MetaDataKind	Used to specify which kind of metainformation to show.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
Restrictions	Used to provide one or more conditions restricting the list of objects to be described.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

See Also

- [TDAMetaData Class](#)
- [TDAMetaData Class Members](#)

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4.4.1.14.2.1 Connection Property

Used to specify a connection object to use to connect to a data store.

Class

[TDAMetaData](#)

Syntax

```
property Connection: TCustomDACConnection;
```

Remarks

Use the Connection property to specify a connection object to use to connect to a data store.

Set at design-time by selecting from the list of provided TCustomDACConnection or its descendant class objects.

At runtime, set the Connection property to reference an instantiated TCustomDACConnection object.

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4.4.1.14.2.2 MetaDataKind Property

Used to specify which kind of metainformation to show.

Class

[TDAMetaData](#)

Syntax

```
property MetaDataKind: string;
```

Remarks

This string property specifies which kind of metainformation to show. The value of this property should be assigned before activating the component. If MetaDataKind equals to an empty string (the default value), the full value list that this property accepts will be shown.

They are described in the table below:

MetaDataKind	Description
Columns	show metainformation about columns of existing tables
Constraints	show metainformation about the constraints defined in the database
IndexColumns	show metainformation about indexed columns
Indexes	show metainformation about indexes in a database
MetaDataKinds	show the acceptable values of this property. You will get the same result if the MetadataKind property is an empty string
ProcedureParameters	show metainformation about parameters of existing procedures
Procedures	show metainformation about existing procedures
Restrictions	generates a dataset that describes which restrictions are applicable to each MetaDataKind
Tables	show metainformation about existing tables
Databases	show metainformation about existing databases

If you provide a value that equals neither of the values described in the table, an error will be raised.

See Also

- [Restrictions](#)

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4.4.1.14.2.3 Restrictions Property

Used to provide one or more conditions restricting the list of objects to be described.

Class

[TDAMetaData](#)

Syntax

```
property Restrictions: TStrings;
```

Remarks

Use the Restriction list to provide one or more conditions restricting the list of objects to be described. To see the full list of restrictions and to which metadata kinds they are applicable,

you should assign the Restrictions value to the MetaDataKind property and view the result.

See Also

- [MetaDataKind](#)

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4.4.1.14.3 Methods

Methods of the **TDAMetaData** class.

For a complete list of the **TDAMetaData** class members, see the [TDAMetaData Members](#) topic.

Public

Name	Description
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its

	name or the field itself is known.
GetMetaDataKinds	Used to get values acceptable in the <code>MetaDataKind</code> property.
GetRestrictions	Used to find out which restrictions are applicable to a certain <code>MetaDataKind</code> .
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of <code>TDataSet</code> .
Prepare (inherited from TMemDataSet)	Allocates resources and creates field components for a dataset.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.

SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

See Also

- [TDAMetaData Class](#)
- [TDAMetaData Class Members](#)

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4.4.1.14.3.1 GetMetaDataKinds Method

Used to get values acceptable in the MetaDataKind property.

Class

[TDAMetaData](#)

Syntax

```
procedure GetMetaDataKinds(List: TStrings);
```

Parameters

List

Holds the object that will be filled with metadata kinds (restrictions).

Remarks

Call the `GetMetaDataKinds` method to get values acceptable in the `MetaDataKind` property. The `List` parameter will be cleared and then filled with values.

See Also

- [MetaDataKind](#)

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4.4.1.14.3.2 GetRestrictions Method

Used to find out which restrictions are applicable to a certain `MetaDataKind`.

Class

[TDAMetaData](#)

Syntax

```
procedure GetRestrictions(List: TStrings; const MetaDataKind:  
string);
```

Parameters

List

Holds the object that will be filled with metadata kinds (restrictions).

MetaDataKind

Holds the metadata kind for which restrictions are returned.

Remarks

Call the `GetRestrictions` method to find out which restrictions are applicable to a certain `MetaDataKind`. The `List` parameter will be cleared and then filled with values.

See Also

- [Restrictions](#)
- [GetMetaDataKinds](#)

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4.4.1.15 TDAParam Class

A class that forms objects to represent the values of the [parameters set](#).

For a list of all members of this type, see [TDAParam](#) members.

Unit

DBAccess

Syntax

```
TDAParam = class(TParam);
```

Remarks

Use the properties of TDAParam to set the value of a parameter. Objects that use parameters create TDAParam objects to represent these parameters. For example, TDAParam objects are used by TCustomDASQL, TCustomDADataset.

TDAParam shares many properties with TField, as both describe the value of a field in a dataset. However, a TField object has several properties to describe the field binding and the way the field is displayed, edited, or calculated, that are not needed in a TDAParam object. Conversely, TDAParam includes properties that indicate how the field value is passed as a parameter.

See Also

- [TCustomDADataset](#)
- [TCustomDASQL](#)
- [TDAParams](#)

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4.4.1.15.1 Members

[TDAParam](#) class overview.

Properties

Name	Description
------	-------------

AsBlob	Used to set and read the value of the BLOB parameter as string.
AsBlobRef	Used to set and read the value of the BLOB parameter as a TBlob object.
AsFloat	Used to assign the value for a float field to a parameter.
AsInteger	Used to assign the value for an integer field to the parameter.
AsLargeInt	Used to assign the value for a LargeInteger field to the parameter.
AsMemo	Used to assign the value for a memo field to the parameter.
AsMemoRef	Used to set and read the value of the memo parameter as a TBlob object.
AsSQLTimeStamp	Used to specify the value of the parameter when it represents a SQL timestamp field.
AsString	Used to assign the string value to the parameter.
AsWideString	Used to assign the Unicode string value to the parameter.
DataType	Indicates the data type of the parameter.
IsNull	Used to indicate whether the value assigned to a parameter is NULL.
ParamType	Used to indicate the type of use for a parameter.
Size	Specifies the size of a string type parameter.
Value	Used to represent the value of the parameter as Variant.

Methods

Name	Description
AssignField	Assigns field name and field value to a param.
AssignFieldValue	Assigns the specified field properties and value to a parameter.
LoadFromFile	Places the content of a specified file into a TDAParam object.
LoadFromStream	Places the content from a stream into a TDAParam object.
SetBlobData	Overloaded. Writes the data from a specified buffer to BLOB.

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4.4.1.15.2 Properties

Properties of the **TDAParam** class.

For a complete list of the **TDAParam** class members, see the [TDAParam Members](#) topic.

Public

Name	Description
AsBlob	Used to set and read the value of the BLOB parameter as string.
AsBlobRef	Used to set and read the value of the BLOB parameter as a TBlob object.
AsFloat	Used to assign the value for a float field to a parameter.
AsInteger	Used to assign the value for an integer field to the parameter.
AsLargeInt	Used to assign the value for a LargeInteger field to the parameter.

AsMemo	Used to assign the value for a memo field to the parameter.
AsMemoRef	Used to set and read the value of the memo parameter as a TBlob object.
AsSQLTimeStamp	Used to specify the value of the parameter when it represents a SQL timestamp field.
AsString	Used to assign the string value to the parameter.
AsWideString	Used to assign the Unicode string value to the parameter.
IsNull	Used to indicate whether the value assigned to a parameter is NULL.

Published

Name	Description
DataType	Indicates the data type of the parameter.
ParamType	Used to indicate the type of use for a parameter.
Size	Specifies the size of a string type parameter.
Value	Used to represent the value of the parameter as Variant.

See Also

- [TDAParam Class](#)
- [TDAParam Class Members](#)

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4.4.1.15.2.1 AsBlob Property

Used to set and read the value of the BLOB parameter as string.

Class

[TDAParam](#)

Syntax

```
property AsBlob: TBlobData;
```

Remarks

Use the AsBlob property to set and read the value of the BLOB parameter as string. Setting AsBlob will set the DataType property to ftBlob.

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4.4.1.15.2.2 AsBlobRef Property

Used to set and read the value of the BLOB parameter as a TBlob object.

Class

[TDAParam](#)

Syntax

```
property AsBlobRef: TBlob;
```

Remarks

Use the AsBlobRef property to set and read the value of the BLOB parameter as a TBlob object. Setting AsBlobRef will set the DataType property to ftBlob.

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4.4.1.15.2.3 AsFloat Property

Used to assign the value for a float field to a parameter.

Class

[TDAParam](#)

Syntax

```
property AsFloat: double;
```

Remarks

Use the AsFloat property to assign the value for a float field to the parameter. Setting AsFloat will set the DataType property to dtFloat.

Read the AsFloat property to determine the value that was assigned to an output parameter, represented as Double. The value of the parameter will be converted to the Double value if possible.

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4.4.1.15.2.4 AsInteger Property

Used to assign the value for an integer field to the parameter.

Class

[TDAParam](#)

Syntax

```
property AsInteger: LongInt;
```

Remarks

Use the AsInteger property to assign the value for an integer field to the parameter. Setting AsInteger will set the DataType property to dtInteger.

Read the AsInteger property to determine the value that was assigned to an output parameter, represented as a 32-bit integer. The value of the parameter will be converted to the Integer value if possible.

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4.4.1.15.2.5 AsLargeInt Property

Used to assign the value for a LargeInteger field to the parameter.

Class

[TDAParam](#)

Syntax

```
property AsLargeInt: Int64;
```

Remarks

Set the AsLargeInt property to assign the value for an Int64 field to the parameter. Setting AsLargeInt will set the DataType property to dtLargeint.

Read the AsLargeInt property to determine the value that was assigned to an output parameter, represented as a 64-bit integer. The value of the parameter will be converted to the Int64 value if possible.

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4.4.1.15.2.6 AsMemo Property

Used to assign the value for a memo field to the parameter.

Class

[TDAParam](#)

Syntax

```
property AsMemo: string;
```

Remarks

Use the AsMemo property to assign the value for a memo field to the parameter. Setting AsMemo will set the DataType property to ftMemo.

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4.4.1.15.2.7 AsMemoRef Property

Used to set and read the value of the memo parameter as a TBlob object.

Class

[TDAParam](#)

Syntax

```
property AsMemoRef: TBlob;
```

Remarks

Use the AsMemoRef property to set and read the value of the memo parameter as a TBlob object. Setting AsMemoRef will set the DataType property to ftMemo.

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4.4.1.15.2.8 AsSQLTimeStamp Property

Used to specify the value of the parameter when it represents a SQL timestamp field.

Class

[TDAParam](#)

Syntax

```
property AsSQLTimeStamp: TSQLTimeStamp;
```

Remarks

Set the AsSQLTimeStamp property to assign the value for a SQL timestamp field to the parameter. Setting AsSQLTimeStamp sets the DataType property to ftTimeStamp.

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4.4.1.15.2.9 AsString Property

Used to assign the string value to the parameter.

Class

[TDAParam](#)

Syntax

```
property AsString: string;
```

Remarks

Use the AsString property to assign the string value to the parameter. Setting AsString will set the DataType property to ftString.

Read the AsString property to determine the value that was assigned to an output parameter represented as a string. The value of the parameter will be converted to a string.

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4.4.1.15.2.10 AsWideString Property

Used to assign the Unicode string value to the parameter.

Class

[TDAParam](#)

Syntax

```
property AswideString: string;
```

Remarks

Set AsWideString to assign the Unicode string value to the parameter. Setting AsWideString will set the DataType property to ftWideString.

Read the AsWideString property to determine the value that was assigned to an output parameter, represented as a Unicode string. The value of the parameter will be converted to a Unicode string.

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4.4.1.15.2.11 DataType Property

Indicates the data type of the parameter.

Class

[TDAParam](#)

Syntax

```
property DataType: TFieldType stored IsDataTypeStored;
```

Remarks

DataType is set automatically when a value is assigned to a parameter. Do not set DataType for bound fields, as this may cause the assigned value to be misinterpreted.

Read DataType to learn the type of data that was assigned to the parameter. Every possible value of DataType corresponds to the type of a database field.

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4.4.1.15.2.12 IsNull Property

Used to indicate whether the value assigned to a parameter is NULL.

Class

[TDAParam](#)

Syntax

```
property IsNull: boolean;
```

Remarks

Use the IsNull property to indicate whether the value assigned to a parameter is NULL.

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4.4.1.15.2.13 ParamType Property

Used to indicate the type of use for a parameter.

Class

[TDAParam](#)

Syntax

```
property ParamType default DB . ptUnknown;
```

Remarks

Objects that use TDAParam objects to represent field parameters set ParamType to indicate the type of use for a parameter.

To learn the description of TParamType refer to Delphi Help.

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4.4.1.15.2.14 Size Property

Specifies the size of a string type parameter.

Class

[TDAParam](#)

Syntax

```
property Size: integer default 0;
```

Remarks

Use the Size property to indicate the maximum number of characters the parameter may contain. Use the Size property only for Output parameters of the **ftString**, **ftFixedChar**, **ftBytes**, **ftVarBytes**, or **ftWideString** type.

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4.4.1.15.2.15 Value Property

Used to represent the value of the parameter as Variant.

Class

[TDAParam](#)

Syntax

```
property value: variant stored IsValueStored;
```

Remarks

The Value property represents the value of the parameter as Variant.

Use Value in generic code that manipulates the values of parameters without the need to know the field type the parameter represent.

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4.4.1.15.3 Methods

Methods of the **TDAParam** class.

For a complete list of the **TDAParam** class members, see the [TDAParam Members](#) topic.

Public

Name	Description
AssignField	Assigns field name and field value to a param.
AssignFieldValue	Assigns the specified field properties and value to a parameter.
LoadFromFile	Places the content of a specified file into a TDAParam object.
LoadFromStream	Places the content from a stream into a TDAParam object.
SetBlobData	Overloaded. Writes the data from a specified buffer to BLOB.

See Also

- [TDAParam Class](#)
- [TDAParam Class Members](#)

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4.4.1.15.3.1 AssignField Method

Assigns field name and field value to a param.

Class

[TDAParam](#)

Syntax

```
procedure AssignField(Field: TField);
```

Parameters

Field

Holds the field which name and value should be assigned to the param.

Remarks

Call the AssignField method to assign field name and field value to a param.

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4.4.1.15.3.2 AssignFieldValue Method

Assigns the specified field properties and value to a parameter.

Class

[TDAParam](#)

Syntax

```
procedure AssignFieldValue(Field: TField; const value: Variant);  
virtual;
```

Parameters

Field

Holds the field the properties of which will be assigned to the parameter.

Value

Holds the value for the parameter.

Remarks

Call the AssignFieldValue method to assign the specified field properties and value to a parameter.

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4.4.1.15.3.3 LoadFromFile Method

Places the content of a specified file into a TDAParam object.

Class

[TDAParam](#)

Syntax

```
procedure LoadFromFile(const FileName: string; BlobType: TBlobType);
```

Parameters

FileName

Holds the name of the file.

BlobType

Holds a value that modifies the DataType property so that this TDAParam object now holds the BLOB value.

Remarks

Use the LoadFromFile method to place the content of a file specified by FileName into a TDAParam object. The BlobType value modifies the DataType property so that this TDAParam object now holds the BLOB value.

See Also

- [LoadFromStream](#)

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4.4.1.15.3.4 LoadFromStream Method

Places the content from a stream into a TDAParam object.

Class

[TDAParam](#)

Syntax

```
procedure LoadFromStream(Stream: TStream; BlobType: TBlobType);  
virtual;
```

Parameters

Stream

Holds the stream to copy content from.

BlobType

Holds a value that modifies the DataType property so that this TDAParam object now holds the BLOB value.

Remarks

Call the LoadFromStream method to place the content from a stream into a TDAParam object. The BlobType value modifies the DataType property so that this TDAParam object now holds the BLOB value.

See Also

- [LoadFromFile](#)

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4.4.1.15.3.5 SetBlobData Method

Writes the data from a specified buffer to BLOB.

Class

[TDAParam](#)

Overload List

Name	Description
SetBlobData(Buffer: TValueBuffer)	Writes the data from a specified buffer to BLOB.
SetBlobData(Buffer: IntPtr; Size: Integer)	Writes the data from a specified buffer to BLOB.

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Writes the data from a specified buffer to BLOB.

Class

[TDAParam](#)

Syntax

```
procedure SetBlobData(Buffer: TValueBuffer); overload;
```

Parameters

Buffer

Holds the pointer to the data.

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Writes the data from a specified buffer to BLOB.

Class

[TDAParam](#)

Syntax

```
procedure SetBlobData(Buffer: IntPtr; Size: Integer); overload;
```

Parameters

Buffer

Holds the pointer to data.

Size

Holds the number of bytes to read from the buffer.

Remarks

Call the SetBlobData method to write data from a specified buffer to BLOB.

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4.4.1.16 TDAParams Class

This class is used to manage a list of TDAParam objects for an object that uses field parameters.

For a list of all members of this type, see [TDAParams](#) members.

Unit

DBAccess

Syntax

```
TDAParams = class(TParams);
```

Remarks

Use TDAParams to manage a list of TDAParam objects for an object that uses field parameters. For example, TCustomDADataset objects and TCustomDASQL objects use TDAParams objects to create and access their parameters.

See Also

- [TCustomDADataset.Params](#)
- [TCustomDASQL.Params](#)
- [TDAParam](#)

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4.4.1.16.1 Members

[TDAParams](#) class overview.

Properties

Name	Description
Items	Used to iterate through all parameters.

Methods

Name	Description
FindParam	Searches for a parameter with the specified name.
ParamByName	Searches for a parameter with the specified name.

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4.4.1.16.2 Properties

Properties of the **TDAParams** class.

For a complete list of the **TDAParams** class members, see the [TDAParams Members](#) topic.

Public

Name	Description
Items	Used to iterate through all parameters.

See Also

- [TDAParams Class](#)
- [TDAParams Class Members](#)

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4.4.1.16.2.1 Items Property(Indexer)

Used to iterate through all parameters.

Class

[TDAParams](#)

Syntax

```
property Items[Index: integer]: TDAParam; default;
```

Parameters

Index

Holds an index in the range 0..Count - 1.

Remarks

Use the Items property to iterate through all parameters. Index identifies the index in the range 0..Count - 1. Items can reference a particular parameter by its index, but the ParamByName method is preferred in order to avoid depending on the order of the parameters.

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4.4.1.16.3 Methods

Methods of the **TDAParams** class.

For a complete list of the **TDAParams** class members, see the [TDAParams Members](#) topic.

Public

Name	Description
FindParam	Searches for a parameter with the specified name.
ParamByName	Searches for a parameter with the specified name.

See Also

- [TDAParams Class](#)
- [TDAParams Class Members](#)

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4.4.1.16.3.1 FindParam Method

Searches for a parameter with the specified name.

Class

[TDAParams](#)

Syntax

```
function FindParam(const value: string): TDAParam;
```

Parameters

Value

Holds the parameter name.

Return Value

a parameter, if a match was found. Nil otherwise.

Remarks

Use the FindParam method to find a parameter with the name passed in Value. If a match is found, FindParam returns the parameter. Otherwise, it returns nil. Use this method rather than a direct reference to the Items property to avoid depending on the order of the entries.

To locate more than one parameter at a time by name, use the GetParamList method instead. To get only the value of a named parameter, use the ParamValues property.

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4.4.1.16.3.2 ParamByName Method

Searches for a parameter with the specified name.

Class

[TDAParams](#)

Syntax

```
function ParamByName(const value: string): TDAParam;
```

Parameters

Value

Holds the parameter name.

Return Value

a parameter, if the match was found. otherwise an exception is raised.

Remarks

Use the ParamByName method to find a parameter with the name passed in Value. If a match was found, ParamByName returns the parameter. Otherwise, an exception is raised. Use this method rather than a direct reference to the [Items](#) property to avoid depending on the order of the entries.

To locate a parameter by name without raising an exception if the parameter is not found, use the FindParam method.

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4.4.1.17 TMacro Class

Object that represents the value of a macro.

For a list of all members of this type, see [TMacro](#) members.

Unit

DBAccess

Syntax

```
TMacro = class(TCollectionItem);
```

Remarks

TMacro object represents the value of a macro. Macro is a variable that holds string value. You just insert **&** MacroName in a SQL query text and change the value of macro by the Macro property editor at design time or the Value property at run time. At the time of opening query macro is replaced by its value.

If by any reason it is not convenient for you to use the ' **&** ' symbol as a character of macro replacement, change the value of the MacroChar variable.

See Also

- [TMacros](#)

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4.4.1.17.1 Members

[TMacro](#) class overview.

Properties

Name	Description
Active	Used to determine if the macro should be expanded.
AsDateTime	Used to set the TDateTime value to a macro.
AsFloat	Used to set the float value to a macro.
AsInteger	Used to set the integer value to a macro.
AsString	Used to assign the string value to a macro.
Name	Used to identify a particular macro.
Value	Used to set the value to a macro.

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4.4.1.17.2 Properties

Properties of the **TMacro** class.

For a complete list of the **TMacro** class members, see the [TMacro Members](#) topic.

Public

Name	Description
AsDateTime	Used to set the TDateTime value to a macro.
AsFloat	Used to set the float value to a macro.

AsInteger	Used to set the integer value to a macro.
AsString	Used to assign the string value to a macro.

Published

Name	Description
Active	Used to determine if the macro should be expanded.
Name	Used to identify a particular macro.
Value	Used to set the value to a macro.

See Also

- [TMacro Class](#)
- [TMacro Class Members](#)

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4.4.1.17.2.1 Active Property

Used to determine if the macro should be expanded.

Class

[TMacro](#)

Syntax

```
property Active: boolean default True;
```

Remarks

When set to True, the macro will be expanded, otherwise macro definition is replaced by null string. You can use the Active property to modify the SQL property.

The default value is True.

Example

```
VirtualQuery.SQL.Text := 'SELECT * FROM Dept WHERE DeptNo > 20 &Cond1';  
VirtualQuery.Macros[0].Value := 'and DName is NULL';  
VirtualQuery.Macros[0].Active:= False;
```

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4.4.1.17.2.2 AsDateTime Property

Used to set the TDateTime value to a macro.

Class

[TMacro](#)

Syntax

```
property AsDateTime: TDateTime;
```

Remarks

Use the AsDateTime property to set the TDateTime value to a macro.

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4.4.1.17.2.3 AsFloat Property

Used to set the float value to a macro.

Class

[TMacro](#)

Syntax

```
property AsFloat: double;
```

Remarks

Use the AsFloat property to set the float value to a macro.

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4.4.1.17.2.4 AsInteger Property

Used to set the integer value to a macro.

Class

[TMacro](#)

Syntax

```
property AsInteger: integer;
```

Remarks

Use the AsInteger property to set the integer value to a macro.

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4.4.1.17.2.5 AsString Property

Used to assign the string value to a macro.

Class

[TMacro](#)

Syntax

```
property AsString: string;
```

Remarks

Use the AsString property to assign the string value to a macro. Read the AsString property to determine the value of macro represented as a string.

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4.4.1.17.2.6 Name Property

Used to identify a particular macro.

Class

[TMacro](#)

Syntax

```
property Name: string;
```

Remarks

Use the Name property to identify a particular macro.

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4.4.1.17.2.7 Value Property

Used to set the value to a macro.

Class

[TMacro](#)

Syntax

```
property value: string;
```

Remarks

Use the Value property to set the value to a macro.

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4.4.1.18 TMacros Class

Controls a list of TMacro objects for the [TCustomDASQL.Macros](#) or [TCustomDADataset](#) components.

For a list of all members of this type, see [TMacros](#) members.

Unit

DBAccess

Syntax

```
TMacros = class(TCollection);
```

Remarks

Use TMacros to manage a list of TMacro objects for the [TCustomDASQL](#) or [TCustomDADataset](#) components.

See Also

- [TMacro](#)

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4.4.1.18.1 Members

[TMacros](#) class overview.

Properties

Name	Description
Items	Used to iterate through all the macros parameters.

Methods

Name	Description
AssignValues	Copies the macros values and properties from the specified source.
Expand	Changes the macros in the passed SQL statement to their values.
FindMacro	Finds a macro with the specified name.
IsEqual	Compares itself with another TMacro object.

MacroByName	Used to search for a macro with the specified name.
Scan	Creates a macros from the passed SQL statement.

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4.4.1.18.2 Properties

Properties of the **TMacros** class.

For a complete list of the **TMacros** class members, see the [TMacros Members](#) topic.

Public

Name	Description
Items	Used to iterate through all the macros parameters.

See Also

- [TMacros Class](#)
- [TMacros Class Members](#)

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4.4.1.18.2.1 Items Property(Indexer)

Used to iterate through all the macros parameters.

Class

[TMacros](#)

Syntax

```
property Items[Index: integer]: TMacro; default;
```

Parameters

Index

Holds the index in the range 0..Count - 1.

Remarks

Use the Items property to iterate through all macros parameters. Index identifies the index in the range 0..Count - 1.

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4.4.1.18.3 Methods

Methods of the **TMacros** class.

For a complete list of the **TMacros** class members, see the [TMacros Members](#) topic.

Public

Name	Description
AssignValues	Copies the macros values and properties from the specified source.
Expand	Changes the macros in the passed SQL statement to their values.
FindMacro	Finds a macro with the specified name.
IsEqual	Compares itself with another TMacro object.
MacroByName	Used to search for a macro with the specified name.
Scan	Creates a macros from the passed SQL statement.

See Also

- [TMacros Class](#)
- [TMacros Class Members](#)

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4.4.1.18.3.1 AssignValues Method

Copies the macros values and properties from the specified source.

Class

[TMacros](#)

Syntax

```
procedure AssignValues(Value: TMacros);
```

Parameters

Value

Holds the source to copy the macros values and properties from.

Remarks

The Assign method copies the macros values and properties from the specified source. Macros are not recreated. Only the values of macros with matching names are assigned.

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4.4.1.18.3.2 Expand Method

Changes the macros in the passed SQL statement to their values.

Class

[TMacros](#)

Syntax

```
procedure Expand(var SQL: string);
```

Parameters

SQL

Holds the passed SQL statement.

Remarks

Call the Expand method to change the macros in the passed SQL statement to their values.

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4.4.1.18.3.3 FindMacro Method

Finds a macro with the specified name.

Class

[TMacros](#)

Syntax

```
function FindMacro(const value: string): TMacro;
```

Parameters

Value

Holds the value of a macro to search for.

Return Value

TMacro object if a match is found, nil otherwise.

Remarks

Call the FindMacro method to find a macro with the specified name. If a match is found, FindMacro returns the macro. Otherwise, it returns nil. Use this method instead of a direct reference to the [Items](#) property to avoid depending on the order of the items.

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4.4.1.18.3.4 IsEqual Method

Compares itself with another TMacro object.

Class

[TMacros](#)

Syntax

```
function IsEqual(Value: TMacros): boolean;
```

Parameters

Value

Holds the values of TMacro objects.

Return Value

True, if the number of TMacro objects and the values of all TMacro objects are equal.

Remarks

Call the IsEqual method to compare itself with another TMacro object. Returns True if the number of TMacro objects and the values of all TMacro objects are equal.

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4.4.1.18.3.5 MacroByName Method

Used to search for a macro with the specified name.

Class

[TMacros](#)

Syntax

```
function MacroByName(const value: string): TMacro;
```

Parameters

Value

Holds a name of the macro to search for.

Return Value

TMacro object, if a macro with specified name was found.

Remarks

Call the MacroByName method to find a Macro with the name passed in Value. If a match is found, MacroByName returns the Macro. Otherwise, an exception is raised. Use this method instead of a direct reference to the [Items](#) property to avoid depending on the order of the items.

To locate a macro by name without raising an exception if the parameter is not found, use the [FindMacro](#) method.

To set a value to a macro, use the [TMacro.Value](#) property.

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4.4.1.18.3.6 Scan Method

Creates a macros from the passed SQL statement.

Class

[TMacros](#)

Syntax

```
procedure Scan(const SQL: string);
```

Parameters

SQL

Holds the passed SQL statement.

Remarks

Call the Scan method to create a macros from the passed SQL statement. On that all existing TMacro objects are cleared.

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4.4.1.19 TPoolingOptions Class

This class allows setting up the behaviour of the connection pool.

For a list of all members of this type, see [TPoolingOptions](#) members.

Unit

DBAccess

Syntax

```
TPoolingOptions = class(TPersistent);
```

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4.4.1.19.1 Members

[TPoolingOptions](#) class overview.

Properties

Name	Description
ConnectionLifetime	Used to specify the maximum time during which an open connection can be used by connection pool.
MaxPoolSize	Used to specify the maximum number of connections that can be opened in connection pool.
MinPoolSize	Used to specify the minimum number of connections that can be opened in the connection pool.
PoolId	Used to specify an ID for a connection pool.
Validate	Used for a connection to be validated when it is returned from the pool.

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4.4.1.19.2 Properties

Properties of the **TPoolingOptions** class.

For a complete list of the **TPoolingOptions** class members, see the [TPoolingOptions Members](#) topic.

Published

Name	Description
ConnectionLifetime	Used to specify the maximum time during which an open connection can be used by connection pool.
MaxPoolSize	Used to specify the maximum number of connections that can be opened in connection pool.

MinPoolSize	Used to specify the minimum number of connections that can be opened in the connection pool.
PoolId	Used to specify an ID for a connection pool.
Validate	Used for a connection to be validated when it is returned from the pool.

See Also

- [TPoolingOptions Class](#)
- [TPoolingOptions Class Members](#)

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4.4.1.19.2.1 ConnectionLifetime Property

Used to specify the maximum time during which an open connection can be used by connection pool.

Class

[TPoolingOptions](#)

Syntax

```
property ConnectionLifetime: integer default  
DefaultConnectionLifetime;
```

Remarks

Use the ConnectionLifeTime property to specify the maximum time during which an open connection can be used by connection pool. Measured in milliseconds. Pool deletes connections with exceeded connection lifetime when [TCustomDACConnection](#) is about to close. If ConnectionLifetime is set to 0 (by default), then the lifetime of connection is infinite. ConnectionLifetime concerns only inactive connections in the pool.

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4.4.1.19.2.2 MaxPoolSize Property

Used to specify the maximum number of connections that can be opened in connection pool.

Class

[TPoolingOptions](#)

Syntax

```
property MaxPoolSize: integer default DefValMaxPoolSize;
```

Remarks

Specifies the maximum number of connections that can be opened in connection pool. Once this value is reached, no more connections are opened. The valid values are 1 and higher.

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4.4.1.19.2.3 MinPoolSize Property

Used to specify the minimum number of connections that can be opened in the connection pool.

Class

[TPoolingOptions](#)

Syntax

```
property MinPoolSize: integer default DefValMinPoolSize;
```

Remarks

Use the MinPoolSize property to specify the minimum number of connections that can be opened in the connection pool.

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4.4.1.19.2.4 PoolId Property

Used to specify an ID for a connection pool.

Class

[TPoolingOptions](#)

Syntax

```
property PoolId: Integer default DefValPoolId;
```

Remarks

Use the PoolId property to make a group of connections use a specific connection pool.

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4.4.1.19.2.5 Validate Property

Used for a connection to be validated when it is returned from the pool.

Class

[TPoolingOptions](#)

Syntax

```
property validate: boolean default DefValValidate;
```

Remarks

If the Validate property is set to True, connection will be validated when it is returned from the pool. By default this option is set to False and pool does not validate connection when it is returned to be used by a TCustomDACConnection component.

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4.4.1.20 TSmartFetchOptions Class

Smart fetch options are used to set up the behavior of the SmartFetch mode.

For a list of all members of this type, see [TSmartFetchOptions](#) members.

Unit

DBAccess

Syntax

```
TSmartFetchOptions = class(TPersistent);
```

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4.4.1.20.1 Members

[TSmartFetchOptions](#) class overview.

Properties

Name	Description
Enabled	Sets SmartFetch mode enabled or not.
LiveBlock	Used to minimize memory consumption.
PrefetchedFields	List of fields additional to key fields that will be read from the database on dataset open.
SQLGetKeyValues	SQL query for the read key and prefetched fields from the database.

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4.4.1.20.2 Properties

Properties of the **TSmartFetchOptions** class.

For a complete list of the **TSmartFetchOptions** class members, see the

[TSmartFetchOptions Members](#) topic.

Published

Name	Description
------	-------------

Enabled	Sets SmartFetch mode enabled or not.
LiveBlock	Used to minimize memory consumption.
PrefetchedFields	List of fields additional to key fields that will be read from the database on dataset open.
SQLGetKeyValues	SQL query for the read key and prefetched fields from the database.

See Also

- [TSmartFetchOptions Class](#)
- [TSmartFetchOptions Class Members](#)

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4.4.1.20.2.1 Enabled Property

Sets SmartFetch mode enabled or not.

Class

[TSmartFetchOptions](#)

Syntax

```
property Enabled: Boolean default False;
```

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4.4.1.20.2.2 LiveBlock Property

Used to minimize memory consumption.

Class

[TSmartFetchOptions](#)

Syntax

```
property LiveBlock: Boolean default True;
```

Remarks

If LiveBlock is True, then on navigating through a dataset forward or backward, memory will be allocated for records count defined in the the FetchRows property, and no additional memory will be allocated. But if you return records that were read from the database before, they will be read from the database again, because when you left block with these records, memory was free. So the LiveBlock mode minimizes memory consumption, but can decrease performance, because it can lead to repeated data reading from the database.

The default value of LiveBlock is False.

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4.4.1.20.2.3 PrefetchedFields Property

List of fields additional to key fields that will be read from the database on dataset open.

Class

[TSmartFetchOptions](#)

Syntax

```
property PrefetchedFields: string;
```

Remarks

If you are going to use locate, filter or sort by some fields, then these fields should be added to the prefetched fields list to avoid excessive reading from the database.

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4.4.1.20.2.4 SQLGetKeyValues Property

SQL query for the read key and prefetched fields from the database.

Class

[TSmartFetchOptions](#)

Syntax

```
property SQLGetKeyValues: TStrings;
```

Remarks

SQLGetKeyValues is used when the basic SQL query is complex and the query for reading the key and prefetched fields can't be generated automatically.

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4.4.2 Types

Types in the **DBAccess** unit.

Types

Name	Description
TAfterExecuteEvent	This type is used for the TCustomDADataset.AfterExecute and TCustomDASQL.AfterExecute events.
TAfterFetchEvent	This type is used for the TCustomDADataset.AfterFetch event.
TBeforeFetchEvent	This type is used for the TCustomDADataset.BeforeFetch event.
TConnectionLostEvent	This type is used for the TCustomDAConnection.OnConnectionLost event.
TDAConnectionErrorEvent	This type is used for the TCustomDAConnection.OnError event.
TDATransactionErrorEvent	This type is used for the E:Devart.Dac.TDATransaction.OnError event.
TRefreshOptions	Represents the set of TRefreshOption .

TUpdateExecuteEvent	This type is used for the TCustomDADataset.AfterUpdateExecute and TCustomDADataset.BeforeUpdateExecute events.
-------------------------------------	--

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4.4.2.1 TAfterExecuteEvent Procedure Reference

This type is used for the [TCustomDADataset.AfterExecute](#) and [TCustomDASQL.AfterExecute](#) events.

Unit

DBAccess

Syntax

```
TAfterExecuteEvent = procedure (Sender: TObject; Result: boolean)
of object;
```

Parameters

Sender

An object that raised the event.

Result

The result is True if SQL statement is executed successfully. False otherwise.

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4.4.2.2 TAfterFetchEvent Procedure Reference

This type is used for the [TCustomDADataset.AfterFetch](#) event.

Unit

DBAccess

Syntax

```
TAfterFetchEvent = procedure (DataSet: TCustomDADataset) of
```

```
object;
```

Parameters

DataSet

Holds the TCustomDADataset descendant to synchronize the record position with.

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4.4.2.3 TBeforeFetchEvent Procedure Reference

This type is used for the [TCustomDADataset.BeforeFetch](#) event.

Unit

DBAccess

Syntax

```
TBeforeFetchEvent = procedure (DataSet: TCustomDADataset; var  
Cancel: boolean) of object;
```

Parameters

DataSet

Holds the TCustomDADataset descendant to synchronize the record position with.

Cancel

True, if the current fetch operation should be aborted.

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4.4.2.4 TConnectionLostEvent Procedure Reference

This type is used for the [TCustomDACConnection.OnConnectionLost](#) event.

Unit

DBAccess

Syntax

```
TConnectionLostEvent = procedure (Sender: TObject; Component:  
TComponent; ConnLostCause: TConnLostCause; var RetryMode:  
TRetryMode) of object;
```

Parameters

Sender

An object that raised the event.

Component

ConnLostCause

The reason of the connection loss.

RetryMode

The application behavior when connection is lost.

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4.4.2.5 TDAConnectionErrorEvent Procedure Reference

This type is used for the [TCustomDACConnection.OnError](#) event.

Unit

DBAccess

Syntax

```
TDAConnectionErrorEvent = procedure (Sender: TObject; E: EDAError;  
var Fail: boolean) of object;
```

Parameters

Sender

An object that raised the event.

E

The error information.

Fail

False, if an error dialog should be prevented from being displayed and EAbort exception should be raised to cancel current operation .

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4.4.2.6 TDATransactionErrorEvent Procedure Reference

This type is used for the E:Devart.Dac.TDATransaction.OnError event.

Unit

DBAccess

Syntax

```
TDATransactionErrorEvent = procedure (Sender: TObject; E: EDAError; var Fail: boolean) of object;
```

Parameters

Sender

An object that raised the event.

E

The error code.

Fail

False, if an error dialog should be prevented from being displayed and EAbort exception to cancel the current operation should be raised.

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4.4.2.7 TRefreshOptions Set

Represents the set of [TRefreshOption](#).

Unit

DBAccess

Syntax

```
TRefreshOptions = set of TRefreshOption;
```

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4.4.2.8 TUpdateExecuteEvent Procedure Reference

This type is used for the TCustomDADataset.AfterUpdateExecute and TCustomDADataset.BeforeUpdateExecute events.

Unit

DBAccess

Syntax

```
TUpdateExecuteEvent = procedure (Sender: TDataSet; StatementTypes: TStatementTypes; Params: TDAParams) of object;
```

Parameters

Sender

An object that raised the event.

StatementTypes

Holds the type of the SQL statement being executed.

Params

Holds the parameters with which the SQL statement will be executed.

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4.4.3 Enumerations

Enumerations in the **DBAccess** unit.

Enumerations

Name	Description
TCheckMode	Specifies the action to take when another user makes modifications to a record.
TLabelSet	Sets the language of labels in the connect dialog.
TLockMode	Specifies the lock mode.
TRefreshOption	Indicates when the editing record will be refreshed.
TRetryMode	Specifies the application behavior when connection is lost.

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4.4.3.1 TCheckMode Enumeration

Specifies the action to take when another user makes modifications to a record.

Unit

DBAccess

Syntax

```
TCheckMode = (cmNone, cmException, cmRefresh);
```

Values

Value	Meaning
cmException	If a record was changed, TVirtualDataSet raises an exception.
cmNone	No check is performed. The default value.
cmRefresh	If a record was changed, TVirtualDataSet refreshes it.

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4.4.3.2 TLabelSet Enumeration

Sets the language of labels in the connect dialog.

Unit

DBAccess

Syntax

```
TLabelSet = (lsCustom, lsEnglish, lsFrench, lsGerman, lsItalian, lsPolish, lsPortuguese, lsRussian, lsSpanish);
```

Values

Value	Meaning
lsCustom	Set the language of labels in the connect dialog manually.
lsEnglish	Set English as the language of labels in the connect dialog.
lsFrench	Set French as the language of labels in the connect dialog.
lsGerman	Set German as the language of labels in the connect dialog.
lsItalian	Set Italian as the language of labels in the connect dialog.
lsPolish	Set Polish as the language of labels in the connect dialog.
lsPortuguese	Set Portuguese as the language of labels in the connect dialog.
lsRussian	Set Russian as the language of labels in the connect dialog.
lsSpanish	Set Spanish as the language of labels in the connect dialog.

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4.4.3.3 TLockMode Enumeration

Specifies the lock mode.

Unit

DBAccess

Syntax

```
TLockMode = (lmNone, lmPessimistic, lmOptimistic);
```

Values

Value	Meaning
lmNone	No locking occurs. This mode should only be used in single user applications. The default value.
lmOptimistic	Locking occurs when the user posts an edited record, then the lock is released. Locking is done by the RefreshRecord method.
lmPessimistic	Locking occurs when the user starts editing a record. The lock is released after the user has posted or canceled the changes.

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4.4.3.4 TRefreshOption Enumeration

Indicates when the editing record will be refreshed.

Unit

DBAccess

Syntax

```
TRefreshOption = (roAfterInsert, roAfterUpdate, roBeforeEdit);
```

Values

Value	Meaning
-------	---------

roAfterInsert	Refresh is performed after inserting.
roAfterUpdate	Refresh is performed after updating.
roBeforeEdit	Refresh is performed by Edit method.

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4.4.3.5 TRetryMode Enumeration

Specifies the application behavior when connection is lost.

Unit

DBAccess

Syntax

```
TRetryMode = (rmRaise, rmReconnect, rmReconnectExecute);
```

Values

Value	Meaning
rmRaise	An exception is raised.
rmReconnect	Reconnect is performed and then exception is raised.
rmReconnectExecute	Reconnect is performed and abortive operation is reexecuted. Exception is not raised.

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4.5 MemData

4.5.1 Classes

Classes in the **MemData** unit.

Classes

Name	Description
TAttribute	TAttribute is not used in VirtualDAC.
TBlob	Holds large object value for

	field and parameter dtBlob, dtMemo data types.
TCompressedBlob	Holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data.
TDBObject	A base class for classes that work with user-defined data types that have attributes.
TMemData	Implements in-memory database.
TObjectType	This class is not used.
TSharedObject	A base class that allows to simplify memory management for object referenced by several other objects.

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4.5.1.1 TAttribute Class

TAttribute is not used in VirtualDAC.

For a list of all members of this type, see [TAttribute](#) members.

Unit

MemData

Syntax

```
TAttribute = class(System.TObject);
```

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4.5.1.1.1 Members

[TAttribute](#) class overview.

Properties

Name	Description
AttributeNo	Returns an attribute's ordinal position in object.
DataSize	Returns the size of an attribute value in internal representation.
DataType	Returns the type of data that was assigned to the Attribute.
Length	Returns the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.
ObjectType	Returns a TObjectType object for an object attribute.
Offset	Returns an offset of the attribute value in internal representation.
Owner	Indicates TObjectType that uses the attribute to represent one of its attributes.
Scale	Returns the scale of dtFloat and dtInteger attributes.
Size	Returns the size of an attribute value in external representation.

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4.5.1.1.2 Properties

Properties of the **TAttribute** class.

For a complete list of the **TAttribute** class members, see the [TAttribute Members](#) topic.

Public

Name	Description
AttributeNo	Returns an attribute's ordinal position in object.
DataSize	Returns the size of an

	attribute value in internal representation.
DataType	Returns the type of data that was assigned to the Attribute.
Length	Returns the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.
ObjectType	Returns a TObjectType object for an object attribute.
Offset	Returns an offset of the attribute value in internal representation.
Owner	Indicates TObjectType that uses the attribute to represent one of its attributes.
Scale	Returns the scale of dtFloat and dtInteger attributes.
Size	Returns the size of an attribute value in external representation.

See Also

- [TAttribute Class](#)
- [TAttribute Class Members](#)

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4.5.1.1.2.1 AttributeNo Property

Returns an attribute's ordinal position in object.

Class

[TAttribute](#)

Syntax

```
property AttributeNo: word;
```

Remarks

Use the AttributeNo property to learn an attribute's ordinal position in object, where 1 is the first field.

See Also

- [TObjectType.Attributes](#)

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4.5.1.1.2.2 DataSize Property

Returns the size of an attribute value in internal representation.

Class

[TAttribute](#)

Syntax

```
property DataSize: Integer;
```

Remarks

Use the DataSize property to learn the size of an attribute value in internal representation.

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4.5.1.1.2.3 DataType Property

Returns the type of data that was assigned to the Attribute.

Class

[TAttribute](#)

Syntax

```
property DataType: word;
```

Remarks

Use the DataType property to discover the type of data that was assigned to the Attribute.

Possible values: dtDate, dtFloat, dtInteger, dtString, dtObject.

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4.5.1.1.2.4 Length Property

Returns the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.

Class

[TAttribute](#)

Syntax

```
property Length: word;
```

Remarks

Use the Length property to learn the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.

See Also

- [Scale](#)

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4.5.1.1.2.5 ObjectType Property

Returns a TObjectType object for an object attribute.

Class

[TAttribute](#)

Syntax

```
property objectType: TObjectType;
```

Remarks

Use the ObjectType property to return a TObjectType object for an object attribute.

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4.5.1.1.2.6 Offset Property

Returns an offset of the attribute value in internal representation.

Class

[TAttribute](#)

Syntax

```
property offset: Integer;
```

Remarks

Use the DataSize property to learn an offset of the attribute value in internal representation.

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4.5.1.1.2.7 Owner Property

Indicates TObjectType that uses the attribute to represent one of its attributes.

Class

[TAttribute](#)

Syntax

```
property owner: TObjectType;
```

Remarks

Check the value of the Owner property to determine TObjectType that uses the attribute to represent one of its attributes. Applications should not assign the Owner property directly.

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4.5.1.1.2.8 Scale Property

Returns the scale of dtFloat and dtInteger attributes.

Class

[TAttribute](#)

Syntax

```
property Scale: word;
```

Remarks

Use the Scale property to learn the scale of dtFloat and dtInteger attributes.

See Also

- [Length](#)

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4.5.1.1.2.9 Size Property

Returns the size of an attribute value in external representation.

Class

[TAttribute](#)

Syntax

```
property Size: Integer;
```

Remarks

Read Size to learn the size of an attribute value in external representation.

For example:

dtDate	8 (sizeof(TDateTi me))
--------	------------------------------

dtFloat	8 (sizeof(Double))
dtInteger	4 (sizeof(Integer))

See Also

- [DataSize](#)

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4.5.1.2 TBlob Class

Holds large object value for field and parameter dtBlob, dtMemo data types.

For a list of all members of this type, see [TBlob](#) members.

Unit

MemData

Syntax

```
TBlob = class(TSharedObject);
```

Remarks

Object TBlob holds large object value for the field and parameter dtBlob, dtMemo, dtWideMemo data types.

Inheritance Hierarchy

[TSharedObject](#)

TBlob

See Also

- [TMemDataSet.GetBlob](#)

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4.5.1.2.1 Members

[TBlob](#) class overview.

Properties

Name	Description
AsString	Used to manipulate BLOB value as string.
AsWideString	Used to manipulate BLOB value as Unicode string.
IsUnicode	Gives choice of making TBlob store and process data in Unicode format or not.
RefCount (inherited from TSharedObject)	Used to return the count of reference to a TSharedObject object.
Size	Used to learn the size of the TBlob value in bytes.

Methods

Name	Description
AddRef (inherited from TSharedObject)	Increments the reference count for the number of references dependent on the TSharedObject object.
Assign	Sets BLOB value from another TBlob object.
Clear	Deletes the current value in TBlob object.
LoadFromFile	Loads the contents of a file into a TBlob object.
LoadFromStream	Copies the contents of a stream into the TBlob object.
Read	Acquires a raw sequence of bytes from the data stored in TBlob.
Release (inherited from TSharedObject)	Decrements the reference count.
SaveToFile	Saves the contents of the TBlob object to a file.

SaveToStream	Copies the contents of a TBlob object to a stream.
Truncate	Sets new TBlob size and discards all data over it.
Write	Stores a raw sequence of bytes into a TBlob object.

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4.5.1.2.2 Properties

Properties of the **TBlob** class.

For a complete list of the **TBlob** class members, see the [TBlob Members](#) topic.

Public

Name	Description
AsString	Used to manipulate BLOB value as string.
AsWideString	Used to manipulate BLOB value as Unicode string.
IsUnicode	Gives choice of making TBlob store and process data in Unicode format or not.
RefCount (inherited from TSharedObject)	Used to return the count of reference to a TSharedObject object.
Size	Used to learn the size of the TBlob value in bytes.

See Also

- [TBlob Class](#)
- [TBlob Class Members](#)

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4.5.1.2.2.1 AsString Property

Used to manipulate BLOB value as string.

Class

[TBlob](#)

Syntax

```
property AsString: string;
```

Remarks

Use the AsString property to manipulate BLOB value as string.

See Also

- [Assign](#)
- [AsWideString](#)

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4.5.1.2.2.2 AsWideString Property

Used to manipulate BLOB value as Unicode string.

Class

[TBlob](#)

Syntax

```
property AswideString: string;
```

Remarks

Use the AsWideString property to manipulate BLOB value as Unicode string.

See Also

- [Assign](#)
- [AsString](#)

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4.5.1.2.2.3 IsUnicode Property

Gives choice of making TBlob store and process data in Unicode format or not.

Class

[TBlob](#)

Syntax

```
property IsUnicode: boolean;
```

Remarks

Set IsUnicode to True if you want TBlob to store and process data in Unicode format.

Note: changing this property raises an exception if TBlob is not empty.

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4.5.1.2.2.4 Size Property

Used to learn the size of the TBlob value in bytes.

Class

[TBlob](#)

Syntax

```
property size: cardinal;
```

Remarks

Use the Size property to find out the size of the TBlob value in bytes.

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4.5.1.2.3 Methods

Methods of the **TBlob** class.

For a complete list of the **TBlob** class members, see the [TBlob Members](#) topic.

Public

Name	Description
AddRef (inherited from TSharedObject)	Increments the reference count for the number of references dependent on the TSharedObject object.
Assign	Sets BLOB value from another TBlob object.
Clear	Deletes the current value in TBlob object.
LoadFromFile	Loads the contents of a file into a TBlob object.
LoadFromStream	Copies the contents of a stream into the TBlob object.
Read	Acquires a raw sequence of bytes from the data stored in TBlob.
Release (inherited from TSharedObject)	Decrements the reference count.
SaveToFile	Saves the contents of the TBlob object to a file.
SaveToStream	Copies the contents of a TBlob object to a stream.
Truncate	Sets new TBlob size and discards all data over it.
Write	Stores a raw sequence of bytes into a TBlob object.

See Also

- [TBlob Class](#)
- [TBlob Class Members](#)

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4.5.1.2.3.1 Assign Method

Sets BLOB value from another TBlob object.

Class

[TBlob](#)

Syntax

```
procedure Assign(Source: TBlob);
```

Parameters

Source

Holds the BLOB from which the value to the current object will be assigned.

Remarks

Call the Assign method to set BLOB value from another TBlob object.

See Also

- [LoadFromStream](#)
- [AsString](#)
- [AsWideString](#)

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4.5.1.2.3.2 Clear Method

Deletes the current value in TBlob object.

Class

[TBlob](#)

Syntax

```
procedure Clear; virtual;
```

Remarks

Call the Clear method to delete the current value in TBlob object.

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4.5.1.2.3.3 LoadFromFile Method

Loads the contents of a file into a TBlob object.

Class

[TBlob](#)

Syntax

```
procedure LoadFromFile(const FileName: string);
```

Parameters

FileName

Holds the name of the file from which the TBlob value is loaded.

Remarks

Call the LoadFromFile method to load the contents of a file into a TBlob object. Specify the name of the file to load into the field as the value of the FileName parameter.

See Also

- [SaveToFile](#)

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4.5.1.2.3.4 LoadFromStream Method

Copies the contents of a stream into the TBlob object.

Class

[TBlob](#)

Syntax

```
procedure LoadFromStream(Stream: TStream); virtual;
```

Parameters

Stream

Holds the specified stream from which the field's value is copied.

Remarks

Call the LoadFromStream method to copy the contents of a stream into the TBlob object. Specify the stream from which the field's value is copied as the value of the Stream parameter.

See Also

- [SaveToStream](#)

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4.5.1.2.3.5 Read Method

Acquires a raw sequence of bytes from the data stored in TBlob.

Class

[TBlob](#)

Syntax

```
function Read(Position: Cardinal; Count: Cardinal; Dest: IntPtr):  
Cardinal; virtual;
```

Parameters

Position

Holds the starting point of the byte sequence.

Count

Holds the size of the sequence in bytes.

Dest

Holds a pointer to the memory area where to store the sequence.

Return Value

Actually read byte count if the sequence crosses object size limit.

Remarks

Call the Read method to acquire a raw sequence of bytes from the data stored in TBlob.

The Position parameter is the starting point of byte sequence which lasts Count number of bytes. The Dest parameter is a pointer to the memory area where to store the sequence.

If the sequence crosses object size limit, function will return actually read byte count.

See Also

- [Write](#)

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4.5.1.2.3.6 SaveToFile Method

Saves the contents of the TBlob object to a file.

Class

[TBlob](#)

Syntax

```
procedure SaveToFile(const FileName: string);
```

Parameters

FileName

Holds a string that contains the name of the file.

Remarks

Call the SaveToFile method to save the contents of the TBlob object to a file. Specify the name of the file as the value of the FileName parameter.

See Also

- [LoadFromFile](#)

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4.5.1.2.3.7 SaveToStream Method

Copies the contents of a TBlob object to a stream.

Class

[TBlob](#)

Syntax

```
procedure SaveToStream(Stream: TStream); virtual;
```

Parameters

Stream

Holds the name of the stream.

Remarks

Call the SaveToStream method to copy the contents of a TBlob object to a stream. Specify the name of the stream to which the field's value is saved as the value of the Stream parameter.

See Also

- [LoadFromStream](#)

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4.5.1.2.3.8 Truncate Method

Sets new TBlob size and discards all data over it.

Class

[TBlob](#)

Syntax

```
procedure Truncate(NewSize: Cardinal); virtual;
```

Parameters

NewSize

Holds the new size of TBlob.

Remarks

Call the Truncate method to set new TBlob size and discard all data over it. If NewSize is greater or equal TBlob.Size, it does nothing.

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4.5.1.2.3.9 Write Method

Stores a raw sequence of bytes into a TBlob object.

Class

[TBlob](#)

Syntax

```
procedure Write(Position: Cardinal; Count: Cardinal; Source:  
IntPtr); virtual;
```

Parameters

Position

Holds the starting point of the byte sequence.

Count

Holds the size of the sequence in bytes.

Source

Holds a pointer to a source memory area.

Remarks

Call the Write method to store a raw sequence of bytes into a TBlob object.

The Position parameter is the starting point of byte sequence which lasts Count number of bytes. The Source parameter is a pointer to a source memory area.

If the value of the Position parameter crosses current size limit of TBlob object, source data will be appended to the object data.

See Also

- [Read](#)

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4.5.1.3 TCompressedBlob Class

Holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data.

For a list of all members of this type, see [TCompressedBlob](#) members.

Unit

MemData

Syntax

```
TCompressedBlob = class(TBlob);
```

Remarks

TCompressedBlob is a descendant of the TBlob class. It holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data. For more information about using BLOB compression see [TCustomDADataset.Options](#).

Note: Internal compression functions are available in CodeGear Delphi 2007 for Win32, Borland Developer Studio 2006, Borland Delphi 2005, and Borland Delphi 7. To use BLOB compression under Borland Delphi 6 and Borland C++ Builder you should use your own compression functions. To use them set the CompressProc and UncompressProc variables declared in the MemUtils unit.

Example

```
type
  TCompressProc = function(dest: IntPtr; destLen: IntPtr; const source: IntPtr): IntPtr;
  TUncompressProc = function(dest: IntPtr; destLen: IntPtr; source: IntPtr): IntPtr;
var
  CompressProc: TCompressProc;
  UncompressProc: TUncompressProc;
```

Inheritance Hierarchy

[TSharedObject](#)

[TBlob](#)

TCompressedBlob

See Also

- [TBlob](#)
- [TMemDataSet.GetBlob](#)
- [TCustomDADataset.Options](#)

Reserved.

4.5.1.3.1 Members

[TCompressedBlob](#) class overview.

Properties

Name	Description
AsString (inherited from TBlob)	Used to manipulate BLOB value as string.
AsWideString (inherited from TBlob)	Used to manipulate BLOB value as Unicode string.
Compressed	Used to indicate if the Blob is compressed.
CompressedSize	Used to indicate compressed size of the Blob data.
IsUnicode (inherited from TBlob)	Gives choice of making TBlob store and process data in Unicode format or not.
RefCount (inherited from TSharedObject)	Used to return the count of reference to a TSharedObject object.
Size (inherited from TBlob)	Used to learn the size of the TBlob value in bytes.

Methods

Name	Description
AddRef (inherited from TSharedObject)	Increments the reference count for the number of references dependent on the TSharedObject object.
Assign (inherited from TBlob)	Sets BLOB value from another TBlob object.
Clear (inherited from TBlob)	Deletes the current value in TBlob object.
LoadFromFile (inherited from TBlob)	Loads the contents of a file into a TBlob object.
LoadFromStream (inherited from TBlob)	Copies the contents of a stream into the TBlob object.

Read (inherited from TBlob)	Acquires a raw sequence of bytes from the data stored in TBlob.
Release (inherited from TSharedObject)	Decrements the reference count.
SaveToFile (inherited from TBlob)	Saves the contents of the TBlob object to a file.
SaveToStream (inherited from TBlob)	Copies the contents of a TBlob object to a stream.
Truncate (inherited from TBlob)	Sets new TBlob size and discards all data over it.
Write (inherited from TBlob)	Stores a raw sequence of bytes into a TBlob object.

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4.5.1.3.2 Properties

Properties of the **TCompressedBlob** class.

For a complete list of the **TCompressedBlob** class members, see the [TCompressedBlob Members](#) topic.

Public

Name	Description
AsString (inherited from TBlob)	Used to manipulate BLOB value as string.
AsWideString (inherited from TBlob)	Used to manipulate BLOB value as Unicode string.
Compressed	Used to indicate if the Blob is compressed.
CompressedSize	Used to indicate compressed size of the Blob data.
IsUnicode (inherited from TBlob)	Gives choice of making TBlob store and process data in Unicode format or not.
RefCount (inherited from TSharedObject)	Used to return the count of reference to a TSharedObject object.

[Size](#) (inherited from [TBlob](#))

Used to learn the size of the TBlob value in bytes.

See Also

- [TCompressedBlob Class](#)
- [TCompressedBlob Class Members](#)

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4.5.1.3.2.1 Compressed Property

Used to indicate if the Blob is compressed.

Class

[TCompressedBlob](#)

Syntax

```
property Compressed: boolean;
```

Remarks

Indicates whether the Blob is compressed. Set this property to True or False to compress or decompress the Blob.

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4.5.1.3.2.2 CompressedSize Property

Used to indicate compressed size of the Blob data.

Class

[TCompressedBlob](#)

Syntax

```
property CompressedSize: Cardinal;
```

Remarks

Indicates compressed size of the Blob data.

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4.5.1.4 TDBObject Class

A base class for classes that work with user-defined data types that have attributes.

For a list of all members of this type, see [TDBObject](#) members.

Unit

MemData

Syntax

```
TDBObject = class(TSharedObject);
```

Remarks

TDBObject is a base class for classes that work with user-defined data types that have attributes.

Inheritance Hierarchy

[TSharedObject](#)

TDBObject

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4.5.1.4.1 Members

[TDBObject](#) class overview.

Properties

Name	Description
RefCount (inherited from TSharedObject)	Used to return the count of reference to a

	TSharedObject object.
--	-----------------------

Methods

Name	Description
AddRef (inherited from TSharedObject)	Increments the reference count for the number of references dependent on the TSharedObject object.
Release (inherited from TSharedObject)	Decrements the reference count.

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4.5.1.5 TMemData Class

Implements in-memory database.

For a list of all members of this type, see [TMemData](#) members.

Unit

MemData

Syntax

```
TMemData = class(TData);
```

Inheritance Hierarchy

TData

TMemData

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4.5.1.5.1 Members

[TMemData](#) class overview.

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4.5.1.6 TObjectType Class

This class is not used.

For a list of all members of this type, see [TObjectType](#) members.

Unit

MemData

Syntax

```
TObjectType = class(TSharedObject);
```

Inheritance Hierarchy

[TSharedObject](#)

TObjectType

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4.5.1.6.1 Members

[TObjectType](#) class overview.

Properties

Name	Description
AttributeCount	Used to indicate the number of attributes of type.
Attributes	Used to access separate attributes.
DataType	Used to indicate the type of object dtObject, dtArray or dtTable.
RefCount (inherited from TSharedObject)	Used to return the count of reference to a TSharedObject object.
Size	Used to learn the size of an object instance.

Methods

Name	Description
AddRef (inherited from TSharedObject)	Increments the reference count for the number of references dependent on the TSharedObject object.
FindAttribute	Indicates whether a specified Attribute component is referenced in the TAttributes object.
Release (inherited from TSharedObject)	Decrements the reference count.

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4.5.1.6.2 Properties

Properties of the **TObjectType** class.

For a complete list of the **TObjectType** class members, see the [TObjectType Members](#) topic.

Public

Name	Description
AttributeCount	Used to indicate the number of attributes of type.
Attributes	Used to access separate attributes.
DataType	Used to indicate the type of object dtObject, dtArray or dtTable.
RefCount (inherited from TSharedObject)	Used to return the count of reference to a TSharedObject object.
Size	Used to learn the size of an object instance.

See Also

- [TObjectType Class](#)
- [TObjectType Class Members](#)

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4.5.1.6.2.1 AttributeCount Property

Used to indicate the number of attributes of type.

Class

[TObjectType](#)

Syntax

```
property AttributeCount: Integer;
```

Remarks

Use the AttributeCount property to determine the number of attributes of type.

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4.5.1.6.2.2 Attributes Property(Indexer)

Used to access separate attributes.

Class

[TObjectType](#)

Syntax

```
property Attributes[Index: integer]: TAttribute;
```

Parameters

Index

Holds the attribute's ordinal position.

Remarks

Use the Attributes property to access individual attributes. The value of the Index parameter corresponds to the AttributeNo property of TAttribute.

See Also

- [TAttribute](#)
- [FindAttribute](#)

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4.5.1.6.2.3 DataType Property

Used to indicate the type of object dtObject, dtArray or dtTable.

Class

[TObjectType](#)

Syntax

```
property DataType: word;
```

Remarks

Use the DataType property to determine the type of object dtObject, dtArray or dtTable.

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4.5.1.6.2.4 Size Property

Used to learn the size of an object instance.

Class

[TObjectType](#)

Syntax

```
property Size: Integer;
```

Remarks

Use the Size property to find out the size of an object instance. Size is a sum of all attribute sizes.

See Also

- [TAttribute.Size](#)

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4.5.1.6.3 Methods

Methods of the **TObjectType** class.

For a complete list of the **TObjectType** class members, see the [TObjectType Members](#) topic.

Public

Name	Description
AddRef (inherited from TSharedObject)	Increments the reference count for the number of references dependent on the TSharedObject object.
FindAttribute	Indicates whether a specified Attribute component is referenced in the TAttributes object.
Release (inherited from TSharedObject)	Decrements the reference count.

See Also

- [TObjectType Class](#)
- [TObjectType Class Members](#)

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4.5.1.6.3.1 FindAttribute Method

Indicates whether a specified Attribute component is referenced in the TAttributes object.

Class

[TObjectType](#)

Syntax


```
function FindAttribute(const Name: string): TAttribute; virtual;
```

Parameters

Name

Holds the name of the attribute to search for.

Return Value

TAttribute, if an attribute with a matching name was found. Nil Otherwise.

Remarks

Call FindAttribute to determine if a specified Attribute component is referenced in the TAttributes object. Name is the name of the Attribute for which to search. If FindAttribute finds an Attribute with a matching name, it returns the TAttribute. Otherwise it returns nil.

See Also

- [TAttribute](#)
- [Attributes](#)

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4.5.1.7 TSharedObject Class

A base class that allows to simplify memory management for object referenced by several other objects.

For a list of all members of this type, see [TSharedObject](#) members.

Unit

MemData

Syntax

```
TSharedObject = class(System.TObject);
```

Remarks

TSharedObject allows to simplify memory management for object referenced by several other objects. TSharedObject holds a count of references to itself. When any object (referer object) is going to use TSharedObject, it calls the TSharedObject.AddRef method. Referer

object has to call the `TSharedObject.Release` method after using `TSharedObject`.

See Also

- [TBlob](#)
- [TObjectType](#)

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4.5.1.7.1 Members

[TSharedObject](#) class overview.

Properties

Name	Description
RefCount	Used to return the count of reference to a <code>TSharedObject</code> object.

Methods

Name	Description
AddRef	Increments the reference count for the number of references dependent on the <code>TSharedObject</code> object.
Release	Decrements the reference count.

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4.5.1.7.2 Properties

Properties of the **TSharedObject** class.

For a complete list of the **TSharedObject** class members, see the [TSharedObject Members](#) topic.

Public

Name	Description
RefCount	Used to return the count of reference to a TSharedObject object.

See Also

- [TSharedObject Class](#)
- [TSharedObject Class Members](#)

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4.5.1.7.2.1 RefCount Property

Used to return the count of reference to a TSharedObject object.

Class

[TSharedObject](#)

Syntax

```
property RefCount: Integer;
```

Remarks

Returns the count of reference to a TSharedObject object.

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4.5.1.7.3 Methods

Methods of the **TSharedObject** class.

For a complete list of the **TSharedObject** class members, see the [TSharedObject Members](#) topic.

Public

Name	Description
------	-------------

AddRef	Increments the reference count for the number of references dependent on the TSharedObject object.
Release	Decrements the reference count.

See Also

- [TSharedObject Class](#)
- [TSharedObject Class Members](#)

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4.5.1.7.3.1 AddRef Method

Increments the reference count for the number of references dependent on the TSharedObject object.

Class

[TSharedObject](#)

Syntax

```
procedure AddRef;
```

Remarks

Increments the reference count for the number of references dependent on the TSharedObject object.

See Also

- [Release](#)

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4.5.1.7.3.2 Release Method

Decrements the reference count.

Class

[TSharedObject](#)

Syntax

```
procedure Release;
```

Remarks

Call the Release method to decrement the reference count. When RefCount is 1, TSharedObject is deleted from memory.

See Also

- [AddRef](#)

4.5.2 Types

Types in the **MemData** unit.

Types

Name	Description
TLocateExOptions	Represents the set of TLocateExOption .
TUpdateRecKinds	Represents the set of TUpdateRecKind.

4.5.2.1 TLocateExOptions Set

Represents the set of [TLocateExOption](#).

Unit

MemData

Syntax

```
TLocateExOptions = set of TLocateExOption;
```

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4.5.2.2 TUpdateRecKinds Set

Represents the set of TUpdateRecKind.

Unit

MemData

Syntax

```
TUpdateRecKinds = set of TUpdateRecKind;
```

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4.5.3 Enumerations

Enumerations in the **MemData** unit.

Enumerations

Name	Description
TCompressBlobMode	Specifies when the values should be compressed and the way they should be stored.
TConnLostCause	Specifies the cause of the connection loss.
TDANumericType	Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.
TLocateExOption	Allows to set additional search parameters which will be used by the LocateEx

	method.
TSortType	Specifies a sort type for string fields.
TUpdateRecKind	Indicates records for which the ApplyUpdates method will be performed.

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4.5.3.1 TCompressBlobMode Enumeration

Specifies when the values should be compressed and the way they should be stored.

Unit

MemData

Syntax

```
TCompressBlobMode = (cbNone, cbClient, cbServer, cbClientServer);
```

Values

Value	Meaning
cbClient	Values are compressed and stored as compressed data at the client side. Before posting data to the server decompression is performed and data at the server side stored in the original form. Allows to reduce used client memory due to increase access time to field values. The time spent on the opening DataSet and executing Post increases.
cbClientServer	Values are compressed and stored in compressed form. Allows to decrease the volume of used memory at client and server sides. Access time to the field values increases as for cbClient. The time spent on opening DataSet and executing Post decreases. Note: On using cbServer or cbClientServer data on the server is stored as compressed. Other applications can add records in uncompressed format but can't read and write already compressed data. If compressed BLOB is partially changed by another application (if signature was not changed), DAC will consider its value as NULL.Blob compression is not applied to Memo fields because of possible cutting.
cbNone	Values not compressed. The default value.
cbServer	Values are compressed before passing to the server and store at

the server in compressed form. Allows to decrease database size on the server. Access time to the field values does not change. The time spent on opening DataSet and executing Post usually decreases.

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4.5.3.2 TConnLostCause Enumeration

Specifies the cause of the connection loss.

Unit

MemData

Syntax

```
TConnLostCause = (clUnknown, clExecute, clOpen, clRefresh, clApply, clServiceQuery, clTransStart, clConnectionApply, clConnect);
```

Values

Value	Meaning
clApply	Connection loss detected during DataSet.ApplyUpdates (Reconnect/Reexecute possible).
clConnect	Connection loss detected during connection establishing (Reconnect possible).
clConnectionApply	Connection loss detected during Connection.ApplyUpdates (Reconnect/Reexecute possible).
clExecute	Connection loss detected during SQL execution (Reconnect with exception is possible).
clOpen	Connection loss detected during execution of a SELECT statement (Reconnect with exception possible).
clRefresh	Connection loss detected during query opening (Reconnect/Reexecute possible).
clServiceQuery	Connection loss detected during service information request (Reconnect/Reexecute possible).
clTransStart	Connection loss detected during transaction start (Reconnect/Reexecute possible). clTransStart has less priority then clConnectionApply.
clUnknown	The connection loss reason is unknown.

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4.5.3.3 TDANumericType Enumeration

Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.

Unit

MemData

Syntax

```
TDANumericType = (ntFloat, ntBCD, ntFmtBCD);
```

Values

Value	Meaning
ntBCD	Data is stored on the client side as currency and represented as TBCDField. This format allows storing data with precision up to 0,0001.
ntFloat	Data stored on the client side is in double format and represented as TFloatField. The default value.
ntFmtBCD	Data is represented as TFMTBCDField. TFMTBCDField gives greater precision and accuracy than TBCDField, but it is slower.

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4.5.3.4 TLocateExOption Enumeration

Allows to set additional search parameters which will be used by the LocateEx method.

Unit

MemData

Syntax

```
TLocateExOption = (lxCaseInsensitive, lxPartialKey, lxNearest, lxNext, lxUp, lxPartialCompare);
```

Values

Value	Meaning
lxCasInsensitive	Similar to lxCasSensitive. Key fields and key values are matched without regard to the case.
lxCasSensitive	LocateEx moves the cursor to a specific record in a dataset or to the first record in the dataset that is greater than the values specified in the KeyValues parameter. For this option to work correctly dataset should be sorted by the fields the search is performed in. If dataset is not sorted, the function may return a line that is not connected with the search condition.
lxCasNext	LocateEx searches from the current record.
lxCasPartialCompare	Similar to lxCasPartialKey, but the difference is that it can process value entries in any position. For example, 'HAM' would match both 'HAMM', 'HAMMER.', and also 'MR HAMMER'.
lxCasPartialKey	Similar to lxCasPartialKey. Key values can include only a part of the matching key field value. For example, 'HAM' would match both 'HAMM' and 'HAMMER.', but not 'MR HAMMER'.
lxCasUp	LocateEx searches from the current record to the first record.

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4.5.3.5 TSortType Enumeration

Specifies a sort type for string fields.

Unit

MemData

Syntax

```
TSortType = (stCaseSensitive, stCaseInsensitive, stBinary);
```

Values

Value	Meaning
stBinary	Sorting by character ordinal values (this comparison is also case sensitive).
stCaseInsensitive	Sorting without case sensitivity.
stCaseSensitive	Sorting with case sensitivity.

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4.5.3.6 TUpdateReckind Enumeration

Indicates records for which the ApplyUpdates method will be performed.

Unit

MemData

Syntax

```
TUpdateReckind = (ukUpdate, ukInsert, ukDelete);
```

Values

Value	Meaning
ukDelete	ApplyUpdates will be performed for deleted records.
ukInsert	ApplyUpdates will be performed for inserted records.
ukUpdate	ApplyUpdates will be performed for updated records.

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4.6 MemDS

4.6.1 Classes

Classes in the **MemDS** unit.

Classes

Name	Description
TMemDataSet	A base class for working with data and manipulating data in memory.

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4.6.1.1 TMemDataSet Class

A base class for working with data and manipulating data in memory.

For a list of all members of this type, see [TMemDataSet](#) members.

Unit

MemDS

Syntax

```
TMemDataSet = class(TDataSet);
```

Remarks

TMemDataSet derives from the TDataSet database-engine independent set of properties, events, and methods for working with data and introduces additional techniques to store and manipulate data in memory.

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4.6.1.1.1 Members

[TMemDataSet](#) class overview.

Properties

Name	Description
CachedUpdates	Used to enable or disable the use of cached updates for a dataset.
IndexFieldNames	Used to get or set the list of fields on which the recordset is sorted.
KeyExclusive	Specifies the upper and lower boundaries for a range.
LocalConstraints	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate	Used to prevent implicit update of rows on database server.
Prepared	Determines whether a query is prepared for execution or

	not.
Ranged	Indicates whether a range is applied to a dataset.
UpdateRecordTypes	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending	Used to check the status of the cached updates buffer.

Methods

Name	Description
ApplyRange	Applies a range to the dataset.
ApplyUpdates	Overloaded. Writes dataset's pending cached updates to a database.
CancelRange	Removes any ranges currently in effect for a dataset.
CancelUpdates	Clears all pending cached updates from cache and restores dataset in its prior state.
CommitUpdates	Clears the cached updates buffer.
DeferredPost	Makes permanent changes to the database server.
EditRangeEnd	Enables changing the ending value for an existing range.
EditRangeStart	Enables changing the starting value for an existing range.
GetBlob	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
Locate	Overloaded. Searches a dataset for a specific record and positions the cursor on it.

LocateEx	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare	Allocates resources and creates field components for a dataset.
RestoreUpdates	Marks all records in the cache of updates as unapplied.
RevertRecord	Cancels changes made to the current record when cached updates are enabled.
SaveToJSON	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange	Sets the starting and ending values of a range, and applies it.
SetRangeEnd	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult	Reads the status of the latest call to the ApplyUpdates method while cached updates are

	enabled.
UpdateStatus	Indicates the current update status for the dataset when cached updates are enabled.

Events

Name	Description
OnUpdateError	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord	Occurs when a single update component can not handle the updates.

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4.6.1.1.2 Properties

Properties of the **TMemDataSet** class.

For a complete list of the **TMemDataSet** class members, see the [TMemDataSet Members](#) topic.

Public

Name	Description
CachedUpdates	Used to enable or disable the use of cached updates for a dataset.
IndexFieldNames	Used to get or set the list of fields on which the recordset is sorted.
KeyExclusive	Specifies the upper and lower boundaries for a range.
LocalConstraints	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of

	opening TMemDataSet.
LocalUpdate	Used to prevent implicit update of rows on database server.
Prepared	Determines whether a query is prepared for execution or not.
Ranged	Indicates whether a range is applied to a dataset.
UpdateRecordTypes	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending	Used to check the status of the cached updates buffer.

See Also

- [TMemDataSet Class](#)
- [TMemDataSet Class Members](#)

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4.6.1.1.2.1 CachedUpdates Property

Used to enable or disable the use of cached updates for a dataset.

Class

[TMemDataSet](#)

Syntax

```
property cachedUpdates: boolean default False;
```

Remarks

Use the CachedUpdates property to enable or disable the use of cached updates for a dataset. Setting CachedUpdates to True enables updates to a dataset (such as posting changes, inserting new records, or deleting records) to be stored in an internal cache on the client side instead of being written directly to the dataset's underlying database tables. When

changes are completed, an application writes all cached changes to the database in the context of a single transaction.

Cached updates are especially useful for client applications working with remote database servers. Enabling cached updates brings up the following benefits:

- Fewer transactions and shorter transaction times.
- Minimized network traffic.

The potential drawbacks of enabling cached updates are:

- Other applications can access and change the actual data on the server while users are editing local copies of data, resulting in an update conflict when cached updates are applied to the database.
- Other applications cannot access data changes made by an application until its cached updates are applied to the database.

The default value is False.

Note: When establishing master/detail relationship the `CachedUpdates` property of detail dataset works properly only when [TDADatasetOptions.LocalMasterDetail](#) is set to True.

See Also

- [UpdatesPending](#)
- [TMemDataSet.ApplyUpdates](#)
- [RestoreUpdates](#)
- [CommitUpdates](#)
- [CancelUpdates](#)
- [UpdateStatus](#)
- [TCustomDADataset.Options](#)

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4.6.1.1.2.2 IndexFieldNames Property

Used to get or set the list of fields on which the recordset is sorted.

Class

[TMemDataSet](#)

Syntax

```
property IndexFieldNames: string;
```

Remarks

Use the IndexFieldNames property to get or set the list of fields on which the recordset is sorted. Specify the name of each column in IndexFieldNames to use as an index for a table. Column names order is significant. Separate names with semicolons. The specified columns don't need to be indexed. Set IndexFieldNames to an empty string to reset the recordset to the sort order originally used when the recordset's data was first retrieved.

Each field may optionally be followed by the keyword ASC / DESC or CIS / CS / BIN.

Use ASC, DESC keywords to specify a sort order for the field. If one of these keywords is not used, the default sort order for the field is ascending.

Use CIS, CS or BIN keywords to specify the sort type for string fields:

CIS - compare without case sensitivity;

CS - compare with case sensitivity;

BIN - compare by character ordinal values (this comparison is also case sensitive).

If a dataset uses a [TCustomDACConnection](#) component, the default value of the sort type depends on the [TCustomDACConnection.Options](#) option of the connection. If a dataset does not use a connection (T:Devart.Dac.TVirtualTable dataset), the default is CS.

Read IndexFieldNames to determine the field or fields on which the recordset is sorted.

Sorting is performed locally.

Note:

You cannot sort by BLOB fields.

IndexFieldNames cannot be set to True when [TCustomDADataset.UniDirectional](#)=True.

Example

The following procedure illustrates how to set IndexFieldNames in response to a button click:

```
DataSet1.IndexFieldNames := 'LastName ASC CIS; DateDue DESC';
```

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4.6.1.1.2.3 KeyExclusive Property

Specifies the upper and lower boundaries for a range.

Class

[TMemDataSet](#)

Syntax

```
property KeyExclusive: Boolean;
```

Remarks

Use KeyExclusive to specify whether a range includes or excludes the records that match its specified starting and ending values.

By default, KeyExclusive is False, meaning that matching values are included.

To restrict a range to those records that are greater than the specified starting value and less than the specified ending value, set KeyExclusive to True.

See Also

- [SetRange](#)
- [SetRangeEnd](#)
- [SetRangeStart](#)

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4.6.1.1.2.4 LocalConstraints Property

Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.

Class

[TMemDataSet](#)

Syntax

```
property LocalConstraints: boolean default True;
```

Remarks

Use the LocalConstraints property to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet. When LocalConstraints is True, TMemDataSet ignores NOT NULL server constraints. It is useful for tables that have fields updated by triggers.

LocalConstraints is obsolete, and is only included for backward compatibility.

The default value is True.

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4.6.1.1.2.5 LocalUpdate Property

Used to prevent implicit update of rows on database server.

Class

[TMemDataSet](#)

Syntax

```
property LocalUpdate: boolean default False;
```

Remarks

Set the LocalUpdate property to True to prevent implicit update of rows on database server. Data changes are cached locally in client memory.

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4.6.1.1.2.6 Prepared Property

Determines whether a query is prepared for execution or not.

Class

[TMemDataSet](#)

Syntax

```
property Prepared: boolean;
```

Remarks

Determines whether a query is prepared for execution or not.

See Also

- [Prepare](#)

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4.6.1.1.2.7 Ranged Property

Indicates whether a range is applied to a dataset.

Class

[TMemDataSet](#)

Syntax

```
property Ranged: Boolean;
```

Remarks

Use the Ranged property to detect whether a range is applied to a dataset.

See Also

- [SetRange](#)

- [SetRangeEnd](#)
- [SetRangeStart](#)

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4.6.1.1.2.8 UpdateRecordTypes Property

Used to indicate the update status for the current record when cached updates are enabled.

Class

[TMemDataSet](#)

Syntax

```
property UpdateRecordTypes: TUpdateRecordTypes default  
[rtModified, rtInserted, rtUnmodified];
```

Remarks

Use the UpdateRecordTypes property to determine the update status for the current record when cached updates are enabled. Update status can change frequently as records are edited, inserted, or deleted. UpdateRecordTypes offers a convenient method for applications to assess the current status before undertaking or completing operations that depend on the update status of records.

See Also

- [CachedUpdates](#)

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4.6.1.1.2.9 UpdatesPending Property

Used to check the status of the cached updates buffer.

Class

[TMemDataSet](#)

Syntax

property UpdatesPending: boolean;

Remarks

Use the UpdatesPending property to check the status of the cached updates buffer. If UpdatesPending is True, then there are edited, deleted, or inserted records remaining in local cache and not yet applied to the database. If UpdatesPending is False, there are no such records in the cache.

See Also

- [CachedUpdates](#)

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4.6.1.1.3 Methods

Methods of the **TMemDataSet** class.

For a complete list of the **TMemDataSet** class members, see the [TMemDataSet Members](#) topic.

Public

Name	Description
ApplyRange	Applies a range to the dataset.
ApplyUpdates	Overloaded. Writes dataset's pending cached updates to a database.
CancelRange	Removes any ranges currently in effect for a dataset.
CancelUpdates	Clears all pending cached updates from cache and restores dataset in its prior state.
CommitUpdates	Clears the cached updates buffer.
DeferredPost	Makes permanent changes to the database server.

EditRangeEnd	Enables changing the ending value for an existing range.
EditRangeStart	Enables changing the starting value for an existing range.
GetBlob	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
Locate	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare	Allocates resources and creates field components for a dataset.
RestoreUpdates	Marks all records in the cache of updates as unapplied.
RevertRecord	Cancels changes made to the current record when cached updates are enabled.
SaveToJSON	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange	Sets the starting and ending values of a range, and applies it.
SetRangeEnd	Indicates that subsequent assignments to field values specify the end of the range

	of rows to include in the dataset.
SetRangeStart	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus	Indicates the current update status for the dataset when cached updates are enabled.

See Also

- [TMemDataSet Class](#)
- [TMemDataSet Class Members](#)

4.6.1.1.3.1 ApplyRange Method

Applies a range to the dataset.

Class

[TMemDataSet](#)

Syntax

```
procedure ApplyRange;
```

Remarks

Call ApplyRange to cause a range established with [SetRangeStart](#) and [SetRangeEnd](#), or

[EditRangeStart](#) and [EditRangeEnd](#), to take effect.

When a range is in effect, only those records that fall within the range are available to the application for viewing and editing.

After a call to `ApplyRange`, the cursor is left on the first record in the range.

See Also

- [CancelRange](#)
- [EditRangeEnd](#)
- [EditRangeStart](#)
- [IndexFieldNames](#)
- [SetRange](#)
- [SetRangeEnd](#)
- [SetRangeStart](#)

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4.6.1.1.3.2 ApplyUpdates Method

Writes dataset's pending cached updates to a database.

Class

[TMemDataSet](#)

Overload List

Name	Description
ApplyUpdates	Writes dataset's pending cached updates to a database.
ApplyUpdates(const UpdateRecKinds: TUpdateRecKinds)	Writes dataset's pending cached updates of specified records to a database.

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Writes dataset's pending cached updates to a database.

Class

[TMemDataSet](#)

Syntax

```
procedure ApplyUpdates; overload; virtual;
```

Remarks

Call the ApplyUpdates method to write a dataset's pending cached updates to a database.

This method passes cached data to the database, but the changes are not committed to the database if there is an active transaction. An application must explicitly call the database component's Commit method to commit the changes to the database if the write is successful, or call the database's Rollback method to undo the changes if there is an error.

Following a successful write to the database, and following a successful call to a connection's Commit method, an application should call the CommitUpdates method to clear the cached update buffer.

Note: The preferred method for updating datasets is to call a connection component's ApplyUpdates method rather than to call each individual dataset's ApplyUpdates method. The connection component's ApplyUpdates method takes care of committing and rolling back transactions and clearing the cache when the operation is successful.

Example

The following procedure illustrates how to apply a dataset's cached updates to a database in response to a button click:

```
procedure ApplyButtonClick(Sender: TObject);  
begin  
  with Query1 do begin  
    Connection1.StartTransaction;  
    try  
      // ... modify data  
      ApplyUpdates;           // try to write the updates to the database  
      Connection1.Commit;     // on success, commit the changes  
    except  
      RestoreUpdates;         // restore update result for applied records  
      Connection1.Rollback;   // on failure, undo the changes  
      raise;                  // raise the exception to prevent a call to Commit  
    end;
```

```
CommitUpdates;           //on success, clear the cache
end;
end;
```

See Also

- [TMemDataSet.CachedUpdates](#)
- [TMemDataSet.CancelUpdates](#)
- [TMemDataSet.CommitUpdates](#)
- [TMemDataSet.UpdateStatus](#)

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Writes dataset's pending cached updates of specified records to a database.

Class

[TMemDataSet](#)

Syntax

```
procedure ApplyUpdates(const UpdateReckinds: TUpdateReckinds);  
overload; virtual;
```

Parameters

UpdateReckinds

Indicates records for which the ApplyUpdates method will be performed.

Remarks

Call the ApplyUpdates method to write a dataset's pending cached updates of specified records to a database. This method passes cached data to the database, but the changes are not committed to the database if there is an active transaction. An application must explicitly call the database component's Commit method to commit the changes to the database if the write is successful, or call the database's Rollback method to undo the changes if there is an error.

Following a successful write to the database, and following a successful call to a connection's Commit method, an application should call the CommitUpdates method to clear the cached update buffer.

Note: The preferred method for updating datasets is to call a connection component's ApplyUpdates method rather than to call each individual dataset's ApplyUpdates method. The connection component's ApplyUpdates method takes care of committing and rolling back transactions and clearing the cache when the operation is successful.

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4.6.1.1.3.3 CancelRange Method

Removes any ranges currently in effect for a dataset.

Class

[TMemDataSet](#)

Syntax

```
procedure CancelRange;
```

Remarks

Call CancelRange to remove a range currently applied to a dataset. Canceling a range reenables access to all records in the dataset.

See Also

- [ApplyRange](#)
- [EditRangeEnd](#)
- [EditRangeStart](#)
- [IndexFieldNames](#)
- [SetRange](#)
- [SetRangeEnd](#)
- [SetRangeStart](#)

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4.6.1.1.3.4 CancelUpdates Method

Clears all pending cached updates from cache and restores dataset in its prior state.

Class

[TMemDataSet](#)

Syntax

```
procedure CancelUpdates;
```

Remarks

Call the CancelUpdates method to clear all pending cached updates from cache and restore dataset in its prior state.

It restores the dataset to the state it was in when the table was opened, cached updates were last enabled, or updates were last successfully applied to the database.

When a dataset is closed, or the CachedUpdates property is set to False, CancelUpdates is called automatically.

See Also

- [CachedUpdates](#)
- [TMemDataSet.ApplyUpdates](#)
- [UpdateStatus](#)

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4.6.1.1.3.5 CommitUpdates Method

Clears the cached updates buffer.

Class

[TMemDataSet](#)

Syntax

```
procedure CommitUpdates;
```

Remarks

Call the CommitUpdates method to clear the cached updates buffer after both a successful call to ApplyUpdates and a database component's Commit method. Clearing the cache after applying updates ensures that the cache is empty except for records that could not be processed and were skipped by the OnUpdateRecord or OnUpdateError event handlers. An application can attempt to modify the records still in cache.

CommitUpdates also checks whether there are pending updates in dataset. And if there are, it calls ApplyUpdates.

Record modifications made after a call to CommitUpdates repopulate the cached update buffer and require a subsequent call to ApplyUpdates to move them to the database.

See Also

- [CachedUpdates](#)
- [TMemDataSet.ApplyUpdates](#)
- [UpdateStatus](#)

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4.6.1.1.3.6 DeferredPost Method

Makes permanent changes to the database server.

Class

[TMemDataSet](#)

Syntax

```
procedure DeferredPost;
```

Remarks

Call DeferredPost to make permanent changes to the database server while retaining dataset in its state whether it is dsEdit or dsInsert.

Explicit call to the Cancel method after DeferredPost has been applied does not abandon

modifications to a dataset already fixed in database.

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4.6.1.1.3.7 EditRangeEnd Method

Enables changing the ending value for an existing range.

Class

[TMemDataSet](#)

Syntax

```
procedure EditRangeEnd;
```

Remarks

Call EditRangeEnd to change the ending value for an existing range.

To specify an end range value, call FieldByName after calling EditRangeEnd.

After assigning a new ending value, call [ApplyRange](#) to activate the modified range.

See Also

- [ApplyRange](#)
- [CancelRange](#)
- [EditRangeStart](#)
- [IndexFieldNames](#)
- [SetRange](#)
- [SetRangeEnd](#)
- [SetRangeStart](#)

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4.6.1.1.3.8 EditRangeStart Method

Enables changing the starting value for an existing range.

Class

[TMemDataSet](#)

Syntax

```
procedure EditRangeStart;
```

Remarks

Call EditRangeStart to change the starting value for an existing range.

To specify a start range value, call FieldByName after calling EditRangeStart.

After assigning a new ending value, call [ApplyRange](#) to activate the modified range.

See Also

- [ApplyRange](#)
- [CancelRange](#)
- [EditRangeEnd](#)
- [IndexFieldNames](#)
- [SetRange](#)
- [SetRangeEnd](#)
- [SetRangeStart](#)

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4.6.1.1.3.9 GetBlob Method

Retrieves TBlob object for a field or current record when only its name or the field itself is known.

Class

[TMemDataSet](#)

Overload List

Name	Description
GetBlob(Field: TField)	Retrieves TBlob object for a field or current record when the field itself is known.
GetBlob(const FieldName: string)	Retrieves TBlob object for a field or current record when its name is known.

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Retrieves TBlob object for a field or current record when the field itself is known.

Class

[TMemDataSet](#)

Syntax

```
function GetBlob(Field: TField): TBlob; overload;
```

Parameters

Field

Holds an existing TField object.

Return Value

TBlob object that was retrieved.

Remarks

Call the GetBlob method to retrieve TBlob object for a field or current record when only its name or the field itself is known. FieldName is the name of an existing field. The field should have MEMO or BLOB type.

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Retrieves TBlob object for a field or current record when its name is known.

Class

[TMemDataSet](#)

Syntax

```
function GetBlob(const FieldName: string): TBlob; overload;
```

Parameters

FieldName
Holds the name of an existing field.

Return Value

TBlob object that was retrieved.

Example

```
virtualQuery1.GetBlob('Comment').SaveToFile('Comment.txt');
```

See Also

- [TBlob](#)

4.6.1.1.3.10 Locate Method

Searches a dataset for a specific record and positions the cursor on it.

Class

[TMemDataSet](#)

Overload List

Name	Description
Locate(const KeyFields: array of TField; const KeyValues: variant; Options: TLocateOptions)	Searches a dataset by the specified fields for a specific record and positions cursor on it.
Locate(const KeyFields: string; const KeyValues: variant; Options: TLocateOptions)	Searches a dataset by the fields specified by name for a specific record and positions the cursor on it.

Searches a dataset by the specified fields for a specific record and positions cursor on it.

Class

[TMemDataSet](#)

Syntax

```
function Locate(const KeyFields: array of TField; const
KeyValues: variant; Options: TLocateOptions): boolean;
reintroduce; overload;
```

Parameters

KeyFields

Holds TField objects in which to search.

KeyValues

Holds the variant that specifies the values to match in the key fields.

Options

Holds additional search latitude when searching in string fields.

Return Value

True if it finds a matching record, and makes this record the current one. Otherwise it returns False.

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Searches a dataset by the fields specified by name for a specific record and positions the cursor on it.

Class

[TMemDataSet](#)

Syntax

```
function Locate(const KeyFields: string; const KeyValues:
variant; Options: TLocateOptions): boolean; overload; override;
```

Parameters

KeyFields

Holds a semicolon-delimited list of field names in which to search.

KeyValues

Holds the variant that specifies the values to match in the key fields.

Options

Holds additional search latitude when searching in string fields.

Return Value

True if it finds a matching record, and makes this record the current one. Otherwise it returns False.

Remarks

Call the Locate method to search a dataset for a specific record and position cursor on it.

KeyFields is a string containing a semicolon-delimited list of field names on which to search.

KeyValues is a variant that specifies the values to match in the key fields. If KeyFields lists a single field, KeyValues specifies the value for that field on the desired record. To specify multiple search values, pass a variant array as KeyValues, or construct a variant array on the fly using the VarArrayOf routine. An example is provided below.

Options is a set that optionally specifies additional search latitude when searching in string fields. If Options contains the loCaseInsensitive setting, then Locate ignores case when matching fields. If Options contains the loPartialKey setting, then Locate allows partial-string matching on strings in KeyValues. If Options is an empty set, or if KeyFields does not include any string fields, Options is ignored.

Locate returns True if it finds a matching record, and makes this record the current one. Otherwise it returns False.

The Locate function works faster when dataset is locally sorted on the KeyFields fields. Local dataset sorting can be set with the [TMemDataSet.IndexFieldNames](#) property.

Example

An example of specifying multiple search values:

```
with CustTable do  
    Locate('Company;Contact;Phone', VarArrayOf(['Sight Diver', 'P',  
        '408-431-1000']), [loPartialKey]);
```

See Also

- [TMemDataSet.IndexFieldNames](#)
- [TMemDataSet.LocateEx](#)

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4.6.1.1.3.11 LocateEx Method

Excludes features that don't need to be included to the [TMemDataSet.Locate](#) method of TDataSet.

Class

[TMemDataSet](#)

Overload List

Name	Description
LocateEx(const KeyFields: array of TField; const KeyValues: variant; Options: TLocateExOptions)	Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet by the specified fields.
LocateEx(const KeyFields: string; const KeyValues: variant; Options: TLocateExOptions)	Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet by the specified field names.

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Excludes features that don't need to be included to the [TMemDataSet.Locate](#) method of TDataSet by the specified fields.

Class

[TMemDataSet](#)

Syntax

```
function LocateEx(const KeyFields: array of TField; const
keyValues: variant; Options: TLocateExOptions): boolean; overload;
```

Parameters

KeyFields

Holds TField objects to search in.

KeyValues

Holds the values of the fields to search for.

Options

Holds additional search parameters which will be used by the LocateEx method.

Return Value

True, if a matching record was found. Otherwise returns False.

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Excludes features that don't need to be included to the [TMemDataSet.Locate](#) method of TDataSet by the specified field names.

Class

[TMemDataSet](#)

Syntax

```
function LocateEx(const KeyFields: string; const KeyValues:  
variant; Options: TLocateExOptions): boolean; overload;
```

Parameters

KeyFields

Holds the fields to search in.

KeyValues

Holds the values of the fields to search for.

Options

Holds additional search parameters which will be used by the LocateEx method.

Return Value

True, if a matching record was found. Otherwise returns False.

Remarks

Call the LocateEx method when you need some features not to be included to the [TMemDataSet.Locate](#) method of TDataSet.

LocateEx returns True if it finds a matching record, and makes that record the current one. Otherwise LocateEx returns False.

The LocateEx function works faster when dataset is locally sorted on the KeyFields fields. Local dataset sorting can be set with the [TMemDataSet.IndexFieldNames](#) property.

Note: Please add the MemData unit to the "uses" list to use the TLocalExOption

enumeration.

See Also

- [TMemDataSet.IndexFieldNames](#)
- [TMemDataSet.Locate](#)

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4.6.1.1.3.12 Prepare Method

Allocates resources and creates field components for a dataset.

Class

[TMemDataSet](#)

Syntax

```
procedure Prepare; virtual;
```

Remarks

Call the Prepare method to allocate resources and create field components for a dataset. To learn whether dataset is prepared or not use the Prepared property.

The UnPrepare method unprepares a query.

Note: When you change the text of a query at runtime, the query is automatically closed and unprepared.

See Also

- [Prepared](#)
- [UnPrepare](#)

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4.6.1.1.3.13 RestoreUpdates Method

Marks all records in the cache of updates as unapplied.

Class

[TMemDataSet](#)

Syntax

```
procedure RestoreUpdates;
```

Remarks

Call the RestoreUpdates method to return the cache of updates to its state before calling ApplyUpdates. RestoreUpdates marks all records in the cache of updates as unapplied. It is useful when ApplyUpdates fails.

See Also

- [CachedUpdates](#)
- [TMemDataSet.ApplyUpdates](#)
- [CancelUpdates](#)
- [UpdateStatus](#)

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4.6.1.1.3.14 RevertRecord Method

Cancels changes made to the current record when cached updates are enabled.

Class

[TMemDataSet](#)

Syntax

```
procedure RevertRecord;
```

Remarks

Call the RevertRecord method to undo changes made to the current record when cached

updates are enabled.

See Also

- [CachedUpdates](#)
- [CancelUpdates](#)

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4.6.1.1.3.15 SaveToJSON Method

Saves the current dataset data to a file or a stream in the JSON format.

Class

[TMemDataSet](#)

Overload List

Name	Description
SaveToJSON(Destination: TStream; Options: TJsonOptions)	Saves the current dataset data to a stream in the JSON format.
SaveToJSON(const FileName: string; Options: TJsonOptions)	Saves the current dataset data to a file in the JSON format.

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Saves the current dataset data to a stream in the JSON format.

Class

[TMemDataSet](#)

Syntax

```
procedure SaveToJSON(Destination: TStream; Options: TJsonOptions = []); overload;
```

Parameters

Destination

Holds a TStream object.

Options

Holds additional options used when saving the dataset. See [TJsonOptions](#) for details. By default, no additional options are set.

Remarks

Call the SaveToJson method to save the current dataset data to a stream in the JSON format. A TStream object must be created and its position must be set in a preferable value.

See Also

- [TJsonOptions](#)
- M:Devart.Dac.TVirtualTable.LoadFromFile(System.String,System.Boolean,System.Boolean)
- M:Devart.Dac.TVirtualTable.LoadFromStream(Borland.Vcl.TStream,System.Boolean,System.Boolean)

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Saves the current dataset data to a file in the JSON format.

Class

[TMemDataSet](#)

Syntax

```
procedure SaveToJson(const FileName: string; Options:  
TJsonOptions = []); overload;
```

Parameters

FileName

Holds the name of a destination file.

Options

Holds additional options used when saving the dataset. See [TJsonOptions](#) for details. By default, no additional options are set.

Remarks

Call the SaveToJson method to save the current dataset data to a file in the JSON format.

If the destination file already exists, it is overwritten. It remains open from the first call to SaveToJson until the dataset is closed. Other applications can read this file while it is open, but they cannot write to it.

See Also

- [TJsonOptions](#)
- M:Devart.Dac.TVirtualTable.LoadFromFile(System.String,System.Boolean,System.Boolean)
- M:Devart.Dac.TVirtualTable.LoadFromStream(Borland.Vcl.TStream,System.Boolean,System.Boolean)

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4.6.1.1.3.16 SaveToXML Method

Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

Class

[TMemDataSet](#)

Overload List

Name	Description
SaveToXML(Destination: TStream; IndentFormat: TXmlIndentFormat)	Saves the current dataset data to a stream in the XML format compatible with ADO format.
SaveToXML(const FileName: string; IndentFormat: TXmlIndentFormat)	Saves the current dataset data to a file in the XML format compatible with ADO format.

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Saves the current dataset data to a stream in the XML format compatible with ADO format.

Class

[TMemDataSet](#)

Syntax

```
procedure SaveToXML(Destination: TStream; IndentFormat:  
TXmlIndentFormat = ifSpace); overload;
```

Parameters

Destination

Holds a TStream object.

IndentFormat

Specifies how to format indentation in XML format streams when saving the dataset. The default value is ifSpace. For other values, see the [TXmlIndentFormat](#) class.

Remarks

Call the SaveToXML method to save the current dataset data to a file or stream in XML format, compatible with ADO.

- If the destination file already exists, it will be overwritten.
- The destination stream remains open from the first call to SaveToXML until the dataset is closed. The file can be read by other applications while open, but it cannot be written to during that time.

When saving to a stream, ensure that a TStream object is created, and its position is set to the desired value.

See Also

- M:Devart.Dac.TVirtualTable.LoadFromFile(System.String, System.Boolean, System.Boolean)
- M:Devart.Dac.TVirtualTable.LoadFromStream(Borland.Vcl.TStream, System.Boolean, System.Boolean)

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Saves the current dataset data to a file in the XML format compatible with ADO format.

Class

[TMemDataSet](#)

Syntax

```
procedure SaveToXML(const FileName: string; IndentFormat:  
TXmlIndentFormat = ifSpace); overload;
```

Parameters

FileName

Holds the name of a destination file.

IndentFormat

Specifies how to format indentation in XML format files when saving the dataset. The default value is ifSpace. For other values, see the [TXmlIndentFormat](#) class.

See Also

- M:Devart.Dac.TVirtualTable.LoadFromFile(System.String,System.Boolean,System.Boolean)
- M:Devart.Dac.TVirtualTable.LoadFromStream(Borland.Vcl.TStream,System.Boolean,System.Boolean)

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4.6.1.1.3.17 SetRange Method

Sets the starting and ending values of a range, and applies it.

Class

[TMemDataSet](#)

Syntax

```
procedure SetRange(const StartValues: array of System.TVarRec;  
const EndValues: array of System.TVarRec; StartExclusive: Boolean  
= False; EndExclusive: Boolean = False);
```

Parameters

StartValues

Indicates the field values that designate the first record in the range. In C++, StartValues_Size is the index of the last value in the StartValues array.

EndValues

Indicates the field values that designate the last record in the range. In C++, `EndValues_Size` is the index of the last value in the `EndValues` array.

StartExclusive

Indicates the upper and lower boundaries of the start range.

EndExclusive

Indicates the upper and lower boundaries of the end range.

Remarks

Call `SetRange` to specify a range and apply it to the dataset. The new range replaces the currently specified range, if any.

`SetRange` combines the functionality of [SetRangeStart](#), [SetRangeEnd](#), and [ApplyRange](#) in a single procedure call. `SetRange` performs the following functions:

- 1. Puts the dataset into `dsSetKey` state.
- 2. Erases any previously specified starting range values and ending range values.
- 3. Sets the start and end range values.
- 4. Applies the range to the dataset.

After a call to `SetRange`, the cursor is left on the first record in the range.

If either `StartValues` or `EndValues` has fewer elements than the number of fields in the current index, then the remaining entries are ignored when performing a search.

See Also

- [ApplyRange](#)
- [CancelRange](#)
- [EditRangeEnd](#)
- [EditRangeStart](#)
- [IndexFieldNames](#)
- [KeyExclusive](#)
- [SetRangeEnd](#)
- [SetRangeStart](#)

Reserved.

4.6.1.1.3.18 SetRangeEnd Method

Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.

Class

[TMemDataSet](#)

Syntax

```
procedure SetRangeEnd;
```

Remarks

Call SetRangeEnd to put the dataset into dsSetKey state, erase any previous end range values, and set them to NULL.

Subsequent field assignments made with FieldByName specify the actual set of ending values for a range.

After assigning end-range values, call [ApplyRange](#) to activate the modified range.

See Also

- [ApplyRange](#)
- [CancelRange](#)
- [EditRangeStart](#)
- [IndexFieldNames](#)
- [SetRange](#)
- [SetRangeStart](#)

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4.6.1.1.3.19 SetRangeStart Method

Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.

Class

[TMemDataSet](#)

Syntax

```
procedure SetRangeStart;
```

Remarks

Call SetRangeStart to put the dataset into dsSetKey state, erase any previous start range values, and set them to NULL.

Subsequent field assignments to FieldByName specify the actual set of starting values for a range.

After assigning start-range values, call [ApplyRange](#) to activate the modified range.

See Also

- [ApplyRange](#)
- [CancelRange](#)
- [EditRangeStart](#)
- [IndexFieldNames](#)
- [SetRange](#)
- [SetRangeEnd](#)

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4.6.1.1.3.20 UnPrepare Method

Frees the resources allocated for a previously prepared query on the server and client sides.

Class

[TMemDataSet](#)

Syntax

```
procedure UnPrepare; virtual;
```

Remarks

Call the UnPrepare method to free the resources allocated for a previously prepared query on the server and client sides.

Note: When you change the text of a query at runtime, the query is automatically closed and unprepared.

See Also

- [Prepare](#)

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4.6.1.1.3.21 UpdateResult Method

Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.

Class

[TMemDataSet](#)

Syntax

```
function UpdateResult: TUpdateAction;
```

Return Value

a value of the TUpdateAction enumeration.

Remarks

Call the UpdateResult method to read the status of the latest call to the ApplyUpdates method while cached updates are enabled. UpdateResult reflects updates made on the records that have been edited, inserted, or deleted.

UpdateResult works on the record by record basis and is applicable to the current record only.

See Also

- [CachedUpdates](#)

4.6.1.1.3.22 UpdateStatus Method

Indicates the current update status for the dataset when cached updates are enabled.

Class

[TMemDataSet](#)

Syntax

```
function UpdateStatus: TUpdateStatus; override;
```

Return Value

a value of the TUpdateStatus enumeration.

Remarks

Call the UpdateStatus method to determine the current update status for the dataset when cached updates are enabled. Update status can change frequently as records are edited, inserted, or deleted. UpdateStatus offers a convenient method for applications to assess the current status before undertaking or completing operations that depend on the update status of the dataset.

See Also

- [CachedUpdates](#)

4.6.1.1.4 Events

Events of the **TMemDataSet** class.

For a complete list of the **TMemDataSet** class members, see the [TMemDataSet Members](#) topic.

Public

Name	Description
------	-------------

OnUpdateError	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord	Occurs when a single update component can not handle the updates.

See Also

- [TMemDataSet Class](#)
- [TMemDataSet Class Members](#)

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4.6.1.1.4.1 OnUpdateError Event

Occurs when an exception is generated while cached updates are applied to a database.

Class

[TMemDataSet](#)

Syntax

```
property OnUpdateError: TUpdateErrorEvent;
```

Remarks

Write the OnUpdateError event handler to respond to exceptions generated when cached updates are applied to a database.

E is a pointer to an EDatabaseError object from which application can extract an error message and the actual cause of the error condition. The OnUpdateError handler can use this information to determine how to respond to the error condition.

UpdateKind describes the type of update that generated the error.

UpdateAction indicates the action to take when the OnUpdateError handler exits. On entry into the handler, UpdateAction is always set to uaFail. If OnUpdateError can handle or correct the error, set UpdateAction to uaRetry before exiting the error handler.

The error handler can use the `TField.OldValue` and `TField.NewValue` properties to evaluate error conditions and set `TField.NewValue` to a new value to reapply. In this case, set `UpdateAction` to `uaRetry` before exiting.

Note: If a call to `ApplyUpdates` raises an exception and `ApplyUpdates` is not called within the context of a try...except block, an error message is displayed. If the `OnUpdateError` handler cannot correct the error condition and leaves `UpdateAction` set to `uaFail`, the error message is displayed twice. To prevent redisplay, set `UpdateAction` to `uaAbort` in the error handler.

See Also

- [CachedUpdates](#)

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4.6.1.1.4.2 OnUpdateRecord Event

Occurs when a single update component can not handle the updates.

Class

[TMemDataSet](#)

Syntax

```
property OnUpdateRecord: TUpdateRecordEvent;
```

Remarks

Write the `OnUpdateRecord` event handler to process updates that cannot be handled by a single update component, such as implementation of cascading updates, insertions, or deletions. This handler is also useful for applications that require additional control over parameter substitution in update components.

`UpdateKind` describes the type of update to perform.

`UpdateAction` indicates the action taken by the `OnUpdateRecord` handler before it exits. On entry into the handler, `UpdateAction` is always set to `uaFail`. If `OnUpdateRecord` is successful, it should set `UpdateAction` to `uaApplied` before exiting.

See Also

- [CachedUpdates](#)

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4.6.2 Types

Types in the **MemDS** unit.

Types

Name	Description
TJsonOptions	Additional options used when saving the dataset in the JSON format.

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4.6.2.1 TJsonOptions Set

Additional options used when saving the dataset in the JSON format.

Unit

MemDS

Syntax

```
TJsonOptions = set of TJsonOption;
```

See Also

- [TMemDataSet.SaveToJSON](#)
- [TMemDataSet.SaveToJSON](#)

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4.6.3 Enumerations

Enumerations in the **MemDS** unit.

Enumerations

Name	Description
TJsonOption	Additional options used when saving the dataset to the JSON format.
TXmlIndentFormat	Specifies the indentation format in XML format files or streams when saving the dataset using the TMemDataSet.SaveToXML methods.

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4.6.3.1 TJsonOption Enumeration

Additional options used when saving the dataset to the JSON format.

Unit

MemDS

Syntax

```
TJsonOption = (joDataOnly, joDataAsArray, joIncludeNulls);
```

Values

Value	Meaning
joDataAsArray	When the option is set, each row of the dataset is saved as a JSON array. Otherwise (by default), each row of the dataset is saved as a JSON object.
joDataOnly	When the option is set, only the dataset rows are saved to JSON. By default, information about the dataset structure is also saved to JSON.
joIncludeNulls	When the option is set, fields with NULL values are saved to JSON. Otherwise (by default), NULL fields are excluded from JSON.

See Also

- [TJsonOptions](#)
- [TMemDataSet.SaveToJSON](#)
- [TMemDataSet.SaveToJSON](#)

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4.6.3.2 TXmlIndentFormat Enumeration

Specifies the indentation format in XML format files or streams when saving the dataset using the [TMemDataSet.SaveToXML](#) methods.

Unit

MemDS

Syntax

```
TXmlIndentFormat = (ifSpace, ifTabulation, ifNone);
```

Values

Value	Meaning
ifNone	No indentation is used.
ifSpace	Space characters are used for indentation.
ifTabulation	Tabs are used for indentation.

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4.7 VirtualDataSet

4.7.1 Classes

Classes in the **VirtualDataSet** unit.

Classes

Name	Description
------	-------------

TCustomVirtualDataSet	A base class for representation of arbitrary data in tabular form.
TVirtualDataSet	A class for representation of arbitrary data in tabular form.

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4.7.1.1 TCustomVirtualDataSet Class

A base class for representation of arbitrary data in tabular form.

For a list of all members of this type, see [TCustomVirtualDataSet](#) members.

Unit
virtualDataSet

Syntax

```
TCustomVirtualDataSet = class(TMemDataSet);
```

Inheritance Hierarchy

[TMemDataSet](#)
 TCustomVirtualDataSet

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4.7.1.1.1 Members

[TCustomVirtualDataSet](#) class overview.

Properties

Name	Description
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset

	is sorted.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Methods

Name	Description
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.

EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare (inherited from TMemDataSet)	Allocates resources and creates field components for a dataset.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range

	of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

Events

Name	Description
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.7.1.2 TVirtualDataSet Class

A class for representation of arbitrary data in tabular form.

For a list of all members of this type, see [TVirtualDataSet](#) members.

Unit

virtualDataSet

Syntax

```
TVirtualDataSet = class(TCustomVirtualDataSet);
```

Remarks

TVirtualDataSet is inherited from the TMemDataSet component. TVirtualDataSet does not store data in memory and interacts with data using event handlers. It can be used to represent of arbitrary data (arrays, lists etc.) in tabular form, for example, to visualize the data using data-aware controls.

Immediately after creating, a virtual dataset will be empty. Then you define new fields at design time using Fields Editor, so that the virtual dataset object becomes initialized and ready to be opened. When opening, the virtual dataset queries the number of rows, using a [TVirtualDataSet.OnGetRecordCount](#) event handler. Then the virtual dataset asks for the value of each field, using a [TVirtualDataSet.OnGetFieldValue](#) event handler.

When modifying records, the virtual dataset projects corresponding changes via [TVirtualDataSet.OnInsertRecord](#), [TVirtualDataSet.OnModifyRecord](#) and [TVirtualDataSet.OnDeleteRecord](#) events.

When you close the virtual dataset it will discard its record set.

Note: TVirtualDataSet component is added to the Data Access page of the component palette, not to the VirtualDAC page.

Inheritance Hierarchy

[TMemDataSet](#)

[TCustomVirtualDataSet](#)

TVirtualDataSet

See Also

- [TVirtualDataSet.OnGetRecordCount](#)
- [TVirtualDataSet.OnGetFieldValue](#)
- [TVirtualDataSet.OnInsertRecord](#)
- [TVirtualDataSet.OnModifyRecord](#)
- [TVirtualDataSet.OnDeleteRecord](#)

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4.7.1.2.1 Members

[TVirtualDataSet](#) class overview.

Properties

Name	Description
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Methods

Name	Description
------	-------------

ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare (inherited from TMemDataSet)	Allocates resources and creates field components for a dataset.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when

	cached updates are enabled.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

Events

Name	Description
OnDeleteRecord	Occurs when a record is deleted from the virtual data set.

OnGetFieldValue	Occurs when a virtual dataset asks for the value of a field.
OnGetRecordCount	E:Devart.VirtualDac.TVirtualDataSet.OnGetRecordCount
OnInsertRecord	Occurs when a new record is added to the virtual data set.
OnModifyRecord	Occurs when a record is modified in the virtual data set.
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.7.1.2.2 Events

Events of the **TVirtualDataSet** class.

For a complete list of the **TVirtualDataSet** class members, see the [TVirtualDataSet Members](#) topic.

Public

Name	Description
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

Published

Name	Description
OnDeleteRecord	Occurs when a record is deleted from the virtual data set.
OnGetFieldValue	Occurs when a virtual dataset asks for the value of a field.
OnGetRecordCount	E:Devart.VirtualDac.TVirtualDataSet.OnGetRecordCount
OnInsertRecord	Occurs when a new record is added to the virtual data set.
OnModifyRecord	Occurs when a record is modified in the virtual data set.

See Also

- [TVirtualDataSet Class](#)
- [TVirtualDataSet Class Members](#)

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4.7.1.2.2.1 OnDeleteRecord Event

Occurs when a record is deleted from the virtual data set.

Class

[TVirtualDataSet](#)

Syntax

```
property OnDeleteRecord: TOnDeleteRecordEvent;
```

Remarks

Write the OnDeleteRecord event handler to process deletion of a record from the virtual dataset. When firing the event, the virtual dataset sends the record number of the record being deleted into the event handler.

See Also

- [OnInsertRecord](#)
- [OnModifyRecord](#)

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4.7.1.2.2.2 OnGetFieldValue Event

Occurs when a virtual dataset asks for the value of a field.

Class

[TVirtualDataSet](#)

Syntax

```
property OnGetFieldValue: TOnGetFieldValueEvent;
```

Remarks

Write the OnGetFieldValue event handler to return field data to the virtual dataset. Since virtual dataset does not store a data, when opening it fires the event to obtain the value of each field.

See Also

- [OnGetRecordCount](#)

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4.7.1.2.2.3 OnGetRecordCount Event

E:Devart.VirtualDac.TVirtualDataSet.OnGetRecordCount

Class

[TVirtualDataSet](#)

Syntax

```
property OnGetRecordCount: TOnGetRecordCountEvent;
```

Remarks

Write the OnGetRecordCount event handler to let the virtual dataset know, how many records it contains. Since virtual dataset does not store a data, when opening it fires the event to determine how many records will be kept in it. Then the virtual dataset will ask for the value of each field, using a [OnGetFieldValue](#) event handler.

See Also

- [OnGetFieldValue](#)

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4.7.1.2.2.4 OnInsertRecord Event

Occurs when a new record is added to the virtual data set.

Class

[TVirtualDataSet](#)

Syntax

```
property OnInsertRecord: TOnModifyRecordEvent;
```

Remarks

Write the OnInsertRecord event handler to process insertion of new record in the virtual dataset. When firing the event, the virtual dataset is positioned on the record being inserted.

See Also

- [OnModifyRecord](#)
- [OnDeleteRecord](#)

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4.7.1.2.2.5 OnModifyRecord Event

Occurs when a record is modified in the virtual data set.

Class

[TVirtualDataSet](#)

Syntax

```
property OnModifyRecord: TOnModifyRecordEvent;
```

Remarks

Write the OnModifyRecord event handler to process modification of a record in the virtual dataset. When firing the event, the virtual dataset is positioned on the record being modified.

See Also

- [OnInsertRecord](#)
- [OnDeleteRecord](#)

4.7.2 Types

Types in the **VirtualDataSet** unit.

Types

Name	Description
TOnDeleteRecordEvent	This type is used for the E:Devart.Dac.TVirtualDataSet.OnDeleteRecord event.
TOnGetFieldValueEvent	This type is used for the E:Devart.Dac.TVirtualDataSet.OnGetFieldValue event.
TOnGetRecordCountEvent	This type is used for the E:Devart.Dac.TVirtualDataSet.OnGetRecordCount event.
TOnModifyRecordEvent	This type is used for E:Devart.Dac.TVirtualDataS

	et.OnInsertRecord and E:Devart.Dac.TVirtualDataS et.OnModifyRecord events.
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4.7.2.1 TOnDeleteRecordEvent Procedure Reference

This type is used for the E:Devart.Dac.TVirtualDataSet.OnDeleteRecord event.

Unit

virtualDataSet

Syntax

```
TOnDeleteRecordEvent = procedure (Sender: TObject; RecNo:  
Integer) of object;
```

Parameters

Sender

An object that raised the event.

RecNo

Number of the record being deleted.

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4.7.2.2 TOnGetFieldValueEvent Procedure Reference

This type is used for the E:Devart.Dac.TVirtualDataSet.OnGetFieldValue event.

Unit

virtualDataSet

Syntax

```
TOnGetFieldValueEvent = procedure (Sender: TObject; Field: TField;  
RecNo: Integer; out value: Variant) of object;
```

Parameters

Sender

An object that raised the event.

Field

The field, which data has to be returned.

RecNo

The number of the record, which data has to be returned.

Value

Requested field value.

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4.7.2.3 TOnGetRecordCountEvent Procedure Reference

This type is used for the E:Devart.Dac.TVirtualDataSet.OnGetRecordCount event.

Unit

virtualDataSet

Syntax

```
TOnGetRecordCountEvent = procedure (Sender: TObject; out Count:  
Integer) of object;
```

Parameters

Sender

An object that raised the event.

Count

The number of records that the virtual dataset will contain.

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4.7.2.4 TOnModifyRecordEvent Procedure Reference

This type is used for E:Devart.Dac.TVirtualDataSet.OnInsertRecord and
E:Devart.Dac.TVirtualDataSet.OnModifyRecord events.

Unit

virtualDataSet

Syntax

```
TONModifyRecordEvent = procedure (Sender: TObject; var RecNo: Integer) of object;
```

Parameters

Sender

An object that raised the event.

RecNo

Number of the record being inserted or modified.

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4.8 VirtualQuery

4.8.1 Classes

Classes in the **VirtualQuery** unit.

Classes

Name	Description
TCustomVirtualQuery	A base class that implements TVirtualQuery functionality.
TDataSetLink	Used to link a TDataSet descendant as a data source for querying data in TVirtualQuery .
TDataSetLinks	This type is used for the TCustomVirtualQuery.SourceDataSets property.
TVirtualCollationManager	Used to register user-defined collations.
TVirtualFunctionManager	Used to register user-defined functions.
TVirtualQuery	Used to retrieve data simultaneously from various RDBMS'es.
TVirtualQueryOptions	Used to set up the behaviour of the TVirtualQuery class.

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4.8.1.1 TCustomVirtualQuery Class

A base class that implements [TVirtualQuery](#) functionality.

For a list of all members of this type, see [TCustomVirtualQuery](#) members.

Unit

virtualquery

Syntax

```
TCustomVirtualQuery = class(TCustomDADataset);
```

Inheritance Hierarchy

[TMemDataSet](#)

[TCustomDADataset](#)

TCustomVirtualQuery

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4.8.1.1.1 Members

[TCustomVirtualQuery](#) class overview.

Properties

Name	Description
BaseSQL (inherited from TCustomDADataset)	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Conditions (inherited from TCustomDADataset)	Used to add WHERE conditions to a query
Connection (inherited from TCustomDADataset)	Used to specify a connection object to use to connect to a data store.
DataTypeMap (inherited from TCustomDADataset)	Used to set data type mapping rules

Debug (inherited from TCustomDADataset)	Used to display the statement that is being executed and the values and types of its parameters.
DetailFields (inherited from TCustomDADataset)	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
Disconnected (inherited from TCustomDADataset)	Used to keep dataset opened after connection is closed.
FetchRows (inherited from TCustomDADataset)	Used to define the number of rows to be transferred across the network at the same time.
FilterSQL (inherited from TCustomDADataset)	Used to change the WHERE clause of SELECT statement and reopen a query.
FinalSQL (inherited from TCustomDADataset)	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
IsQuery (inherited from TCustomDADataset)	Used to check whether SQL statement returns rows.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
KeyFields (inherited from TCustomDADataset)	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.

LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MacroCount (inherited from TCustomDADataset)	Used to get the number of macros associated with the Macros property.
Macros (inherited from TCustomDADataset)	Makes it possible to change SQL queries easily.
MasterFields (inherited from TCustomDADataset)	Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.
MasterSource (inherited from TCustomDADataset)	Used to specify the data source component which binds current dataset to the master one.
Options	Used to specify the behaviour of TVirtualQuery object.
ParamCheck (inherited from TCustomDADataset)	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
ParamCount (inherited from TCustomDADataset)	Used to indicate how many parameters are there in the Params property.
Params (inherited from TCustomDADataset)	Used to view and set parameter names, values, and data types dynamically.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
ReadOnly (inherited from TCustomDADataset)	Used to prevent users from updating, inserting, or deleting data in the dataset.
RefreshOptions (inherited from TCustomDADataset)	Used to indicate when the editing record is refreshed.
RowsAffected (inherited from TCustomDADataset)	Used to indicate the number

	of rows which were inserted, updated, or deleted during the last query operation.
SourceDataSets	Contains a collection of source datasets for querying data.
SQL (inherited from TCustomDADataset)	Used to provide a SQL statement that a query component executes when its Open method is called.
SQLDelete (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying a deletion to a record.
SQLInsert (inherited from TCustomDADataset)	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
SQLLock (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to perform a record lock.
SQLRecCount (inherited from TCustomDADataset)	Used to specify the SQL statement that is used to get the record count when opening a dataset.
SQLRefresh (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.
SQLUpdate (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying an update to a dataset.
UniDirectional (inherited from TCustomDADataset)	Used if an application does not need bidirectional access to records in the result set.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Methods

Name	Description
AddWhere (inherited from TCustomDADataset)	Adds condition to the WHERE clause of SELECT statement in the SQL property.
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
BreakExec (inherited from TCustomDADataset)	Breaks execution of the SQL statement on the server.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CloneCursor (inherited from TCustomDADataset)	Shares data from another dataset.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
CreateBlobStream (inherited from TCustomDADataset)	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
DeleteWhere (inherited from TCustomDADataset)	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
Execute (inherited from TCustomDADataset)	Overloaded. Executes a SQL statement on the

	server.
Executing (inherited from TCustomDADataset)	Indicates whether SQL statement is still being executed.
Fetched (inherited from TCustomDADataset)	Used to find out whether TCustomDADataset has fetched all rows.
Fetching (inherited from TCustomDADataset)	Used to learn whether TCustomDADataset is still fetching rows.
FetchingAll (inherited from TCustomDADataset)	Used to learn whether TCustomDADataset is fetching all rows to the end.
FindKey (inherited from TCustomDADataset)	Searches for a record which contains specified field values.
FindNearest (inherited from TCustomDADataset)	Moves the cursor to a specific record or to the first record in the dataset that matches or is greater than the values specified in the KeyValues parameter.
FindParam (inherited from TCustomDADataset)	Determines if a parameter with the specified name exists in a dataset.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
GetDataType (inherited from TCustomDADataset)	Returns internal field types defined in the MemData and accompanying modules.
GetFieldObject (inherited from TCustomDADataset)	Returns a multireference shared object from field.
GetFieldPrecision (inherited from TCustomDADataset)	Retrieves the precision of a number field.
GetFieldScale (inherited from TCustomDADataset)	Retrieves the scale of a number field.
GetKeyFieldNames (inherited from TCustomDADataset)	Provides a list of available key field names.
GetOrderBy (inherited from TCustomDADataset)	Retrieves an ORDER BY clause from a SQL

	statement.
GotoCurrent (inherited from TCustomDADataset)	Sets the current record in this dataset similar to the current record in another dataset.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Lock (inherited from TCustomDADataset)	Locks the current record.
MacroByName (inherited from TCustomDADataset)	Finds a macro with the specified name.
ParamByName (inherited from TCustomDADataset)	Sets or uses parameter information for a specific parameter based on its name.
Prepare (inherited from TCustomDADataset)	Allocates, opens, and parses cursor for a query.
RefreshRecord (inherited from TCustomDADataset)	Actualizes field values for the current record.
RestoreSQL (inherited from TCustomDADataset)	Restores the SQL property modified by AddWhere and SetOrderBy.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveSQL (inherited from TCustomDADataset)	Saves the SQL property value to BaseSQL.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML

	format compatible with ADO format.
SetOrderBy (inherited from TCustomDADataset)	Builds an ORDER BY clause of a SELECT statement.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
SQLSaved (inherited from TCustomDADataset)	Determines if the SQL property value was saved to the BaseSQL property.
UnLock (inherited from TCustomDADataset)	Releases a record lock.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

Events

Name	Description
AfterExecute (inherited from TCustomDADataset)	Occurs after a component has executed a query to database.
AfterFetch (inherited from TCustomDADataset)	Occurs after dataset finishes fetching data from server.

AfterUpdateExecute (inherited from TCustomDADataset)	Occurs after executing insert, delete, update, lock and refresh operations.
BeforeFetch (inherited from TCustomDADataset)	Occurs before dataset is going to fetch block of records from the server.
BeforeUpdateExecute (inherited from TCustomDADataset)	Occurs before executing insert, delete, update, lock, and refresh operations.
OnRegisterCollations	Occurs when the connection is opened to register the user-defined collation used in the query text.
OnRegisterFunctions	Occurs when the query is opened to register the user-defined functions used in the query text.
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.8.1.1.2 Properties

Properties of the **TCustomVirtualQuery** class.

For a complete list of the **TCustomVirtualQuery** class members, see the [TCustomVirtualQuery Members](#) topic.

Public

Name	Description
BaseSQL (inherited from TCustomDADataset)	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.

CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Conditions (inherited from TCustomDADataset)	Used to add WHERE conditions to a query
Connection (inherited from TCustomDADataset)	Used to specify a connection object to use to connect to a data store.
DataTypeMap (inherited from TCustomDADataset)	Used to set data type mapping rules
Debug (inherited from TCustomDADataset)	Used to display the statement that is being executed and the values and types of its parameters.
DetailFields (inherited from TCustomDADataset)	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
Disconnected (inherited from TCustomDADataset)	Used to keep dataset opened after connection is closed.
FetchRows (inherited from TCustomDADataset)	Used to define the number of rows to be transferred across the network at the same time.
FilterSQL (inherited from TCustomDADataset)	Used to change the WHERE clause of SELECT statement and reopen a query.
FinalSQL (inherited from TCustomDADataset)	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
IsQuery (inherited from TCustomDADataset)	Used to check whether SQL statement returns rows.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
KeyFields (inherited from TCustomDADataset)	Used to build SQL

	statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MacroCount (inherited from TCustomDADataset)	Used to get the number of macros associated with the Macros property.
Macros (inherited from TCustomDADataset)	Makes it possible to change SQL queries easily.
MasterFields (inherited from TCustomDADataset)	Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.
MasterSource (inherited from TCustomDADataset)	Used to specify the data source component which binds current dataset to the master one.
Options	Used to specify the behaviour of TVirtualQuery object.
ParamCheck (inherited from TCustomDADataset)	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
ParamCount (inherited from TCustomDADataset)	Used to indicate how many parameters are there in the Params property.
Params (inherited from TCustomDADataset)	Used to view and set parameter names, values, and data types dynamically.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or

	not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
ReadOnly (inherited from TCustomDADataset)	Used to prevent users from updating, inserting, or deleting data in the dataset.
RefreshOptions (inherited from TCustomDADataset)	Used to indicate when the editing record is refreshed.
RowsAffected (inherited from TCustomDADataset)	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SourceDataSets	Contains a collection of source datasets for querying data.
SQL (inherited from TCustomDADataset)	Used to provide a SQL statement that a query component executes when its Open method is called.
SQLDelete (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying a deletion to a record.
SQLInsert (inherited from TCustomDADataset)	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
SQLLock (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to perform a record lock.
SQLRecCount (inherited from TCustomDADataset)	Used to specify the SQL statement that is used to get the record count when opening a dataset.
SQLRefresh (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.
SQLUpdate (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying an update to a dataset.

UniDirectional (inherited from TCustomDADataSet)	Used if an application does not need bidirectional access to records in the result set.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

See Also

- [TCustomVirtualQuery Class](#)
- [TCustomVirtualQuery Class Members](#)

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4.8.1.1.2.1 Options Property

Used to specify the behaviour of TVirtualQuery object.

Class

[TCustomVirtualQuery](#)

Syntax

```
property Options: TVirtualQueryOptions;
```

Remarks

Set the properties of Options to specify the behaviour of a TVirtualQuery object.

See Also

- [TVirtualQuery](#)

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4.8.1.1.2.2 SourceDataSets Property

Contains a collection of source datasets for querying data.

Class

[TCustomVirtualQuery](#)

Syntax

```
property SourceDataSets: TDataSetLinks;
```

Remarks

Use the property to create a list of the data sources to which the SQL statement will be executed. Each data source has to be a TDataSet descendant, connected to a database and opened prior to SQL statement execution in the TVirtualQuery (if [TVirtualQueryOptions.AutoOpenSources](#) option is set to False). Each data source gets its own "schema name" and "table name" which are used to identify the data source in the SQL statement. Each data source must have a unique combination of schema name and table name.

See Also

- [TVirtualQueryOptions.AutoOpenSources](#)

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4.8.1.1.3 Events

Events of the **TCustomVirtualQuery** class.

For a complete list of the **TCustomVirtualQuery** class members, see the [TCustomVirtualQuery Members](#) topic.

Public

Name	Description
AfterExecute (inherited from TCustomDADataset)	Occurs after a component has executed a query to database.

AfterFetch (inherited from TCustomDADataset)	Occurs after dataset finishes fetching data from server.
AfterUpdateExecute (inherited from TCustomDADataset)	Occurs after executing insert, delete, update, lock and refresh operations.
BeforeFetch (inherited from TCustomDADataset)	Occurs before dataset is going to fetch block of records from the server.
BeforeUpdateExecute (inherited from TCustomDADataset)	Occurs before executing insert, delete, update, lock, and refresh operations.
OnRegisterCollations	Occurs when the connection is opened to register the user-defined collation used in the query text.
OnRegisterFunctions	Occurs when the query is opened to register the user-defined functions used in the query text.
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

See Also

- [TCustomVirtualQuery Class](#)
- [TCustomVirtualQuery Class Members](#)

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4.8.1.1.3.1 OnRegisterCollations Event

Occurs when the connection is opened to register the user-defined collation used in the query text.

Class

[TCustomVirtualQuery](#)

Syntax

```
property OnRegisterCollations: TRegisterCollationsEvent;
```

Remarks

Occurs after a component has executed a query to a database.

See Also

- [TCustomDADataset.Execute](#)

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4.8.1.1.3.2 OnRegisterFunctions Event

Occurs when the query is opened to register the user-defined functions used in the query text.

Class

[TCustomVirtualQuery](#)

Syntax

```
property OnRegisterFunctions: TRegisterFunctionsEvent;
```

Remarks

The event occurs before a component has executed a query.

See Also

- [TCustomDADataset.Execute](#)

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4.8.1.2 TDataSetLink Class

Used to link a TDataSet descendant as a data source for querying data in [TVirtualQuery](#).

For a list of all members of this type, see [TDataSetLink](#) members.

Unit

virtualQuery

Syntax

```
TDataSetLink = class(TCollectionItem);
```

Remarks

Add a TDataSetLink instance to the [TCustomVirtualQuery.SourceDataSets](#) collection using the [TDataSetLinks.Add](#) method to link a TDataSet descendant as a data source for querying data in [TVirtualQuery](#).

See Also

- [TVirtualQuery](#)
- [TCustomVirtualQuery.SourceDataSets](#)
- [TDataSetLinks](#)
- [TDataSetLinks.Add](#)

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4.8.1.2.1 Members

[TDataSetLink](#) class overview.

Properties

Name	Description
DataSet	Defines a TDataSet descendant to be linked as a data source for querying data in TVirtualQuery .
SchemaName	Defines the schema name which will be used to identify the linked source dataset in a SQL statement.
TableName	Defines the table name which will be used to identify

	the linked source dataset in a SQL statement.
--	---

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4.8.1.2.2 Properties

Properties of the **TDataSetLink** class.

For a complete list of the **TDataSetLink** class members, see the [TDataSetLink Members](#) topic.

Published

Name	Description
DataSet	Defines a TDataSet descendant to be linked as a data source for querying data in TVirtualQuery .
SchemaName	Defines the schema name which will be used to identify the linked source dataset in a SQL statement.
TableName	Defines the table name which will be used to identify the linked source dataset in a SQL statement.

See Also

- [TDataSetLink Class](#)
- [TDataSetLink Class Members](#)

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4.8.1.2.2.1 DataSet Property

Defines a TDataSet descendant to be linked as a data source for querying data in [TVirtualQuery](#).

Class

[TDataSetLink](#)

Syntax

```
property DataSet: TDataSet;
```

See Also

- [TVirtualQuery](#)
- [SchemaName](#)
- [TableName](#)

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4.8.1.2.2.2 SchemaName Property

Defines the schema name which will be used to identify the linked source dataset in a SQL statement.

Class

[TDataSetLink](#)

Syntax

```
property SchemaName: string;
```

Remarks

Can be left empty. In this case either no schema name or the "main" schema name can be used when referring to the linked source dataset in a SQL statement.

Combination of schema name and table name must be unique for each linked dataset.

See Also

- [DataSet](#)
- [TableName](#)

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4.8.1.2.2.3 TableName Property

Defines the table name which will be used to identify the linked source dataset in a SQL statement.

Class

[TDataSetLink](#)

Syntax

```
property TableName: string stored GetTableNameStored;
```

Remarks

Must be filled.

Combination of schema name and table name must be unique for each linked dataset.

See Also

- [DataSet](#)
- [SchemaName](#)

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4.8.1.3 TDataSetLinks Class

This type is used for the [TCustomVirtualQuery.SourceDataSets](#) property.

For a list of all members of this type, see [TDataSetLinks](#) members.

Unit

virtualQuery

Syntax

```
TDataSetLinks = class(TCollection);
```

Remarks

TDataSetLinks is the TCollection descendant which contains a collection of the [TDataSetLink](#) instances, each of which links a TDataSet descendant as a data source for querying data in [TVirtualQuery](#).

See Also

- [TVirtualQuery](#)
- [TDataSetLink](#)

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4.8.1.3.1 Members

[TDataSetLinks](#) class overview.

Methods

Name	Description
Add	Overloaded. Adds a new TDataSetLink instance to the collection.

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4.8.1.3.2 Methods

Methods of the **TDataSetLinks** class.

For a complete list of the **TDataSetLinks** class members, see the [TDataSetLinks Members](#) topic.

Public

Name	Description
Add	Overloaded. Adds a new TDataSetLink instance to the collection.

See Also

- [TDataSetLinks Class](#)
- [TDataSetLinks Class Members](#)

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4.8.1.3.2.1 Add Method

Adds a new [TDataSetLink](#) instance to the collection.

Class

[TDataSetLinks](#)

Overload List

Name	Description
Add	Adds a new TDataSetLink instance to the collection.
Add(DataSet: TDataSet; const SchemaName: string; const TableName: string)	Adds a new TDataSetLink instance to the collection and fills its properties.

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Adds a new [TDataSetLink](#) instance to the collection.

Class

[TDataSetLinks](#)

Syntax

```
function Add: TDataSetLink; overload;
```

Return Value

A instance which has been added.

Remarks

Fill the [TDataSetLink.DataSet](#) property of the returned TDataSetLink instance to link a TDataSet descendant as a data source for querying data in [TVirtualQuery](#). Fill

[TDataSetLink.SchemaName](#) and [TDataSetLink.TableName](#) properties to identify the source dataset in a SQL statement. Combination of schema name and table name must be unique for each linked dataset. Also, a source dataset can be linked using the [Add](#) method.

See Also

- [TVirtualQuery](#)
- [TDataSetLink](#)
- [TDataSetLink.DataSet](#)
- [TDataSetLink.SchemaName](#)
- [TDataSetLink.TableName](#)
- [Add](#)

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Adds a new [TDataSetLink](#) instance to the collection and fills its properties.

Class

[TDataSetLinks](#)

Syntax

```
function Add(DataSet: TDataSet; const SchemaName: string; const
TableName: string): TDataSetLink; overload;
```

Parameters

DataSet

Defines a TDataSet descendant to be linked as a data source for querying data in [TVirtualQuery](#).

SchemaName

Defines the schema name which will be used to identify the linked source dataset in a SQL statement. Can be left empty. In this case either no schema name or the "main" schema name can be used when referring to the dataset in a SQL statement.

TableName

Defines the table name which will be used to identify the linked source dataset in a SQL statement. Must be filled.

Return Value

A instance which has been added.

Remarks

Combination of schema name and table name must be unique for each linked dataset. Also, a source dataset can be linked using the [TDataSetLinks.Add](#) method.

See Also

- [TVirtualQuery](#)
- [TDataSetLink](#)
- [TDataSetLink.DataSet](#)
- [TDataSetLink.SchemaName](#)
- [TDataSetLink.TableName](#)
- [TDataSetLinks.Add](#)

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4.8.1.4 TVirtualCollationManager Class

Used to register user-defined collations.

For a list of all members of this type, see [TVirtualCollationManager](#) members.

Unit

virtualQuery

Syntax

```
TVirtualCollationManager = class(System.TObject);
```

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4.8.1.4.1 Members

[TVirtualCollationManager](#) class overview.

Methods

Name	Description
RegisterAnsiCollation	Overloaded. Used to register a user-defined non-Unicode collation.
RegisterCollation	Overloaded. Used to register a user-defined collation.
RegisterDefaultCollations	Used to register a user-defined default collation.
RegisterWideCollation	Overloaded. Used to register a user-defined Unicode collation.
UnRegisterAnsiCollation	Used to unregister a user-defined non-Unicode collation.
UnRegisterCollation	Used to unregister a user-defined collation.
UnRegisterDefaultCollations	Used to unregister a user-defined default collation.
UnRegisterWideCollation	Used to unregister a user-defined Unicode collation.

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4.8.1.4.2 Methods

Methods of the **TVirtualCollationManager** class.

For a complete list of the **TVirtualCollationManager** class members, see the

[TVirtualCollationManager Members](#) topic.

Public

Name	Description
RegisterAnsiCollation	Overloaded. Used to register a user-defined non-Unicode collation.
RegisterCollation	Overloaded. Used to register a user-defined collation.
RegisterDefaultCollations	Used to register a user-defined default collation.

RegisterWideCollation	Overloaded. Used to register a user-defined Unicode collation.
UnRegisterAnsiCollation	Used to unregister a user-defined non-Unicode collation.
UnRegisterCollation	Used to unregister a user-defined collation.
UnRegisterDefaultCollations	Used to unregister a user-defined default collation.
UnRegisterWideCollation	Used to unregister a user-defined Unicode collation.

See Also

- [TVirtualCollationManager Class](#)
- [TVirtualCollationManager Class Members](#)

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4.8.1.4.2.1 RegisterAnsiCollation Method

Used to register a user-defined non-Unicode collation.

Class

[TVirtualCollationManager](#)

Overload List

Name	Description
RegisterAnsiCollation(const Name: string; VirtualAnsiCollation: TVirtualAnsiCollation)	Used to specify a user-defined non-Unicode collation that can be applied in an SQL statement.
RegisterAnsiCollation(const Name: string; VirtualAnsiCollation: TVirtualAnsiCollationMethod)	Used to specify a user-defined non-Unicode collation that can be applied in an SQL statement.

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Used to specify a user-defined non-Unicode collation that can be applied in an SQL statement.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterAnsiCollation(const Name: string;  
VirtualAnsiCollation: TVirtualAnsiCollation); overload;
```

Parameters

Name

User-defined collation name.

VirtualAnsiCollation

User-defined non-Unicode collation.

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Used to specify a user-defined non-Unicode collation that can be applied in an SQL statement.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterAnsiCollation(const Name: string;  
VirtualAnsiCollation: TVirtualAnsiCollationMethod); overload;
```

Parameters

Name

User-defined collation name.

VirtualAnsiCollation

User-defined non-Unicode collation.

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4.8.1.4.2.2 RegisterCollation Method

Used to register a user-defined collation.

Class

[TVirtualCollationManager](#)

Overload List

Name	Description
RegisterCollation(const Name: string; VirtualCollation: TVirtualCollation)	Used to specify a user-defined collation that can be applied in an SQL statement.
RegisterCollation(const Name: string; VirtualCollation: TVirtualCollationMethod)	Used to specify a user-defined collation that can be applied in an SQL statement.

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Used to specify a user-defined collation that can be applied in an SQL statement.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterCollation(const Name: string; VirtualCollation: TVirtualCollation); overload;
```

Parameters

Name

User-defined collation name.

VirtualCollation

User-defined collation.

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Used to specify a user-defined collation that can be applied in an SQL statement.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterCollation(const Name: string; VirtualCollation: TVirtualCollationMethod); overload;
```

Parameters

Name

User-defined collation name.

VirtualCollation

User-defined collation.

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4.8.1.4.2.3 RegisterDefaultCollations Method

Used to register a user-defined default collation.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterDefaultCollations;
```

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4.8.1.4.2.4 RegisterWideCollation Method

Used to register a user-defined Unicode collation.

Class

[TVirtualCollationManager](#)

Overload List

Name	Description
RegisterWideCollation(const Name: string; VirtualWideCollation:	Used to specify a user-defined Unicode collation that can be applied in an SQL

TVirtualWideCollation)	statement.
RegisterWideCollation(const Name: string; VirtualWideCollation: TVirtualWideCollationMethod)	Used to specify a user-defined Unicode collation that can be applied in an SQL statement.

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Used to specify a user-defined Unicode collation that can be applied in an SQL statement.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterWideCollation(const Name: string;
virtualwideCollation: TVirtualWideCollation); overload;
```

Parameters

Name

User-defined collation name.

VirtualWideCollation

User-defined Unicode collation.

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Used to specify a user-defined Unicode collation that can be applied in an SQL statement.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure RegisterWideCollation(const Name: string;
virtualwideCollation: TVirtualWideCollationMethod); overload;
```

Parameters

Name

User-defined collation name.

VirtualWideCollation

User-defined Unicode collation.

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4.8.1.4.2.5 UnRegisterAnsiCollation Method

Used to unregister a user-defined non-Unicode collation.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure UnRegisterAnsiCollation(const Name: string);
```

Parameters

Name

User-defined collation name.

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4.8.1.4.2.6 UnRegisterCollation Method

Used to unregister a user-defined collation.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure UnRegisterCollation(const Name: string);
```

Parameters

Name

User-defined collation name.

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4.8.1.4.2.7 UnRegisterDefaultCollations Method

Used to unregister a user-defined default collation.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure UnRegisterDefaultCollations;
```

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4.8.1.4.2.8 UnRegisterWideCollation Method

Used to unregister a user-defined Unicode collation.

Class

[TVirtualCollationManager](#)

Syntax

```
procedure UnRegisterWideCollation(const Name: string);
```

Parameters

Name

User-defined collation name.

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4.8.1.5 TVirtualFunctionManager Class

Used to register user-defined functions.

For a list of all members of this type, see [TVirtualFunctionManager](#) members.

Unit

virtualQuery

Syntax


```
TVirtualFunctionManager = class(System.TObject);
```

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4.8.1.5.1 Members

[TVirtualFunctionManager](#) class overview.

Methods

Name	Description
RegisterFunction	Overloaded. Used to register a new function.

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4.8.1.5.2 Methods

Methods of the **TVirtualFunctionManager** class.

For a complete list of the **TVirtualFunctionManager** class members, see the

[TVirtualFunctionManager Members](#) topic.

Public

Name	Description
RegisterFunction	Overloaded. Used to register a new function.

See Also

- [TVirtualFunctionManager Class](#)
- [TVirtualFunctionManager Class Members](#)

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4.8.1.5.2.1 RegisterFunction Method

Used to register a new function.

Class

[TVirtualFunctionManager](#)

Overload List

Name	Description
RegisterFunction(const Name: string; ParamCount: Integer; VirtualFunction: TVirtualFunction)	Used to specify the function that is called when a user-defined function is called in an SQL statement.
RegisterFunction(const Name: string; ParamCount: Integer; VirtualMethod: TVirtualMethod)	Used to specify the method that is called when a user-defined function is called in an SQL statement.

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Used to specify the function that is called when a user-defined function is called in an SQL statement.

Class

[TVirtualFunctionManager](#)

Syntax

```
procedure RegisterFunction(const Name: string; ParamCount: Integer; VirtualFunction: TVirtualFunction); overload;
```

Parameters

Name

Used to specify the name of the function that will be defined.

ParamCount

Used to specify the number of function parameters.

VirtualFunction

Used to specify the function that is called when a user-defined function is called in an SQL statement.

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Reserved.

Used to specify the method that is called when a user-defined function is called in an SQL statement.

Class

[TVirtualFunctionManager](#)

Syntax

```
procedure RegisterFunction(const Name: string; ParamCount:  
Integer; VirtualMethod: TVirtualMethod); overload;
```

Parameters

Name

Used to specify the name of the method that will be defined.

ParamCount

Used to specify the number of method parameters.

VirtualMethod

Used to specify the method that is called when a user-defined function is called in an SQL statement.

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4.8.1.6 TVirtualQuery Class

Used to retrieve data simultaneously from various RDBMS'es.

For a list of all members of this type, see [TVirtualQuery](#) members.

Unit

virtualQuery

Syntax

```
TVirtualQuery = class(TCustomVirtualQuery);
```

Remarks

TVirtualQuery component is used to retrieve data simultaneously from several different RDBMS'es. Instead of a database connection, it use a collection of TDataSet descendants

defined in the [TCustomVirtualQuery.SourceDataSets](#) property as the data source, for which a SQL statement can be build. The SQLite is used as an internal SQL-engine, so the SQLite syntax has to be used for SQL statements.

Use TVirtualQuery to perform fetching, insertion, deletion and update of record by dynamically generated SQL statements. Set SQL, SQLInsert, SQLDelete, SQLRefresh, and SQLUpdate properties to define SQL statements for subsequent accesses to the database server. There is no restriction to their syntax, so any SQL statement is allowed. Usually you need to use INSERT, DELETE, and UPDATE statements but you also may use stored procedures in more diverse cases.

To modify records, you can specify KeyFields. If they are not specified, TVirtualQuery will retrieve primary keys for UpdatingTable from metadata. TVirtualQuery can automatically update only one table. Updating table is defined by the UpdatingTable property if this property is set. Otherwise, the table a field of which is the first field in the field list in the SELECT clause is used as an updating table.

The SQLInsert, SQLDelete, SQLUpdate, SQLRefresh properties support automatic binding of parameters which have identical names to fields captions. To retrieve the value of a field as it was before the operation use the field name with the 'OLD_' prefix. This is especially useful when doing field comparisons in the WHERE clause of the statement. Use the [TCustomDADataset.BeforeUpdateExecute](#) event to assign the value to additional parameters and the [TCustomDADataset.AfterUpdateExecute](#) event to read them.

Inheritance Hierarchy

[TMemDataSet](#)

[TCustomDADataset](#)

[TCustomVirtualQuery](#)

TVirtualQuery

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4.8.1.6.1 Members

[TVirtualQuery](#) class overview.

Properties

Name	Description
<u>BaseSQL</u> (inherited from <u>TCustomDADataset</u>)	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<u>CachedUpdates</u> (inherited from <u>TMemDataSet</u>)	Used to enable or disable the use of cached updates for a dataset.
<u>Conditions</u> (inherited from <u>TCustomDADataset</u>)	Used to add WHERE conditions to a query
<u>Connection</u> (inherited from <u>TCustomDADataset</u>)	Used to specify a connection object to use to connect to a data store.
<u>DataTypeMap</u> (inherited from <u>TCustomDADataset</u>)	Used to set data type mapping rules
<u>Debug</u> (inherited from <u>TCustomDADataset</u>)	Used to display the statement that is being executed and the values and types of its parameters.
<u>DetailFields</u> (inherited from <u>TCustomDADataset</u>)	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<u>Disconnected</u> (inherited from <u>TCustomDADataset</u>)	Used to keep dataset opened after connection is closed.
<u>FetchAll</u>	Defines whether to request all records of the query from database server when the dataset is being opened.
<u>FetchRows</u> (inherited from <u>TCustomDADataset</u>)	Used to define the number of rows to be transferred across the network at the same time.
<u>FilterSQL</u> (inherited from <u>TCustomDADataset</u>)	Used to change the WHERE clause of SELECT statement and reopen a query.
<u>FinalSQL</u> (inherited from <u>TCustomDADataset</u>)	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.

IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
IsQuery (inherited from TCustomDADataset)	Used to check whether SQL statement returns rows.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
KeyFields (inherited from TCustomDADataset)	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MacroCount (inherited from TCustomDADataset)	Used to get the number of macros associated with the Macros property.
Macros (inherited from TCustomDADataset)	Makes it possible to change SQL queries easily.
MasterFields (inherited from TCustomDADataset)	Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.
MasterSource (inherited from TCustomDADataset)	Used to specify the data source component which binds current dataset to the master one.
Options (inherited from TCustomVirtualQuery)	Used to specify the behaviour of TVirtualQuery object.
ParamCheck (inherited from TCustomDADataset)	Used to specify whether parameters for the Params property are generated automatically after the SQL

	property was changed.
ParamCount (inherited from TCustomDADataset)	Used to indicate how many parameters are there in the Params property.
Params (inherited from TCustomDADataset)	Used to view and set parameter names, values, and data types dynamically.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
ReadOnly (inherited from TCustomDADataset)	Used to prevent users from updating, inserting, or deleting data in the dataset.
RefreshOptions (inherited from TCustomDADataset)	Used to indicate when the editing record is refreshed.
RowsAffected (inherited from TCustomDADataset)	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SourceDataSets (inherited from TCustomVirtualQuery)	Contains a collection of source datasets for querying data.
SQL (inherited from TCustomDADataset)	Used to provide a SQL statement that a query component executes when its Open method is called.
SQLDelete (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying a deletion to a record.
SQLInsert (inherited from TCustomDADataset)	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
SQLLock (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to perform a record lock.
SQLRecCount (inherited from TCustomDADataset)	Used to specify the SQL statement that is used to get the record count when opening a dataset.

SQLRefresh (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.
SQLUpdate (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying an update to a dataset.
UniDirectional (inherited from TCustomDADataset)	Used if an application does not need bidirectional access to records in the result set.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.
UpdatingTable	Used to specify which table in a query is assumed to be the target for subsequent data-modification queries as a result of user incentive to insert, update or delete records.

Methods

Name	Description
AddWhere (inherited from TCustomDADataset)	Adds condition to the WHERE clause of SELECT statement in the SQL property.
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
BreakExec (inherited from TCustomDADataset)	Breaks execution of the SQL statement on the server.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a

	dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
CloneCursor (inherited from TCustomDADataset)	Shares data from another dataset.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
CreateBlobStream (inherited from TCustomDADataset)	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
DeleteWhere (inherited from TCustomDADataset)	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
Execute (inherited from TCustomDADataset)	Overloaded. Executes a SQL statement on the server.
Executing (inherited from TCustomDADataset)	Indicates whether SQL statement is still being executed.
Fetched (inherited from TCustomDADataset)	Used to find out whether TCustomDADataset has fetched all rows.
Fetching (inherited from TCustomDADataset)	Used to learn whether TCustomDADataset is still fetching rows.
FetchingAll (inherited from TCustomDADataset)	Used to learn whether TCustomDADataset is fetching all rows to the end.
FindKey (inherited from TCustomDADataset)	Searches for a record which contains specified field values.

FindNearest (inherited from TCustomDADataset)	Moves the cursor to a specific record or to the first record in the dataset that matches or is greater than the values specified in the KeyValues parameter.
FindParam (inherited from TCustomDADataset)	Determines if a parameter with the specified name exists in a dataset.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
GetDataType (inherited from TCustomDADataset)	Returns internal field types defined in the MemData and accompanying modules.
GetFieldObject (inherited from TCustomDADataset)	Returns a multireference shared object from field.
GetFieldPrecision (inherited from TCustomDADataset)	Retrieves the precision of a number field.
GetFieldScale (inherited from TCustomDADataset)	Retrieves the scale of a number field.
GetKeyFieldNames (inherited from TCustomDADataset)	Provides a list of available key field names.
GetOrderBy (inherited from TCustomDADataset)	Retrieves an ORDER BY clause from a SQL statement.
GotoCurrent (inherited from TCustomDADataset)	Sets the current record in this dataset similar to the current record in another dataset.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Lock (inherited from TCustomDADataset)	Locks the current record.

MacroByName (inherited from TCustomDADataset)	Finds a macro with the specified name.
ParamByName (inherited from TCustomDADataset)	Sets or uses parameter information for a specific parameter based on its name.
Prepare (inherited from TCustomDADataset)	Allocates, opens, and parses cursor for a query.
RefreshRecord (inherited from TCustomDADataset)	Actualizes field values for the current record.
RestoreSQL (inherited from TCustomDADataset)	Restores the SQL property modified by AddWhere and SetOrderBy.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveSQL (inherited from TCustomDADataset)	Saves the SQL property value to BaseSQL.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetOrderBy (inherited from TCustomDADataset)	Builds an ORDER BY clause of a SELECT statement.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range

	of rows to include in the dataset.
SQLSaved (inherited from TCustomDADataset)	Determines if the SQL property value was saved to the BaseSQL property.
UnLock (inherited from TCustomDADataset)	Releases a record lock.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

Events

Name	Description
AfterExecute (inherited from TCustomDADataset)	Occurs after a component has executed a query to database.
AfterFetch (inherited from TCustomDADataset)	Occurs after dataset finishes fetching data from server.
AfterUpdateExecute (inherited from TCustomDADataset)	Occurs after executing insert, delete, update, lock and refresh operations.
BeforeFetch (inherited from TCustomDADataset)	Occurs before dataset is going to fetch block of records from the server.
BeforeUpdateExecute (inherited from TCustomDADataset)	Occurs before executing insert, delete, update, lock, and refresh operations.
OnRegisterCollations (inherited from TCustomVirtualQuery)	Occurs when the connection is opened to register the user-defined collation used in the query text.
OnRegisterFunctions (inherited from TCustomVirtualQuery)	Occurs when the query is opened to register the user-

TCustomVirtualQuery)	defined functions used in the query text.
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.8.1.6.2 Properties

Properties of the **TVirtualQuery** class.

For a complete list of the **TVirtualQuery** class members, see the [TVirtualQuery Members](#) topic.

Public

Name	Description
BaseSQL (inherited from TCustomDADataset)	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
Conditions (inherited from TCustomDADataset)	Used to add WHERE conditions to a query
Connection (inherited from TCustomDADataset)	Used to specify a connection object to use to connect to a data store.
DataTypeMap (inherited from TCustomDADataset)	Used to set data type mapping rules
Debug (inherited from TCustomDADataset)	Used to display the statement that is being executed and the values and types of its parameters.
DetailFields (inherited from TCustomDADataset)	Used to specify the fields that correspond to the

	foreign key fields from MasterFields when building master/detail relationship.
Disconnected (inherited from TCustomDADataset)	Used to keep dataset opened after connection is closed.
FetchRows (inherited from TCustomDADataset)	Used to define the number of rows to be transferred across the network at the same time.
FilterSQL (inherited from TCustomDADataset)	Used to change the WHERE clause of SELECT statement and reopen a query.
FinalSQL (inherited from TCustomDADataset)	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
IsQuery (inherited from TCustomDADataset)	Used to check whether SQL statement returns rows.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
KeyFields (inherited from TCustomDADataset)	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
MacroCount (inherited from TCustomDADataset)	Used to get the number of macros associated with the Macros property.

Macros (inherited from TCustomDADataset)	Makes it possible to change SQL queries easily.
MasterFields (inherited from TCustomDADataset)	Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.
MasterSource (inherited from TCustomDADataset)	Used to specify the data source component which binds current dataset to the master one.
Options (inherited from TCustomVirtualQuery)	Used to specify the behaviour of TVirtualQuery object.
ParamCheck (inherited from TCustomDADataset)	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
ParamCount (inherited from TCustomDADataset)	Used to indicate how many parameters are there in the Params property.
Params (inherited from TCustomDADataset)	Used to view and set parameter names, values, and data types dynamically.
Prepared (inherited from TMemDataset)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataset)	Indicates whether a range is applied to a dataset.
ReadOnly (inherited from TCustomDADataset)	Used to prevent users from updating, inserting, or deleting data in the dataset.
RefreshOptions (inherited from TCustomDADataset)	Used to indicate when the editing record is refreshed.
RowsAffected (inherited from TCustomDADataset)	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
SourceDataSets (inherited from TCustomVirtualQuery)	Contains a collection of source datasets for querying data.

SQL (inherited from TCustomDADataset)	Used to provide a SQL statement that a query component executes when its Open method is called.
SQLDelete (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying a deletion to a record.
SQLInsert (inherited from TCustomDADataset)	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
SQLLock (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to perform a record lock.
SQLRecCount (inherited from TCustomDADataset)	Used to specify the SQL statement that is used to get the record count when opening a dataset.
SQLRefresh (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.
SQLUpdate (inherited from TCustomDADataset)	Used to specify a SQL statement that will be used when applying an update to a dataset.
UniDirectional (inherited from TCustomDADataset)	Used if an application does not need bidirectional access to records in the result set.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Published

Name	Description
------	-------------

FetchAll	Defines whether to request all records of the query from database server when the dataset is being opened.
UpdatingTable	Used to specify which table in a query is assumed to be the target for subsequent data-modification queries as a result of user incentive to insert, update or delete records.

See Also

- [TVirtualQuery Class](#)
- [TVirtualQuery Class Members](#)

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4.8.1.6.2.1 FetchAll Property

Defines whether to request all records of the query from database server when the dataset is being opened.

Class

[TVirtualQuery](#)

Syntax

```
property FetchAll: boolean;
```

Remarks

When set to True, all records of the query are requested from database server when the dataset is being opened. When set to False, records are retrieved when a data-aware component or a program requests it. If a query can return a lot of records, set this property to False if initial response time is important.

When the FetchAll property is False, the first call to [TMemDataSet.Locate](#) and [TMemDataSet.LocateEx](#) methods may take a lot of time to retrieve additional records to the

client side.

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4.8.1.6.2.2 UpdatingTable Property

Used to specify which table in a query is assumed to be the target for subsequent data-modification queries as a result of user incentive to insert, update or delete records.

Class

[TVirtualQuery](#)

Syntax

```
property UpdatingTable: string;
```

Remarks

Use the UpdatingTable property to specify which table in a query is assumed to be the target for the subsequent data-modification queries as a result of user incentive to insert, update or delete records.

This property is used on Insert, Update, Delete or RefreshRecord (see also [TCustomVirtualQuery.Options](#)) if appropriate SQL (SQLInsert, SQLUpdate or SQLDelete) is not provided.

If UpdatingTable is not set then the first table used in a query is assumed to be the target.

Example

Below are two examples for the query, where:

1. the only allowed value for UpdatingTable property is 'Dept';
2. allowed values for UpdatingTable are 'Dept' and 'Emp'.

In the first case (or by default) editable field is ShipName, in the second - all fields from Emp.

```
1) Example 1.  
   SELECT * FROM Dept  
2) Example 2.  
   SELECT * FROM Dept, Emp  
   WHERE Dept.DeptNo = Emp.DeptNo
```

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4.8.1.7 TVirtualQueryOptions Class

Used to set up the behaviour of the TVirtualQuery class.

For a list of all members of this type, see [TVirtualQueryOptions](#) members.

Unit

virtualQuery

Syntax

```
TVirtualQueryOptions = class(TDADatasetOptions);
```

Inheritance Hierarchy

[TDADatasetOptions](#)

TVirtualQueryOptions

See Also

- [TVirtualQuery](#)

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4.8.1.7.1 Members

[TVirtualQueryOptions](#) class overview.

Properties

Name	Description
AutoOpenSources	Used to automatically open data sources when SQL statement executed
AutoPrepare (inherited from TDADatasetOptions)	Used to execute automatic TCustomDADataset.Prepare on the query execution.
CacheCalcFields (inherited from TDADatasetOptions)	Used to enable caching of the TField.Calculated and

CompressBlobMode (inherited from TDADatasetOptions)	TField.Lookup fields. Used to store values of the BLOB fields in compressed form.
DefaultValues (inherited from TDADatasetOptions)	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
DetailDelay (inherited from TDADatasetOptions)	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.
FieldsOrigin (inherited from TDADatasetOptions)	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
FlatBuffers (inherited from TDADatasetOptions)	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
FullRefresh	Used to specify the fields to include in the automatically generated SQL statement when calling the method.
InsertAllSetFields (inherited from TDADatasetOptions)	Used to include all set dataset fields in the generated INSERT statement
LocalMasterDetail (inherited from TDADatasetOptions)	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
LongStrings (inherited from TDADatasetOptions)	Used to represent string fields with the length that is greater than 255 as TStringField.
MasterFieldsNullable (inherited from	Allows to use NULL values in the fields by which the

<u>TDADatasetOptions</u>)	relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).
<u>NumberRange</u> (inherited from <u>TDADatasetOptions</u>)	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
<u>QueryRecCount</u> (inherited from <u>TDADatasetOptions</u>)	Used for TCustomDADataset to perform additional query to get the record count for this SELECT, so the RecordCount property reflects the actual number of records.
<u>QuoteNames</u> (inherited from <u>TDADatasetOptions</u>)	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
<u>RemoveOnRefresh</u> (inherited from <u>TDADatasetOptions</u>)	Used for a dataset to locally remove a record that can not be found on the server.
<u>RequiredFields</u> (inherited from <u>TDADatasetOptions</u>)	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
<u>ReturnParams</u> (inherited from <u>TDADatasetOptions</u>)	Used to return the new value of fields to dataset after insert or update.
<u>SetEmptyStrToNull</u>	Force replace of empty strings with NULL values in data. Default value is False.
<u>SetFieldsReadOnly</u> (inherited from <u>TDADatasetOptions</u>)	Used for a dataset to set the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated.
<u>StrictUpdate</u> (inherited from <u>TDADatasetOptions</u>)	Used for TCustomDADataset to

	raise an exception when the number of updated or deleted records is not equal 1.
TrimFixedChar (inherited from TDADatasetOptions)	Specifies whether to discard all trailing spaces in the string fields of a dataset.
TrimVarChar	Used to specify whether to discard all trailing spaces in the variable-length string fields of a dataset.
UpdateAllFields (inherited from TDADatasetOptions)	Used to include all dataset fields in the generated UPDATE and INSERT statements.
UpdateBatchSize (inherited from TDADatasetOptions)	Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.
UseUnicode	Used to enable or disable Unicode support.

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4.8.1.7.2 Properties

Properties of the **TVirtualQueryOptions** class.

For a complete list of the **TVirtualQueryOptions** class members, see the

[TVirtualQueryOptions Members](#) topic.

Public

Name	Description
AutoPrepare (inherited from TDADatasetOptions)	Used to execute automatic TCustomDADataset.Prepare on the query execution.
CacheCalcFields (inherited from TDADatasetOptions)	Used to enable caching of the TField.Calculated and TField.Lookup fields.

CompressBlobMode (inherited from TDADatasetOptions)	Used to store values of the BLOB fields in compressed form.
DefaultValues (inherited from TDADatasetOptions)	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
DetailDelay (inherited from TDADatasetOptions)	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.
FieldsOrigin (inherited from TDADatasetOptions)	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
FlatBuffers (inherited from TDADatasetOptions)	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
InsertAllSetFields (inherited from TDADatasetOptions)	Used to include all set dataset fields in the generated INSERT statement
LocalMasterDetail (inherited from TDADatasetOptions)	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
LongStrings (inherited from TDADatasetOptions)	Used to represent string fields with the length that is greater than 255 as TStringField.
MasterFieldsNullable (inherited from TDADatasetOptions)	Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).

NumberRange (inherited from TDADatasetOptions)	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
QueryRecCount (inherited from TDADatasetOptions)	Used for TCustomDADataset to perform additional query to get the record count for this SELECT, so the RecordCount property reflects the actual number of records.
QuoteNames (inherited from TDADatasetOptions)	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
RemoveOnRefresh (inherited from TDADatasetOptions)	Used for a dataset to locally remove a record that can not be found on the server.
RequiredFields (inherited from TDADatasetOptions)	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
ReturnParams (inherited from TDADatasetOptions)	Used to return the new value of fields to dataset after insert or update.
SetFieldsReadOnly (inherited from TDADatasetOptions)	Used for a dataset to set the ReadOnly property to True for all fields that do not belong to UpdatingTable or can not be updated.
StrictUpdate (inherited from TDADatasetOptions)	Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.
TrimFixedChar (inherited from TDADatasetOptions)	Specifies whether to discard all trailing spaces in the string fields of a dataset.

UpdateAllFields (inherited from TDADatasetOptions)	Used to include all dataset fields in the generated UPDATE and INSERT statements.
UpdateBatchSize (inherited from TDADatasetOptions)	Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.

Published

Name	Description
AutoOpenSources	Used to automatically open data sources when SQL statement executed
FullRefresh	Used to specify the fields to include in the automatically generated SQL statement when calling the method.
SetEmptyStrToNull	Force replace of empty strings with NULL values in data. Default value is False.
TrimVarChar	Used to specify whether to discard all trailing spaces in the variable-length string fields of a dataset.
UseUnicode	Used to enable or disable Unicode support.

See Also

- [TVirtualQueryOptions Class](#)
- [TVirtualQueryOptions Class Members](#)

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4.8.1.7.2.1 AutoOpenSources Property

Used to automatically open data sources when SQL statement executed

Class

[TVirtualQueryOptions](#)

Syntax

```
property AutoOpenSources: boolean default False;
```

Remarks

Use the property to automatically open data sources specified in the [TCustomVirtualQuery.SourceDataSets](#) list when SQL statement executed. If AutoOpenSources is False, each data source has to be opened prior to SQL statement execution in the [TVirtualQuery](#). If AutoOpenSources is True, data sources will be opened automatically. The default value is False;

See Also

- [TVirtualQuery](#)
- [TCustomVirtualQuery.SourceDataSets](#)

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4.8.1.7.2.2 FullRefresh Property

Used to specify the fields to include in the automatically generated SQL statement when calling the method.

Class

[TVirtualQueryOptions](#)

Syntax

```
property FullRefresh: boolean;
```

Remarks

Use the FullRefresh property to specify what fields to include in the automatically generated SQL statement when calling the [TCustomDADataset.RefreshRecord](#) method. If the FullRefresh property is True, all fields from a query are included into SQL statement to refresh a single record. If FullRefresh is False, only fields from [TVirtualQuery.UpdatingTable](#) are included.

Note: If FullRefresh is True, the refresh of SQL statement for complex queries and views may be generated with errors. The default value is False.

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4.8.1.7.2.3 SetEmptyStrToNull Property

Force replace of empty strings with NULL values in data. Default value is False.

Class

[TVirtualQueryOptions](#)

Syntax

```
property SetEmptyStrToNull: boolean;
```

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4.8.1.7.2.4 TrimVarChar Property

Used to specify whether to discard all trailing spaces in the variable-length string fields of a dataset.

Class

[TVirtualQueryOptions](#)

Syntax

```
property TrimVarChar: boolean;
```

Remarks

Use the TrimVarChar property to specify whether to discard all trailing spaces in the variable-

length string fields of a dataset. The default value is False.

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4.8.1.7.2.5 UseUnicode Property

Used to enable or disable Unicode support.

Class

[TVirtualQueryOptions](#)

Syntax

```
property UseUnicode: boolean default DefValUseUnicode;
```

Remarks

Use the UseUnicode property to enable or disable Unicode support. When set to True, all character data is stored as WideString, and TStringField is used instead of TWideStringField.

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4.8.2 Types

Types in the **VirtualQuery** unit.

Types

Name	Description
TRegisterFunctionsEvent	This type is used for the TCustomVirtualQuery.RegisterFunctions events.

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4.8.2.1 TRegisterFunctionsEvent Procedure Reference

This type is used for the TCustomVirtualQuery.RegisterFunctions events.

Unit

virtualQuery

Syntax

```
TRegisterFunctionsEvent = procedure (Sender: TObject; const
FunctionManager: TVirtualFunctionManager) of object;
```

Parameters

Sender

An object that raised the event.

FunctionManager

Used to register user-defined functions.

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4.9 VirtualTable

4.9.1 Classes

Classes in the VirtualTable unit.

Classes

Name	Description
TVirtualAutoIncField	A field class for generating auto-increment field values.
TVirtualTable	A base class for storing data in memory.

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4.9.1.1 TVirtualAutoIncField Class

A field class for generating auto-increment field values.

For a list of all members of this type, see [TVirtualAutoIncField](#) members.

Unit

virtualTable

Syntax

```
TVirtualAutoIncField = class(TAutoIncField);
```

Remarks

TVirtualAutoIncField is a TAutoIncField descendant. It is created in cases when TFieldDef of the ftAutoInc type is created either at design time using the TVirtualTable.FieldDefs property, or at run time using the [TVirtualTable.AddField](#) method.

An initial field value is specified by the [TVirtualAutoIncField.InitialValue](#) property, and its increment is specified by the [TVirtualAutoIncField](#) property. Auto-generation can be enabled or disabled using the [TVirtualAutoIncField.AutoGenerateValue](#) property.

See Also

- [TVirtualAutoIncField.InitialValue](#)
- [TVirtualAutoIncField.Increment](#)
- [TVirtualAutoIncField.AutoGenerateValue](#)

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4.9.1.1.1 Members

[TVirtualAutoIncField](#) class overview.

Properties

Name	Description
AutoGenerateValue	Indicates whether the field values can be automatically generated.
Increment	Specifies the increment of the auto-incrementing field.
InitialValue	Specifies the initial value of the auto-incrementing field.

4.9.1.1.2 Properties

Properties of the **TVirtualAutoIncField** class.

For a complete list of the **TVirtualAutoIncField** class members, see the [TVirtualAutoIncField Members](#) topic.

Published

Name	Description
AutoGenerateValue	Indicates whether the field values can be automatically generated.
Increment	Specifies the increment of the auto-incrementing field.
InitialValue	Specifies the initial value of the auto-incrementing field.

See Also

- [TVirtualAutoIncField Class](#)
- [TVirtualAutoIncField Class Members](#)

4.9.1.1.2.1 AutoGenerateValue Property

Indicates whether the field values can be automatically generated.

Class

[TVirtualAutoIncField](#)

Syntax

```
property AutoGenerateValue default arAutoInc;
```

Remarks

Use the `AutoGenerateValue` property to indicate whether the field values can be automatically generated.

When the property value is `arAutoInc`, a new incrementing value for the field will be generated automatically when inserting a new record. Otherwise (`arNone` and `arDefault` values), the field will be empty. The default value is `arAutoInc`.

Note: An attempt to change the `AutoGenerateValue` property when the field dataset is open generates an exception. Thus, `AutoGenerateValue` only works with persistent field components, which remain when the dataset is closed.

See Also

- [InitialValue](#)
- [Increment](#)

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4.9.1.1.2.2 Increment Property

Specifies the increment of the auto-incrementing field.

Class

[TVirtualAutoIncField](#)

Syntax

```
property Increment: integer default 1;
```

Remarks

Use the `Increment` property to specify the increment of the auto-incrementing field.

The increment can be negative. The default value is 1.

See Also

- [InitialValue](#)
- [AutoGenerateValue](#)

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4.9.1.1.2.3 InitialValue Property

Specifies the initial value of the auto-incrementing field.

Class

[TVirtualAutoIncField](#)

Syntax

```
property InitialValue: integer default - 1;
```

Remarks

Use the InitialValue property to specify the initial value of the auto-incrementing field.

The initial value can be negative. The default value is 1.

See Also

- [Increment](#)
- [AutoGenerateValue](#)

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4.9.1.2 TVirtualTable Class

A base class for storing data in memory.

For a list of all members of this type, see [TVirtualTable](#) members.

Unit

virtualTable

Syntax

```
TVirtualTable = class(TMemDataSet);
```

Remarks

TVirtualTable is inherited from the TMemDataSet component. TVirtualTable stores data in memory and does not have linked data files. To add fields to virtual table at design time use Fields Editor. Call the [TVirtualTable.AddField](#) method to add fields at run time.

Immediately after creating, virtual table will be empty. Then you define new fields or load existing table files so that the virtual table object becomes initialized and ready to be opened.

When you close virtual table it will discard its record set. To keep the data you entered at design-time for later use you may wish to include the voStored option in the [TVirtualTable.Options](#) property. At run time you will need to call the [TVirtualTable.SaveToFile](#) method explicitly to store modifications to the file that may be retrieved back into the virtual table by calling the [TVirtualTable.LoadFromFile](#) method later.

Note: TVirtualTable component is added to the Data Access page of the component palette, not to the VirtualDAC page.

TVirtualTable supports auto-incrementing fields using a special [TVirtualAutoIncField](#) field class.

Inheritance Hierarchy

[TMemDataSet](#)

TVirtualTable

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4.9.1.2.1 Members

[TVirtualTable](#) class overview.

Properties

Name	Description
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
DefaultSortType	Used to determine the default type of local sorting for string fields.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset

	is sorted.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.
Options	Used to specify actions to take on the fields data at the time of opening or closing TVirtualTable dataset.
Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Methods

Name	Description
AddField	Adds a new TFieldDef object with the name determined by Name.
ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
Assign	Copies fields and data from another TDataSet component.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a

	dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
Clear	Removes all records from TVirtualTable.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
DeleteField	Deletes a field specified by name.
DeleteFields	Deletes all fields.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
LoadFromFile	Loads data from a file into a TVirtualTable component.
LoadFromStream	Copies data from a stream into a TVirtualTable component.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare (inherited from TMemDataSet)	Allocates resources and creates field components for a dataset.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as

	unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveToFile	Saves data of a TVirtualTable component to a file.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToStream	Copies data from a TVirtualTable component to a stream.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are

	enabled.
--	----------

Events

Name	Description
OnUpdateError (inherited from TMemDataSet)	Occurs when an exception is generated while cached updates are applied to a database.
OnUpdateRecord (inherited from TMemDataSet)	Occurs when a single update component can not handle the updates.

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4.9.1.2.2 Properties

Properties of the **TVirtualTable** class.

For a complete list of the **TVirtualTable** class members, see the [TVirtualTable Members](#) topic.

Public

Name	Description
CachedUpdates (inherited from TMemDataSet)	Used to enable or disable the use of cached updates for a dataset.
IndexFieldNames (inherited from TMemDataSet)	Used to get or set the list of fields on which the recordset is sorted.
KeyExclusive (inherited from TMemDataSet)	Specifies the upper and lower boundaries for a range.
LocalConstraints (inherited from TMemDataSet)	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
LocalUpdate (inherited from TMemDataSet)	Used to prevent implicit update of rows on database server.

Prepared (inherited from TMemDataSet)	Determines whether a query is prepared for execution or not.
Ranged (inherited from TMemDataSet)	Indicates whether a range is applied to a dataset.
UpdateRecordTypes (inherited from TMemDataSet)	Used to indicate the update status for the current record when cached updates are enabled.
UpdatesPending (inherited from TMemDataSet)	Used to check the status of the cached updates buffer.

Published

Name	Description
DefaultSortType	Used to determine the default type of local sorting for string fields.
Options	Used to specify actions to take on the fields data at the time of opening or closing TVirtualTable dataset.

See Also

- [TVirtualTable Class](#)
- [TVirtualTable Class Members](#)

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4.9.1.2.2.1 DefaultSortType Property

Used to determine the default type of local sorting for string fields.

Class

[TVirtualTable](#)

Syntax

```
property DefaultSortType: TSortType default stCaseSensitive;
```

Remarks

The DefaultSortType property is used when a sort type is not specified explicitly after the field name in the [TMemDataSet.IndexFieldNames](#) property of a dataset.

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4.9.1.2.2.2 Options Property

Used to specify actions to take on the fields data at the time of opening or closing TVirtualTable dataset.

Class

[TVirtualTable](#)

Syntax

```
property Options: TVirtualTableOptions default [voPersistentData, voStored, voSkipUnsupportedFieldTypes];
```

Remarks

The Options property specifies what actions to take on the fields data at the time of opening or closing TVirtualTable dataset.

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4.9.1.2.3 Methods

Methods of the **TVirtualTable** class.

For a complete list of the **TVirtualTable** class members, see the [TVirtualTable Members](#) topic.

Public

Name	Description
AddField	Adds a new TFieldDef object with the name determined by Name.

ApplyRange (inherited from TMemDataSet)	Applies a range to the dataset.
ApplyUpdates (inherited from TMemDataSet)	Overloaded. Writes dataset's pending cached updates to a database.
Assign	Copies fields and data from another TDataSet component.
CancelRange (inherited from TMemDataSet)	Removes any ranges currently in effect for a dataset.
CancelUpdates (inherited from TMemDataSet)	Clears all pending cached updates from cache and restores dataset in its prior state.
Clear	Removes all records from TVirtualTable.
CommitUpdates (inherited from TMemDataSet)	Clears the cached updates buffer.
DeferredPost (inherited from TMemDataSet)	Makes permanent changes to the database server.
DeleteField	Deletes a field specified by name.
DeleteFields	Deletes all fields.
EditRangeEnd (inherited from TMemDataSet)	Enables changing the ending value for an existing range.
EditRangeStart (inherited from TMemDataSet)	Enables changing the starting value for an existing range.
GetBlob (inherited from TMemDataSet)	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
LoadFromFile	Loads data from a file into a TVirtualTable component.
LoadFromStream	Copies data from a stream into a TVirtualTable component.
Locate (inherited from TMemDataSet)	Overloaded. Searches a dataset for a specific record and positions the cursor on it.

LocateEx (inherited from TMemDataSet)	Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.
Prepare (inherited from TMemDataSet)	Allocates resources and creates field components for a dataset.
RestoreUpdates (inherited from TMemDataSet)	Marks all records in the cache of updates as unapplied.
RevertRecord (inherited from TMemDataSet)	Cancels changes made to the current record when cached updates are enabled.
SaveToFile	Saves data of a TVirtualTable component to a file.
SaveToJSON (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the JSON format.
SaveToStream	Copies data from a TVirtualTable component to a stream.
SaveToXML (inherited from TMemDataSet)	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
SetRange (inherited from TMemDataSet)	Sets the starting and ending values of a range, and applies it.
SetRangeEnd (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.
SetRangeStart (inherited from TMemDataSet)	Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.
UnPrepare (inherited from TMemDataSet)	Frees the resources allocated for a previously

	prepared query on the server and client sides.
UpdateResult (inherited from TMemDataSet)	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
UpdateStatus (inherited from TMemDataSet)	Indicates the current update status for the dataset when cached updates are enabled.

See Also

- [TVirtualTable Class](#)
- [TVirtualTable Class Members](#)

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4.9.1.2.3.1 AddField Method

Adds a new TFieldDef object with the name determined by Name.

Class

[TVirtualTable](#)

Syntax

```
procedure AddField(const Name: string; FieldType: TFieldType;  
Size: integer = 0; Required: boolean = False);
```

Parameters

- Name*
Holds the name of the TFieldDef object to add.
- FieldType*
Holds the type of the TFieldDef object to add.
- Size*
Holds the size of the string (if the type of TFieldDef object was specifiad as ftString or ftWideString).
- Required*
Holds an indicator that determines whether filling the Size parameter is required.

Remarks

Call the AddField method to add a new TFieldDef object with the name determined by Name. FieldType can be ftString, ftWideString, ftSmallint, ftInteger, ftAutoInc, ftWord, ftBoolean, ftLargeint, ftFloat, ftCurrency, ftDate, ftTime, ftDateTime, ftBlob, or ftMemo. When you add ftString or ftWideString field you should specify Size of the string. When the ftAutoInc field type is set, a field of the special [TVirtualAutoIncField](#) type will be created in the virtual table, which can generate auto-increment field values.

See Also

- [DeleteField](#)
- [DeleteFields](#)

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4.9.1.2.3.2 Assign Method

Copies fields and data from another TDataSet component.

Class

[TVirtualTable](#)

Syntax

```
procedure Assign(Source: TPersistent); override;
```

Parameters

Source

Holds the TDataSet component to copy fields and data from.

Remarks

Call the Assign method to copy fields and data from another TDataSet component.

Note: Unsupported field types are skipped (i.e. destination dataset will contain less fields than the source one). This may happen when Source is not a TVirtualTable component but some SQL server oriented dataset.

See Also

- [TVirtualTable](#)

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4.9.1.2.3.3 Clear Method

Removes all records from TVirtualTable.

Class

[TVirtualTable](#)

Syntax

```
procedure Clear;
```

Remarks

Call the Clear method to remove all records from TVirtualTable.

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4.9.1.2.3.4 DeleteField Method

Deletes a field specified by name.

Class

[TVirtualTable](#)

Syntax

```
procedure DeleteField(const Name: string);
```

Parameters

Name

Holds the name of the field to delete.

Remarks

Call the DeleteField method to delete a field specified by Name.

See Also

- [AddField](#)
- [DeleteFields](#)

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4.9.1.2.3.5 DeleteFields Method

Deletes all fields.

Class

[TVirtualTable](#)

Syntax

```
procedure DeleteFields;
```

Remarks

Call the DeleteFields method to delete all fields.

See Also

- [DeleteField](#)

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4.9.1.2.3.6 LoadFromFile Method

Loads data from a file into a TVirtualTable component.

Class

[TVirtualTable](#)

Syntax

```
procedure LoadFromFile(const FileName: string; LoadFields:  
boolean = True; DecodeHTMLEntities: boolean = True);
```

Parameters

FileName

Holds the name of the file to load data from.

LoadFields

Indicates whether to load fields from the file.

DecodeHTMLEntities

Indicates whether to decode HTML entities from the file.

Remarks

Call the LoadFromFile method to load data from a file into a TVirtualTable component. Specify the file name to load into the dataset as the value of the FileName parameter. This file may be an XML document in ADO-compatible format, JSON format, or in virtual table data format.

The file format is detected automatically.

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4.9.1.2.3.7 LoadFromStream Method

Copies data from a stream into a TVirtualTable component.

Class

[TVirtualTable](#)

Syntax

```
procedure LoadFromStream(Stream: TStream; LoadFields: boolean = True; DecodeHTMLEntities: boolean = True);
```

Parameters

Stream

Holds the stream from which the dataset data is copied.

LoadFields

Indicates whether to load fields from the stream.

DecodeHTMLEntities

Indicates whether to decode HTML entities from the stream.

Remarks

Call the LoadFromStream method to copy data from a stream into a TVirtualTable component. Specify the stream from which the dataset data is copied as the value of the Stream parameter. Data in the stream may be in ADO-compatible format, JSON format, or in

virtual table data format. The data format is detected automatically.

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4.9.1.2.3.8 SaveToFile Method

Saves data of a TVirtualTable component to a file.

Class

[TVirtualTable](#)

Syntax

```
procedure SaveToFile(const FileName: string; StoreFields: boolean  
= True; StoreAllData: boolean = false);
```

Parameters

FileName

Holds the name of the file to save data to.

StoreFields

Indicates whether to save fields to a file.

StoreAllData

Remarks

Call the SaveToFile method to save data of a TVirtualTable component to a file. Specify the name of the file as the value of the FileName parameter.

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4.9.1.2.3.9 SaveToStream Method

Copies data from a TVirtualTable component to a stream.

Class

[TVirtualTable](#)

Syntax

```
procedure SaveToStream(Stream: TStream; StoreFields: boolean =
```



```
True; StoreAllData: boolean = false);
```

Parameters

Stream

Holds the name of the stream to which the field's value is saved.

StoreFields

Indicates whether to save the fields names to a file.

StoreAllData

Remarks

Call the `SaveToStream` method to copy data from a `TVirtualTable` component to a stream. Specify the name of the stream to which the field's value is saved as the value of the `Stream` parameter.

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4.9.2 Types

Types in the **VirtualTable** unit.

Types

Name	Description
TVirtualTableOptions	Represents the set of TVirtualTableOption .

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4.9.2.1 TVirtualTableOptions Set

Represents the set of [TVirtualTableOption](#).

Unit

`virtualTable`

Syntax

```
TVirtualTableOptions = set of TVirtualTableOption;
```

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4.9.3 Enumerations

Enumerations in the **VirtualTable** unit.

Enumerations

Name	Description
TVirtualTableOption	Specifies the actions to take on fields data at the time of opening or closing TVirtualTable dataset.

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4.9.3.1 TVirtualTableOption Enumeration

Specifies the actions to take on fields data at the time of opening or closing TVirtualTable dataset.

Unit

virtualTable

Syntax

```
TVirtualTableOption = (voPersistentData, voStored);
```

Values

Value	Meaning
voPersistentData	Dataset will not dispose of its data at the time of dataset closing.
voStored	Dataset will keep its data set at design-time in DFM file along with other form's stored properties.

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