

# 1 Overview

Universal Data Access Components (UniDAC) is a powerful library of nonvisual cross-database data access components for Delphi, C++Builder, and Lazarus (Free Pascal). The UniDAC library is designed to help programmers develop faster and cleaner cross-database applications. UniDAC is a complete replacement for standard database connectivity solutions and presents an efficient native alternative to the Borland Database Engine and dbExpress for access to Oracle, SQL Server, MySQL, InterBase, Firebird, SQLite, DB2, Microsoft Access, Advantage Database Server, Adaptive Server Enterprise, DBF, NexusDB, and other databases (using ODBC provider).

UniDAC is based on the well-known Data Access Components from Devart such as [ODAC](#), [SDAC](#), [MyDAC](#), [IBDAC](#), [PgDAC](#) and [LiteDAC](#). We have joined the experience of long-term successful development into one great product which provides unified access to popular databases such as Oracle, Microsoft SQL Server, MySQL, InterBase, Firebird, SQLite, DB2, Microsoft Access, Advantage Database Server, Adaptive Server Enterprise, DBF, NexusDB and other databases (using ODBC provider).

The UniDAC library is actively developed and supported by Devart Team. If you have questions about UniDAC, email the developers at [unidac@devart.com](mailto:unidac@devart.com) or visit UniDAC online at <http://www.devart.com/unidac/>.

## Advantages of UniDAC Technology

UniDAC is very convenient in setup and usage. It provides transparent server-independent interface for working with different databases. Selected database provider ensures the best way to perform operations on the server.

### Universal Data Access

UniDAC provides transparent server-independent interfaces for working with different databases, and lets you change the client engine for specific server type just by changing single connection option. It means that you can easily switch between database servers in your cross-database UniDAC-based application.

### Server-Aware Providers

UniDAC chooses the best way specific to the server to perform most operations. Every UniDAC data provider uses server-specific native connectivity. All operations with data are performed by providers automatically considering peculiarities of the selected database server.

### Optimized Code

The goal of UniDAC is to enable developers to write efficient and flexible database applications. The UniDAC library is implemented using advanced data access algorithms and optimization techniques. Classes and components undergo comprehensive performance tests and are designed to help you write high-performance, lightweight data access layers.

### Compatibility with Other Connectivity Methods

The UniDAC interface retains compatibility with standard VCL data access components like BDE. Existing BDE-based applications can be easily migrated to UniDAC and enhanced to take advantage of server-specific features.

## Development and Support

UniDAC is a cross-database connectivity solution that has been actively developed and supported. UniDAC comes with full documentation, demo projects, and fast (usually within one business day) technical support by the UniDAC development team. Find out more about how to get help or submit feedback and suggestions to the UniDAC development team in the [Getting Support](#) topic.

A description of the UniDAC components is provided in the [Component List](#).

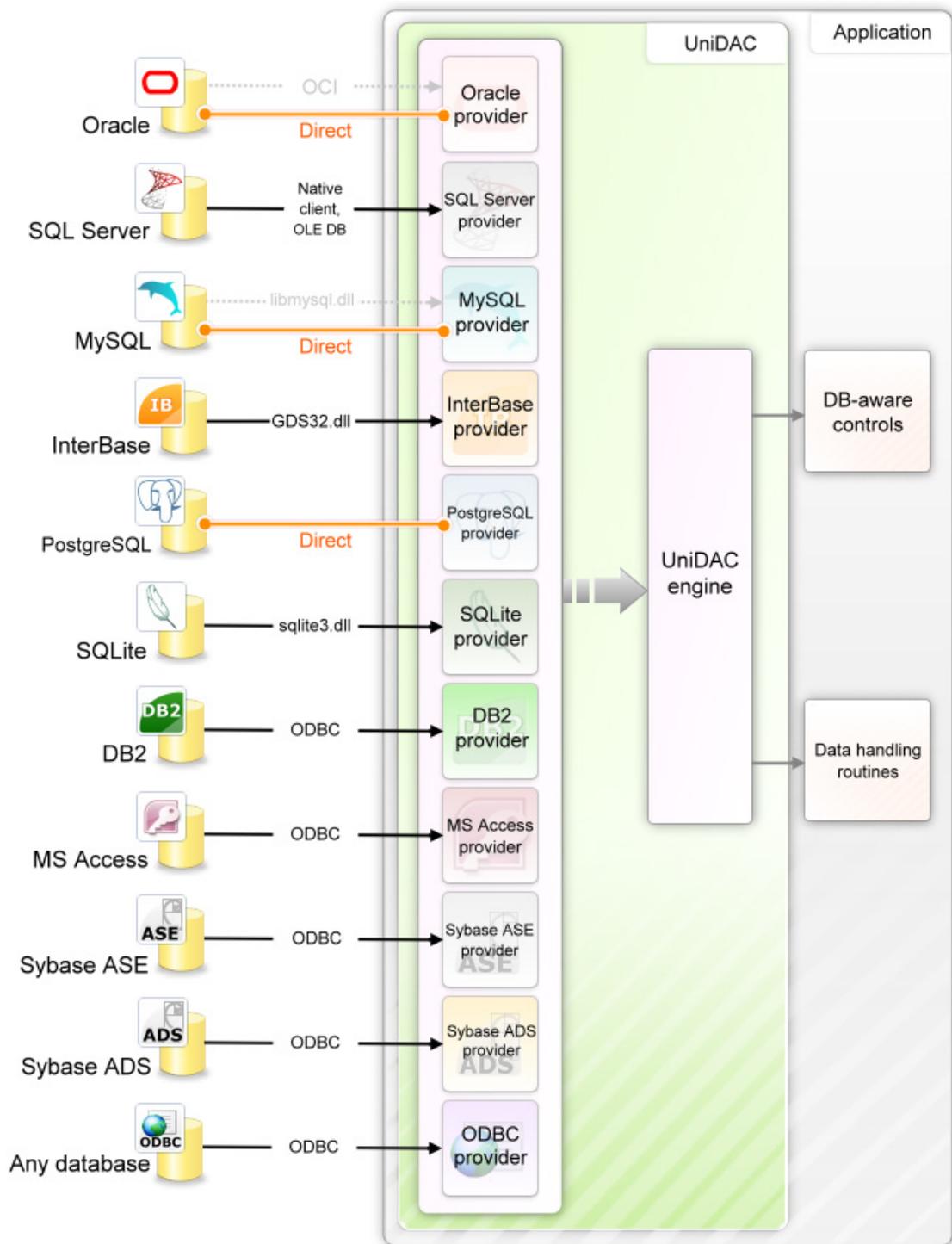
## Key Features

- Universal access to different database servers
- Support for most popular databases
- Full support for the latest server versions
- Support for the [latest IDE versions](#)
- VCL, LCL and FMX versions of library available
- High performance
- Easy to deploy
- Support of all standard and third-party data-aware controls
- Advanced connection management
- Flexible data updating
- [UniScript](#) component to execute scripts
- UniSQL for writing server-independent queries
- Ability of monitoring commands execution
- Advanced connection pooling
- Unicode and national char sets support
- Includes [database-independent data storage](#)
- [CachedUpdates](#) operation mode
- Local [sorting](#) and filtering by calculated and lookup fields
- [local master/detail](#) relationship
- Ability to [retrieve metadata information](#)
- Support for using [macros](#) in SQL
- Customizable [connection dialog](#)
- Advanced design-time editors
- A large amount of helpful [demo projects](#)
- Annual UniDAC Subscription with [Priority Support](#)
- Licensed royalty-free per developer, per team, or per site

The full list of UniDAC features are available in the [Features](#) topic.

## How does UniDAC work?

UniDAC consists of two constituents. The first constituent is the general UniDAC Engine that provides unified programming interface for developers. The second constituent is the data access layer which consists of data access providers. These providers are intended for interacting between UniDAC Engine and database servers. Each data provider works with one specific database server. General UniDAC structure is presented below:



### General UniDAC structure

There are two ways to install data access providers. The first way is to install the UniDAC Professional or UniDAC Trial edition. In this case all available providers are

installed. The second way is to install UniDAC Engine with the UniDAC Standard edition, and required data access providers with Data Access Components such as ODAC, SDAC, MyDAC, IBDAC, and PgDAC. Each DAC installs the corresponding data access provider for UniDAC. However, there is a minor difference between providers installed with UniDAC Professional and providers installed with DACs. Providers installed with UniDAC Professional involve all server-specific functionality, when providers installed with DACs are just wrappers on DAC libraries. If there are both providers for a database server installed, the provider installed with DAC will be used.

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## 2 Editions

Universal Data Access Components comes in two editions: Standard and Professional.

The **Standard** edition includes the UniDAC common engine, but does not include any data providers. UniDAC Standard Edition supports only the following data providers: Oracle, SQL Server, MySQL, InterBase (Firebird), and PostgreSQL, which are installed by ODAC, SDAC, MyDAC, IBDAC, and PgDAC correspondingly. UniDAC Standard Edition is a cost-effective solution for those database application developers who need only several of supported data providers and already have (or are going to have) some of DACs.

The **Professional** edition shows off the full power of UniDAC, including UniDAC Standard Edition with support for the following data access providers: Oracle, SQL Server, MySQL, InterBase/Firebird/Yaffil, PostgreSQL, SQLite, NexusDB, Access, Advantage, ASE, DB2, DBF, and other databases (using ODBC provider). In addition, UniDAC Professional Edition includes the DataSet Manager tool which is intended to organize datasets in your application.

You can get **Source Access** to the UniDAC Professional Edition by purchasing the special UniDAC Professional Edition with source code. The Professional Edition with source code includes the source code for all component classes. The source code of DataSet Manager is not distributed. The source code of Oracle Direct mode is supplied as precompiled packages.

The matrix below compares features of UniDAC editions. The detailed list of all UniDAC features you can find [here](#).

### UniDAC Edition Matrix

Features	Professional	Standard
<b>Data Access Components</b>		

Base Components		
<a href="#">TUniConnection</a>		
<a href="#">TUniEncryptor</a>		
<a href="#">TUniQuery</a>		
<a href="#">TUniSQL</a>	+	+
<a href="#">TUniTable</a>		
<a href="#">TUniStoredProc</a>		
<a href="#">TUniUpdateSQL</a>		
<a href="#">TUniDataSource</a>		
Script Executing		
<a href="#">TUniScript</a>	+	+
Transactions managing		
TUniTransaction	+	+
Fast data loading into the server		
<a href="#">TUniLoader</a>	+	*
<b>DataBase Specific Components</b>		
Advanced connection dialog		
<a href="#">TUniConnectDialog</a>	+	+
Messaging between sessions and applications		
<a href="#">TUniAlerter</a>	+	*
Obtaining metainformation about database objects		
<a href="#">TUniMetaData</a>	+	*
Storing a database as a script		
<a href="#">TUniDump</a>	+	*
<b>Data Base Activity Monitoring</b>		
Monitoring of per-component SQL execution		
<a href="#">TUniSQLMonitor</a>	+	+
<b>Additional Components</b>		
Data storing in memory table		
TVirtualTable	+	+
Advanced DBGrid with extended functionality		
TCRDBGrid	+	+
Records transferring between datasets		
<a href="#">TCRBatchMove</a>	+	-
<b>Providers</b>		

UniDAC data providers for:

Oracle

SQL Server

MySQL

InterBase/Firebird

PostgreSQL

SQLite

NexusDB

+

-

ODBC

Access

Advantage

ASE

DB2

DBF

### Design-Time Features

Enhanced component and property editors

+

+

Migration Wizard

+

+

DataSet Manager

+

-

### Cross IDE Support

Lazarus and Free Pascal Support

\*\*

-

\* Using these components is possible only if they are included to the used data provider.

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Available only in editions with source code.

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## 3 Getting Started

This page contains a quick introduction to setting up and using the Universal Data Access Components library. It gives a walkthrough for each part of the UniDAC usage process and points out the most relevant related topics in the documentation.

- [What is UniDAC?](#)
- [How does UniDAC work?](#)
- [Installing UniDAC.](#)
- [Working with the UniDAC demo projects.](#)
- [Compiling and deploying your UniDAC project.](#)
- [Using the UniDAC documentation.](#)
- [How to get help with UniDAC.](#)

### What is UniDAC?

Universal Data Access Components (UniDAC) is a component library that provides connectivity to Oracle, SQL Server, MySQL, InterBase, Firebird, PostgreSQL, SQLite, DB2, Microsoft Access, Advantage Database Server, Adaptive Server Enterprise,

DBF, NexusDB, and other databases (using ODBC provider) for Delphi, C++Builder and Lazarus (FPC), and helps you develop fast cross-database applications with these environments.

Many UniDAC classes are based on VCL, LCL and FMX classes and interfaces.

UniDAC is a complete replacement for [Borland Database Engine](#), provides native database connectivity, and is specifically designed as a universal interface to access different kinds of databases.

An introduction to UniDAC is provided in the [Overview](#) section.

A list of the UniDAC features you may find useful is listed in the [Features](#) section.

An overview of the UniDAC component classes is provided in the [Components List](#) section.

## Installing UniDAC

To install UniDAC, complete the following steps.

1. Choose and download the version of the UniDAC installation program that is compatible with your IDE. For instance, if you are installing UniDAC 1.00, you should use the following files:

For BDS 2006 and Turbo - **unidac100d10\*.exe**

For Delphi 7 - **unid100d7\*.exe**

For more information, visit the the [UniDAC download page](#).

2. Close all running IDEs.
3. Launch the UniDAC installation program you downloaded in the first step and follow the instructions to install UniDAC.

By default, the UniDAC installation program should install compiled UniDAC libraries automatically on all IDEs.

To check if UniDAC has been installed properly, launch your IDE and make sure that a UniDAC page has been added to the Component palette and that a UniDAC menu was added to the Menu bar.

If you have bought UniDAC Standard Edition with Source Code or UniDAC Professional Edition with Source Code, you will be able to download both the compiled version of UniDAC and the UniDAC source code. The installation process for the compiled version is standard, as described above. The UniDAC source code must be compiled and installed manually. Consult the supplied *ReadmeSrc.txt* file for more details.

To find out what gets installed with UniDAC or to troubleshoot your UniDAC installation, visit the Installation topic.

## Working with the UniDAC demo projects

The UniDAC installation package includes a number of demo projects that demonstrate UniDAC capabilities and use patterns. The UniDAC demo projects are automatically installed in the UniDAC installation folder.

To quickly get started working with UniDAC, launch and explore the introductory UniDAC demo project, *UniDACDemo*, from your IDE. This demo project is a collection of demos that show how UniDAC can be used. The project creates a form which contains an explorer panel for browsing the included demos and a view panel for launching and viewing the selected demo.

### UniDAC Demo Walkthrough

1. Launch your IDE.
2. Choose File | Open Project from the menu bar
3. Find the UniDAC directory and open the *UniDACDemo* project. This project

should be located in the Demos\UniDACDemo folder.

For example, if you are using Borland Developer Studio 2006, the demo project may be found at

```
\Program Files\Devart\UniDAC for Delphi 2006\Demos\Win32
UniDACDemo\UniDACDemo.bdsproj
```

4. Select Run | Run or press F9 to compile and launch the demo project. *UniDACDemo* should start, and a full-screen UniDAC Demo window with a toolbar, an explorer panel, and a view panel will open. The explorer panel will contain a list of all demo sub-projects included in *UniDACDemo*, and the view panel will contain an overview of each included demo.

At this point, you will be able to browse through the available demos, read their descriptions, view their source code, and see the functionality provided by each demo for interacting with a server. However, you will not be able to actually retrieve data from a server or execute commands until you connect to the database.

5. Click on the "Connect" button in the *UniDACDemo* toolbar. A Connect dialog box will open. Select the required provider from the list, and enter the connection parameters to connect to your server, and click "Connect" in the dialog box. Set of connection parameters depends on the selected provider. Now you have a fully functional interface to your server. You will be able to go through the different demos, to browse tables, create and drop objects, and execute commands.

**Warning!** All changes you make to the database you are connected to, including creating and dropping objects used by the demo, will be permanent. Make sure you specify a test database in the connection step.

6. Click on the "Create" button to create all objects that will be used by *UniDACDemo*. If some of these objects already exist in the database you have connected to, an error with the error message like the following will appear.

*"An error has occurred: ORA00955: name is already being used by an existing object. ... Ignore this exception?"*

This is a standard warning from the object execution script. Click "Yes to All" to ignore this message. *UniDACDemo* will create the *UniDACDemo* objects on the server you have connected to.

7. Choose a demo that demonstrates an aspect of working with UniDAC that you are interested in, and play with the demo frame in the view window on the right. For example, to find out more about how to work with TUniTable component, select the Table demo from the "Working with Components" folder. A simple table browser will open in the view panel which will let you open a table in your database by specifying its name and clicking on the "Open" button.
8. Click on the "Demo source" button in the *UniDACDemo* toolbar to find out how the demo you have selected was implemented. The source code behind the demo project will appear in the view panel. Try to find the places where UniDAC components are used to connect to the database.
9. Click on the "Form as text" button in the *UniDACDemo* toolbar to view the code behind the interface to the demo. Try to find the places where UniDAC components are created on the demo form.
10. Repeat these steps for other demos listed in the explorer window. The available demos are organized in three folders.

### **Working with components**

A collection of projects that show how to work with the basic UniDAC components.

### General demos

A collection of projects that show off the UniDAC technology and demonstrate some ways of working with data.

### Server-specific demos

A collection of projects that demonstrate how to incorporate features of specific database servers.

11. When you are finished working with the project, click on the "Drop" button in the *UniDACDemo* toolbar to remove all schema objects added in Step 6.

### Other UniDAC demo projects

UniDAC is accompanied by a number of other demo projects. A description of all UniDAC demos is located in the [Demo Projects](#) topic.

## Compiling and deploying your UniDAC project

### Compiling UniDAC-based projects

By default, to compile a project that uses UniDAC classes, your IDE compiler needs to have access to the UniDAC dcu (obj) files. If you are compiling with runtime packages, the compiler will also need to have access to the UniDAC bpl files. **All appropriate settings for both these scenarios should take place automatically during the installation of UniDAC.** You should only need to modify your environment manually if you are using one of the UniDAC editions that comes with source code - UniDAC Professional Edition with Source Code or UniDAC Standard Edition with Source Code.

You can check that your environment is properly configured by trying to compile one of the UniDAC demo projects. If you have no problems compiling and launching the UniDAC demos, your environment has been properly configured.

For more information about which library files and environment changes are needed for compiling UniDAC-based projects, consult the Installation topic.

### Deploying UniDAC-based projects

To deploy an application that uses UniDAC, you will need to make sure the target workstation has access to the following files.

- The Client software, if connecting not in the Direct mode.
- The UniDAC bpl files, if compiling with runtime packages.
- The UniDAC assembly files, if using VCL for .NET components.

If you are evaluating deploying projects with UniDAC Trial Edition, you will also need to deploy some additional bpl files with your application even if you are compiling without runtime packages. As another trial limitation for C++Builder, applications written with UniDAC Trial Edition for C++Builder will only work if the C++Builder IDE is launched. More information about UniDAC Trial Edition limitations is provided [here](#).

A list of the files which may need to be deployed with UniDAC-based applications is included in the [Deployment](#) topic.

### Using the UniDAC documentation

The UniDAC documentation describes how to install and configure UniDAC, how to use UniDAC Demo Projects, and how to use the UniDAC libraries.

The UniDAC documentation includes a detailed reference of all UniDAC components and classes. Many of the UniDAC components and classes inherit or implement members from other VCL and LCL classes and interfaces. The product

documentation also includes a summary of all members within each of these classes. To view a detailed description of a particular component, look it up in the [Components List](#) section. To find out more about a specific standard VCL or LCL class a UniDAC component is inherited from, see the corresponding topic in your IDE documentation.

At install time, the UniDAC documentation is integrated into your IDE. It can be invoked from the UniDAC menu added to the Menu Bar, or by pressing F1 in Object Inspector or on a selected code segment.

### How to get help with UniDAC

There are a number of resources for finding help on using UniDAC classes in your project.

- If you have a question about UniDAC licensing, consult the Licensing section.
- You can get community assistance and UniDAC technical support on the [UniDAC Support Forum](#).
  - To get help through the [UniDAC Priority Support](#) program, send an e-mail to the UniDAC development team at [unidac@devart.com](mailto:unidac@devart.com).
  - If you have a question about ordering UniDAC or any other Devart product, contact [sales@devart.com](mailto:sales@devart.com).

For more information, consult the [Getting Support](#) topic.

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## 4 UniDAC Basics

- [Introduction](#)
- [Connecting to the Database](#)
- [Selecting Data](#)
- [Executing Queries](#)
- [Editing Data](#)
- [Executing Stored Procedures](#)
- [Creating Master/Detail Relations](#)
- [Unified SQL](#)

### Introduction

Universal Data Access Components (UniDAC) is a powerful library of nonvisual cross-database data access components for Delphi, C++Builder and Lazarus(Free Pascal). The UniDAC library is designed to help programmers develop faster and cleaner cross-database applications. UniDAC is a complete replacement for standard database connectivity solutions and presents an efficient native alternative to the Borland Database Engine and dbExpress for access to Oracle, SQL Server, MySQL, InterBase, Firebird, SQLite, DB2, Microsoft Access, Advantage Database Server, Adaptive Server Enterprise, DBF, NexusDB, and other databases (using ODBC

provider).

UniDAC is based on the well-known Data Access Components from Devart such as ODAC, SDAC, MyDAC, IBDAC, and PgDAC.

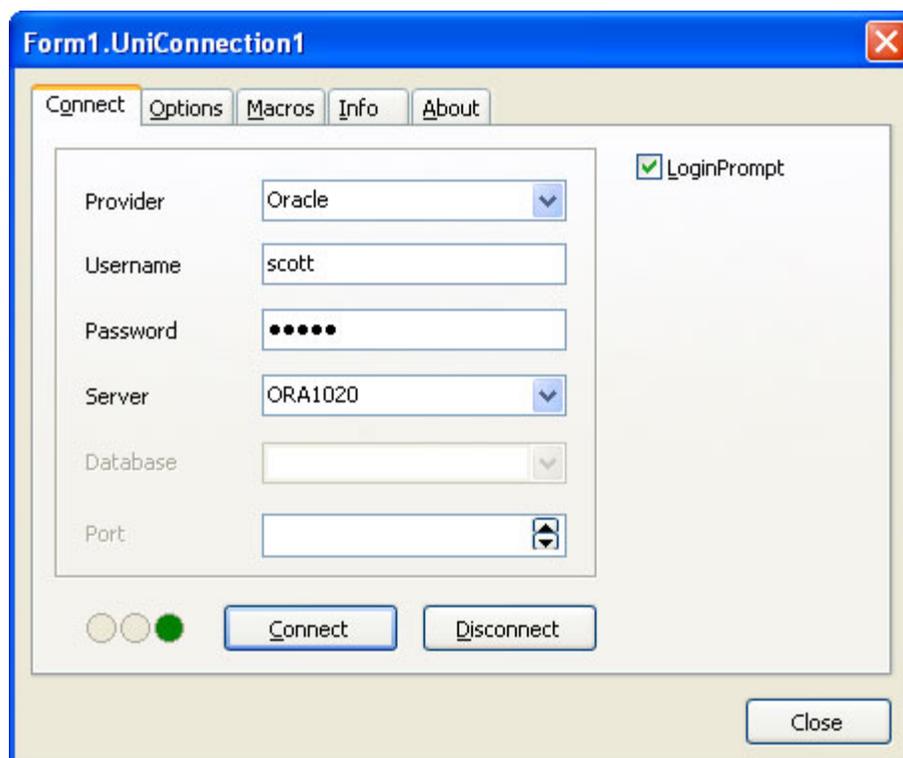
This article provides an overview of the concepts and tasks you will apply when you work with UniDAC.

## Connecting to the Database

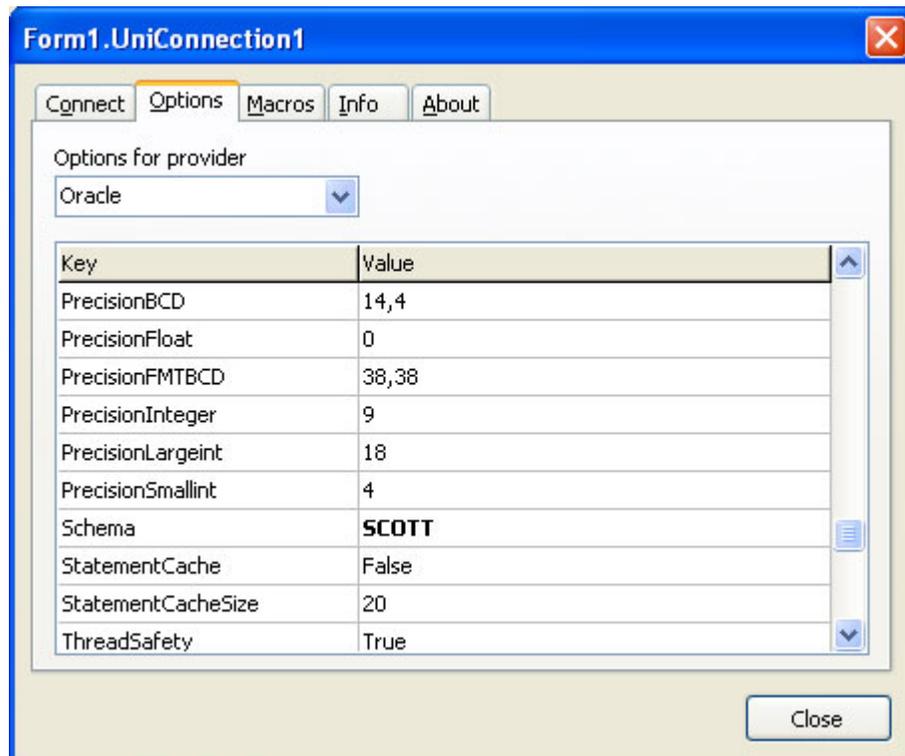
### Connecting to the Database in Design-Time

For UniDAC component using you have to do following steps:

- Create an empty application that will be used to work with UniDAC components. Select **File | New | VCL Forms Application** from the Delphi menu.
- Find UniDAC page on the component palette and drop *TUniConnection* component on the form.
- Set the main properties of *TUniConnection* using TUniConnection editor. Double click the *TUniConnection* component on the form to open the editor.
- Select a provider name corresponding to your database from the **Provider** drop-down combobox. For example, select Oracle for connecting to an Oracle database.
- Enter the following connection parameters: user name, password, server, database, and port into the editor. Some of connection parameters are not used, depending on the selected provider. For Oracle you need to enter user name, password, and server, for example. **Server** is a TNS alias name of an Oracle database. You can select value for **Server** from the drop-down list or enter it manually.



- Click the **Connect** button. If the connection is established successfully the editor closes automatically.
- Open the editor again by double-clicking the *TUniConnection* component and select the **Options** page. Here you can enter some options specific to the provider. Schema is a useful option for an Oracle database. We will use objects from the "SCOTT" sample schema in this example. So, enter "SCOTT" as a value for **Schema**.



### Connecting to the Database at Run-Time

Set the *TUniConnection* parameters and open it at run-time. The following example shows how to do this:

```
UniConnection1: TUniConnection;
...
UniConnection1.ProviderName := 'Oracle';
UniConnection1.Username := 'scott';
UniConnection1.Password := 'tiger';
UniConnection1.Server := 'ORA1020';
UniConnection1.SpecificOptions.Values['Schema'] := 'SCOTT';
UniConnection1.Open;
```

Each line in the **SpecificOptions** property has the following format: <OptionName>=<Value>. You can add options using the *Add* method:

```
UniConnection1.SpecificOptions.Add('Schema=SCOTT');
```

But it is better to use the **Values** property of TStrings because this property does not add a new line if an option with the same name already exists. Instead it replaces the text after '=' with a new value.

To close the connection use the *Close* method:

```
UniConnection1.Close;
```

You should link all the providers that you use in the application. To link a provider, add its unit to the **USES** list. For Oracle add the *OracleUniProvider* to USES:

```
uses ..., OracleUniProvider;
```

The provider unit can be easily added by help of the UniDAC Providers palette page. Select this page, find the **OracleUniProvider** component and drop it on the form. IDE will add the corresponding unit to **USES** automatically if it is not added yet.

## Selecting Data

The *TUniQuery* and *TUniTable* components allow you to select data. To do it, drop *TUniQuery* component into the form. For data selecting you have to establish a connection to the database. You need to set the **Connection** property for most components. If there is a *TUniConnection* component into the form, UniDAC automatically sets the **Connection** property to this component.

For the *TUniQuery* you need to set the SQL property. Double click the *TUniQuery* component to open the *TUniQuery* editor. On the first page of the editor you can enter the text for the SQL property.

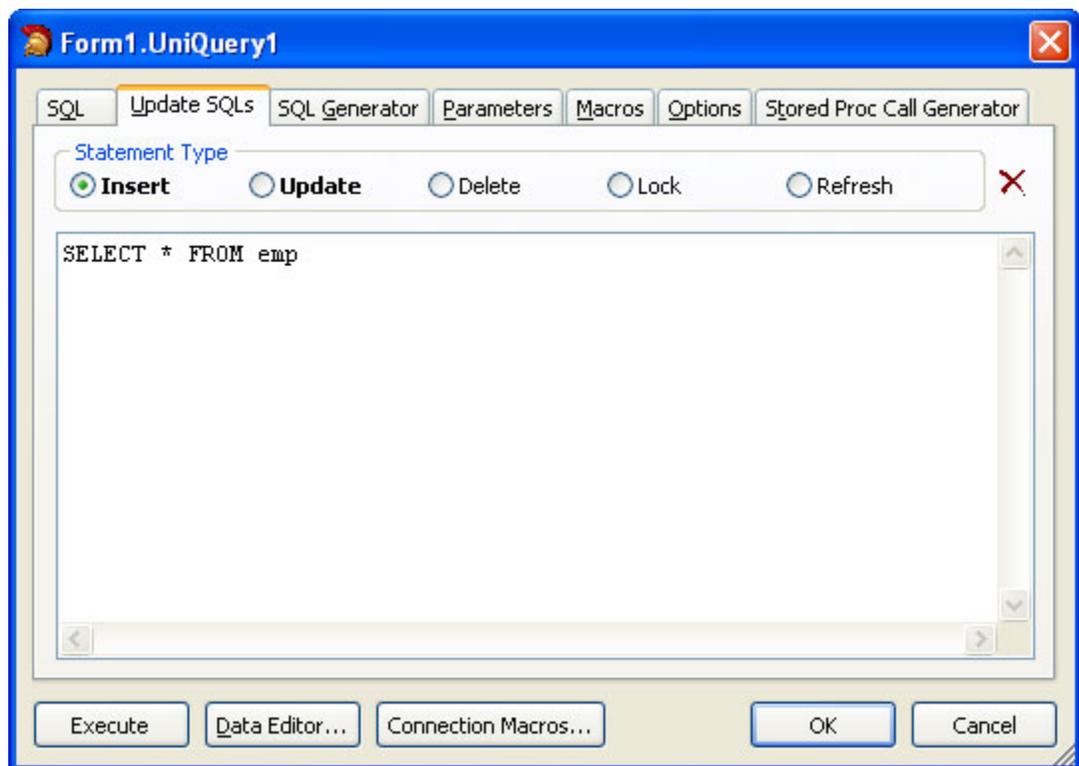
*TUniSQL* component is used to execute queries without recordset. The *TUniSQL* is not a *TDataSet* descendant like *TUniQuery*. *TUniSQL* is a simple component that provides the best performance.

It is used in the same way as the *TUniQuery*. If you want to define SQL and parameters - use *TUniSQL* editor at design-time. You can define SQL and parameters at run-time too. To execute query you have to assign a value for the SQL property and call the *Execute* method.

If you connect to the SCOTT sample schema, you can enter:

```
SELECT * FROM emp
```

to select data from the EMP table.

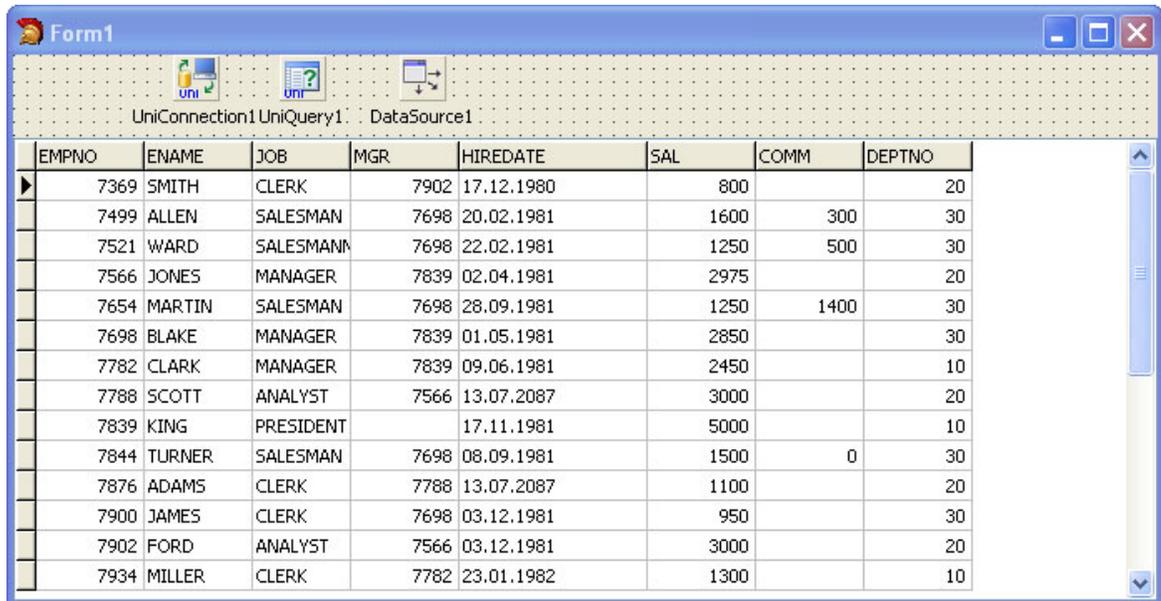


Click the **OK** button to save changes and close the editor. To execute the query, you can change the *Active* property to True in Object Inspector, or call the *Open* method in your program:

```
UniQuery1: TUniQuery;  
...  
UniQuery1.Connection := UniConnection1;  
UniQuery1.SQL.Text := 'SELECT * FROM emp';  
UniQuery1.Open;
```

### The Displaying Data

Drop *TDataSource* and *TDBGrid* components into the form to see data from *TUniQuery*. You can use standard *TDataSource* from the Data Access palette page or *TUniDataSource* component from the UniDAC page. These components have same functionality but *TUniDataSource* sets the *DataSet* property automatically. Set the *DataSet* property of *TDataSource* to *UniQuery1* (if it is not set automatically). Then set the *DataSource* property of *TDBGrid* to *DataSource1*. If the **Active** property of *UniQuery* is **True**, *DBGrid* will display data.



EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17.12.1980	800		20
7499	ALLEN	SALESMAN	7698	20.02.1981	1600	300	30
7521	WARD	SALESMAN	7698	22.02.1981	1250	500	30
7566	JONES	MANAGER	7839	02.04.1981	2975		20
7654	MARTIN	SALESMAN	7698	28.09.1981	1250	1400	30
7698	BLAKE	MANAGER	7839	01.05.1981	2850		30
7782	CLARK	MANAGER	7839	09.06.1981	2450		10
7788	SCOTT	ANALYST	7566	13.07.2087	3000		20
7839	KING	PRESIDENT		17.11.1981	5000		10
7844	TURNER	SALESMAN	7698	08.09.1981	1500	0	30
7876	ADAMS	CLERK	7788	13.07.2087	1100		20
7900	JAMES	CLERK	7698	03.12.1981	950		30
7902	FORD	ANALYST	7566	03.12.1981	3000		20
7934	MILLER	CLERK	7782	23.01.1982	1300		10

To close the *TUniQuery* use its *Close* method or set its **Active** property to **False**. *UniQuery* with data always has a current record. Current record is changed while you move across the DBGrid.

Current record can be changed programmatically by help of the *First*, *Last*, *Next*, *Prior*, *Locate*, and *LocateEx* methods of the *TUniQuery*.

## Working with Files

The *TUniQuery* has a *Fields* collection containing one *TField* object for each field in your query. You can get a reference to the *TField* object by field number or by using *FieldByName* method:

```
UniQuery1.Fields[0];
UniQuery1.FieldByName('EMPNO');
```

*TField* object can read data from the current record. Use a **Value** property of *TField* or typed properties like **AsInteger**, **AsString**, etc.

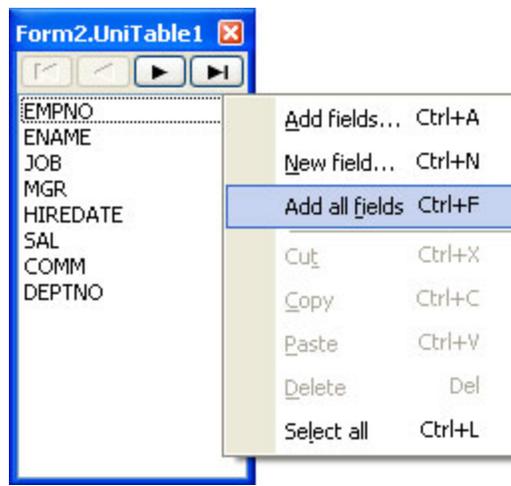
For example, you can copy data from the *TUniQuery* to a *TMemo* component using the following code:

```
var
  Empno: integer;
  Ename: string;
begin
  Memo1.Lines.Clear;
  UniQuery1.Open;
  UniQuery1.First;
  while not UniQuery1.Eof do begin
    Empno := UniQuery1.FieldByName('EMPNO').AsInteger;
    Ename := UniQuery1.FieldByName('ENAME').AsString;
    Memo1.Lines.Add(IntToStr(Empno) + ' ' + Ename);
    UniQuery1.Next;
  end;
  UniQuery1.Close;
```

```
end;
```

The *Next* method sets the *Eof* property of *TUniQuery* to True if it cannot move to the next record because there are no more records.

The *TUniQuery* creates and destroys fields dynamically when you open and close the query. Sometimes you need to create persistent fields generated with the form. To create persistent fields, right click *TUniQuery* component and select **Fields Editor** from the context menu. **Fields Editor** window will be opened. Right click inside the **Fields Editor** window and select **Add all fields** from the menu. Now you will see the list of fields in the window.

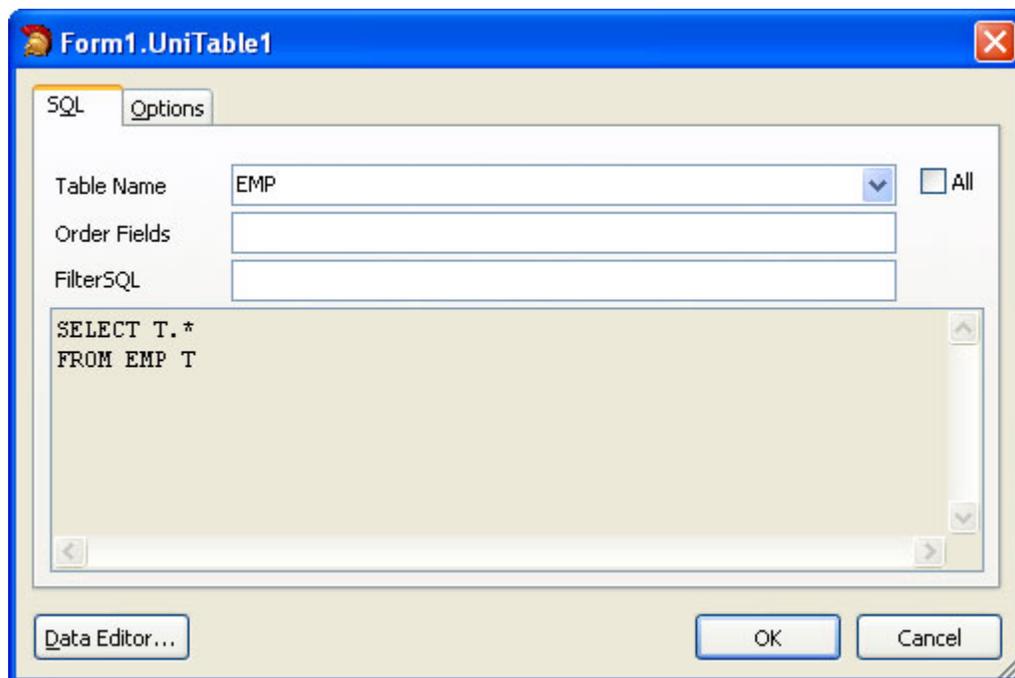


Fields are created as the components on the form. IDE adds corresponding variable of form class for each field. You can rewrite the previous code example using the persistent field variables:

```
...
while not UniQuery1.Eof do begin
    Empno := UniQuery1EMPNO.AsInteger;
    Ename := UniQuery1ENAME.AsString;
    Memo1.Lines.Add(IntToStr(Empno) + ' ' + Ename);
    UniQuery1.Next;
end;
...
```

We recommend use *TUniTable* to select data from one table. You don't need to write SQL statement for *TUniTable*. You set the *TableName* property and *TUniTable* automatically generates SQL statement to get data from this table.

Drop the **TUniTable** into the form and double-click the component to open *TUniTable* editor. You can enter value for the *TableName* property and for *OrderFields* and *FilterSQL* properties in the editor.



When *OrderFields* and *FilterSQL* properties are empty, *TUniTable* generates simple SQL statement like

```
SELECT * FROM emp
```

If you set values for *OrderFields* or *FilterSQL*, corresponding ORDER BY or WHERE clauses will be added to the statement.

## Executing Queries

*TUniQuery* can be used not only for selecting data but for executing any queries supported by database server.

For example, you can change records in the EMP table by using the *TUniQuery* with UPDATE statement. Drop the *TUniQuery* component on the form and double click it to open the editor. Enter the following text for SQL:

```
UPDATE emp SET sal = sal + 1 WHERE empno = 10
```

The query can be executed at design-time from the editor using the **Execute** button. To execute the query at run-time, call the *Execute* method of *TUniQuery*.

```
UniQuery1.Execute;
```

## Parameters

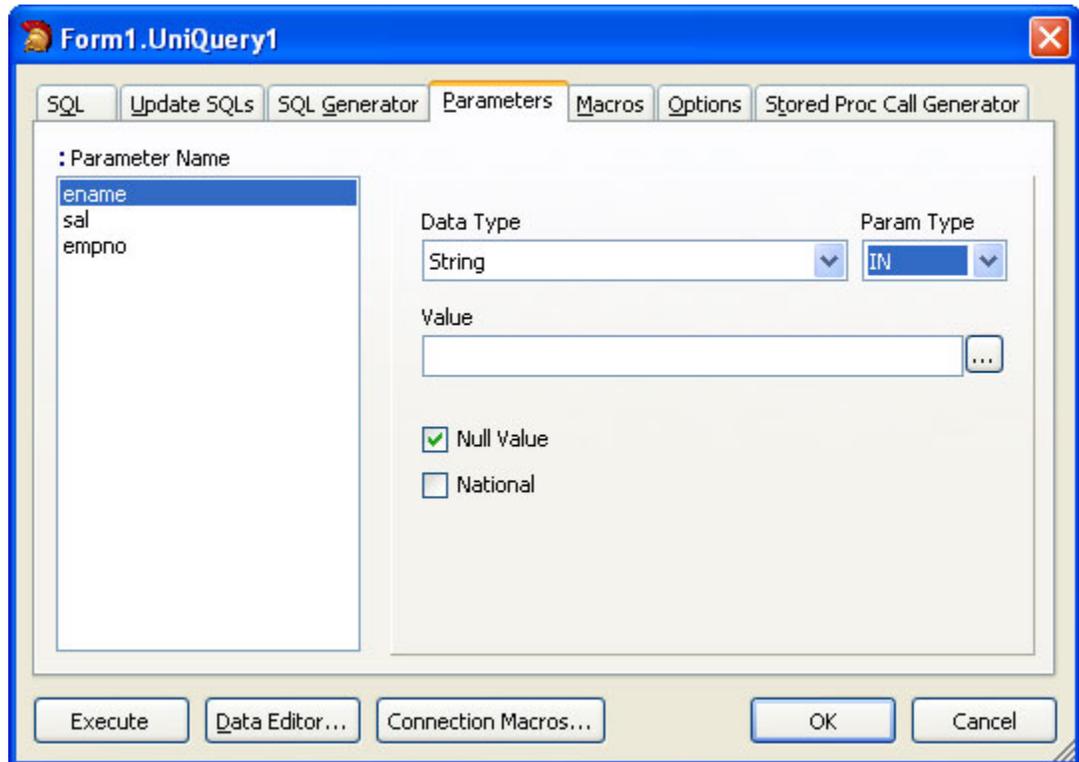
Queries don't use fixed values in "SET" or "WHERE" clause in general. For example, your program can get the new values for "SAL" and "EMPNO" fields from the user. You can use parameters for this purpose:

```
UPDATE emp SET sal = :sal WHERE empno = :empno
```

Parameters are marked using ':' (colon) and parameter name.

Values of the parameters can be set at run-time, and the server replaces parameter names with the values during the query execution.

After the query with parameters was defined into the SQL tab of the *TUniQuery* editor, go to the **Parameters** tab. Here you have to set *DataType* and *ParamType* for each parameter



At run-time you can access the parameters by number or by name using the Params collection of *TUniQuery*.

```
UniQuery2.Params[0];
UniQuery2.ParamByName('SAL');
```

Use the following code to execute query with parameters:

```
UniQuery2.ParamByName('SAL').AsFloat := 100;
UniQuery2.ParamByName('EMPNO').AsInteger := 10;
UniQuery2.Execute;
```

Each parameter is substituted only by single value in the SQL statement.

### Macros

Any part of statement (table name, for example) can be changed dynamically with macros. The macros are marked with '&' (ampersand) and macro name:

```
SELECT * FROM &macro1
```

The macros are accessed by number or name from the Macros collection of *TUniQuery* component in your program code.

```
UniQuery3.Macros[0];
UniQuery3.MacroByName('MACRO1');
```

The value of a macro can be set by the **Value** property of a *TMacro*. For example:

```
UniQuery3.MacroByName('MACRO1').Value := 'emp';
```

or

```
UniQuery3.MacroByName('MACRO1').Value := 'emp ORDER BY ename';
```

### Editing Data

All of the datasets components described above are editable. Call the *Edit* method to begin editing. Call the *Post* or *Cancel* method to finish editing. If you call *Post*,

the changes are passed to the database server. If you call *Cancel*, changes will be revoked.

```
UniQuery1.Edit;  
UniQuery1.FieldName('HIREDATE') := Now;  
UniQuery1.FieldName('SAL') := 1000;  
UniQuery1.Post;
```

Database Controls like TDBGrid or TDBEdit allow user for data editing.

- Run the test application.
- You can edit any cell in DBGrid linked to *TUniQuery*. The *Edit* method called automatically, when editing starts. The *Post* method is called, when another record is selected. To cancel your changes in the current record, press the ESC key.

A new record can be inserted by the *Insert* or *Append* method. The *Append* method adds record to the end of dataset. The *Insert* method inserts record in the current position. After one of these methods is called, you should assign values to the fields and call the *Post* method:

```
UniQuery1.Append;  
UniQuery1.FieldName('EMPNO') := -1;  
UniQuery1.FieldName('ENAME') := 'NEW EMP';  
UniQuery1.FieldName('HIREDATE') := Now;  
UniQuery1.FieldName('SAL') := 2000;  
UniQuery1.Post;
```

To delete record in the current position, call the *Delete* method.

UniDAC executes "INSERT", "UPDATE", or "DELETE" statement to apply changes to the database.

## Debugging

UniDAC can show SQL statements in dialog window before execution. Set the *Debug* property of *TUniQuery* to True to see SQL statements of your query. For profiling in real-time you have to add the **UniDacVcl** unit to the USES list. Then run the application. You see the SELECT statement at startup. Try to edit a record, add a new record, and delete this record. You will see the corresponding update statements in the Debug window.

## Updating table property

If more than one table is specified in the query, UniDAC allows you to update data only in one table. Fields from other tables become read-only. For example, change the *SQL* property of *UniQuery1* to the following:

```
SELECT e.*, d.dname  
FROM emp e INNER JOIN dept d ON e.deptno = d.deptno
```

Now you can edit all the fields except the last field DNAME.

*UpdatingTable* property contains a name of the table that will be updated.

UniDAC uses the first table specified after "SELECT" or the first table pointed after "FROM" as default updating table, depending from the current data provider.

If your query contains several tables, it is recommended to always set the *UpdatingTable* property to the table you want to edit.

## General field information

UniDAC requires information about key fields of the updating table to generate "WHERE" clause of "UPDATE" and "DELETE" statements. Some servers like SQL Server return this information when a query is executed. Oracle and other database servers do not return information about key fields, so UniDAC performs the additional query to the database to get key fields. You can set the *KeyFields*

property of **TUniQuery** manually. In this case an additional query is not executed.

### Complex queries

If you set a complex query to the *SQL* property, UniDAC may not be able to generate the correct update statements. Or you need custom SQL statements to apply changes to the database (for example, you can apply changes using stored procedures instead of "INSERT", "UPDATE", and "DELETE" statements). You can use the *SQLInsert*, *SQLUpdate*, and *SQLDelete* properties of *TUniQuery* to set custom update statements. If you double-click one of these properties in Object Inspector, the **Update SQLs** page of the *TUniQuery* editor is opened.

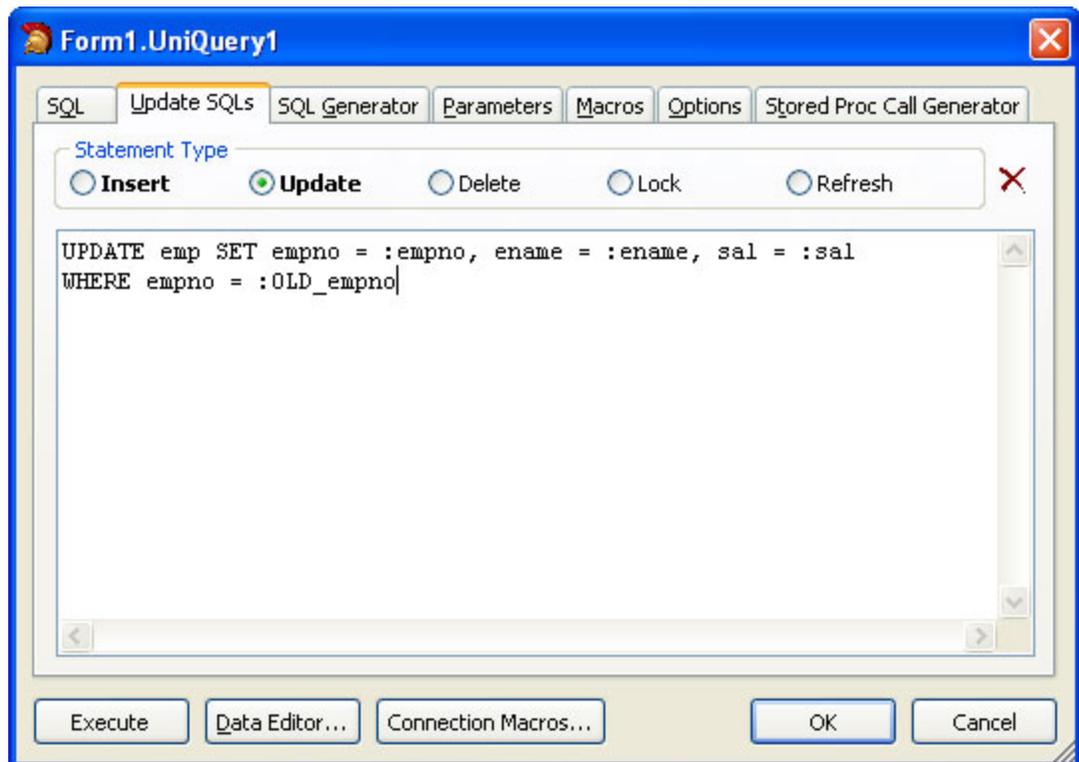
A field value in the update queries can be referenced by the parameter with the same name as field name. For example, use the following statement in the *SQLUpdate* property to save changes to "ENAME" and "SAL" fields.

```
UPDATE emp SET empno = :empno, ename = :ename, sal = :sal
WHERE empno = :empno
```

### Old parameters

You can reference to an old value of the field by adding "OLD " prefix to the parameter name. For example, if user can change value of EMPNO field, you need to use the old value of this field in the "WHERE" condition:

```
UPDATE emp SET empno = :empno, ename = :ename, sal = :sal
WHERE empno = :OLD_empno
```



### SQL generator

For simple SQL-queries *SQL properties* can be updated automatically on the **SQL generator** tab. Go to the **SQL Generator** page of the query editor. If your query has several tables in the "FROM" clause, select table to update in the **Table Name**

combobox. You can select statement types to be generated, key fields, and data fields.

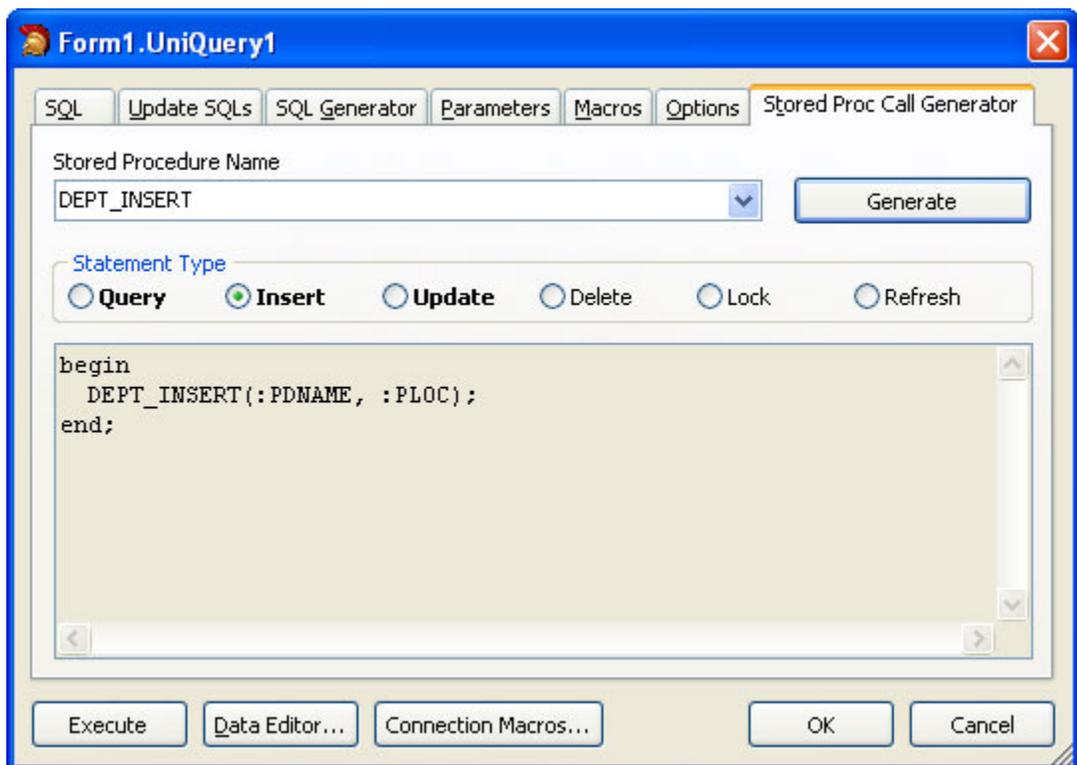
Click the **Generate SQL** button. The update statements are generated and the editor changes the current page to **Update SQLs**. Now you can make changes in the generated statements.

### Using stored procedures

Stored procedure can be used in the update statements. The procedure for insert is similar to following (example for Oracle):

```
CREATE OR REPLACE PROCEDURE DEPT_INSERT
(pDNAME VARCHAR, pLOC VARCHAR)
AS
BEGIN
  INSERT INTO DEPT (DNAME, LOC) VALUES (pDNAME, pLOC);
END;
```

An SQL statement for stored procedure call can be written manually or created by generator. Go to the **Stored Proc Call Generator** page, select the stored procedure name, select the statement type and click the **Generate** button.



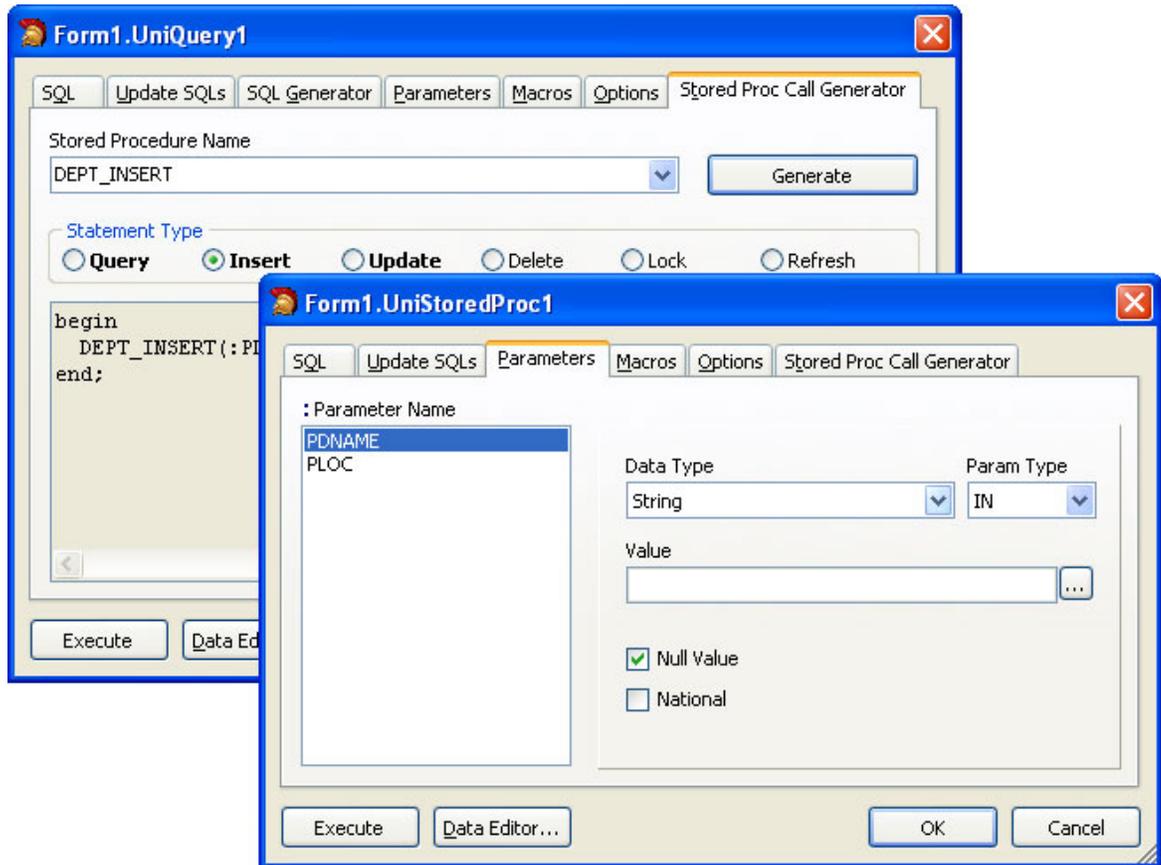
### Executing Stored Procedures

*TUniStoredProc* allows you to execute a stored procedure.

- Drop *TUniStoredProc* on the form and double-click it. *TUniStoredProc* editor will be opened.
- Enter the stored procedure name or select it from the list. For example, you can

select "EMP INS" procedure from the previous topic.

- When you move focus to another control or press the **Create SQL** button (📄), the editor creates SQL statement for calling the procedure. You can see it in the box below the stored procedure name.
- If the procedure has parameters, they will be added to the generated SQL statement and to the Params property.



To call the procedure at run-time use the *Execute* method. You may also set the stored procedure name and generate SQL statement for calling the stored procedure at run-time. Call the *PrepareSQL* method to generate SQL statement for stored procedure. After that Params collection is filled, and you can assign values to the parameters.

```
UniStoredProc1.StoredProcName := 'DEPT INSERT';
UniStoredProc1.PrepareSQL;
UniStoredProc1.ParamByName('PDNAME').AsString := 'DEPT 1';
UniStoredProc1.ParamByName('PLOC').AsString := 'California';
UniStoredProc1.Execute;
```

## Creating Master/Detail Relations

Imagine that you have two tables, and second table has a field (foreign key) that references the primary key of the first table. For example, the "SCOTT" sample schema in the Oracle database has "DEPT" and "EMP" tables.

"DEPT" contains the list of departments, and "EMP" contains the list of employees. "DEPT" table has DEPTNO primary key. "EMP" also has the DEPTNO field. This field references the "DEPT" table and contains a number of the department where an employee works.

If you have two *TUniQuery* or *TUniTable* components, you can link them in a master/detail relation. The detail dataset shows only records corresponding to the current record in the master dataset.

For example, drop two *TUniTable* components on the form. Set the **Name** property of the first table to "DeptTable", and **TableName** property to "Dept". Set the **Name** property of the second table to "EmpTable", and **TableName** property to "Emp". Set the **Active** property of both tables to True.

Drop two **TUniDataSource** components on the form, set their names to "DeptDS" and "EmpDS", and link them to the corresponding tables. Then drop two TDBGrid components and link them to the corresponding data sources.

Set the **MasterSource** property of *EmpTable* to "DeptDS". Double-click the **MasterFields** property of *EmpTable* in Object Inspector. It will open the editor for linking fields between details and master. Select the DEPTNO field in both left and right list and click the **Add** button. Click the **OK** button to close the dialog.

Now *EmpTable* displays only employees from the current department. If you change the current record in *DeptTable*, *EmpTable* is automatically refreshed and displays another employee.

When you set **MasterSource** for *TUniTable* or *TUniQuery*, its **SQL** is automatically modified. Fields that you linked are added to the **WHERE** condition:

```
SELECT * FROM EMP
WHERE DEPTNO = :DEPTNO
```

The parameter value is set from the corresponding field of the master dataset, then the query is executed. When you change the current record in the master, the parameter value in the detail is changed, and the detail query is reexecuted.

Text parameters, corresponding to the master fields, can be added to the SQL text manually. In this case you don't need to set the **MasterFields** property, just set the **MasterSource** property. UniDAC sets values for parameters automatically if the master dataset has fields with the same name.

When the current record in the master is changed, the detail query is reexecuted each time. You can avoid this by using local master/detail. Set **Options.**

**LocalMasterDetail** to True for *TUniTable* or *TUniQuery*. In this case parameters are not added to the detail query. This query is executed only one time and returns all records. UniDAC filters these records locally to display only records corresponding to the master record.

## Unified SQL

Unified SQL includes special directives, macros, literals, and functions. You can use Unified SQL to write SQL statements that are independent from used provider and database.

There are several ways to do it. First way is using connection macros and IF directive. UniDAC automatically defines the macro that corresponds to the selected provider in this way. For example, if you select Oracle provider,

### Oracle

macros is defined. If you want to use "

EMP1"

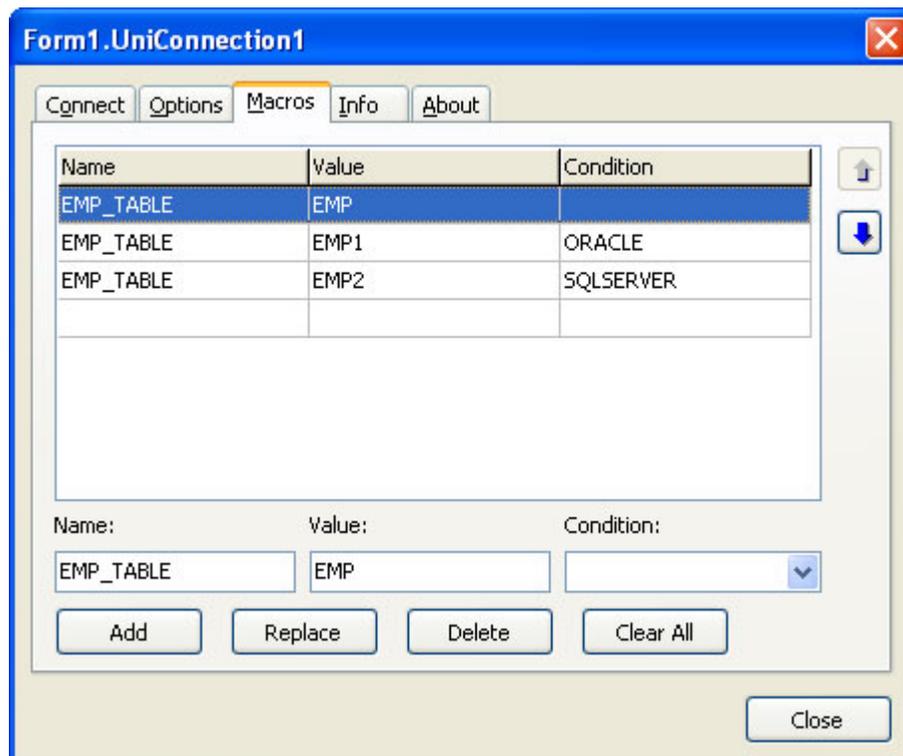
table for Oracle and "

EMP2"

table for SQL Server, you can assign the following to the **SQL** property of *TUniQuery*:

```
{if ORACLE}
SELECT * FROM EMP1
{else}
{if SQLSERVER}
SELECT * FROM EMP2
{else}
SELECT * FROM EMP
{endif}
{endif}
```

To define macros at design-time, open the *TUniConnection* editor and select **Macros** page. Fill **Name** and **Value** boxes at the bottom of the page. Then press the **Add** button. You can use the added macro in IF directive or directly in SQL statements.



For example, if you define macro "EMP TABLE" with value "EMP", you can write the following SQL statement:

```
SELECT * FROM {EMP_TABLE}
```

The several macros with the same name but different value and conditions can be defined. Condition is the name of another macro. If the macro, specified in condition, is enabled, the current macro is also enabled and its value replaces the macro name in SQL statements. If the macro specified in condition is not enabled, the current macro is not enabled also.

The macros corresponding to the providers in **Condition** can be used. For example, you can add two more macros with name "EMP TABLE": one with Value = EMP1 and

Condition = ORACLE, another with Value = EMP2 and Condition = SQLSERVER. In this case the query

```
SELECT * FROM {EMP_TABLE}
```

is equivalent for the query with IF directives from the first example.

The Macros collection of *TUniConnection* can be used for macros adding at run-time:

```
UniConnection1.Macros.Add('EMP TABLE', 'EMP');  
UniConnection1.Macros.Add('EMP TABLE', 'EMP1', 'ORACLE');  
UniConnection1.Macros.Add('EMP_TABLE', 'EMP2', 'SQLSERVER');
```

Unified SQL defines unified literals for date, time and timestamp values. For example:

```
SELECT * FROM emp WHERE HIREDATE > {date '1982-01-15'}
```

For Oracle, this statement is converted to the following:

```
SELECT * FROM emp WHERE HIREDATE > TO_DATE('1982-01-15', 'YYYY-MM-DD')
```

Unified SQL supports also functions. Functions are marked in SQL statements using 'fn' keyword. For example,

```
SELECT {fn TRIM(EName)} FROM emp
```

evaluates to

```
SELECT TRIM(EName) FROM emp
```

it is the counterpart in the DBMS. But in MS SQL Server there is no single corresponding function, so the expression evaluates to

```
SELECT LTRIM(RTRIM(EName)) FROM emp
```

The treated article presented general definition of UniDAC components and them usage. For detailed information please look UniDAC documentation. The UniDAC documentation includes an useful articles and a detailed reference of all UniDAC components and classes.

If you want to download trial version of UniDAC, please visit <http://www.devart.com/unidac/download.html>. For information about getting the UniDAC, visit the [How to Order](#) section. If you have a question about UniDAC or any other Devart product, contact [sales@devart.com](mailto:sales@devart.com).

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## 5 Features

### General usability:

- Direct access to server data. Does not require installation of other data provider layers (such as BDE and ODBC)
- Access without using client library [ [Oracle](#), [MySQL](#), [PostgreSQL](#)
- Interface compatible with standard data access methods, such as BDE and ADO
- VCL, LCL and FMX versions of library available
- [Separated run-time and GUI specific parts](#) allow you to create pure console applications
- Unicode charset support
- National charset support [ [Oracle](#), [MySQL](#), [InterBase](#), [PostgreSQL](#)
- UniSQL for writing server-independent queries

### Network and connectivity:

- [Disconnected Model](#) with automatic connection control for working with data

- offline
- [Local Failover](#) for detecting connection loss and implicitly reexecuting certain operations
- Ability to search for installed SQL Server databases in a local network [ [SQL Server](#), [MySQL](#) ]
- Connection timeout management [ [Oracle](#), [SQL Server](#), [MySQL](#), [PostgreSQL](#) ]

### **Compatibility:**

- Full support of the latest server versions
- Support for embedded server versions
- [Compatible with all IDE versions starting with Delphi 6, C++Builder 6, and FreePascal](#)
- [Wide reporting component support](#), including support for InfoPower, ReportBuilder, FastReport
- Support of all standard and third-party visual data-aware controls
- Allows you to use Professional Edition of Delphi and C++Builder to develop client/server applications.

### **Server-specific features:**

- Oracle
  - Multiple Oracle Homes support
  - Oracle sequence support
  - Direct LOB access support
  - Temporary LOB management routines
  - Temporary LOBs for updating LOB fields
  - OCI Connection Pooling and Statement Caching
  - Oracle optimizer control
  - CLIENT IDENTIFIER support
  - DBMS\_ALERT support with the TUniAlerter component [ **New** ]
- SQL Server
  - Possibility to change application name for a connection
  - Possibility to change workstation identifier for a connection
  - Configuration of OEM/ANSI character translation
  - Enhanced support for SQL Server Compact Edition
- MySQL
  - HANDLER syntax support
  - Possibility to retrieve last auto-incremented value
- InterBase/Firebird
  - Advanced BLOB support
  - Streaming (non-caching) BLOB access support
  - Advanced generator support
  - Advanced support for the character set OCTETS
  - Support for the Firebird 2 EXECUTE BLOCK syntax
  - Support for the Firebird 2 RETURNING clause
  - Advanced locking for Firebird 2
  - Automatic updates by DB\_KEY unique field for Firebird 2
  - Multiple transactions support with TUniTransaction component
  - InterBase events support with the TUniAlerter component [ **New** ]
  -
- PostgreSQL
  - Advanced sequences support

- Advanced Large Objects support
- Ability to control Fetch block size
- Returning result sets from stored procedures
- SSL support
- Notifications support with the TUniAlerter component [ **New**
- SQLite
  - Support for all commonly used data types
  - Possibility to retrieve last auto-incremented value
- DB2
  - Advanced sequences support
  - Schema and function path support

### **Performance:**

- High overall performance
- Fast controlled fetch of large data blocks
- Optimized [string data storing](#)
- Advanced connection pooling
- High performance of applying cached updates with [batches](#)
- [Caching of calculated and lookup fields](#)
- [Fast Locate](#) in a sorted DataSet
- Preparing of user-defined update statements

### **Local data storage operations:**

- Database-independent data storage with [TVirtualTable](#) component
- [CachedUpdates](#) operation mode
- Local [sorting](#) and filtering, including by calculated and lookup fields
- Local master/detail relationship
- Master/detail relationship in [CachedUpdates](#) mode

### **Data access and data management automation:**

- Automatic data updating with [TUniQuery](#), [TUniTable](#), and [TUniStoredProc](#) components
- Automatic record refreshing and locking
- [Automatic query preparing](#)
- Support for ftWideMemo field type in Delphi 2006 and higher

### **Extended data access functionality:**

- [Separate component](#) for executing SQL statements
- Ability to retrieve metadata information with [TUniMetaData](#) component
- Simplified access to table data with [TUniTable](#) component
- BLOB compression support
- Support for [using macros](#) in SQL
- FmtBCD fields support
- Ability to customize update commands by attaching external components to [TUniUpdateSQL](#) objects
- [Deferred detail DataSet refresh](#) in master/detail relationships
- [MIDAS](#) technology support
- [UniDataAdapter](#) component for WinForms and ASP.NET applications
- Distributed transactions support with [TUniTransaction](#) component [ [Oracle](#), [SQL Server](#)
- Default value support for stored procedures

- Fast record insertion with the TUniLoader component
- Event notification support with the TUniAlerter component [ **New**]

**Data exchange:**

- Transferring data between all types of TDataSet descendants with [TCRBatchMove](#) component
- Data [export](#) and M:Devart.Dac.TVirtualTable.LoadFromFile(System.String) to/from XML (ADO format)
- Ability to [synchronize positions in different DataSets](#)
- Extended data management with the TUniDump component

**Script execution:**

- Advanced script execution features with [TUniScript](#) component
- Support for executing [individual statements](#) in scripts
- Support for [executing huge scripts stored in files](#) with dynamic loading
- Ability to use standard clients tool syntax in scripts

**SQL execution monitoring:**

- Extended SQL tracing capabilities provided by the [TUniSQLMonitor](#) component and [DBMonitor](#)
- Borland SQL Monitor support
- Ability to [send messages to DBMonitor](#) from any point in your program

**Visual extensions:**

- Includes source code of enhanced TCRDBGrid data-aware grid control
- Customizable [connection dialog](#)

**Design-time enhancements:**

- [DataSet Manager tool](#) to control DataSet instances in the project
- Advanced design-time component and property editors
- Automatic design-time component linking
- Easy migration from BDE and ADO with Migration Wizard
- More convenient data source setup with the [TUniDataSource](#) component
- Syntax highlighting in design-time editors

**Product clarity:**

- Complete documentation sets
- Printable documentation in PDF format
- [A large amount of helpful demo projects](#)

**Licensing and support:**

- Included annual UniDAC Subscription with [Priority Support](#)
  - Licensed royalty-free per developer, per team, or per site
- 

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## 6 What's New

**25-Apr-13 New Features in UniDAC 5.0:**

- Rad Studio XE4 is supported

- NEXTGEN compiler is supported
- Application development for iOS is supported
- Connection string support is added
- Possibility to encrypt entire tables and datasets is added
- Possibility to determine if data in a field is encrypted is added
- Support of TimeStamp, Single and Extended fields in VirtualTable is added
- Migration from PgDAC and LiteDAC is added to the Migration Wizard
- Migration from AnyDAC and FireDAC is added to the Migration Wizard

#### *Oracle data provider*

- BINARY DOUBLE & BINARY FLOAT data types support in the Direct mode is added

#### *MySQL data provider*

- SSL support in Mac OS is fixed

#### *InterBase data provider*

- Application development for iOS using InterBase XE3 ToGo Edition is supported
- The DefaultTransaction property in TUniConnection is added
- The Params specific option in TUniTransaction is added

#### *PostgreSQL data provider*

- Now ErrorCode indicates a socket error code when a connection error appears
- SSL support in Mac OS is fixed

#### *SQLite data provider*

- Now the Direct mode is based on the SQLite engine version 3.7.16.2
- Now SQLite string data type without length is mapped as ftMemo instead of ftString
- Converter from Unix and Julian data formats to ftDateTime is added

#### *ASE data provider*

- The EncryptPassword option is added
- The DetectFieldsOnPrepare option is added

#### *DB2 data provider*

- XML fields support is added

### **12-Dec-12 New Features in UniDAC 4.6:**

- Rad Studio XE3 Update 1 is now required
- C++Builder 64-bit for Windows is supported

#### *SQLServer data provider*

- The Port specific option that allows specifying the port number for connection is added

### **05-Sep-12 New Features in UniDAC 4.5:**

- Rad Studio XE3 is supported
- Windows 8 is supported

### **21-Jun-12 New Features in UniDAC 4.2:**

- Update 4 Hotfix 1 for RAD Studio XE2, Delphi XE2, and C++Builder XE2 is now required
- Data Type Mapping support is added
- Data Encryption in a client application is added
- The TMSEncryptor component for data encryption is added
- Calling of the TCustomDASQL.BeforeExecute event is added

**23-Nov-11 New Features in UniDAC 4.1:**

- Update 4 for RAD Studio XE2, Delphi XE2, and C++Builder XE2 is now required
- Mac OS X and iOS in RAD Studio XE2 is supported
- FireMonkey support is improved
- Lazarus 0.9.30.4 and FPC 2.6.0 are supported
- Mac OS X in Lazarus is supported
- Linux x64 in Lazarus is supported
- FreeBSD in Lazarus is supported

*Oracle data provider*

- Oracle 11 Express Edition is supported
- Support for the NonBlocking option is added
- The QueryResultOnly option is added to TOraChangeNotification

*PostgreSQL data provider*

- PostgreSQL 9.1 is supported

*SQLite data provider*

- DateFormat and TimedFormat specific options are added in the SQLite data provider

*NexusDB data provider*

- Support of NexusDB 3.09 is added

**15-Sep-11 New Features in Universal Data Access Components 4.00:**

- 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 for TVirtualTable is added
- OnProgress event in TVirtualTable is added
- TDADatasetOptions.SetEmptyStrToNull property that allows inserting NULL value instead of empty string is added

*MS Access data provider*

- Exclusive access to databases in MSAccess provider is added

*Adaptive Server Enterprise data provider*

- Ability to set ApplicationName in the ASE provider is added
- The AnsiNull option in the ASE provider is added

**28-Apr-11 New Features in Universal Data Access Components 3.70:**

- Lazarus 0.9.30 and FPC 2.4.2 is supported
- New DBF provider is added

*Oracle data provider*

- Oracle 9, Oracle 10, and Oracle 11 authentication in the Direct mode is supported
- Case sensitive login and password in the Direct mode is supported
- Unicode login and password in the Direct mode is supported
- Client Identifier in the Direct mode is supported
- Support of BLOB, CLOB, and NCLOB data types in TUniLoader is improved

*PostgreSQL data provider*

- Application Name connection option is supported
- Payload parameter for PostgreSQL notification is supported

#### *SQL Server data provider*

- Support for SQL Server Compact Edition 4.0 is added

#### *SQLite data provider*

- User-defined function for SQLite provider is supported
- Default UniNoCase collation for SQLite provider is added (the DefaultCollations specific option)
- Interface user-defined collation registration for SQLite provider is improved
- SQLite source version is fixed (missing .inc file is added)

#### *Adaptive Server Enterprise data provider*

- Support for the AnsiNull option is added

## **26-Jan-11 New Features in Universal Data Access**

### **Components 3.60:**

- NexusDB provider
- PostgreSQL 9.0 supported
- Improved performance in the PostgreSQL provider
- Encryption support in the SQLite provider
- Support for connection with using Service Name in the Direct mode in the Oracle provider
- Support for ASCII databases in the SQLite provider (the ASCIIDataBase specific option)

## **13-Sep-10 New Features in Universal Data Access**

### **Components 3.50:**

- Embarcadero RAD Studio XE supported
- TUniAlerter component
- Collation and UTF sorting support in the SQLite provider
- Support for dbMonitor 3
- Support for extended SQL for MS Access (set the ExtendedAnsiSQL specific option to 1)
- Support of ONLY lexeme in the FROM statement for PostgreSQL
- Ability to lock records in the CachedUpdate mode
- Ability to use Access system database added
- Ability to send call stack information to the dbMonitor component
- Now setting the SetFieldsReadOnly option to False makes all fields not readonly

## **10-Sep-09 New Features in Universal Data Access**

### **Components 3.00:**

- DB2, Microsoft Access, Advantage Database Server, Adaptive Server Enterprise, and other databases (using ODBC provider) support added
- Embarcadero RAD Studio 2010 supported

## **27-May-09 New Features in Universal Data Access**

### **Components 2.70:**

- SQLite support added

## **02-Apr-09 New Features in Universal Data Access**

## Components 2.50:

- **Unified SQL support**

Unified SQL allows to write truly database-independent SQL code. Unified SQL includes:

- *Macros* - in Unified SQL macros can evaluate to a different value depending on the provider used by the TUniConnection component.
- *If* - for the purpose of extra flexibility Unified SQL supports conditional inclusion of SQL code into resulting statements using `{if}` directive. This allows to set different SQL for different DBMS.
- *Functions* - introduce standard for calling common SQL functions. In run time function is transformed either to the corresponding native function, or to an equivalent expression.
- *Literal* - provides universal syntax for date, time, and timestamp literals.

- **TUniLoader component**

serves for fast loading of data to the database. For each type of database server TUniLoader uses its specific interfaces for loading with maximum speed. For example, Oracle Direct Path Load interface is used for Oracle.

- **TUniDump component**

serves to store data from tables or editable views as a script and to restore data from a received script.

- **TUniConnection.AssignConnect method**

shares physical connection between several TUniConnection components

- Added support for Free Pascal under Linux
- Added NoPreconnect property to TUniScript for executing CONNECT and CREATE DATABASE commands
- Added DMLRefresh support in the PostgreSQL provider

## 09-Dec-08 New Features in Universal Data Access

### Components 2.00:

- PostgreSQL support added

## 23-Oct-08 New Features in Universal Data Access

### Components 1.20:

- Delphi 2009 and C++Builder 2009 supported
- Extended Unicode support for Delphi 2007 added (special Unicode build)
- Free Pascal 2.2 supported
- Powerful design-time editors implemented in Lazarus
- Completed with more comprehensive structured Help

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## 7 Demo Projects

UniDAC includes a number of demo projects that show off the main UniDAC functionality and development patterns.

UniDAC demo projects consist of one large project called *UniDACDemo* with demos

for all main UniDAC components, use cases, and data access technologies, and a number of smaller projects on how to use UniDAC in different IDEs and how to integrate UniDAC with third-party components.

Most demo projects are built for Delphi. There are only two UniDAC demos for C++Builder. However, the C++Builder distribution includes source code for all other demo projects as well.

## Where are the UniDAC demo projects located?

In most cases all UniDAC demo projects are located in "%UniDAC%\Demos\".

In Delphi 2007 for Win32 under Windows Vista all UniDAC demo projects are located in "My Documents\Devart\UniDAC for Delphi 2007\Demos", for example, "C:\Documents and Settings\All Users\Documents\Devart\UniDAC for Delphi 2007\Demos\".

The structure of the demo project directory depends on the IDE version you are using.

For most new IDEs with .NET support, the structure will be as follows.

```
Demos
  |--dotNet
  |  |--UniDACDemo [.NET version of the main UniDAC demo project]
  |  |--Miscellaneous
  |     |-- [Some other .NET demo projects]
  |
  |--Win32
  |  |--UniDACDemo [Win32 version of the main UniDAC demo project]
  |  |--Performance [Demo project, that compares performance of UniDAC
  |  |               with another components (BDE, ADO, dbExpress)]
  |  |--ThirdParty
  |     |-- [A collection of demo projects on integration with third-
  |     |   party components]
  |     |--Miscellaneous
  |        |-- [Some other Win32 demo projects on design technologies]
```

In Delphi 6, 7, C++Builder 6, and FreePascal .NET is not supported, and the root directories are omitted. For these IDEs you will see the following structure.

```
Demos
  |--UniDACDemo [The main UniDAC demo project]
  |--Performance [Demo project, that compares performance of UniDAC with
  |               another components (BDE, ADO, dbExpress)]
  |--ThirdParty
  |  |-- [A collection of demo projects on integration with third-party
  |  |   components]
  |--Miscellaneous
  |  |-- [Some other demo projects on design technologies]
```

*UniDACDemo* is the main demo project that shows off all the UniDAC functionality. The other directories contain a number of supplementary demo projects that describe special use cases. A list of all samples in the UniDAC demo project and a description for the supplementary projects is provided in the following section.

**Note:** This documentation describes ALL UniDAC demo projects. The actual demo projects you will have installed on your computer depend on your UniDAC version, UniDAC edition, and the IDE version you are using. The integration demos may require installation of third-party components to compile and work properly.

## Instructions for using the UniDAC demo projects

To explore a UniDAC demo project,

1. Launch your IDE.
2. In your IDE, choose File|Open Project from the menu bar.
3. Find the directory you installed UniDAC to and open the Demos folder.
4. Browse through the demo project folders located here and open the project file of the demo you would like to use.
5. Compile and launch the demo. If it exists, consult the *ReadMe* file for more details.

The executed version of the demo will contain a sample application written with UniDAC or a navigable list of samples and sample descriptions. To properly use each sample, you will need to connect to a working server.

The included sample applications are fully functional. To use the demos, you have to first set up a connection to a server. You can do so by clicking on the "Connect" button.

Many demos may also use some database objects. If so, they will have two object manipulation buttons, "Create" and "Drop". If your demo requires additional objects, click "Create" to create necessary database objects. When you are done with a demo, click "Drop" to remove all objects used for the demo from your database.

**Note:** The UniDAC demo directory includes two sample SQL scripts for creating and dropping all test schema objects used in the UniDAC demos. You can modify and execute this script manually, if you like. This will not change the behavior of the demos.

You can find a complete walkthrough for the main UniDAC demo project in the [Getting Started](#) topic. Other UniDAC demo projects include a *ReadMe* file with individual building and launching instructions.

## Demo project descriptions

### UniDACDemo

*UniDACDemo* is one large project which includes two collections of demos.

#### Working with components

A collection of samples that show how to work with the basic UniDAC components.

#### General demos

A collection of samples that show off the UniDAC technology and demonstrate some ways to work with data.

*UniDACDemo* can be opened from %UniDAC%\Demos\UniDACDemo\unidacdemo.dpr (.bdsproj, or .dproj). The following table describes all demos contained in this project.

### Working with Components

Name	Description
<b>ConnectDialog</b>	Demonstrates how to customize the <a href="#">UniDAC connect dialog</a> . Changes the standard UniDAC connect dialog to two custom connect dialogs. The first customized sample dialog is inherited from the TForm class, and the second one is inherited from the default UniDAC connect dialog class.
<b>CRDBGrid</b>	Demonstrates how to work with the TCRDBGrid component. Shows off the main TCRDBGrid features, like filtering, searching, stretching, using compound headers, and more.

<b>Query</b>	Demonstrates working with <a href="#">TUniQuery</a> , which is one of the most useful UniDAC components. Includes many TUniQuery usage scenarios. Demonstrates how to execute queries, edit data, and export it to XML files, shows how to perform local filtering, demonstrates several different kinds of record locking and refreshing, and working with FetchAll mode. Note: This is a very good introductory demo. We recommend starting here when first becoming familiar with UniDAC.
<b>Sql</b>	Uses TUniSQL to execute SQL statements. Demonstrates how to work with parameters in SQL, prepare SQL statements, and create stored procedures calls by UniDAC means.
<b>StoredProc</b>	Uses <a href="#">TUniStoredProc</a> to access editable recordsets in the client application returned from a stored procedure.
<b>Table</b>	Demonstrates how to use <a href="#">TUniTable</a> to work with data from a single table on the server without manually writing any SQL queries. Performs server-side data sorting and filtering and retrieves results for browsing and editing.
<b>Transaction</b>	Demonstrates the main approaches for setting up distributed transactions with the <a href="#">TUniTransaction</a> component. Shows how to manage transactions, tune the transaction isolation level, and select the coordinator for a distributed transaction.
<b>UpdateSQL</b>	Demonstrates using the <a href="#">TUniUpdateSQL</a> component to customize update commands. Lets you optionally use <a href="#">TUniSQL</a> and <a href="#">TUniQuery</a> objects for carrying out insert, delete, query, and update commands.
<b>VirtualTable</b>	Demonstrates working with the <a href="#">TVirtualTable</a> component. This sample shows how to fill virtual dataset with data from other datasets, filter data by a given criteria, locate specified records, perform file operations, and change data and table structure.

## General Demos

Name	Description
<b>CachedUpdates</b>	Demonstrates how to perform the most important tasks of working with data in the <a href="#">CachedUpdates</a> mode, including highlighting uncommitted changes, managing transactions, and committing changes in a batch.
<b>FilterAndIndex</b>	Demonstrates UniDAC's local storage functionality. This sample shows how to perform local filtering, <a href="#">sorting</a> , and <a href="#">locating</a> by multiple fields, including by calculated and lookup fields.
<b>MasterDetail</b>	Uses UniDAC functionality to work with master/detail relationships. This sample shows how to use local <a href="#">master/detail</a> functionality. Demonstrates different kinds of master/detail linking, including linking by SQL, by simple fields, and by calculated fields.
<b>Pictures</b>	Uses UniDAC functionality to work with BLOB fields and graphics. The sample demonstrates how to retrieve binary data from database and display it on visual components. Sample also shows how to load and save pictures to files and to the database.

**Text** Uses UniDAC functionality to work with text. The sample demonstrates how to retrieve text data from database and display it on visual components. Sample also shows how to load and save text to files and to the database.

### Supplementary Demo Projects

UniDAC also includes a number of additional demo projects that describe some special use cases, show how to use UniDAC in different IDEs and give examples of how to integrate it with third-party components. These supplementary UniDAC demo projects are sorted into subfolders in the %UniDAC%\Demos\ directory.

Location	Name	Description
----------	------	-------------

	<p>Demonstrates how UniDAC can be used with FastReport components. This project consists of two parts. The first part is several packages that integrate UniDAC components into the FastReport editor. The second part is a demo application that lets you design and preview reports with UniDAC technology in the FastReport editor.</p>
<b>FastReport</b>	<p>Uses InfoPower components to display recordsets retrieved with UniDAC. This demo project displays an InfoPower grid component and fills it with the result of a UniDAC query. Shows how to link UniDAC data sources to InfoPower components.</p>
<b>InfoPower</b>	<p>A collection of sample projects that show how to use UniDAC components as data sources for IntraWeb applications. Contains IntraWeb samples for setting up a connection, querying a database and modifying data and working with <a href="#">CachedUpdates</a> and MasterDetail relationships.</p>
<b>IntraWeb</b>	<p>Lets you launch and view a QuickReport application based on UniDAC. This demo project lets you modify the application in design-time.</p>
<b>QuickReport</b>	<p>Uses UniDAC data sources to create a ReportBuilder report that takes data from a database. Shows how to set up a ReportBuilder document in design-time and how to integrate UniDAC components into the Report Builder editor to perform document design in run-time.</p>
<b>ReportBuilder</b>	

ThirdParty

	<p>A general demo project about how to create UniDAC-based applications with C++Builder. Lets you execute SQL scripts and work with result sets in a grid. This is one of the two UniDAC demos for C++Builder.</p>
	<p><b>CBuilder</b></p>
	<p>Demonstrates creating and loading DLLs for UniDAC-based projects. This demo project consists of two parts - a UniDll project that creates a DLL of a form that sends a query to the server and displays its results, and a UniExe project that can be executed to display a form for loading and running this DLL. Allows you to build a dll for one UniDAC-based project and load and test it from a separate application.</p>
	<p><b>Dll</b></p>
	<p>Demonstrates the recommended approach to <a href="#">working with unstable networks</a>. This sample lets you perform transactions and updates in several different modes, simulate a sudden session termination, and view what happens to your data state when connections to the server are unexpectedly lost. Shows off</p>
Miscellaneous	<p><b>FailOver</b></p>
	<p>CachedUpdates, LocalMasterDetail, FetchAll, Pooling, and different Failover modes.</p>
	<p>Demonstrates using MIDAS technology with UniDAC. This project consists of two parts: a MIDAS server that processes requests to the database and a thin</p>
	<p><b>Midas</b></p>
	<p>MIDAS client that displays an interactive grid. This demo shows how to build thin clients</p>

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## 8 Component List

This topic presents a brief description of the components included in the Universal Data Access Components library. Click on the name of each component for more information. These components are added to the UniDAC page of the Component palette except for [TCRBatchMove](#) and [TVirtualTable](#) components. They are added to the Data Access page of the Component palette.

### UniDAC component list

 <a href="#">TUniConnection</a>	Lets you set up and control connections to different servers.
 <a href="#">TUniEncryptor</a>	Represents data encryption and decryption in client application.
 <a href="#">TUniTransactio</a> <a href="#">n</a>	Provides discrete transaction control over sessions. Can be used to manipulate both simple and distributed transactions for certain providers.
 <a href="#">TUniQuery</a>	Uses SQL statements to retrieve data from tables and pass it to one or more data-aware components through a TDataSource object. This component provides a mechanism for updating data.
 <a href="#">TUniTable</a>	Lets you retrieve and update data in a single table without writing SQL statements.
 <a href="#">TUniStoredProc</a>	Executes stored procedures and functions. Lets you edit cursor data returned as parameter.
 <a href="#">TUniSQL</a>	Executes SQL statements, and stored procedures, which do not return datasets.
 <a href="#">TUniScript</a>	Executes sequences of SQL statements, and provides control over the execution process.
 <a href="#">TUniMetaData</a>	Allows to retrieve embracing metadata on specified SQL object
 <a href="#">TUniUpdateSQL</a>	Lets you tune update operations for a DataSet component.
 <a href="#">TUniDataSourc</a> <a href="#">e</a>	Provides an interface for connecting data-aware controls on a form and UniDAC dataset components.
 <a href="#">TUniLoader</a>	Provides quick loading data to a database.
 <a href="#">TUniDump</a>	Serves to store a database or its parts as a script and also to restore database from received script.
 <a href="#">TUniSQLMonito</a> <a href="#">r</a>	Interface for monitoring dynamic SQL execution.

	<a href="#">TUniConnectDialog</a>	Allows you to build custom prompts for provider name, server name, port number, database, user name, and password.
	<a href="#">TUniAlerter</a>	Used to send and receive database events.
	<a href="#">TUniProvider</a>	Links the InterBase provider to an application.
	<a href="#">TUniProvider</a>	Links the MySQL provider to an application.
	<a href="#">TUniProvider</a>	Links the Oracle provider to an application.
	<a href="#">TUniProvider</a>	Links the PostgreSQL provider to an application.
	<a href="#">TUniProvider</a>	Links the SQL Server provider to an application.
	<a href="#">TUniProvider</a>	Links the SQLite provider to an application.
	<a href="#">TUniProvider</a>	Links the ODBC provider to an application.
	<a href="#">TUniProvider</a>	Links the DB2 provider to an application.
	<a href="#">TUniProvider</a>	Links the Access provider to an application.
	<a href="#">TUniProvider</a>	Links the Advantage provider to an application.
	<a href="#">TUniProvider</a>	Links the ASE provider to an application.
	<a href="#">TUniProvider</a>	Links the DBFprovider to an application.
	<a href="#">TUniProvider</a>	Links the NexusDB provider to an application.
	<a href="#">TVirtualTable</a>	Provides dataset functionality for data that has no real database connection. This component is placed on the Data Access page of the Component palette, not on the UniDAC page.
	<a href="#">TCRBatchMove</a>	Transfers data between all types of TDataSet descendants. This component is placed on the Data Access page of the Component palette, not on the UniDAC page.

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## 9 Requirements

The UniDAC's core itself has no specific system requirements.

To make an application with UniDAC Standard Edition you need at least one of Data Access Components to be installed ([ODAC](#), [SDAC](#), [MyDAC](#), [IBDAC](#), or [PgDAC](#)). Provider-specific requirements can be found in the corresponding article of the Provider-specific Notes section.

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## 10 Compatibility

### Database Server Compatibility

Database	Windows	Mac&nbs pOS&nbs pX	iOS	Linux	FreeBSD
<b>Oracle</b> Servers: 11g, 10g, 9i, 8i, 8.0, and 7.3, including Oracle Express Edition 11g and 10g Clients: 11g, 10g, 9i, 8i, 8.0, and 7.3	+	+		+	+

**Microsoft  
SQL****Server**

Servers:

SQL

Server

2012

(including

Express

edition)

SQL

Server

2008 R2

(including

Express

edition)

SQL

Server

2008

(including

Express

edition)

SQL

Server

2005

(including

Express

edition)

SQL

Server

2000

(including

MSDE)

SQL

Server 7

SQL

Server

Compact

4.0, 3.5,

3.1

SQL Azure

Clients:

SQL OLE

DB and

SQL

Native

Client

+

**MySQL**

Servers:

6.0, 5.6,  
5.5, 5.1,  
5.0, 4.1,  
4.0, and  
3.23

+

+

+

+

+

Embedded  
servers:6.0, 5.6,  
5.5, 5.1,  
4.1, and  
4.0**InterBase**Versions  
since 5.x  
up to XE3

+

+

+

+

+

**Firebird**Firebird:  
versions 2.  
x, 1.x

+

+

+

+

**PostgreS  
QL**Versions  
since 7.1  
up to 9.2

+

+

+

+

+

**SQLite**Version  
3.0 and  
higher

+

+

+

+

+

**Nexus**Versions  
3.x

+

**Microsoft  
Access**Versions  
95, 97,  
2000,  
2003,  
2007 and  
2010

+

**DB2**Versions:  
8.0 and  
higher

+

**DBF** +

**Sybase  
Adaptive  
Server  
Enterprise** +

Versions:  
11.0 and  
higher

**Sybase  
Advantage  
Database  
Server** +

Versions:  
8.0 and  
higher

**Any  
database  
using  
ODBC  
provider** +

## IDE Compatibility

UniDAC is compatible with the following IDEs:

- Embarcadero RAD Studio XE4
  - Embarcadero Delphi XE4 for Win32
  - Embarcadero Delphi XE4 for Win64
  - Embarcadero Delphi XE4 for OSX32
  - Embarcadero Delphi XE4 for iOS
  - Embarcadero C++Builder XE4 for Win32
  - Embarcadero C++Builder XE4 for Win64
  - Embarcadero C++Builder XE4 for OSX32
- Embarcadero RAD Studio XE3 (Requires [Update 2](#))
  - Embarcadero Delphi XE3 for Win32
  - Embarcadero Delphi XE3 for Win64
  - Embarcadero Delphi XE3 for OSX32
  - Embarcadero C++Builder XE3 for Win32
  - Embarcadero C++Builder XE3 for Win64
  - Embarcadero C++Builder XE3 for OSX32
- Embarcadero RAD Studio XE2 (Requires [Update 4 Hotfix 1](#))
  - Embarcadero Delphi XE2 for Win32
  - Embarcadero Delphi XE2 for Win64
  - Embarcadero Delphi XE2 for OSX32

- Embarcadero C++Builder XE2 for Win32
- Embarcadero C++Builder XE2 for OSX32
- Embarcadero RAD Studio XE
  - Embarcadero Delphi XE for Win32
  - Embarcadero C++Builder XE
- Embarcadero RAD Studio 2010
  - Embarcadero Delphi 2010 for Win32
  - Embarcadero C++Builder 2010
- CodeGear RAD Studio 2009 (Requires [Update 3](#))
  - CodeGear Delphi 2009 for Win32
  - CodeGear C++Builder 2009
- CodeGear RAD Studio 2007
  - CodeGear Delphi 2007 for Win32
  - CodeGear C++Builder 2007
- Turbo Delphi Professional
- [Turbo Delphi for .NET Professional](#)
- [Turbo C++ Professional](#)
- Borland Developer Studio 2006 including support of Delphi for Win32, Delphi for .NET, and C++Builder personalities
- Borland Delphi 2005
- 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](#) 1.0.4 and [Free Pascal](#) 2.6.0 for Windows, Linux, Mac OS X, FreeBSD for 32-bit and 64-bit platforms

Only Architect, Enterprise, and Professional IDE editions are supported. For Delphi XE, C++Builder XE, Delphi XE2, and C++Builder XE2 UniDAC additionally supports Starter Edition.

Lazarus and Free Pascal are supported only in Trial Edition and Professional editions with source code.

Direct mode for Oracle data provider is available only for Delphi and C++Builder IDEs

### Supported Target Platforms

- Windows, 32-bit and 64-bit
- Mac OS X
- iOS
- Linux, 32-bit and 64-bit (only in Lazarus and Free Pascal)
- FreeBSD (only in Lazarus and Free Pascal)

Note that support for 64-bit Windows and Mac OS X was introduced in Rad Studio XE2, and is not available in older versions of Rad Studio. Support for iOS is available in Rad Studio XE2 and XE4, but development for iOS in Rad Studio XE2 is available only with Professional and Developer editions with source code.

### Devart Data Access Components 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.

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## 11 Deployment

UniDAC 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 Win32 applications built without run-time packages

You do not need to deploy any files with UniDAC-based applications built without run-time packages, provided you are using a registered version of UniDAC. You can check 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 Win32 applications with UniDAC Trial Edition, you will need to deploy the following BPL files and their dependencies (required IDE BPL files) with your application, even if it is built without run-time packages:

dacXX.bpl	always
unidacXX.bpl	always

### Deploying Win32 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 Win32 application:

dacXX.bpl	always (XX means the Delphi version: XX equals to 70 for Delphi 7, XX equals to 105 for Delphi 2007, etc.)
dacvclXX.bpl	if your application uses the UniDacVcl unit
unidacXX.bpl	always
unidacvclXX.bpl	if your application uses the UniDacVcl unit
XXXproviderXX.bpl	for each used provider (e.g.: OraProvider70.bpl is the file belonging to the Oracle provider for Delphi 7)
XdacXX.bpl*	for each used provider with UniDAC Standard Edition, never used with UniDAC Professional Edition
crcontrolsXX.bpl	if your application uses the CRDBGrid component

### Deploying .NET applications

By default you should deploy the following assemblies with your UniDAC .NET application:

Devart.Dac.dll	always
----------------	--------

Devart.Dac. AdoNet.dll	if your application uses the UniDataAdapter component
Devart.UniDac. dll	always
Devart.UniDac. AdoNet.dll	if your application uses UniDataAdapter component
Devart.UniDac. XXX.dll	for each used provider
Devart.Xdac. dll*	for each used provider with UniDAC Standard edition, never used with UniDAC Professional edition
Devart.XDAC. AdoNet.dll	for each provider if your application uses UniDataAdapter
Devart.Vcl.dll	if your application uses the CRDBGrid component

If you remove the names of these assemblies from the References list of your project, these files will not be required on the target computer.

*\*It is not required to deploy XdacXX.bpl files with UniDAC Professional Edition. But it is necessary to deploy XdacXX.bpl files with Standard Edition of UniDAC. This happens because in UniDAC Professional Edition functionality of XdacXX.bpl is included in the correspondent XXXproviderXX.bpl, when in Standard Edition of UniDAC, XXXproviderXX.bpl is just a wrapper on XdacXX.bpl.*

*The same is concerning Devart.Xdac.dll and Devart.UniDac.XXX.dll assemblies in .NET applications. Devart.Xdac.dll is used only in applications built with UniDAC Standard Edition. In UniDAC Professional Edition, the Devart.UniDac.XXX.dll assembly includes functionality of Devart.Xdac.dll.*

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## 12 Licensing and Subscriptions

server Data Access Components are licensed, not sold. Please read the end-user license agreement (EULA) carefully before using the product. You can find the EULA in the *License.rtf* file in the UniDAC installation folder.

### Licensing

There are three types of full licenses for UniDAC: Single Licenses, Team Licenses, and Site Licenses.

**Single Licenses** must be purchased for each developer working on a project that uses UniDAC.

Purchasing a **Team License** automatically gives four developers a Single License. Purchasing a **Site License** automatically gives all developers in a company a Single License.

For evaluation purposes only, you may also use UniDAC Trial Edition under a temporary **Evaluation License**, which allows you to test UniDAC Trial Edition for a period of 60 days, after which you must either remove all files associated with UniDAC or purchase a full license.

To purchase a license for UniDAC, please visit [www.devart.com/unidac/ordering.html](http://www.devart.com/unidac/ordering.html).

If you have any questions regarding licensing, please contact [sales@devart.com](mailto:sales@devart.com).

## Editions

Full licenses can be purchased for the following editions of UniDAC: UniDAC Standard Edition, UniDAC Professional Edition, and UniDAC Professional Edition with Source Code.

Users can evaluate UniDAC with UniDAC Trial Edition under Evaluation License.

## Subscriptions

The UniDAC Subscription program is an annual maintenance and support service for UniDAC users.

Users with a valid UniDAC Subscription get the following benefits:

- Product support through the UniDAC [Priority Support](#) program
- Access to new versions of UniDAC when they are released
- Access to all UniDAC updates and bug fixes
- Notification of new product versions

If you have any questions regarding licensing or subscriptions not covered with Help, please contact [sales@devart.com](mailto:sales@devart.com).

## Trial Limitations

UniDAC Evaluation License lets you try UniDAC Trial Edition for a period of 60 days. There are no functionality limitations in UniDAC Trial Edition during the trial period for most supported IDEs, except the following:

- .NET applications and applications written in C++Builder require the corresponding IDE to be launched on the client workstation if they use UniDAC Trial Edition
- If you are deploying a project built with UniDAC Trial Edition, you will need to include the UniDAC library files in your application deployment package. For more information, consult the [Deployment](#) topic.

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## 13 Getting Support

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

### Support Options

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

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

If you have a question about ordering UniDAC or any other Devart product, please contact [sales@devart.com](mailto:sales@devart.com).

## UniDAC Priority Support

UniDAC Priority Support is an advanced product support service for getting expedited individual assistance with UniDAC-related questions from the UniDAC 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 [UniDAC Subscription](#).

To get help through the UniDAC Priority Support program, please send an email to [unidac@devart.com](mailto:unidac@devart.com) describing the problem you are having. Make sure to include the following information in your message:

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

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## 14 Using UniDAC

### 14.1 Connecting to Database

This topic describes the procedure of connecting to databases with different providers, and meaning of connection parameters.

- [Common connection properties](#)
  - [Provider](#)
  - [Username and Password](#)
  - [Server](#)
  - [Database](#)
  - [Port](#)
- [Provider-specific properties](#)
  - [Oracle](#)
  - [SQL Server](#)
  - [MySQL](#)
  - [InterBase](#)
  - [PostgreSQL](#)
  - [SQLite](#)

### Common connection properties

Each database server requires its own set of parameters for connection (username, password, etc.). Some of the parameters are the same for several servers, but the parameter meaning may vary depending on the server. UniDAC provides all types of parameters for supported database servers. If a parameter is not used for a certain

provider, it will be disabled in the connection dialog and not used for connection. UniDAC supports the following parameters:

### Provider

This is the first parameter that should be set. It specifies the provider that will be used for connection, and other parameters that will be available.

### Username and Password

These properties are used for each database provider to authenticate the client application.

### Server

Commonly this property is used to provide the name or the IP address of the computer in the network on which the database server is located. If the Server property is empty for SQL Server, MySQL, and InterBase providers, UniDAC will try to connect to localhost.

- Oracle - in the Client mode you should specify the server name which appears in the *tnsnames.ora* configuration file. You can also set the [HomeName](#) option to specify which of the installed clients to use in the Client mode. If you are connecting to the Oracle server in the [Direct mode](#), value of the Server property should be assigned in special format: *Host:Port:SID*. Host is the server's IP address or DNS name, Port is the port number that the server listens to, SID is the Oracle System Identifier of the server.
- SQL Server - you should specify the computer name or IP address of the computer in the network which is running SQL Server. If your SQL Server uses a port different from the default one, you can connect to it specifying the port number in the following way: *HostName,PortNumber*.
- ASE, MySQL, and PostgreSQL - you should specify the computer name or IP address of the computer in the network which is running database server.
- ODBC - you should specify ODBC data source name (DSN), name of a file with data source information (File DSN), or ODBC connection string
- DB2 - you should specify the database name to the Server property

### Database

This property is used for Access, Advantage, ASE, DBF, InterBase, MySQL, NexusDB, PostgreSQL, SQL Server, and SQLite providers. It specifies initial database for the connection. On ASE, MySQL, and SQL Server the Database value can be changed when the connection is active without reconnect. If the Database is not assigned, the behaviour of UniDAC will depend on the selected provider:

- MySQL - the current database will not be selected. It means that you will need to explicitly specify the database name in your queries.
- SQL Server and ASE - the default database for the current SQL Server login will be used as a default database for the connection. For connecting to SQL Server Compact Edition this property is used to provide the database file name.

### Port

This property is used for ASE, MySQL, and PostgreSQL providers. It specifies the port number for TCP/IP connection.

- MySQL - The default value is 3306.
- PostgreSQL - The default value is 5432.

- [ASE](#) - The default value is 5000.

## Provider-specific properties

Along with the connection options described above, there are several specific options that manage connection behaviour for each provider. These options are described in the Provider-specific Notes articles for each provider: [Oracle](#), [SQL Server](#), [MySQL](#), [InterBase](#), [PostgreSQL](#), and [SQLite](#). Open the article that corresponds to the provider you are interested in, and find the specific options description for TUniConnection in the article. Several important specific connection options will be described below.

### Oracle

With the Oracle provider you can connect to the server in two modes: the Client mode, and the Direct mode. Connecting in the Client mode requires Oracle client to be installed on the client computer. Connecting in the Direct mode does not require Oracle client, however, this mode has certain limitations. For more information, refer to the [Connecting in Direct mode](#) section in the article Using UniDAC with Oracle.

### SQL Server

The SQL Server provider can connect through one of the three client types that can be changed using the [OLEDBProvider](#) specific option of TUniConnection. By default this option is set to prAuto. This value means that the provider will try to open the SQL Native Provider first. If this provider is not available, the OLE DB provider will be opened. In order to connect to SQL Server Compact Edition, the OLEDBProvider option must be set to prCompact. This value gives effect to all specific options which names start with Compact. The version of SQL Server Compact Edition to be used should be specified in the [CompactVersion](#) specific option. By default version of SQL Server Compact Edition will be chosen in accordance with the database file version. If the file does not exist, or the file is not a valid database file, the CompactVersion option will be used to determine which server version to load.

### MySQL

The MySQL provider can connect to MySQL server directly or using the client library *libmysqld.dll*. This behaviour is controlled by the [Direct](#) specific option. By default, Direct is set to True. If you switch Direct to False, you will need to deploy *libmysqld.dll* with your application.

In order to connect to a database with MySQL Embedded server, you should switch the value of the [Embedded](#) specific option to True. Its default value is False. If Embedded is set to True, the value of Direct is ignored. The Embedded Server library with the share directory should be deployed with the application. The path to data should be specified in the configuration file of Embedded Server.

### InterBase

The InteBase provider can connect to the server through such network protocols as TCP/IP, NetBEUI, and SPX. The network protocol that will be used for the connection can be specified with the [Protocol](#) specific option.

## PostgreSQL

The PostgreSQL provider connects to PostgreSQL server directly and does not use the PostgreSQL client library.

## SQLite

SQLite creates the database file automatically if it does not exist.

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## 14.2 Data Types

This topic describes in what way server data types are mapped to the Delphi field types and demonstrates common approaches for working with large data types. The table below represents the server data types mapped to certain Delphi field types by default. There are several options that change the default mapping. These changes are reflected in the table as footnotes.

Delphi Type	Oracle Types	SQL Server Types	MySQL Types <u>1</u>	InterBase Types	PostgreSQL Types	SQLite Types	ODBC Types	DB2 Types	Access Types	Advantase Types	ASE Types	NexusDB
ftSmallint	NUMBER (p, 0) <a href="#">[2]</a> (p < 5)	SMALLINT	TINYINT (M > 1) SMALLINT	SMALLINT	SMALLINT	TINYINT SMALLINT LINT	SQL_SMALLINT	SMALLINT	SMALLINT	SHORT	SMALLINT	SHORT, TINT, SMALLINT
ftWord	-	TINYINT INT	TINYINT (M) UNSIGNED GNEED (M > 1) SMALLINT LINT UNSIGNED GNEED YEAR	-	-	-	SQL_TINYINT TINYINT	-	BYTE	-	TINYINT	WORD, BYTE, TINYINT

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	2		SET				HAR			HAR	R	NG,
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mo	<a href="#">[10]</a>	<a href="#">[11]</a>	<a href="#">[10]</a>	<a href="#">[10]</a>	<a href="#">[10]</a>	<a href="#">[10]</a>	GVAR	RAPH	<a href="#">[10]</a>	<a href="#">[10]</a>	Also	
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tes		RY	RY				BINA	FOR			RY	ARRA
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		STAMP						DATA				

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							SQL					
							TYPE					
							UTC					
							TIME					
							SQL					
							INTE					
							RVAL					
							SQL					
							GUID					

[1 - If the FieldsAsString option is True, all fields except BLOB and TEXT fields are mapped to ftString

[2 - The Oracle provider maps the NUMBER data type with different precision and scale to certain Delphi types depending on the provider options in the following way:

1. if scale equals zero, provider checks values of the specific options to choose the correct Delphi type in the following order:

1.1 field precision is less or equal PrecisionSmallint (default is 4) - uses ftSmallint;

1.2 field precision is less or equal PrecisionInteger (default is 9) - uses ftInteger;

1.3 field precision is less or equal PrecisionLargeInt (default is 18) - uses ftLargeint;

2. if scale is greater than zero, the appropriate Delphi type is chosen using the following sequence of rules:.

2.1 field precision is less or equal PrecisionFloat (default is 0) - uses ftFloat;

2.2 EnableBCD is True and field precision, scale is less or equal PrecisionBCD (default is 14,4) - uses ftBCD;

2.3 EnableFMTBCD is True and field precision, scale is less or equal PrecisionFMTBCD (default is 38,38) - uses ftFMTBCD;

2.4 uses ftFloat.

[3 - The appropriate Delphi type is chosen using the following sequence of rules:

1. EnableBCD is True and field precision, scale is less or equal 14,4 - uses ftBCD;

2. EnableFMTBCD is True - uses ftFMTBCD;

3. uses ftFloat.

[4 - If the EnableBoolean option is True

[5 - If the RawAsString option is True

[6 - If the BinaryAsString is True

[7 - If the UseUnicode option is True, all server types mapped to ftString will be mapped to ftWideString.

[8 - If the LongStrings option is False, and the field length is greater than 255, all server types mapped to ftString will be mapped to ftMemo.

[9 - For all Delphi versions prior to BDS 2006.

[10 - If the UseUnicode option is True, in BDS 2006 and later versions all server types mapped to ftMemo will be mapped to ftWideMemo.

[11 - For BDS 2006 and higher IDE versions.

## Working with large objects

Server field types used to store large objects (BLOB, LOB, TEXT, etc.) are represented in Delphi as TBlobField and TMemofield. The TWideMemofield field was added in Delphi 2006.

- TBlobField is used to store binary objects.
- TMemofield is used to store single-byte and multibyte character data using database character set.
- TWideMemofield is used to store Unicode (UTF-16) data.

Generally there is no difference in working with these three field types in UniDAC. The Pictures and Text demos demonstrate working with datasets that contain TBlobField and TMemofield. If you want to insert a BLOB value into a table directly (without opening a dataset), please take a look at the example below. It demonstrates inserting a new record into the UniDAC BLOB table with the TUniSQL component:

```
UniSQL.SQL.Text := 'INSERT INTO UniDAC_BLOB(ID, Title, Picture) VALUES (1, ''A ne
UniSQL.ParamByName('BLOBValue').LoadFromFile('World.bmp', ftBlob);
UniSQL.Execute;
```

If a BLOB value must be formed in your program, without using a file, and inserted into a field, you can use the LoadFromStream method:

```
var
    Stream: TStringStream;

begin
    Stream := TStringStream.Create('');
    try
        Stream.WriteString('The first line' + #13#10);
        Stream.WriteString('The second line');
        UniSQL.SQL.Text := 'INSERT INTO UniDAC_Text(ID, Title, TextField) VALUES (1,
        UniSQL.ParamByName('TEXTValue').LoadFromStream(Stream, ftMemo);
        UniSQL.Execute;
    finally
        Stream.Free;
    end;
```

A BLOB value can be retrieved from the server in two ways. The first way is using a SELECT query from the table containing a BLOB field:

```
UniQuery.SQL.Text := 'SELECT TextField FROM UniDAC_Text WHERE ID = 1';
UniQuery.Open;
(UniQuery.FieldByName('TextField') as TBlobField).SaveToFile('A_file_name');
UniQuery.Close;
```

The second way is to use output parameters like in the following example. Note that the query may differ depending on your database server.

```
UniSQL.SQL.Text := 'SELECT :TEXTValue = TextField FROM UniDAC_Text WHERE ID = 1';
UniSQL.ParamByName('TEXTValue').ParamType := ptOutput;
UniSQL.Execute;
ShowMessage (UniSQL.ParamByName ('TEXTValue').AsString);
```

## See Also

- [TUniBlob](#)
- Pictures demo
- Text demo

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## 14.3 Updating data with UniDAC

This topic describes common approaches to data edit with dataset components of UniDAC.

- [Automatic data updating](#)
- [Extended setup of data updating](#)
- [Caching updates](#)
- [Default values/expressions](#)
- [Autoincrement values generating](#)
- [Getting newest data on time](#)

### Automatic data updating

TUniTable, TUniQuery, and TUniStoredProc are UniDAC components that allow retrieving and editing data. To edit data with each of the components, specify key field names in the [KeyFields](#) property. If KeyFields is an empty string, Oracle, PostgreSQL, InterBase, SQLite, and all ODBC-based providers will try to request information about primary keys from the server sending an additional query (this may negatively affect the performance). SQL Server and MySQL providers will use the meta-information sent by the server together with data. The SQL Server provider has the [UniqueRecords](#) option that allows automatically requesting primary key fields from the table if they were omitted in the query.

If the dataset to be opened has no fields that uniquely identify a record, this problem can be solved with Oracle, Firebird 2.0, PostgreSQL, and SQLite servers by the server means. With the Oracle and SQLite servers you should add the RowID column to your query. With Firebird 2.0 - DB KEY. With PostgreSQL server OID column can be used as key field if your table is created with OIDs. More information about these fields you will find in the documentation of the correspondent server.

### Extended setup of data updating

For a dataset having data from several tables, only one table will be updatable by default. You should specify the table name to be updatable in the [UpdatingTable](#) property, otherwise the table to which belongs the first field in the field list will be updatable. If the [SetFieldsReadOnly](#) option is set to True (by default), fields that are not used in automatically generated update SQL statements are marked read-only. With the Oracle, PostgreSQL, and all ODBC-based providers for complicated queries (statements that use multiple tables, Synonyms, DBLinks, aggregated fields) we recommend to keep the [ExtendedFieldsInfo](#) option enabled.

If Insert/Post, Update, or RefreshRecord operation has affected more than one

record, UniDAC raises an exception. To suppress such exceptions, you should set the [StrictUpdate](#) option to False.

For more flexible control over data modifications you can fill update SQL statements. They are represented by the [SQLInsert](#), [SQLUpdate](#), [SQLDelete](#), and [SQLRefresh](#) properties and are executed automatically on Insert/Post, Edit/Post, Delete, and Refresh operations. At design-time you can generate default update SQL statements at the SQL Generator tab in component editor. The generated statements can be modified corresponding your needs. But if the update queries are generated dynamically for each record, only changed values are sent to the server. For some particular cases this functionality is not enough. It can be extended with the [TUniUpdateSQL](#) component. TUniUpdateSQL allows associating a separate TUniSQL/TUniQuery/TUniStoredProc component for each update operation.

### Caching updates

UniDAC allows caching updates at the client (so-called [Cashed Updates](#) mode), and then post all updates in a batch. It means that changes are not reflected at the server immediately after calling Post or Delete. All cached changes are posted to the server after calling the [ApplyUpdates](#) method. The [UpdateBatchSize](#) option lets setting up the number of changes to be posted at the same time.

### Default values/expressions

If you have defined default values or expressions for columns in a database table, you can setup UniDAC so that it requests these expressions from the server. These expressions will be assigned to the DefaultExpression property of TField objects. If the DefaultExpression values have already been filled, they are replaced. This behaviour is controlled by the [DefaultValues](#) option, which is disabled by default.

### Autoincrement values generating

When editing a dataset, it is often convenient not to fill key field values manually but automatically generate them. There are three ways to do it.

The first way, the most usable one, is to use server means for automatic generating of the key field values.

SQL Server, MySQL, and SQLite allow defining autoincrement columns in the table. This does not require additional handling at the client. For ASE, Oracle, PostgreSQL, and InterBase providers it is necessary to specify the [KeySequence](#) ([KeyGenerator](#) for InterBase) specific option. Automatically generated values are reflected in the dataset automatically.

The second way is to generate and fill the key field value in the BeforePost event handler. As a rule this way requires executing a query to retrieve some information from the server. So this way may be useful only in some particular cases.

The third way is to create the AFTER INSERT trigger that fills the field with the appropriate value. But there is a problem with returning the value generated by the trigger. Although this problem can be solved (see the next paragraph in this topic), this approach is considered nonoptimal. So try choosing another approach if possible.

However, retrieving generated values can be disabled for SQL Server provider with the [QueryIdentity](#) specific option. This should increase performance of records inserting.

## Getting newest data on time

For certain situations UniDAC allows automatically refreshing records in the dataset in order to keep their values up-to-date.

With

[RefreshOptions](#)

you can make UniDAC refresh the current record before editing, after inserting or deleting. It is done by executing an additional query.

The DMLRefresh option allows refreshing the current record after insert or update similarly to RefreshOptions, but it works in a different way. This allows achieving higher performance than with RefreshOptions. DMLRefresh is not supported by the MySQL, SQLite, and ODBC-based providers.

If you want to control which fields of the current record need to be refreshed after insert or update, you should do the following: define in your update queries output parameters with names that correspond the field names in your dataset, and set the ReturnParams option to True. After the update query has been executed, dataset reads values of the output parameters and puts them into fields with the correspondent names.

---

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## 14.4 Master/Detail Relationships

Master/detail (MD) relationship between two tables is a very widespread one. So it is very important to provide an easy way for database application developer to work with it. Lets examine how UniDAC implements this feature.

Suppose we have classic MD relationship between "Department" and "Employee" tables.

"Department" table has field Dept No. Dept No is a primary key.

"Employee" table has a primary key EmpNo and foreign key Dept No that binds "Employee" to "Department".

It is necessary to display and edit these tables.

UniDAC provides two ways to bind tables. First code example shows how to bind two TCustomUniDataSet components into MD relationship via parameters.

```
procedure TForm1.Form1Create(Sender: TObject);
var
  Master, Detail: TUniQuery;
  MasterSource: TDataSource;
begin
  // create master dataset
  Master := TUniQuery.Create(Self);
  Master.SQL.Text := 'SELECT * FROM Department';
  // create detail dataset
  Detail := TUniQuery.Create(Self);
  Detail.SQL.Text := 'SELECT * FROM Employee WHERE Dept_No = :Dept_No';
  // connect detail dataset with master via TDataSource component
  MasterSource := TDataSource.Create(Self);
  MasterSource.DataSet := Master;
  Detail.MasterSource := MasterSource;
```

```

    // open master dataset and only then detail dataset
    Master.Open;
    Detail.Open;
end;

```

Pay attention to one thing: parameter name in detail dataset SQL must be equal to the field name in the master dataset that is used as foreign key for detail table. After opening detail dataset always holds records with Dept No field value equal to the one in the current master dataset record.

There is an additional feature: when inserting new records to detail dataset it automatically fills foreign key fields with values taken from master dataset.

Now suppose that detail table "Department" foreign key field is named DepLink but not Dept No. In such case detail dataset described in above code example will not autofill DepLink field with current "Department".Dept No value on insert. This issue is solved in second code example.

```

procedure TForm1.Form1Create(Sender: TObject);
var
    Master, Detail: TUniQuery;
    MasterSource: TDataSource;
begin
    // create master dataset
    Master := TUniQuery.Create(Self);
    Master.SQL.Text := 'SELECT * FROM Department';
    // create detail dataset
    Detail := TUniQuery.Create(Self);
    Detail.SQL.Text := 'SELECT * FROM Employee';
    // setup MD
    Detail.MasterFields := 'Dept_No'; // primary key in Department
    Detail.DetailFields := 'DepLink'; // foreign key in Employee
    // connect detail dataset with master via TDataSource component
    MasterSource := TDataSource.Create(Self);
    MasterSource.DataSet := Master;
    Detail.MasterSource := MasterSource;
    // open master dataset and only then detail dataset
    Master.Open;
    Detail.Open;
end;

```

In this code example MD relationship is set up using [MasterFields](#) and [DetailFields](#) properties. Also note that there are no WHERE clause in detail dataset SQL. To defer refreshing of detail dataset while master dataset navigation you can use [DetailDelay](#) option.

Such MD relationship can be local and remote, depending on the [TCustomDADataset.Options.LocalMasterDetail](#) option. If this option is set to True, dataset uses local filtering for establishing master-detail relationship and does not refer to the server. Otherwise detail dataset performs query each time when record is selected in master dataset. Using local MD relationship can reduce server calls number and save server resources. It can be useful for slow connection.

[CachedUpdates](#) mode can be used for detail dataset only for local MD relationship. Using local MD relationship is not recommended when detail table contains too many rows, because in remote MD relationship only records that correspond to the current record in master dataset are fetched. So, this can decrease network traffic in some cases.

## See Also

- [TCustomDADataset.Options](#)

- [TMemDataSet.CachedUpdates](#)

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## 14.5 Network Tunneling

Usually when a client needs to connect to server it is assumed that direct connection can be established. Nowadays though, due to security reasons or network topology, it is often necessary to use a proxy or bypass a firewall. This article describes different ways to connect to MySQL server with UniDAC.

- [Direct connection](#)
- [Connection through HTTP tunnel](#)
  - [Connection through proxy and HTTP tunnel](#)
- [Additional information](#)

### Direct connection

Direct connection to server means that server host is accessible from client without extra routing and forwarding. This is the simplest case. The only network setting you need is the host name and port number. This is also the fastest and most reliable way of communicating with server. Use it whenever possible.

The following code illustrates the simplicity:

```
UniConnection := TUniConnection.Create(self);
UniConnection.ProviderName := 'MySQL';
UniConnection.Server := 'localhost';
UniConnection.Port := 3306;
UniConnection.Username := 'root';
UniConnection.Password := 'root';
UniConnection.Connect;
```

### Connection through HTTP tunnel

Sometimes client machines are shielded by a firewall that does not allow you to connect to server directly at the specified port. If the firewall allows HTTP connections, you can use UniDAC together with HTTP tunneling software to connect to MySQL server.

UniDAC supports HTTP tunneling based on the PHP script.

An example of the web script tunneling usage can be the following: you have a remote website, and access to its database through the port of the database server is forbidden. Only access through HTTP port 80 is allowed, and you need to access the database from a remote computer, like when using usual direct connection. You need to deploy the tunnel.php script, which is included into the provider package on the web server. It allows access to the database server to use HTTP tunneling. The script must be available through the HTTP protocol. You can verify if it is accessible with a web browser. The script can be found in the HTTP subfolder of the installed provider folder, e. g. %Program Files%\Devart\UniDac for Delphi X \HTTP\tunnel.php. The only requirement to the server is PHP 5 support.

To connect to the database, you should set TUniConnection parameters for usual direct connection, which will be established from the web server side, the Protocol specific MySQL option to mpHttp, and set the following parameters, specific for the HTTP tunneling:

Specific Option	Mandatory	Meaning
-----------------	-----------	---------

HttpUrl	Yes	Url of the tunneling PHP script. For example, if the script is in the server root, the url can be the following: http://localhost/tunnel.php.
HttpUsername, HttpPassword	No	Set this properties if the access to the website folder with the script is available only for registered users authenticated with user name and password.

### Connection through proxy and HTTP tunnel

Consider the previous case with one more complication.

HTTP tunneling server is not directly accessible from client machine. For example, client address is 10.0.0.2, server address is 192.168.0.10, and the MySQL server listens on port 3307. The client and server reside in different networks, so the client can reach it only through proxy at address 10.0.0.1, which listens on port 808. In this case in addition to the Http specific options you have to setup the Proxy specific options as follows:

```
UniConnection := TUniConnection.Create(self);
UniConnection.ProviderName := 'MySQL';
UniConnection.Server := '192.168.0.10';
UniConnection.Port := 3307;
UniConnection.Username := 'root';
UniConnection.Password := 'root';
UniConnection.SpecificOptions.Values['Protocol'] := 'mpHttp';
UniConnection.SpecificOptions.Values['HttpUrl'] := 'http://server/tunnel.php';
UniConnection.SpecificOptions.Values['ProxyHostname'] := '10.0.0.1';
UniConnection.SpecificOptions.Values['ProxyPort'] := '808';
UniConnection.SpecificOptions.Values['ProxyUsername'] := 'ProxyUser';
UniConnection.SpecificOptions.Values['ProxyPassword'] := 'ProxyPassword';
UniConnection.Connect;
```

Note that setting the Proxy specific options automatically enables proxy server usage.

### Additional information

Keep in mind that traffic tunneling or encryption always increase CPU usage and network load. It is recommended that you use direct connection whenever possible.

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## 14.6 Executing Stored Procedures

This topic describes approaches for executing stored procedures with UniDAC.

- [What component to choose?](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery](#)
  - [TUniStoredProc](#)
- [Usage of stored procedure parameters](#)

- [Parameter types](#)
- [Passing default parameter values](#)

Stored procedures in UniDAC can be executed with one of the following components: [TUniConnection](#), [TUniSQL](#), [TUniQuery](#), [TUniStoredProc](#). Below you will find the description of working with stored procedure using these components starting with the simplest approach.

### **TUniConnection**

The simplest way to execute a stored procedure is the TUniConnection component, but it has several limitations. TUniConnection does not have properties like SQL, StoredProcName, or Params. So you will need to provide stored procedure name and parameter values each time you need to execute it. TUniConnection does not support output parameters, however you can get a result parameter from a function. Also TUniConnection does not support preparation. Stored procedures are executed with the [ExecProc](#) and [ExecProcEx](#) methods.

Therefore, if you need to execute a stored procedure that returns neither record set nor output parameters only once, the TUniConnection component is an optimal choice.

### **TUniSQL**

TUniSQL is a separate component dedicated to execute commands that do not return record sets. It has no data storage, therefore it consumes a bit less memory than TUniQuery or TUniStoredProc and works a bit faster. To execute a stored procedure, an appropriate command must be assigned to the SQL property of TUniSQL. It can be assigned manually, or created with the [CreateProcCall](#) method. The CreateProcCall method accepts a stored procedure name, gets the description of a stored procedure from the server, and generates SQL command with parameters. The generated command is automatically assigned to the [SQL](#) property. Parameters can be accessed both at design time and run time using properties such as Params, ParamByName, etc.

Comparing to the previous method of stored procedures execution, TUniSQL supports all kinds of parameters (INPUT, OUTPUT, etc.). For repeatable executions of a stored procedure, you do not need to pass a SQL command on each execution. It is stored in the SQL property.

Each command of TUniSQL can be [prepared](#). In some cases preparation improves performance of execution.

TUniSQL is a powerful component that is an appropriate choice for a stored procedure that does not return result sets, needs to be executed multiple times, or returns output parameters.

### **TUniQuery**

One more component that lets you execute stored procedures is [TUniQuery](#). In addition to the abilities provided by TUniSQL, TUniQuery allows to obtain record sets from stored procedures and modify them. If a stored procedure returns multiple record sets, all of them can be accessed sequentially. The Open method opens the first record set. The [OpenNext](#) method closes the current record set and opens the next one. If the server has sent enough meta-information about the query, obtained dataset will be editable. Otherwise to get an editable dataset you should setup properties such as [SQLDelete](#), [SQLInsert](#), and others properly.

The TUniQuery is a good choice for executing stored procedures that return record sets.

### TUniStoredProc

TUniStoredProc is a component designed specially for working with stored procedures. If you want to execute a stored procedure, just assign its name to the [StoredProcName](#) property, call [PrepareSQL](#) to describe parameters, assign parameter values, and call [Execute](#). If the stored procedure has no input or input/output parameters to be assigned, call to the PrepareSQL method is not necessary. Other than that TUniStoredProc is similar to TUniQuery. It supports result sets, output parameters, preparation, and can be initialized by the CreateProcCall method.

TUniStoredProc is the most convenient component for working with stored procedures that covers all necessary functionality.

There are several notes concerning parameters of stored procedures.

### Parameter types

UniDAC supports four parameter types: input, output, input/output, and result. TUniConnection can pass values of the input parameters to the server, and get the result value from a function. If a parameter value is not assigned, the default value will be provided if possible. If an unassigned parameter has no default value, an error will be raised.

TUniSQL, TUniQuery, and TUniStoredProc components can handle all of these parameter types. If an input parameter value is not assigned with one of these components, the NULL value will be passed as a parameter value. Assigning of output and result parameter values has no effect as they are not passed to the server on execution, and after execute they will be replaced with values returned from the server.

### Passing default parameter values

Some stored procedures may have default values for parameters. If you want to pass a default parameter value to a stored procedure, you should do the following:

- with TUniConnection call the [ExecProcEx](#) method omitting the names and values of the parameters to be initialized with their default values;
- with TUniConnection call the [ExecProc](#) method omitting values of the last parameters to be initialized with their default values;
- with other components set the Bound property of the parameter to be initialized with its default value to False.

If a parameter value in TUniSQL, TUniQuery, or TUniStoredProc is not assigned or cleared, the NULL value will be passed as a parameter value. It is not the same as assigning a default value.

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## 14.7 Transactions

This topic describes how transaction support is implemented in UniDAC. So, you should be pretty familiar with transactions to understand how to control them with UniDAC.

The local transactions are managed by the TUniConnection component with [StartTransaction](#), [Commit](#), [Rollback](#), and other methods. Each time you are about to start a transaction, you should check whether it is active. You can do this using the [InTransaction](#) property. Call to StartTransaction when the transaction is already active will cause an exception. Here is a short example that demonstrates the general approach for working with local transactions:

```
if not UniConnection.InTransaction then
    UniConnection.StartTransaction;
try
    // Do some actions with database. For example:
    UniSQL1.Execute;
    UniSQL2.Execute;
    // Commit the current transaction to reflect changes in database if no error
    UniConnection.Commit;
except
    // Rollback all changes in database made after StartTransaction if an error
    UniConnection.Rollback;
end;
```

After you have activated a transaction, all operations, including dataset opening, will be performed within the context of the current transaction until you commit or rollback it. If no transactions were started, changes performed by each operation are reflected in database right after the operation is completed (so-called AutoCommit mode).

The behaviour of each explicitly started transaction can be customized with parameters passed to the overloaded StartTransaction method. You can specify the isolation level for the transaction and whether this transaction will be editable.

There is a more detailed description of these parameters in the [StartTransaction](#) topic.

UniDAC also supports working with Savepoints. The [Savepoint](#) method lets you to define a named savepoint within a transaction. You can use the savepoint name in the [RollbackToSavepoint](#) method to rollback changes in the database to the actual state at the point of time the savepoint was made. Call to RollbackToSavepoint keeps the current transaction active.

The [CommitRetaining](#) and [RollbackRetaining](#) methods are similar to Commit and Rollback, but they keep the current transaction active. It means that you will not need to call StartTransaction to keep working in transaction like you do with the Commit and Rollback methods. Functionality of CommitRetaining and RollbackRetaining is supported by InterBase/Firebird/Yaffil servers. For other servers this functionality is emulated by subsequent call to StartTransaction after Commit or Rollback.

InterBase-like servers support several simultaneous active transactions within a single connection and require a transaction to be active when opening a cursor. You

should not take care of this, as UniDAC encapsulates these peculiarities letting you work in a way similar to the way of working with other database servers. If you want to involve abilities of InterBase servers to run parallel transactions, you should place several [TUniTransaction](#) components onto the form and setup properties of [TCustomUniDataSet](#) descendants such as [Transaction](#) and [UpdateTransaction](#) with these components. The Transaction and UpdateTransaction properties are used only for the InterBase provider. For other providers these properties are ignored. UniDAC uses MTS to manage distributed transactions with Oracle and Microsoft SQL Server connections. Distributed transactions are controlled by the TUniTransaction component. You can add connections to a distributed transaction context using the [AddConnection](#) method. The MTS distributed transaction coordinator allows mixing connections both to different servers and different server kinds.

```
begin
  UniConnection1.Connect;
  UniConnection2.Connect;
  UniTransaction.AddConnection(UniConnection1);
  UniTransaction.AddConnection(UniConnection2);
  UniTransaction.StartTransaction;
  UniSQL1.Connection := UniConnection1;
  UniSQL2.Connection := UniConnection2;
try
  UniSQL1.Execute;
  UniSQL2.Execute;
  UniTransaction.Commit;
except
  UniTransaction.Rollback;
end;
end;
```

---

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## 14.8 Working in an Unstable Network

The following settings are recommended for working in an unstable network:

```
TCustomDAConnection.Options.LocalFailover = True
TCustomDAConnection.Options.DisconnectedMode = True
TDataSet.CachedUpdates = True
TCustomDADataSet.FetchAll = True
TCustomDADataSet.Options.LocalMasterDetail = True
AutoCommit = True
```

These settings minimize the number of requests to the server. Using [TCustomDAConnection.Options.DisconnectedMode](#) allows DataSet to work without an active connection. It minimizes server resource usage and reduces connection break probability. I. e. in this mode connection automatically closes if it is not required any more. But every explicit operation must be finished explicitly. That means each explicit connect must be followed by explicit disconnect. Read [Working with Disconnected Mode](#) topic for more information.

Setting the [FetchAll](#) property to True allows to fetch all data after cursor opening and to close connection. If you are using master/detail relationship, we recommend to set the [LocalMasterDetail](#) option to True.

It is not recommended to prepare queries explicitly. Use the [CachedUpdates](#) mode for DataSet data editing. Use the [TCustomDADataSet.Options.UpdateBatchSize](#) property to reduce the number of requests to the server.

If a connection breaks, a fatal error occurs, and the [OnConnectionLost](#) event will be raised if the following conditions are fulfilled:

- There are no active transactions;
- There are no opened and not fetched datasets;
- There are no explicitly prepared datasets or SQLs.

If the user does not refuse suggested RetryMode parameter value (or does not use the [OnConnectionLost](#) event handler), UniDAC can implicitly perform the following operations:

```
Connect;  
DataSet.ApplyUpdates;  
DataSet.Open;
```

I.e. when the connection breaks, implicit reconnect is performed and the corresponding operation is reexecuted. We recommend to wrap other operations in transactions and fulfill their reexecuting yourself.

The using of [Pooling](#) in Disconnected Mode allows to speed up most of the operations because of connecting duration reducing.

## See Also

- FailOver demo
- [Working with Disconnected Mode](#)
- [TCustomDAConnection.Options](#)
- [TCustomDAConnection.Pooling](#)

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## 14.9 Disconnected Mode

In disconnected mode a connection opens only when it is required. After performing all server calls connection closes automatically until next server call is required. Datasets remain opened when connection closes. Disconnected Mode may be useful for saving server resources and operating in an unstable or expensive network. Drawback of using disconnected mode is that each connection establishing requires some time for authorization. If connection is often closed and opened it can slow down application work. We recommend to use pooling to solve this problem. For additional information see [TCustomDAConnection.Pooling](#).

To enable disconnected mode set [TCustomDAConnection.Options.DisconnectedMode](#) to True.

In disconnected mode a connection is opened for executing requests to the server (if it was not opened already) and is closed automatically if it is not required any more. If the connection was explicitly opened (the [Connect](#) method was called or the Connected property was explicitly set to True), it does not close until the [Disconnect](#) method is called or the Connected property is set to False explicitly.

The following settings are recommended to use for working in disconnected mode:

```
TDataSet.CachedUpdates = True  
TCustomDADataSet.FetchAll = True  
TCustomDADataSet.Options.LocalMasterDetail = True
```

These settings minimize the number of requests to the server.

### Disconnected mode features

If you perform a query with the [FetchAll](#) option set to True, connection closes when all data is fetched if it is not used by someone else. If the FetchAll option is set to false, connection does not close until all data blocks are fetched.

If explicit transaction was started, connection does not close until the transaction is committed or rolled back.

If the query was prepared explicitly, connection does not close until the query is unprepared or its SQL text is changed.

## See Also

- [TCustomDAConnection.Options](#)
  - [FetchAll](#)
  - [Devart.UniDac.TUniQuery.LockMode](#)
  - [TCustomDAConnection.Pooling](#)
  - [TCustomDAConnection.Connect](#)
  - [TCustomDAConnection.Disconnect](#)
  - [Working in unstable network](#)
- 

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## 14.10 Data Type Mapping

### Overview

**Data Type Mapping** is a flexible and easily customizable gear, which allows mapping between DB types and Delphi field types.

In this article there are several examples, which can be used when working with all supported DBs. In order to clearly display the universality of the Data Type Mapping gear, a separate DB will be used for each example.

### Data Type Mapping Rules

In versions where Data Type Mapping was not supported, UniDAC automatically set correspondence between the DB data types and Delphi field types. In versions with Data Type Mapping support the correspondence between the DB data types and Delphi field types can be set manually.

Here is the example with the numeric type in the following table of a PostgreSQL database:

```
CREATE TABLE numeric_types
(
  id integer NOT NULL,
  value1 numeric(5,2),
  value2 numeric(10,4),
  value3 numeric(15,6),
  CONSTRAINT pk_numeric_types PRIMARY KEY (id)
)
```

And Data Type Mapping should be used so that:

- the numeric fields with Scale=0 in Delphi would be mapped to one of the field types: TSmallintField, TIntegerField or TLargeintField, depending on Precision
- to save precision, the numeric fields with Precision>=10 and Scal <= 4 would be mapped to TBCDField

- and the numeric fields with `Scale >= 5` would be mapped to `TFMTBCDField`.  
The above in the form of a table:

PostgreSQL data type	Default Delphi field type	Destination Delphi field type
numeric(4,0)	ftFloat	ftSmallint
numeric(10,0)	ftFloat	ftInteger
numeric(15,0)	ftFloat	ftLargeint
numeric(5,2)	ftFloat	ftFloat
numeric(10,4)	ftFloat	ftBCD
numeric(15,6)	ftFloat	ftFMTBCD

To specify that numeric fields with `Precision <= 4` and `Scale = 0` must be mapped to `ftSmallint`, such a rule should be set:

```
var
  DBType: Word;
  MinPrecision: Integer;
  MaxPrecision: Integer;
  MinScale: Integer;
  MaxScale: Integer;
  FieldType: TfieldType;
begin
  DBType := pgNumeric;
  MinPrecision := 0;
  MaxPrecision := 4;
  MinScale := 0;
  MaxScale := 0;
  FieldType := ftSmallint;
  PgConnection.DataTypeMap.AddDBTypeRule(DBType, MinPrecision, MaxPrecision, MinScale, MaxScale, FieldType);
end;
```

This is an example of the detailed rule setting, and it is made for maximum visualization. Usually, rules are set much shorter, e.g. as follows:

```
// clear existing rules
PgConnection.DataTypeMap.Clear;
// rule for numeric(4,0)
PgConnection.DataTypeMap.AddDBTypeRule(pgNumeric, 0, 4, 0, 0, ftSmallint);
// rule for numeric(10,0)
PgConnection.DataTypeMap.AddDBTypeRule(pgNumeric, 5, 10, 0, 0, ftInteger);
// rule for numeric(15,0)
PgConnection.DataTypeMap.AddDBTypeRule(pgNumeric, 11, rlAny, 0, 0, ftLargeint);
// rule for numeric(5,2)
PgConnection.DataTypeMap.AddDBTypeRule(pgNumeric, 0, 9, 1, rlAny, ftFloat);
// rule for numeric(10,4)
PgConnection.DataTypeMap.AddDBTypeRule(pgNumeric, 10, rlAny, 1, 4, ftBCD);
// rule for numeric(15,6)
PgConnection.DataTypeMap.AddDBTypeRule(pgNumeric, 10, rlAny, 5, rlAny, ftFMTBcd);
```

## Rules order

When setting rules, there can occur a situation when two or more rules that contradict to each other are set for one type in the database. In this case, only one rule will be applied – the one, which was set first.

For example, there is a table in an Oracle database:

```
CREATE TABLE NUMBER_TYPES
(
```

```

ID NUMBER NOT NULL,
VALUE1 NUMBER(5,2),
VALUE2 NUMBER(10,4),
VALUE3 NUMBER(15,6),
CONSTRAINT PK_NUMBER_TYPES PRIMARY KEY (id)
)

```

TBCDField should be used for NUMBER(10,4), and TFMTBCDField - for NUMBER(15,6) instead of default fields:

Oracle data type	Default Delphi field type	Destination field type
NUMBER(5,2)	ftFloat	ftFloat
NUMBER(10,4)	ftFloat	ftBCD
NUMBER(15,6)	ftFloat	ftFMTBCD

If rules are set in the following way:

```

OraSession.DataTypeMap.Clear;
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, 9, rlAny, rlAny, ftFloat);
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, rlAny, 0, 4, ftBCD);
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, rlAny, 0, rlAny, ftFMTBCD)

```

it will lead to the following result:

Oracle data type	Delphi field type
NUMBER(5,2)	ftFloat
NUMBER(10,4)	ftBCD
NUMBER(15,6)	ftFMTBCD

But if rules are set in the following way:

```

OraSession.DataTypeMap.Clear;
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, rlAny, 0, rlAny, ftFMTBCD);
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, rlAny, 0, 4, ftBCD);
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, 9, rlAny, rlAny, ftFloat);

```

it will lead to the following result:

Oracle data type	Delphi field type
NUMBER(5,2)	ftFMTBCD
NUMBER(10,4)	ftFMTBCD
NUMBER(15,6)	ftFMTBCD

This happens because the rule

```
OraSession.DataTypeMap.AddDBTypeRule(oraNumber, 0, rlAny, 0, rlAny, ftFMTBCD);
```

will be applied for the NUMBER fields, whose Precision is from 0 to infinity, and Scale is from 0 to infinity too. This condition is met by all NUMBER fields with any Precision and Scale.

When using Data Type Mapping, first matching rule is searched for each type, and it is used for mapping. In the second example, the first set rule appears to be the first matching rule for all three types, and therefore the ftFMTBCD type will be used for all fields in Delphi.

If to go back to the first example, the first matching rule for the NUMBER(5,2) type is the first rule, for NUMBER(10,4) - the second rule, and for NUMBER(15,6) - the third rule. So in the first example, the expected result was obtained.

So it should be remembered that if rules for Data Type Mapping are set so that two or more rules that contradict to each other are set for one type in the database, the rules will be applied in the specified order.

## Defining rules for Connection and Dataset

Data Type Mapping allows setting rules for the whole connection as well as for each DataSet in the application.

For example, such table is created in SQL Server:

```
CREATE TABLE person
(
  id                INT                NOT NULL ,
  firstname         VARCHAR(20)       NULL ,
  lastname          VARCHAR(30)       NULL ,
  gender_code       VARCHAR(1)        NULL ,
  birth_dttm        DATETIME          NULL ,
  CONSTRAINT pk_person PRIMARY KEY CLUSTERED (id ASC) ON [PRIMARY]
)
GO
```

It is exactly known that the birth\_dttm field contains birth day, and this field should be ftDate in Delphi, and not ftDateTime. If such rule is set:

```
MSConnection.DataTypeMap.Clear;
MSConnection.DataTypeMap.AddDBTypeRule(msDateTime, ftDate);
```

all DATETIME fields in Delphi will have the ftDate type, that is incorrect. The ftDate type was expected to be used for the DATETIME type only when working with the person table. In this case, Data Type Mapping should be set not for the whole connection, but for a particular DataSet:

```
MSQuery.DataTypeMap.Clear;
MSQuery.DataTypeMap.AddDBTypeRule(msDateTime, ftDate);
```

Or the opposite case. For example, DATETIME is used in the application only for date storage, and only one table stores both date and time. In this case, the following rules setting will be correct:

```
MSConnection.DataTypeMap.Clear;
MSConnection.DataTypeMap.AddDBTypeRule(msDateTime, ftDate);
MSQuery.DataTypeMap.Clear;
MSQuery.DataTypeMap.AddDBTypeRule(msDateTime, ftDateTime);
```

In this case, in all DataSets for the DATETIME type fields with the ftDate type will be created, and for MSQuery - with the ftDateTime type.

The point is that the priority of the rules set for the DataSet is higher than the priority of the rules set for the whole connection. This allows both flexible and convenient setting of Data Type Mapping for the whole application. There is no need to set the same rules for each DataSet, all the general rules can be set once for the whole connection. And if a DataSet with an individual Data Type Mapping is necessary, individual rules can be set for it.

## Rules for a particular field

Sometimes there is a need to set a rule not for the whole connection, and not for the whole dataset, but only for a particular field.

e.g. there is such table in a MySQL database:

```
CREATE TABLE item
(
  id INT NOT NULL AUTO_INCREMENT,
  name CHAR(50) NOT NULL,
  guid CHAR(38),
  PRIMARY KEY (id)
) ENGINE=MyISAM;
```

The **guid** field contains a unique identifier. For convenient work, this identifier is expected to be mapped to the TGUIDField type in Delphi. But there is one problem, if to set the rule like this:

```
MyQuery.DataTypeMap.Clear;
MyQuery.DataTypeMap.AddDBTypeRule(myChar, ftGuid);
```

then both **name** and **guid** fields will have the ftGuid type in Delphi, that does not correspond to what was planned. In this case, the only way is to use Data Type Mapping for a particular field:

```
MyQuery.DataTypeMap.AddFieldRule('guid', ftGuid);
```

In addition, it is important to remember that setting rules for particular fields has the highest priority. If to set some rule for a particular field, all other rules in the Connection or DataSet will be ignored for this field.

## Ignoring conversion errors

Data Type Mapping allows mapping various types, and sometimes there can occur the problem with that the data stored in a DB cannot be converted to the correct data of the Delphi field type specified in rules of Data Type Mapping or vice-versa. In this case, an error will occur, which will inform that the data cannot be mapped to the specified type.

For example:

Database value	Destination field type	Error
'text value'	ftInteger	String cannot be converted to Integer
1000000	ftSmallint	Value is out of range
15,1	ftInteger	Cannot convert float to integer

But when setting rules for Data Type Mapping, there is a possibility to ignore data conversion errors:

```
IBCConnection.DataTypeMap.AddDBTypeRule(IBCVarChar, ftInteger, True);
```

In this case, the correct conversion is impossible. But because of ignoring data conversion errors, Data Type Mapping tries to return values that can be set to the Delphi fields or DB fields depending on the direction of conversion.

Database value	Destination field type	Result	Result description
'text value'	ftInteger	0	0 will be returned if the text cannot be converted to number

1000000	ftSmallint	32767	32767 is the max value that can be assigned to the Smallint data type
15,1	ftInteger	15	15,1 was truncated to an integer value

Therefore ignoring of conversion errors should be used only if the conversion results are expected.

## UniDAC and Data Type Mapping

When using UniDAC, there often occurs a hard-to-solve situation, when two similar types from the DB have different types in Delphi. For greater clarity, there are examples below.

e.g. there is a project, which works with two DBs: Oracle and SQL Server. There is such table created in each DB:

Oracle:

```
CREATE TABLE ITEM_INFO
(
  ID NUMBER NOT NULL,
  CODE VARCHAR2(10) NOT NULL,
  DESCRIPTION NVARCHAR2(250),
  CONSTRAINT PK_ITEM_INFO PRIMARY KEY (id)
)
```

SQL Server:

```
CREATE TABLE item_info
(
  id          INT          NOT NULL ,
  code       VARCHAR(10)  NOT NULL ,
  description NVARCHAR(250) NULL ,
  CONSTRAINT pk_item_info PRIMARY KEY CLUSTERED (id ASC)
  ON [PRIMARY]
)
GO
```

The problem is due to that, when working with Oracle with the enabled UseUnicode option, both CODE and DESCRIPTION fields will have the ftWideString type, and if the UseUnicode option is disabled, both fields will have the ftString type. For SQL Server, the CODE field will always be ftString, and the DESCRIPTION field will always be ftWideString. This problem arises especially sharply when attempting to create persistent fields, because in this case, when working with one of the providers, an error will always occur. Formerly, the only way to avoid the error was to refuse using of persistent fields in such situations.

For the time being, this problem can be solved rather easily. Data Type Mapping can be set for the Oracle provider:

```
UniConnection.DataTypeMap.Clear;
UniConnection.DataTypeMap.AddDBTypeRule(oraVarchar2, ftString);
UniConnection.DataTypeMap.AddDBTypeRule(oraNVarchar2, ftWideString);
```

Or Data Type Mapping can be set for SQL Server:

```
// for useUnicode = True in the Oracle data provider
UniConnection.DataTypeMap.Clear;
UniConnection.DataTypeMap.AddDbTypeRule(msVarchar, ftWideString);

or:

// for useUnicode = False in the Oracle data provider
UniConnection.DataTypeMap.Clear;
UniConnection.DataTypeMap.AddDbTypeRule(msNVarchar, ftString);
```

---

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## 14.11 Data Encryption

UniDAC has built-in algorithms for data encryption and decryption. To enable encryption, you should attach the [TCREncryptor](#) component to the dataset, and specify the encrypted fields. When inserting or updating data in the table, information will be encrypted on the client side in accordance with the specified method. Also when reading data from the server, the components decrypt the data in these fields "on the fly".

For encryption, you should specify the data encryption algorithm (the [EncryptionAlgorithm](#) property) and password (the [Password](#) property). On the basis of the specified password, the key is generated, which encrypts the data. There is also a possibility to set the key directly using the [SetKey](#) method.

When storing the encrypted data, in addition to the initial data, you can also store additional information: the GUID and the hash. (The method is specified in the [TCREncryptor.DataHeader](#) property).

If data is stored without additional information, it is impossible to determine whether the data is encrypted or not. In this case, only the encrypted data should be stored in the column, otherwise, there will be confusion because of the inability to distinguish the nature of the data. Also in this way, the similar source data will be equivalent in the encrypted form, that is not good from the point of view of the information protection. The advantage of this method is the size of the initial data equal to the size of the encrypted data.

To avoid these problems, it is recommended to store, along with the data, the appropriate GUID, which is necessary for specifying that the value in the record is encrypted and it must be decrypted when reading data. This allows you to avoid confusion and keep in the same column both the encrypted and decrypted data, which is particularly important when using an existing table. Also, when doing in this way, a random initializing vector is generated before the data encryption, which is used for encryption. This allows you to receive different results for the same initial data, which significantly increases security.

The most preferable way is to store the hash data along with the GUID and encrypted information to determine the validity of the data and verify its integrity. In this way, if there was an attempt to falsify the data at any stage of the transmission or data storage, when decrypting the data, there will be a corresponding error generated. For calculating the hash the SHA1 or MD5 algorithms can be used (the [HashAlgorithm](#) property).

The disadvantage of the latter two methods - additional memory is required for storage of the auxiliary information.

As the encryption algorithms work with a certain size of the buffer, and when storing the additional information it is necessary to use additional memory, TCREncryptor supports encryption of string or binary fields only (*ftString*, *ftWideString*, *ftBytes*, *ftVarBytes*, *ftBlob*, *ftMemo*, *ftWideMemo*). If encryption of

string fields is used, firstly, the data is encrypted, and then the obtained binary data is converted into hexadecimal format. In this case, data storage requires two times more space (one byte = 2 characters in hexadecimal).

Therefore, to have the possibility to encrypt other data types (such as date, number, etc.), it is necessary to create a field of the binary or BLOB type in the table, and then convert it into the desired type on the client side with the help of data mapping.

It should be noted that the search and sorting by encrypted fields become impossible on the server side. Data search for these fields can be performed only on the client after decryption of data using the [Locate](#) and [LocateEx](#) methods. Sorting is performed by setting the [TMemDataSet.IndexFieldNames](#) property.

#### *Example.*

Let's say there is an employee list of an enterprise stored in the table with the following data: full name, date of employment, salary, and photo. We want all these data to be stored in the encrypted form. Write a script for creating the table:

```
CREATE TABLE EMP (  
EMPNO varbinary IDENTITY (1,1) NOT NULL PRIMARY KEY,  
ENAME varbinary (2000),  
HIREDATE varbinary (200),  
SAL varbinary (200),  
FOTO VARBINARY);
```

As we can see, the fields for storage of the textual information, date, and floating-point number are created with the VARBINARY type. This is for the ability to store encrypted information, and in the case of the text field - to improve performance. Write the code to process this information on the client.

```
UniQuery.SQL.Text := 'SELECT * FROM EMP';  
UniQuery.Encryption.Encryptor := UniEncryptor;  
UniQuery.Encryption.Fields := 'ENAME, HIREDATE, SAL, FOTO';  
UniEncryptor.Password := '11111';  
UniQuery.DataTypeMap.AddFieldRule ('ENAME', ftString);  
UniQuery.DataTypeMap.AddFieldRule ('HIREDATE', ftDateTime);  
UniQuery.DataTypeMap.AddFieldRule ('SAL', ftFloat);  
UniQuery.Open;
```

---

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## 14.12 Increasing Performance

This topic considers basic stages of working with DataSet and ways to increase performance on each of these stages.

### **Connect**

If your application performs Connect/Disconnect operations frequently, additional performance can be gained using pooling mode (`TCustomDAConnection.Pooling = True`). It reduces connection reopening time greatly (hundreds times). Such situation usually occurs in web applications.

### **Execute**

If your application executes the same query several times, you can use the [TCustomDADataSet.Prepare](#) method or set the [TDADatasetOptions.AutoPrepare](#) property to increase performance. For example, it can be enabled for Detail dataset

in Master/Detail relationship or for update objects in TDAUpdateSQL. The performance gain achieved this way can be anywhere from several percent to several times, depending on the situation.

To execute SQL statements a [TUniSQL](#) component is more preferable than [TUniQuery](#). It can give several additional percents performance gain.

If the [TCustomDADataset.Options.StrictUpdate](#) option is set to False, the [RowsAffected](#) property is not calculated and becomes equal zero. This can improve performance of query executing, so if you need to execute many data updating statements at once and you don't mind affected rows count, set this option to False.

## Fetch

In some situations you can increase performance a bit by using [TCustomDADataset.Options.CompressBlobMode](#).

You can also tweak your application performance by using the following properties of [TCustomDADataset](#) descendants:

- [FetchRows](#)
- [Options.FlatBuffers](#)
- [Options.LongStrings](#)
- [UniDirectional](#)

See the descriptions of these properties for more details and recommendations.

## Navigate

The [Locate](#) function works faster when dataset is locally sorted on KeyFields fields. Local dataset sorting can be set with the [IndexFieldNames](#) property. Performance gain can be large if the dataset contains a large number of rows.

Lookup fields work faster when lookup dataset is locally sorted on lookup Keys.

Setting the [TDADatasetOptions.CacheCalcFields](#) property can improve performance when locally sorting and locating on calculated and lookup fields. It can be also useful when calculated field expressions contain complicated calculations.

Setting the [TDADatasetOptions.LocalMasterDetail](#) option can improve performance greatly by avoiding server requests on detail refreshes. Setting the [TDADatasetOptions.DetailDelay](#) option can be useful for avoiding detail refreshes when switching master DataSet records frequently.

## Update

If your application updates datasets in the CachedUpdates mode, then setting the [TCustomDADataset.Options.UpdateBatchSize](#) option to more than 1 can improve performance several hundred times more by reducing the number of requests to the server.

You can also increase the data sending performance a bit (several percents) by using `Dataset.UpdateObject.ModifyObject`, `Dataset.UpdateObject`, etc. Little additional performance improvement can be reached by setting the [AutoPrepare](#) property for these objects.

## 14.13 Macros

Macros help you to change SQL statements dynamically. They allow partial replacement of the query statement by user-defined text. Macros are identified by their names which are then referred from SQL statement to replace their occurrences for associated values.

First step is to assign macros with their names and values to a dataset object. Then modify SQL statement to include macro names into desired insertion points. Prefix each name with & ("at") sign to let UniDAC discriminate them at parse time. Resolved SQL statement will hold macro values instead of their names but at the right places of their occurrences. For example, having the following statement with the TableName macro name:

```
SELECT * FROM &TableName
```

You may later assign any actual table name to the macro value property leaving your SQL statement intact.

```
Query1.SQL.Text := 'SELECT * FROM &TableName';  
Query1.MacroByName('TableName').Value := 'Dept';  
Query1.Open;
```

UniDAC replaces all macro names with their values and sends SQL statement to the server when SQL execution is requested.

Note that there is a difference between using [TMacro AsString](#) and [Value](#) properties. If you set macro with the [AsString](#) property, it will be quoted. For example, the following statements will result in the same result Query1.SQL property value.

```
Query1.MacroByName('StringMacro').Value := '''A string''';  
Query1.MacroByName('StringMacro').AsString := 'A string';
```

Macros can be especially useful in scripts that perform similar operations on different objects. You can use macros that will be replaced with an object name. It allows you to have the same script text and to change only macro values.

You may also consider using macros to construct adaptable conditions in WHERE clauses of your statements.

### See Also

- [Unified SQL](#)
- [TMacro](#)
- [TCustomDADataset.MacroByName](#)
- [TCustomDADataset.Macros](#)

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## 14.14 Unified SQL

One of the most crucial problems in programming applications for several databases is that SQL syntax can be different in many situations. This article demonstrates how UniDAC helps to overcome this issue.

Database applications operate data using SQL statements. Unless entered directly by the user, the statements can be constructed in one of two ways, either hard-coded during development, or constructed at run time. The first way is very convenient for developer, while the second way is far more flexible. UniDAC allows

to take best from both approaches: you can hard-code SQL statements that are transformed into appropriate syntax in run time.

- [General Information](#)
- [Macros](#)
- [Conditional Execution \(IF\)](#)
- [Literals and Identifiers](#)
- [Comments](#)
- [SQL Functions](#)
- [Macros Reference](#)

## General Information

Universal capabilities of UniDAC are based on the following features:

- **Macros** that have values specific for different databases (providers). In addition to predefined macros you can define your own.
  - Set of automatically mapped **functions**.
  - Unified standard of **literals**.
- Knowing this, you can write truly database-independent SQL code interpreted in run time.

## Macros

UniDAC offers two approaches to working with macros: Connection Macros and DataSet Macros. They differ by the way they are defined and by the way they are indicated in the SQL query text.

DataSet Macros are defined by "&MacroName" and affect only the specified dataset. Connection Macros are defined by "{MacroName " and affect all associated datasets.

Lets make more detailed analysis of TUniConnection.Macros. You can work with it in the traditional way:

```
if UniConnection.ProviderName = 'Oracle' then
    UniConnection.MacroByName('tablename').Value := 'dept'
else
if UniConnection.ProviderName = 'MySQL' then
    UniConnection.MacroByName('tablename').Value := 'test.dept';
```

Or you can use predefined approach.

Macro is a set of name, condition and value. Macro evaluates to its value if underlying condition is enabled, or to an empty string if the condition is not enabled. Conditions are enabled or disabled depending on a provider used by the TUniConnection component. For example, if you use the Oracle provider, ORACLE macro will be enabled.

Consequently, all macros that base on *Oracle* conditions return their value when used in SQL statements; all other macros return empty string.

For list of available conditions (in other words, predefined macros) refer to the [Macros Reference](#).

From API point of view, macros are represented as [TUniMacro](#) class. Collections of macros are organized into [TUniMacros](#), which can be accessed through the [Macros](#) property of [TUniConnection](#). Each connection has individual set of macros.

The following examples demonstrate usage of macros:

```
UniConnection.Provider = 'MySQL';
...
UniConnection.Open;
UniConnection.Macros.Add('tablename', 'test.dept', 'MySQL');
UniQuery.SQL.Text := 'SELECT Count(*) FROM {tablename}';
```

```
UniQuery.Open;
```

Now suppose we need to do the same on an Oracle server. Due to usage of UniSQL the only thing to add is another macro:

```
UniConnection.Provider = 'Oracle';
...
UniConnection.Open;
UniConnection.Macros.Add('tablename', 'test.dept', 'MySQL');
UniConnection.Macros.Add('tablename', 'dept', 'Oracle');
UniQuery.SQL.Text := 'SELECT Count(*) FROM {tablename}';
UniQuery.Open;
```

As you see, it is very easy to control SQL statements transformation. Now let's take a look at another example that demonstrates a whole pack of important features:

```
UniConnection.Macros.Add('tablename', 'emp', '');
//For MySQL, prepend database name
UniConnection.Macros.Add('tablename', 'test.emp', 'MySQL');
//Limit records count where it is easy (MySQL and PostgreSQL)
UniConnection.Macros.Add('limit', 'LIMIT 0,5', 'MySQL');
UniConnection.Macros.Add('limit', 'LIMIT 5 OFFSET 0', 'PostgreSQL');
//Define default FROM clause
UniConnection.Macros.Add('from', 'FROM {tablename}', '');
//If the limit macro is defined, add extra clause
UniConnection.Macros.Add('from', 'FROM {tablename} {limit}', 'limit');
//Define query that uses the macro
UniQuery.SQL.Text := 'SELECT EName, Job, Sal {from}';
UniQuery.Open;
```

Supposed that in this sample connection is made to MySQL server, the executed statement would be

```
SELECT EName, Job, Sal FROM emp LIMIT 0,5
```

**Note:** you can use DBMonitor application to see what your query turns into on execution.

A step-by step analysis of the sample reveals following important notes:

1. If a macro has blank condition, it is always evaluated.
2. Macro with enabled condition overrides macro with blank condition.
3. Conditions are case-insensitive.
4. You can use your own macros as conditions.
5. You can use macros as part of the value of other macros.

You can add any text after macros name inside braces. This text is added to final SQL statement if macro's condition is enabled. For example:

```
UniConnection.Macros.Add('schema', 'test', 'MySQL');
UniQuery.SQL.Text := 'SELECT * FROM {schema .}emp';
UniQuery.Open;
```

In this example a dot is added only when SCHEMA macro is enabled.

UniDAC has set of useful predefined macros that help you write universal statements. Please refer to [Macros Reference](#) for more information.

## Conditional Execution (IF)

For the purpose of extra flexibility UniSQL supports conditional inclusion of SQL code into resulting statements. This is as simple as that:

```
{if my_macro} STATEMENT_1 {else} STATEMENT_2 {endif}
```

If macro *my\_macro* is defined, the *STATEMENT\_1* is returned, otherwise

`STATEMENT_2` is the result of the expression. For instance:

```
{if Oracle}
SELECT * FROM dept
{else}
SELECT * FROM test.dept
{endif}
```

The `{else}` clause can be omitted. Here is a bit more sophisticated example:

```
SELECT {if Oracle}RowId, {endif} DeptNo, DName FROM dept
```

Note that you can use nested `{if...}` constructs to continue branching. Also you can use [predefined](#) macros.

## Literals and Identifiers

UniDAC provides universal syntax for dates, timestamps and quoted identifiers. Its usage is similar to usage of macros. Note that this functionality is not available for OLE DB, ODBC, and DB2 data providers.

### Date and time constants

In date/time constants parts of date are separated with hyphen, time parts are separated with colon, and space is expected between the two parts. The following table illustrates date/time format:

Literal type	Format	Example
date	yyyy-mm-dd	{date '2006-12-31'}
time	hh:mm:ss	{time '23:59:59'}
timestamp	yyyy-mm-dd hh:mm:ss	{timestamp '2006-12-31 23:59:59'}

The following SQL statement:

```
SELECT * FROM emp WHERE HIREDATE>{date '1982-01-15'}
```

in MySQL evaluates to

```
SELECT * FROM emp WHERE HIREDATE>CAST('1982-01-15' AS DATETIME)
```

and in Oracle it turns to

```
SELECT * FROM emp WHERE HIREDATE>TO_DATE('1982-01-15', 'YYYY-MM-DD')
```

### Universal quoting of identifiers

All database servers support quoting for identifiers that contain special symbols like spaces or dots. UniDAC allows to wrap identifiers universally so that quotation is appropriate for every database server. Use the following syntax:

```
"identifier"
```

For example, expression `"table1"."field1"` turns into `"table1"."field1"` in Oracle and PostgreSQL, into `[table1].[field1]` in MS SQL Server, and into ``table1`.`field1`` in MySQL server. Do not confuse with single quotes, which are intended to wrap string constants.

## Comments

Comments are inserted in UniSQL with two hyphens (comments out the text till the end of current line). For multiline comment, wrap it into `/*...*/` sequences.

Example:

```
--This is a single-line comment
```

```
/*This one
   spans over
   several lines*/
```

## SQL Functions

UniDAC introduces standard for calling common SQL functions.

This is set of function names with fixed meaning.

In run time the function is transformed either to corresponding native function, or to equivalent expression (for example, several functions). The construct syntax is

```
{fn Function_Name(parameter1 [,parameter2 ... ])}
```

For example, the following fragment

```
SELECT {fn TRIM(EName)} FROM emp
```

evaluates to

```
SELECT TRIM(EName) FROM emp
```

in MySQL, because there is the counterpart in the DBMS. But in MS SQL Server there is no single corresponding function, so the expression evaluates to

```
SELECT LTRIM(RTRIM(EName)) FROM emp
```

The following table lists unified functions and describes them briefly.

Function name	Description
<b>System routines</b>	
USER	Returns current user name.
<b>String routines</b>	
CHAR LENGTH(string exp)	Returns length of string expression in characters.
LOCATE(string exp1, string exp2)	Finds first occurrence of substring <i>string_exp1</i> in string expression <i>string_exp2</i> .
SUBSTRING(string exp, start, length)	Returns substring from specified string <i>string_exp</i> .
CONCAT(string exp1, string exp2)	Concatenates several string expressions.
CHAR(code)	Converts integer values into characters.
TRIM(string exp)	Removes leading and trailing spaces from a string.
<b>Number routines</b>	
TRUNCATE(numeric exp, integer exp)	Returns <i>numeric_exp</i> truncated to <i>integer_exp</i> places right of the decimal point.
CEILING(numeric exp)	Returns the smallest integer value not less than <i>numeric_exp</i> .
<b>Date and time routines</b>	

CURRENT DATE	Returns date part of current timestamp, that is, year, month and day.
YEAR(date exp)	Extracts year part of a timestamp.
MONTH(date exp)	Extracts month part of a timestamp.
DAY(date exp)	Extracts day part of a timestamp.
DATEADD(datepart, number, date)	Returns a new datetime value based on adding an interval to the specified <i>date</i> . The interval is formed as <i>number of datepart</i> units. The following example adds two years to HireDate field: SELECT {fn DATEADD(year,2, HireDate)} FROM emp
DATEDIFF (datepart, startdate, enddate)	Returns the number of date and time boundaries crossed between two specified dates.
<b>Conversion routines</b>	
TODATE(string exp)	Converts value to date format.
TOCHAR(any type exp)	Converts value to string format.
TONUMBER(string exp)	Converts value to number format.

## Macros Reference

The following table enumerates names of predefined macros that are enabled depending on DBMS server connected and provider used.

Provider	Macro name
Adaptive Server Enterprise	ASE
Advantage Database Server	Advantage
DB2	DB2
InterBase	InterBase
Microsoft Access	Access
MySQL	MySQL
ODBC	ODBC
Oracle	Oracle
PostgreSQL	PostgreSQL
SQLite	SQLite
SQL Server	SQLServer
DBF	DBF
NexusDB	NexusDB

There are also predefined macros that help to solve most common differences in SQL syntax.

The following table enumerates them and gives translation for some databases.

<b>Macro name</b>	VARCHAR	DOUBLE	DATETIME	PROVIDER
<b>Remarks</b>	Evaluates to database type that represents string values. Used mainly in CAST expressions.	Evaluates to database type that represents floating point values. Used mainly in CAST expressions.	Evaluates to database type that represents date and time values. Used mainly in CAST expressions.	Evaluates to the name of currently used provider
<b>Adaptive Server Enterprise</b>	VARCHAR	FLOAT	DATETIME	ASE
<b>Advantage</b>	VARCHAR	DOUBLE	TIMESTAMP	Advantage
<b>DB2</b>	VARCHAR	DOUBLE	TIMESTAMP	DB2
<b>InterBase</b>	VARCHAR	DOUBLE PRECISION	TIMESTAMP	InterBase
<b>Microsoft Access</b>	VARCHAR	DOUBLE	DATE	Access
<b>MySQL</b>	VARCHAR	DOUBLE	DATETIME	MySQL
<b>ODBC</b>	VARCHAR	DOUBLE	TIMESTAMP	ODBC
<b>Oracle</b>	VARCHAR2	NUMBER	DATE	Oracle
<b>PostgreSQL</b>	VARCHAR	DOUBLE PRECISION	TIMESTAMP	PostgreSQL
<b>SQLite</b>	VARCHAR	DOUBLE PRECISION	TIMESTAMP	SQLite
<b>SQL Server</b>	VARCHAR	FLOAT(53)	DATETIME	SQL Server
<b>DBF</b>	VARCHAR	DOUBLE	DATE	DBF
<b>NEXUS</b>	VARCHAR	DOUBLE	DATETIME	NexusDB

### [Working with Macros](#)

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## 14.15 Using Several DAC Products in One IDE

UniDAC, ODAC, SDAC, MyDAC, IBDAC, PgDAC, and LiteDAC components use common base packages (for Win32) and assemblies (for .NET) listed below:

Packages:

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

Assemblies:

- Devart.Dac.dll
- Devart.Vcl.dll
- Devart.Dac.Design.dll

- Devart.Dac.AdoNet.dll

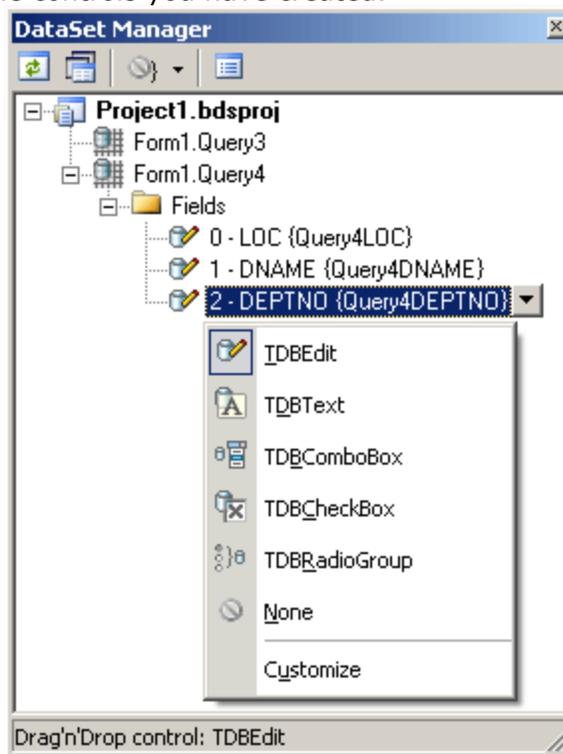
Note that product compatibility is provided for the current build only. In other words, if you upgrade one of the installed products, it may conflict with older builds of other products. In order to continue using the products simultaneously, you should upgrade all of them at the same time.

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## 14.16 DataSet Manager

### DataSet Manager window

The DataSet Manager window displays the datasets in your project. You can use the DataSet Manager window to create a user interface (consisting of data-bound controls) by dragging items from the window onto forms in your project. Each item has a drop-down control list where you can select the type of control to create prior to dragging it onto a form. You can customize the control list with additional controls, including the controls you have created.



Using the DataSet Manager window, you can:

- Create forms that display data by dragging items from the DataSet Manager window onto forms.
- Customize the list of controls available for each data type in the DataSet Manager window.
- Choose which control should be created when dragging an item onto a form in your Windows application.

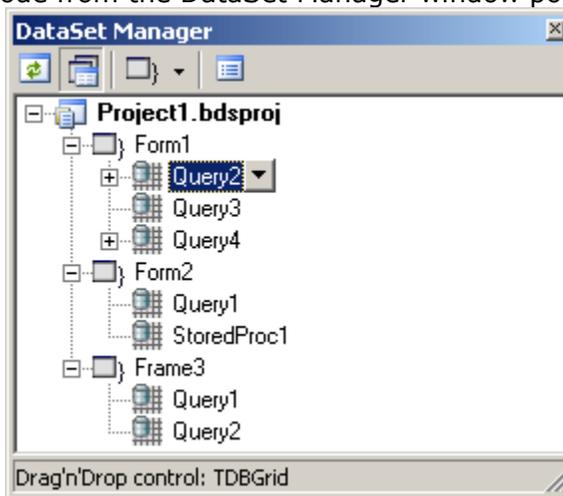
- Create and delete TField objects in the DataSets of your project.

## Opening the DataSet Manager window

You can display the DataSet Manager window by clicking DataSet Manager on the Tools menu. You can also use IDE desktop saving/loading to save DataSet Manager window position and restore it during the next IDE loads.

## Observing project DataSets in the DataSet Manager Window

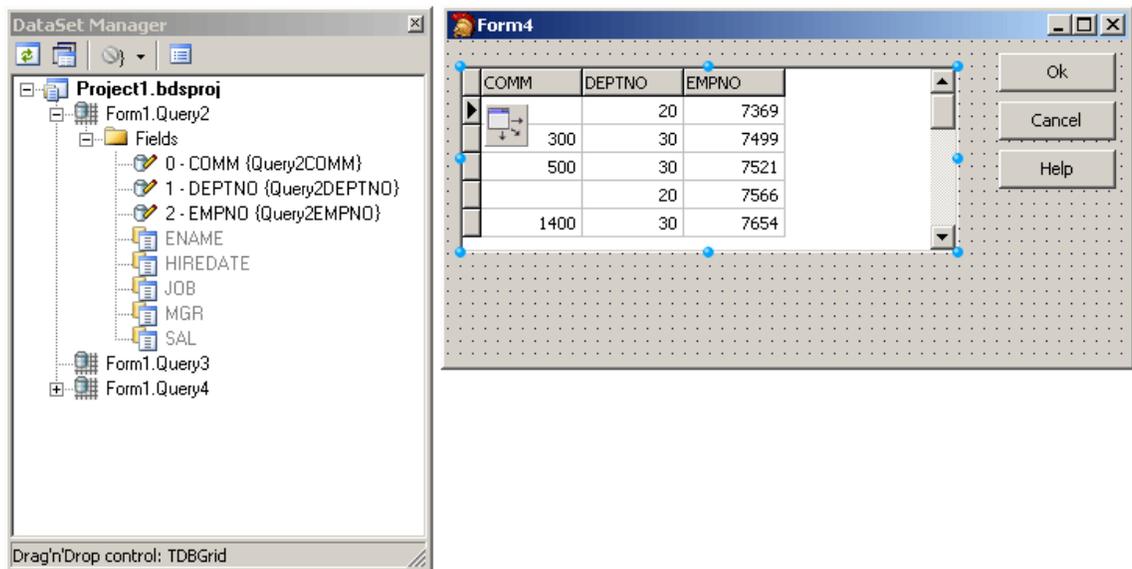
By default DataSet Manager shows DataSets of currently open forms. It can also extract DataSets from all forms in the project. To use this, click *Extract DataSets from all forms in project* button. This settings is remembered. Note, that using this mode can slow down opening of the large projects with plenty of forms and DataSets. Opening of such projects can be very slow in Borland Delphi 2005 and Borland Developer Studio 2006 and can take up to several tens of minutes. DataSets can be grouped by form or connection. To change DataSet grouping click the *Grouping mode* button or click a down. You can also change grouping mode by selecting required mode from the DataSet Manager window popup menu.



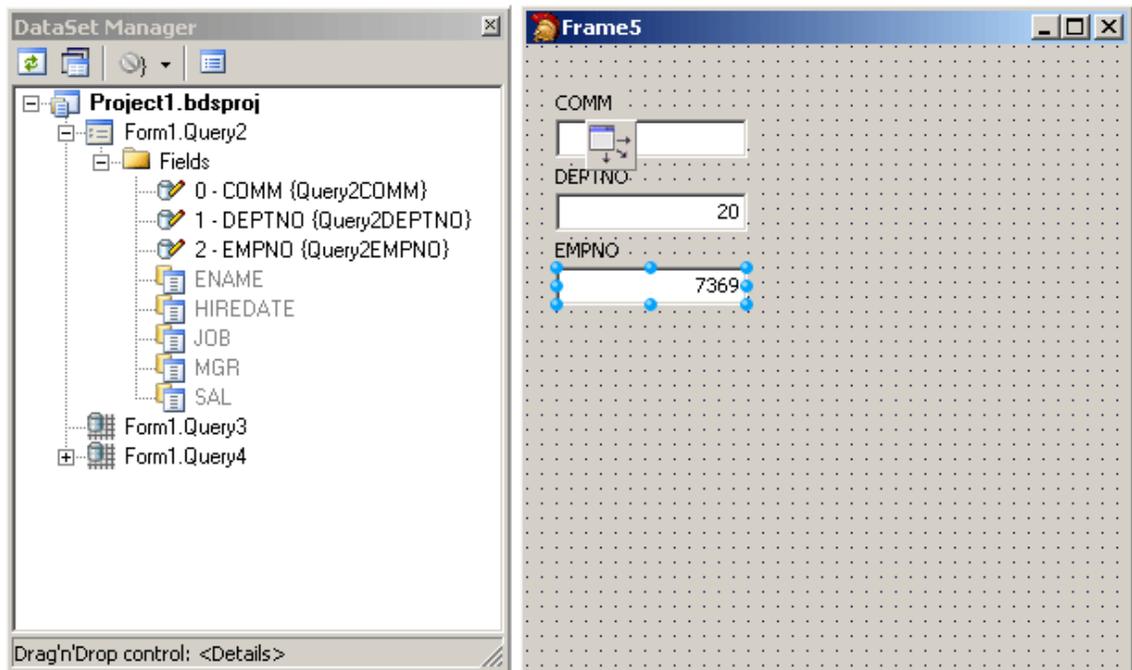
## Creating Data-bound Controls

You can drag an item from the DataSet Manager window onto a form to create a new data-bound control. Each node in the DataSet Manager window allows you to choose the type of control that will be created when you drag it onto a form. You must choose between a Grid layout, where all columns or properties are displayed in a TDataGrid component, or a Details layout, where all columns or properties are displayed in individual controls.

To use grid layout drag the dataset node on the form. By default TDataSource and TDBGrid components are created. You can choose the control to be created prior to dragging by selecting an item in the DataSet Manager window and choosing the control from the item's drop-down control list.



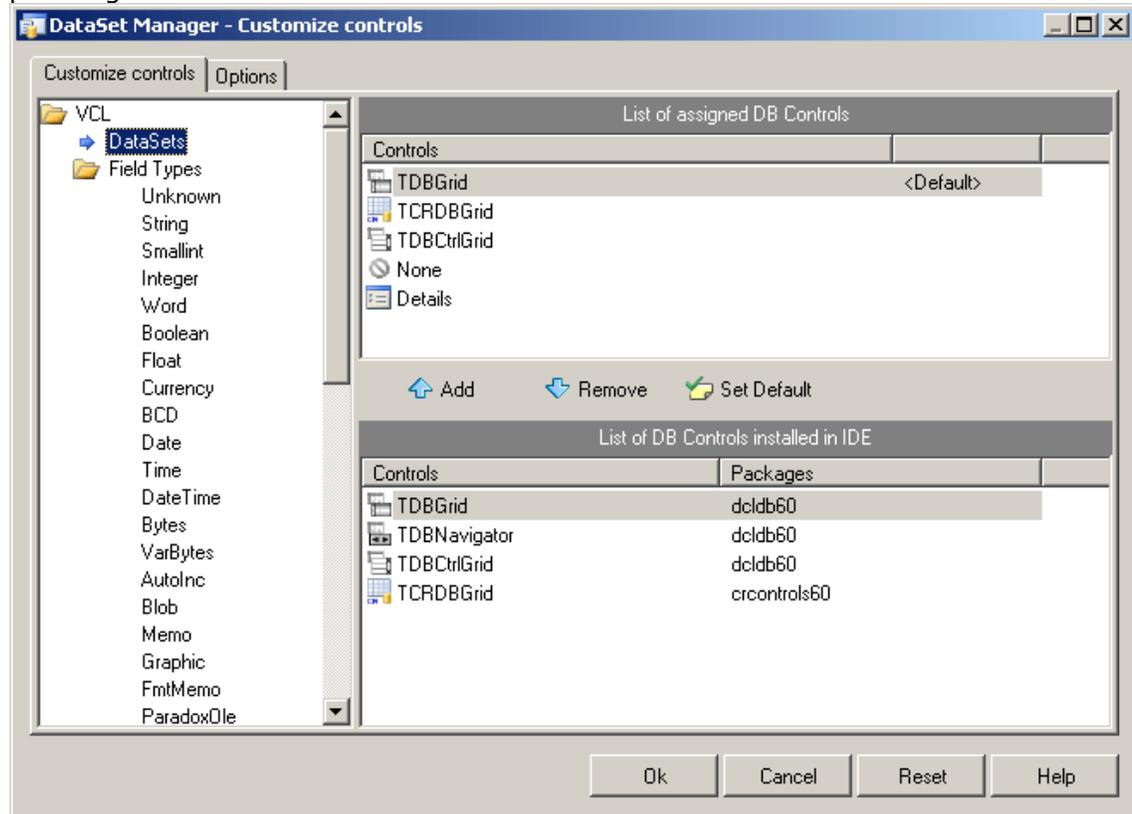
To use Details layout choose Details from the DataSet node drop-down control list in the DataSet Manager window. Then select required controls in the drop-down control list for each DataSet field. DataSet fields must be created. After setting required options you can drag the DataSet to the form from the DataSet wizard. DataSet Manager will create TDataSource component, and a component and a label for each field.



## Adding custom controls to the DataSet Manager window

To add custom control to the list click the *Options* button on the DataSet Manager toolbar. A *DataSet Manager - Custom i e controls* dialog will appear. Using this dialog you can set controls for the DataSets and for the DataSet fields of different

types. To do it, click DataSets node or the node of field of required type in *DB objects groups* box and use *Add* and *Remove* buttons to set required control list. You can also set default control by selecting it in the list of assigned DB controls and pressing *Default* button.



The default configuration can easily be restored by pressing Reset button in the *DataSet Manager - Options* dialog.

## Working with TField objects

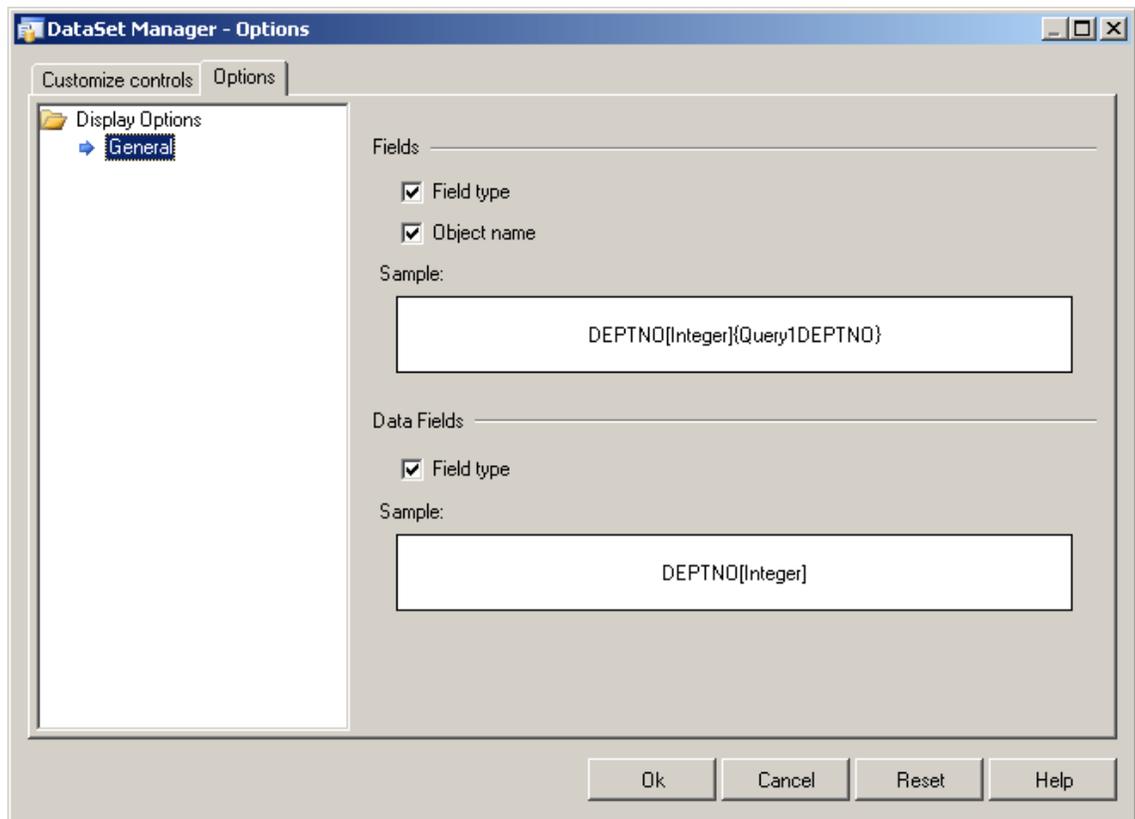
DataSet Manager allows you to create and remove TField objects. DataSet must be active to work with its fields in the DataSet Manager. You can add fields, based on the database table columns, create new fields, remove fields, use drag-n-drop to change fields order.

To create a field based on the database table column right-click the Fields node and select *Create Field* from the popup menu or press <Insert>. Note that after you add at least one field manually, DataSet fields corresponding to data fields will not be generated automatically when you drag the DataSet on the form, and you can not drag such fields on the form. To add all available fields right-click the Fields node and select *Add all fields* from the popup menu.

To create new field right-click the Fields node and select *New Field* from the popup menu or press <Ctrl+Insert>. The New Field dialog box will appear. Enter required values and press OK button.

To delete fields select these fields in the DataSet Manager window and press <Delete>.

DataSet Manager allows you to change view of the fields displayed in the main window. Open the *Customize controls* dialog, and jump to the Options page.



You can choose what information will be added to names of the Field and Data Field objects in the main window of DataSet Manager. Below you can see the example.

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## 14.17 DBMonitor

To extend monitoring capabilities of UniDAC applications there is an additional tool called DBMonitor. It is provided as an alternative to Borland SQL Monitor which is also supported by UniDAC.

DBMonitor is an easy-to-use tool to provide visual monitoring of your database applications.

DBMonitor has the following features:

- multiple client processes tracing;
- SQL event filtering (by sender objects);
- SQL parameter and error tracing.

DBMonitor is intended to hamper an application being monitored as little as possible.

To trace your application with DB Monitor you should follow these steps:

- drop [TUniSQLMonitor](#) component onto the form;
- turn [moDBMonitor](#) option on;
- set to True the Debug property for components you want to trace;
- start DBMonitor before running your program.

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## 14.18 Writing GUI Applications with UniDAC

UniDAC GUI part is standalone. This means that to make GUI elements such as SQL cursors, connect form, connect dialog etc. available, you should explicitly include unit in your application. This feature is needed for writing console applications.

### ***D I h and C++Bu Id***

By default UniDAC does not require Forms, Controls and other GUI related units. Only [TUniConnectDialog](#) components require the Forms unit.

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## 14.19 Compatibility with Previous Versions

We always try to keep UniDAC compatible with previous versions, but sometimes we have to change the behaviour of UniDAC in order to enhance its functionality, or avoid bugs. This topic describes such changes, and how to revert the old UniDAC behaviour. We strongly recommend not to turn on the old behaviour of UniDAC. Use options described below only if changes applied to UniDAC crashed your existent application.

Values of the options described below should be assigned in the **initiali ation** section of one of the units in your project.

### **DBAccess.BaseSQLOldBehavior:**

The [BaseSQL](#) property is similar to the SQL property, but it does not store changes made by [AddWhere](#), [DeleteWhere](#), and [SetOrderBy](#) methods. After assigning an SQL text and modifying it by one of these methods, all subsequent changes of the SQL property will not be reflected in the BaseSQL property. This behavior was changed in UniDAC . To restore old behavior, set the BaseSQLOldBehavior variable to True.

### **DBAccess.SQLGeneratorCompatibility:**

If the manually assigned [RefreshSQL](#) property contains only "WHERE" clause, UniDAC uses the value of the [BaseSQL](#) property to complete the refresh SQL statement. In this situation all modifications applied to the SELECT query by functions [AddWhere](#), [DeleteWhere](#) are not taken into account. This behavior was changed in UniDAC . To restore the old behavior, set the BaseSQLOldBehavior variable to True.

### **MemDS.SendDataSetChangeEventAfterOpen:**

Starting with UniDAC , the DataSetChangeEvent is sent after the dataset gets open. It was necessary to fix a problem with disappeared vertical scrollbar in some types of DB-aware grids. This problem appears only under Windows XP when visual styles are enabled.

To disable sending this event, change the value of this variable to False.

### **MemDS.DoNotRaiseExcectionOnUaFail:**

Starting with UniDAC , if the [OnUpdateRecord](#) event handler sets the UpdateAction parameter to uaFail, an exception is raised. The default value of UpdateAction is uaFail. So, the exception will be raised when the value of this parameter is left unchanged.

To restore the old behaviour, set DoNotRaiseExcectionOnUaFail to True.

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## 14.20 Migration Wizard

### NOTE:

Migration Wizard is available only for Delphi IDE and is not available for C++Builder.

UniDAC Migration Wizard allows you to convert your BDE, IBX, ADO, ODAC, SDAC, MyDAC, and IBDAC projects to UniDAC.

This wizard replaces the database components at the specified project (dfm-and pas-files) to UniDAC.

To convert a project, perform the following steps:

1. Select UniDAC Migration Wizard from UniDAC menu.
2. Select Replace components and choose the type of the components to replace corresponding ones with UniDAC and press the Next button.
3. Select the location of the files to search - current open project or disc folder.
4. If you have selected Disc folder on the previous step, specify the required folder and specify whether to process subfolders. Press the Next button.
5. Select whether to make backup (it is highly recommended to make a backup), backup location, and log parameters, and press the Next button. Default backup location is RBackup folder in your project folder.
6. Check your settings and press the Finish button to start the conversion operation.
7. The project should be saved before conversion. You will be asked before saving it. Click Yes to continue project conversion. After the project conversion it will be reopened.

The Wizard just replaces all standard database components. Probably you will need to make some changes manually to compile your application successfully.

If some problems occur while making changes, you can restore your project from backup file. To do this perform the following steps:

1. Select UniDAC Migration Wizard from UniDAC menu.
2. Select Restore original files from backup and press the Next button.
3. Select the backup file. By default it is RExpert.reu file in RBackup folder of your converted project. Press the Next button.
4. Check your settings and press the Finish button to start the conversion operation.
5. Press Yes in the dialog that appeared.

Your project will be restored to its previous state.

---

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## 14.21 64-bit Development with Embarcadero RAD Studio XE2

### RAD Studio XE2 Overview

RAD Studio XE2 is the major breakthrough in the line of all Delphi versions of this product. It allows deploying your applications both on Windows and Mac OS platforms. Additionally, it is now possible to create 64-bit Windows applications to fully benefit from the power of new hardware. Moreover, you can create visually spectacular applications with the help of the FireMonkey GPU application platform. Its main features are the following:

- Windows 64-bit platform support;
- Mac OS support;
- FireMonkey application development platform;
- Live data bindings with visual components;
- VCL styles for Windows applications.

For more information about RAD Studio XE2, please refer to [World Tour](#).

## Changes in 64-bit Application Development

64-bit platform support implies several important changes that each developer must keep in mind prior to the development of a new application or the modernization of an old one.

### General

RAD Studio XE2 IDE is a 32-bit application. It means that it cannot load 64-bit packages at design-time. So, all design-time packages in RAD Studio XE2 IDE are 32-bit.

Therefore, if you develop your own components, you should remember that for the purpose of developing components with the 64-bit platform support, you have to compile run-time packages both for the 32- and 64-bit platforms, while design-time packages need to be compiled only for the 32-bit platform. This might be a source of difficulties if your package is simultaneously both a run-time and a design-time package, as it is more than likely that this package won't be compiled for the 64-bit platform. In this case, you will have to separate your package into two packages, one of which will be used as run-time only, and the other as design-time only. For the same reason, if your design-time packages require that certain DLLs be loaded, you should remember that design-time packages can be only 32-bit and that is why they can load only 32-bit versions of these DLLs, while at run-time 64-bit versions of the DLLs will be loaded. Correspondingly, if there are only 64-bit versions of the DLL on your computer, you won't be able to use all functions at design-time and, vice versa, if you have only 32-bit versions of the DLLs, your application won't be able to work at run-time.

### Extended type

For this type in a 64-bit applications compiler generates SSE2 instructions instead of FPU, and that greatly improves performance in applications that use this type a lot (where data accuracy is needed). For this purpose, the size and precision of Extended type is reduced:

T PE	32-bit	64-bit
Extended	10 bytes	8 bytes

The following two additional types are introduced to ensure compatibility in the process of developing 32- and 64-bit applications:

Extended80 – whose size in 32-bit application is 10 bytes; however, this type provides the same precision as its 8-byte equivalent in 64-bit applications.

Extended80Rec – can be used to perform low-level operations on an extended precision floating-point value. For example, the sign, the exponent, and the mantissa can be changed separately. It enables you to perform memory-related operations with 10-bit floating-point variables, but not extended-precision arithmetic operations.

### Pointer and Integers

The major difference between 32- and 64-bit platforms is the volume of the used memory and, correspondingly, the size of the pointer that is used to address large memory volumes.

T PE	32-bit	64-bit
Pointer	4 bytes	8 bytes

At the same time, the size of the Integer type remains the same for both platforms:

T PE	32-bit	64-bit
Integer	4 bytes	4 bytes

That is why, the following code will work incorrectly on the 64-bit platform:

```
Ptr := Pointer(Integer(Ptr) + Offset);
```

While this code will correctly on the 64-bit platform and incorrectly on the 32-bit platform:

```
Ptr := Pointer(Int64(Ptr) + Offset);
```

For this purpose, the following platform-dependent integer type is introduced:

T PE	32-bit	64-bit
NativeInt	4 bytes	8 bytes
NativeUInt	4 bytes	8 bytes

This type helps ensure that pointers work correctly both for the 32- and 64-bit platforms:

```
Ptr := Pointer(NativeInt(Ptr) + Offset);
```

However, you need to be extra-careful when developing applications for several versions of Delphi, in which case you should remember that in the previous versions of Delphi the NativeInt type had different sizes:

T PE	Delphi Version	Si e
NativeInt	D5	N/A
NativeInt	D6	N/A
NativeInt	D7	8 bytes
NativeInt	D2005	8 bytes
NativeInt	D2006	8 bytes
NativeInt	D2007	8 bytes
NativeInt	D2009	4 bytes
NativeInt	D2010	4 bytes
NativeInt	Delphi XE	4 bytes
NativeInt	Delphi XE2	4 or 8 bytes

### Out parameters

Some WinAPIs have OUT parameters of the SIZE T type, which is equivalent to NativeInt in Delphi XE2. The problem is that if you are developing only a 32-bit application, you won't be able to pass Integer to OUT, while in a 64-bit application, you will not be able to pass Int64; in both cases you will have to pass NativeInt. For example:

```
procedure MyProc(out Value: NativeInt);
begin
    Value := 12345;
end;
var
    Value1: NativeInt;
```

```
{$IFDEF WIN32}
  Value2: Integer;
{$ENDIF}
{$IFDEF WIN64}
  Value2: Int64;
{$ENDIF}
begin
  MyProc(Value1); // will be compiled;
  MyProc(Value2); // will not be compiled !!!
end;
```

### Win API

If you pass pointers to SendMessage/PostMessage/TControl.Perform, the wParam and lParam parameters should be type-casted to the WPARAM/LPARAM type and not to Integer/Longint.

#### Correct:

```
SendMessage(hWnd, WM_SETTEXT, 0, LPARAM(@MyCharArray));
```

#### Wrong:

```
SendMessage(hWnd, WM_SETTEXT, 0, Integer(@MyCharArray));
```

Replace SetWindowLong/GetWindowLog with SetWindowLongPtr/GetWindowLongPtr for GWLP\_HINSTANCE, GWLP\_ID, GWLP\_USERDATA, GWLP\_HWNDPARENT and GWLP\_WNDPROC as they return pointers and handles. Pointers that are passed to SetWindowLongPtr should be type-casted to LONG\_PTR and not to Integer/Longint.

#### Correct:

```
SetWindowLongPtr(hWnd, GWLP_WNDPROC, LONG_PTR(@MyWindowProc));
```

#### Wrong:

```
SetWindowLong(hWnd, GWL_WNDPROC, Longint(@MyWindowProc));
```

Pointers that are assigned to the TMessage.Result field should use a type-cast to LRESULT instead of Integer/Longint.

#### Correct:

```
Message.Result := LRESULT(Self);
```

#### Wrong:

```
Message.Result := Integer(Self);
```

All TWM...-records for the windows message handlers must use the correct Windows types for the fields:

```
Msg: UINT; wParam: WPARAM; lParam: LPARAM; Result: LRESULT)
```

### Assembler

In order to make your application (that uses assembly code) work, you will have to make several changes to it:

- rewrite your code that mixes Pascal code and assembly code. Mixing them is not supported in 64-bit applications;
- rewrite assembly code that doesn't consider architecture and processor specifics. You can use conditional defines to make your application work with different architectures.

You can learn more about Assembly code here: [http://docwiki.embarcadero.com/RADStudio/en/Using\\_Inline\\_Assembly\\_Code](http://docwiki.embarcadero.com/RADStudio/en/Using_Inline_Assembly_Code) You can also look at the following article that will help you to make your application support the 64-bit platform: [http://docwiki.embarcadero.com/RADStudio/en/Converting\\_32-bit\\_Delphi\\_Applications\\_to\\_64-bit\\_Windows](http://docwiki.embarcadero.com/RADStudio/en/Converting_32-bit_Delphi_Applications_to_64-bit_Windows)

### Exception handling

The biggest difference in exception handling between Delphi 32 and 64-bit is that in Delphi XE2 64-bit you will gain more performance because of different internal exception mechanism. For 32-bit applications, the Delphi compiler (dcc32.exe) generates additional code that is executed any way and that causes performance loss. The 64-bit compiler (dcc64.exe) doesn't generate such code, it generates metadata and stores it in the PDATA section of an executable file instead. But in Delphi XE2 64-bit it's impossible to have more than 16 levels of nested exceptions. Having more than 16 levels of nested exceptions will cause a Run Time error.

### Debugging

Debugging of 64-bit applications in RAD Studio XE2 is remote. It is caused by the same reason: RAD Studio XE2 IDE is a 32 application, but your application is 64-bit. If you are trying to debug your application and you cannot do it, you should check that the **Include remote debug symbols** project option is enabled.

To enable it, perform the following steps:

1. Open Project Options (in the main menu **Project->Options**).
2. In the Target combobox, select **Debug configuration - 64-bit Windows platform**. If there is no such option in the combobox, right click "Target Platforms" in Project Manager and select **Add platform**. After adding the 64-bit Windows platform, the **Debug configuration - 64-bit Windows platform** option will be available in the Target combobox.
3. Select **Linking** in the left part of the Project Options form.
4. enable the **Include remote debug symbols** option.

After that, you can run and debug your 64-bit application.

To enable remote debugging, perform the following steps:

1. Install Platform Assistant Server (PAServer) on a remote computer. You can find PAServer in the %RAD Studio XE2 Install Directory%\PAServer directory. The setup paserver.exe file is an installation file for Windows, and the setup paserver.zip file is an installation file for MacOS.
2. Run the PAServer.exe file on a remote computer and set the password that will be used to connect to this computer.
3. On a local computer with RAD Studio XE2 installed, right-click the target platform that you want to debug in Project Manager and select **Assign Remote Profile**. Click the **Add** button in the displayed window, input your profile name, click the **Next** button, input the name of a remote computer and the password to it (that you assigned when you started PAServer on a remote computer).

After that, you can test the connection by clicking the **Test Connection** button. If your connection failed, check that your firewalls on both remote and local computers do not block your connection, and try to establish a connection once more. If your connection succeeded, click the Next button and then the Finish button. Select your newly created profile and click **OK**.

After performing these steps you will be able to debug your application on a remote computer. Your application will be executed on a remote computer, but you will be able to debug it on your local computer with RAD Studio XE2.

For more information about working with Platform Assistant Server, please refer to [http://docwiki.embarcadero.com/RADStudio/en/Installing\\_and\\_Running\\_the\\_Platform\\_Assistant\\_on\\_the\\_Target\\_Platform](http://docwiki.embarcadero.com/RADStudio/en/Installing_and_Running_the_Platform_Assistant_on_the_Target_Platform)

## 15 Provider-Specific Notes

### 15.1 UniDAC and Adaptive Server Enterprise

This article provides a brief overview of the ASE data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [ASE-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

#### Overview

ASE provider is based on the ODBC provider. It uses ASE ODBC driver to work with database. Main features of ASE data access provider are:

- High performance
- Easy deployment

The full list of ASE provider features can be found at the [UniDAC features page](#). Both [Professional and Trial Editions](#) of UniDAC include the ASE provider. Standard Edition of UniDAC does not include the ASE provider.

#### Compatibility

ASE provider supports:

- Adaptive Server Enterprise servers: 11.0 and higher.
- Adaptive Server Enterprise clients: 11.0 and higher.

#### Requirements

Applications that use the ASE provider require the following components to be installed on the client computer:

- ODBC (in the current versions of Microsoft Windows, since Windows 2000, ODBC is already included as a standard package);
- Adaptive Server Enterprise client software including ODBC driver.

#### Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the aseproviderXX.bpl and odbcproviderXX.bpl files.

To deploy .NET applications, it is required to deploy the Devart.UniDac.ASE.dll and Devart.UniDac.ODBC.dll files.

For more information about deployment of UniDAC-based applications, please, refer to the common Deployment topic.

## ASE-specific options

### TUniConnection

Option name	Description
AnsiNull	This option is implemented primarily for Transact-SQL (Adaptive Server Enterprise) compatibility. The AnsiNull option affects the results of comparison predicates with NULL constants, and also affects warnings issued for grouped queries over NULL values.
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
UseUnicode	Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
ExtendedFieldsInfo	If True, an additional query is performed to get information about returned fields and tables they belong to. The default value is True.
FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.

### TUniScript

The TUniDump component has no ASE-specific options.

### TUniLoader

The TUniLoader component has no ASE-specific options.

### TUniDump

The TUniDump component has no ASE-specific options.

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## 15.2 UniDAC and Advantage Database Server

This article provides a brief overview of the Advantage data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [Advantage-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

Advantage provider is based on the ODBC provider. It uses Advantage ODBC driver to work with database. Main features of Advantage data access provider are:

- High performance
- Easy deployment

The full list of Advantage provider features can be found at the [UniDAC features page](#).

Both [Professional and Trial Editions](#) of UniDAC include the Advantage provider. Standard Edition of UniDAC does not include the Advantage provider.

### Compatibility

Advantage provider supports:

- Advantage Database Server servers: 8.0 and higher.
- Client (Advantage ODBC driver): 8.0 and higher.

### Requirements

Applications that use the Advantage provider require the following components to be installed on the client computer:

- ODBC (in the current versions of Microsoft Windows, since Windows 2000, ODBC is already included as a standard package);
- Advantage ODBC driver.

### Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the adsproviderXX.bpl and odbcproviderXX.bpl files.

To deploy .NET applications, it is required to deploy the Devart.UniDac.Advantage.dll and Devart.UniDac.ODBC.dll files.

For more information about deployment of UniDAC-based applications, please, refer to the common Deployment topic.

## Advantage-specific options

### TUniConnection

Option name	Description
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
ServerTypes	Specifies the Advantage server types, to which connections should be attempted. Valid values include ADS, ALS, and AIS. ADL - Remote , ALS - local, and AIS - Internet Servers. These values can be logically OR'ed together with the "," in order to choose multiple server types. If multiple types are specified and multiple server types are available, the order of precedence is ADS first, AIS second, and ALS last.
UseUnicode	Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
ExtendedFieldsInfo	If True, an additional query is performed to get information about returned fields and tables they belong to. The default value is True.
FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.

### TUniScript

The TUniDump component has no Advantage-specific options.

### TUniLoader

The TUniLoader component has no Advantage-specific options.

## TUniDump

The TUniDump component has no Advantage-specific options.

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## 15.3 UniDAC and DB2

This article provides a brief overview of the DB2 data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [DB2-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

DB2 provider is based on the ODBC provider. It uses DB2 ODBC driver to work with a database. Main features of the DB2 data access provider are:

- High performance
- Easy deployment

The full list of the DB2 provider features can be found at the [UniDAC features page](#). Both [Professional and Trial Editions](#) of UniDAC include the DB2 provider. Standard Edition of UniDAC does not include the DB2 provider.

### Compatibility

DB2 provider supports:

- DB2 servers: 8.0 and higher.
- DB2 clients: 8.0 and higher.

### Requirements

Applications that use the DB2 provider require the following components to be installed on the client computer:

- ODBC (in the current versions of Microsoft Windows, since Windows 2000, ODBC is already included as a standard package);
- DB2 client software including the ODBC driver.

## Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the db2providerXX.bpl and odbcproviderXX.bpl files.

To deploy .NET applications, it is required to deploy the Devart.UniDac.DB2.dll and Devart.UniDac.ODBC.dll files.

For more information about deployment of the UniDAC-based applications, please, refer to the common Deployment topic.

## DB2-specific options

### TUniConnection

Option name	Description
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
FunctionPath	Use the FunctionPath property to change the current function path of the connection to the specified value. You can specify several names separated by comma. This option can be used to call stored procedures from a schema other than that of the current user without having to qualify the objects with the schema name.
Schema	Use the Schema property to change the current schema of the connection to the specified schema. This setting offers a convenient way to perform operations on objects in a schema other than that of the current user without having to qualify the objects with the schema name.
UseUnicode	Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
ExtendedFieldsInfo	If True, an additional query is performed to get information about returned fields and tables they belong to. The default value is True.
KeySequence	Use the KeySequence property to specify the name of the sequence that will be used to fill in a key field after a new record is inserted or posted to the database.

FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.
SequenceMode	Set the SequenceMode property to specify which method is used internally to generate sequenced field. The following values are allowed for this property:  smInsert New record is inserted into the dataset with the first key field populated with a sequenced value. Application may modify this field before posting the record to the database. smPost Database server populates the key field with a sequenced value when application posts the record to the database. Any value put into the key field before post will be overwritten.

### **TUniScript**

The TUniDump component has no DB2-specific options.

### **TUniLoader**

The TUniLoader component has no DB2-specific options.

### **TUniDump**

The TUniDump component has no DB2-specific options.

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## **15.4 UniDAC and DBF**

This article provides a brief overview of the DBF data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Requirements](#)
- [Deployment](#)
- [DBF-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

## Overview

DBF provider is based on the ODBC provider. It uses Microsoft dBase ODBC driver to work with a database. Main features of the DBF data access provider are:

- High performance
- Easy deployment

The full list of the DBF provider features can be found at the [UniDAC features page](#). Both [Professional and Trial Editions](#) of UniDAC include the DBF provider. Standard Edition of UniDAC does not include the DBF provider.

## Requirements

Applications that use the DBF provider require the following components to be installed on the client computer:

- ODBC (in the current versions of Microsoft Windows, since Windows 2000, ODBC is already included as a standard package);
- Microsoft dBase ODBC driver

## Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the dbfproviderXX.bpl and odbcproviderXX.bpl files.

To deploy .NET applications, it is required to deploy the Devart.UniDac.dbf.dll and Devart.UniDac.ODBC.dll files.

For more information about deployment of the UniDAC-based applications, please, refer to the common Deployment topic.

## DBF-specific options

### TUniConnection

Option name	Description
CollatingSequence	Specify the collation sequence. Available values: ASCII and International. Default value is ASCII.
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
UseUnicode	Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
ExtendedFieldsInfo	If True, an additional query is performed to get information about returned fields and tables they belong to. The default value is True.
FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.

### TUniScript

The TUniDump component has no DBF-specific options.

### TUniLoader

The TUniLoader component has no DBF-specific options.

### TUniDump

The TUniDump component has no DBF-specific options.

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## 15.5 UniDAC and InterBase/Firebird

This article provides a brief overview of InterBase data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [InterBase-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)
- [InterBase-specific notes](#)
  - [Parallel transactions management](#)

### Overview

InterBase data access provider is based on the InterBase Data Access Components ( [IBDAC](#) ) library, which is one of the best known Delphi data access solutions for InterBase and Firebird. The main features of InterBase data access provider are:

- High performance

- Easy deployment
- Comprehensive support for the latest versions of InterBase/Firebird server

The full list of InterBase provider features can be found at the [UniDAC product page](#).

Both Professional and Trial Edition of UniDAC include the InterBase provider. For Standard Edition of UniDAC, the InterBase provider can be installed with IBDAC.

## Compatibility

InterBase provider supports:

- InterBase: versions 5.x and higher.
- Firebird: versions 2.x, 1.x.
- Yaffil.

## Requirements

Applications that use the InterBase provider require InterBase/Firebird client software only. The InterBase provider dynamically loads InterBase client DLL (GDS32.DLL or FBClient.dll for Firebird) available on user systems. To locate DLL you can set the ClientLibrary specific option of TUniConnection with the path to the client library. By default the InterBase provider searches a client library in directories specified in the PATH environment variable.

## Deployment

To deploy Win32 applications built with run-time packages it is not required to deploy the ibdacXX.bpl file with UniDAC Professional Edition. But it is necessary to deploy the ibdacXX.bpl file with Standard Edition of UniDAC. This happens because in the UniDAC Professional Edition functionality of ibdacXX.bpl is included in the correspondent ibproviderXX.bpl, when in Standard Edition of UniDAC, ibproviderXX.bpl is just a wrapper on ibdacXX.bpl.

The same is concerning Devart.IbDac.dll and Devart.UniDac.InterBase.dll assemblies in .NET applications. Devart.IbDac.dll is used only in applications built with UniDAC Standard Edition. In UniDAC Professional Edition, the Devart.UniDac.InterBase.dll assembly includes functionality of Devart.IbDac.dll.

For more information about deployment of UniDAC-based applications, please, refer to the common [Deployment topic](#).

## InterBase-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as TUniConnection, TUniQuery, TUniTable, TUniStoredProc, TUniSQL, TUniScript via their SpecificOptions property. SpecificOptions is a string list. Therefore you can use the following syntax to assign an option value:

```
TUniConnection.SpecificOptions.Values['CharLength'] := '1';
```

Below you will find the description of allowed options grouped by components.

**TUniConnection**

Option name	Description
CharLength	Specifies the size in bytes of a single character. Set this option with the number in range [0..6 to reflect InterBase support for the national languages. Setting CharLength to zero will instruct TUniConnection to interrogate InterBase server for the actual character length. The default value is 1.
Charset	Sets character set that IBDAC uses to read and write character data.
ClientLibrary	Use the ClientLibrary option to set or get the client library location.
Protocol	Network protocol of connection with InterBase server. The default value is TCP.
Role	InterBase connection role.
SQLDialect	Use SQLDialect to set or return SQL Dialect used by InterBase client. The SQLDialect property cannot be set to a value greater than the database SQL dialect when the connection is active. If the connection is inactive, the SQLDialect option will be downgraded to match the database SQL dialect.
UseUnicode	Enables or disables Unicode support. Affects on the character data fetched from the server. When set to True all character data is stored as WideString, and TStringField is replaced with TWideStringField.

**TUniSQL**

The TUniSQL component has no InterBase-specific options.

**TUniQuery, TUniTable, TUniStoredProc**

Option name	Description
AutoClose	The cursor will be closed after fetching all rows. Allows to reduce the number of opened cursors on the server.
CacheArrays	If True (the default value), then local memory buffer is allocated to hold a copy of the Array content. See the notes below for further details.
CacheBlobs	If True (the default value), then local memory buffer is allocated to hold a copy of the BLOB content. See the notes below for further details.
DeferredArrayRead	If True, all InterBase array values are fetched only when they are explicitly requested. Otherwise the entire record set with any array values is returned when dataset is opened. Whether array values are cached locally to be reused later or not is controlled by the CacheArrays option.
DeferredBlobRead	If True, all InterBase BLOB values are fetched only when they are explicitly requested. Otherwise the entire record set with any BLOB values is returned when dataset is opened. Whether BLOB values are cached locally to be reused later or not is controlled by the CacheBlobs option.

FetchAll	If True, all records of the query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.
FieldsAsString	If True, then all non-BLOB fields are treated as being of string data type.
GeneratorMode	Set the GeneratorMode property to specify which method is used internally to generate sequenced field. The following values are allowed for this property:  gmInsert New record is inserted into the dataset with the first key field populated with a sequenced value. Application may modify this field before posting the record to the database. gmPost Database server populates key field with a sequenced value when application posts the record to the database. Any value put into key field before post will be overwritten.
GeneratorStep	Use the GeneratorStep option to set the increment for increasing or decreasing current generator value when using automatic key field value generation feature. The default value is 1.
KeyGenerator	Use the KeyGenerator option to specify the name of a generator that will be used to fill in a key field after a new record is inserted or posted to the database. KeyGenerator is used only if the KeyFields property is assigned.
StreamedBlobs	If True, then all edited BLOBs are saved as streamed BLOBs and all streamed BLOBs are handled as streamed. Otherwise streamed BLOBs are handled as usual segmented BLOBs and all edited BLOBs are saved as segmented BLOBs. Setting this option to True allows using benefits of the CacheBlobs option.

**Note:** The CacheBlobs option controls the way streamed BLOB objects are handled. If False, application can access streamed BLOB values on the server side without caching BLOBs on the client side. Only requested portions of data are fetched. Setting CacheBlobs to False may bring up the following benefits for time-critical applications: reduced traffic over the network since only required data are fetched, less memory is needed on the client side, because returned record sets do not hold contents of BLOB fields. This feature is available only for streamed BLOBs and only if StreamedBlobs option is set to True. This option doesn't make sense if DefferedBlobRead is set to False because all BLOB values are fetched to the dataset in that case.

### TUniScript

Option name	Description
-------------	-------------

AutoDDL Use the AutoDDL property to determine whether DDL statements must be executed in a separate transaction.

### **TUniLoader**

The TUniLoader component has no InterBase-specific options.

### **TUniDump**

The TUniDump component has no InterBase-specific options.

## **InterBase-specific notes**

This chapter describes several special cases of using InterBase data provider.

### **Parallel transactions management**

InterBase and Firebird database servers support multiple parallel transactions within one connection. You can use this feature with UniDAC and InterBase provider. You should link the TUniTransaction component to a component you want to interact with the sever within a separate transaction. To link a TUniTransaction object to a component, for example to TUniQuery, assign the TUniTranaction object to the TUniQuery.Transaction property:

```
UniQuery1.Transaction := UniTransaction1;
```

The Transaction property persists in the following components:

[TUniQuery](#)

,

[TUniTable](#)

,

[TUniStoredProc](#)

,

[TUniSQL](#)

,

[TUniScript](#)

,

[TUniMetaData](#)

.

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## 15.6 UniDAC and Microsoft Access

This article provides a brief overview of the Microsoft Access data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [Access-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

Access provider is based on the ODBC provider. It uses Microsoft Access ODBC driver to work with a database. Main features of the Access data access provider are:

- High performance
- Easy deployment

The full list of the Access provider features can be found at the [UniDAC features page](#).

Both [Professional and Trial Editions](#) of UniDAC include the Access provider. Standard Edition of UniDAC does not include the Access provider.

### Compatibility

Access provider supports Microsoft Access version 95, 97, 2000, 2003, and 2007.

### Requirements

Applications that use the Access provider require Microsoft Data Access Components (MDAC) to be installed on the client computer. In the current versions of Microsoft Windows, since Windows 2000, MDAC is already included as a standard package.

### Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the `accessproviderXX.bpl` and `odbcproviderXX.bpl` files.

To deploy .NET applications, it is required to deploy the `Devart.UniDac.Access.dll` and `Devart.UniDac.ODBC.dll` files.

For more information about deployment of the UniDAC-based applications, please, refer to the common Deployment topic.

## Access-specific options

### TUniConnection

Option name	Description
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
UseUnicode	Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
ExclusiveLock	If True, a database will be opened in the Exclusive mode and can be accessed by only one user at a time. Performance is enhanced when running in the Exclusive mode.
ExtendedAnsiSQL	If True, an extended SQL support is enabled. Two new data types are available in Jet 4.0 databases when the ExtendedAnsiSQL flag is turned on: SQL DECIMAL and SQL NUMERIC. The default precision and scale are 18 and 0, respectively. Data accessed via ODBC that is typed as SQL DECIMAL or SQL NUMERIC will be mapped to Microsoft Jet Decimal instead of Currency. When the ExtendedAnsiSQL flag is turned off, you cannot create tables with decimal or numeric types, and these types will not appear in SQLGetTypeInfo(). However, if the table contains the new data types, they can be used with the correct data types.
ExtendedFieldsInfo	If True, an additional query is performed to get information about returned fields and tables they belong to. The default value is True.
FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.
SystemDatabase	The full path to the Microsoft Access system database to be used with the Microsoft Access database you want to access.

**TUniScript**

The TUniDump component has no Access-specific options.

**TUniLoader**

The TUniLoader component has no Access-specific options.

**TUniDump**

The TUniDump component has no Access-specific options.

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## 15.7 UniDAC and MySQL

This article provides a brief overview of MySQL data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [MySQL-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

**Overview**

MySQL data access provider is based on the MySQL Data Access Components ( [MyDAC](#)) library, which provides direct access to MySQL database servers from Delphi, C++Builder and Lazarus (FPC). The main features of MySQL data access provider are:

- Direct access to server data without using client library. Does not require installation of the client library or other data provider layers (such as BDE and ODBC)
- High performance
- Easy deployment
- Comprehensive support for the latest versions of MySQL server

The full list of MySQL provider features can be found at the [UniDAC product page](#). Both Professional and Trial Edition of UniDAC include the MySQL provider. For Standard Edition of UniDAC, the MySQL provider can be installed with MyDAC.

## Compatibility

MySQL provider supports:

- MySQL servers: 5.1, 5.0, 4.1, 4.0, and 3.23.
- MySQL Embedded servers: 5.1, 4.1, and 4.0.
- MySQL clients: Direct mode, 5.1, 5.0, 4.1, 4.0, and 3.23.

## Requirements

If you use MySQL provider to connect to MySQL in Direct mode, you do not need to have MySQL client library on your machine or deploy it with your MySQL provider-based application.

If you use MySQL provider to connect to MySQL in Client mode, you need to have access to the MySQL client library. In particular, you will need to make sure that the MySQL client library is installed on the machines your MySQL provider-based application is deployed to. MySQL client library is libmysql.dll file for Windows. Please refer to the description of LoadLibrary() function for detailed information about MySQL client library file location. You may need to deploy the MySQL client library with your application or require that users have it installed.

If you are working with Embedded server, you should have access to Embedded MySQL server library (libmysqld.dll).

## Deployment

MySQL provider applications can be built and deployed with or without run-time libraries.

You do not need to deploy any files with MySQL provider-based applications built without run-time packages, provided you are using a registered version of UniDAC. You can set your application to be built with run-time packages. In this case, you will need to deploy dacXX.bpl and mydacXX.bpl files with your Win32 application. To deploy .NET applications, you should deploy Devart.MyDac.dll and Devart.UniDac.MySQL.dll assemblies.

For more information about deployment of UniDAC-based applications, please, refer to the common [Deployment topic](#).

## MySQL-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as TUniConnection, TUniQuery, TUniTable, TUniStoredProc, TUniSQL, TUniScript via their SpecificOptions property. SpecificOptions is a sting list. Therefore you can use the following syntax to assign an option value:

```
UniQuery.SpecificOptions.Values['FieldsAsString'] := 'True';
```

Below you will find the description of allowed options grouped by components.

## TUniConnection

Option name	Description
Charset	Setups the character set used by the client.
Compress	Use compression on transferring data. Setting this property to True is quite effective on transferring big volume data through slow connection. This property is ignored under CLR. The default value is False.
ConnectionTimeout	Specifies the amount of time in seconds that can be expired before an attempt to make a connection is considered unsuccessful.
Direct	Works without using MySQL client library (libmysql.dll). Used only if Embedded is disabled.
Embedded	If True, connects to Embedded MySQL server. If False, connects to MySQL server. The default value is False.
Protocol	Specifies which protocol to use when connecting to the server: <ul style="list-style-type: none"> <li>mpDefault Similar to mpTCP, except the cases when you connect to a local server and the OS supports sockets (Unix) or named pipes (Windows), they are used instead of TCP/IP to connect to the server.</li> <li>mpTCP Use TCP/IP to connect to the server.</li> <li>mpSocket Uses sockets to connect to the server. Can be used with Direct set to False and libmysql.dll 4.1.</li> <li>mpPipe Use NamedPipes to connect to the server.</li> <li>mpMemory To connect to the server using SharedMem. Can be used with Direct set to False and libmysql.dll 4.1.</li> <li>mpSSL Use protected SSL connection with the server.</li> <li>mpHttp Uses HTTP <a href="#">Network Tunneling to connect to the server.</a></li> </ul>
HttpUrl	Holds the url of the tunneling PHP script.
HttpUsername	Holds the user name for HTTP authorization.
HttpPassword	Holds the password for HTTP authorization.
ProxyHostname	Holds the host name or IP address to connect to proxy server.
ProxyPort	Used to specify the port number for TCP/IP connection with proxy server.
ProxyUsername	Holds the proxy server account name.
ProxyPassword	Holds the password for the proxy server account.
SSLCACert	CACert is the pathname to the certificate authority file.
SSLCert	Cert is the pathname to the certificate file.
SSLChipherList	ChipherList is a list of allowable ciphers to use for SSL encryption.
SSLKey	Key is the pathname to the key file.

**UseUnicode** Informs server that all data between client and server sides will be passed in UTF-8 coding. Setting this option converts all fields of TStringField type into TWideStringField that allows to work correctly with symbols of almost all languages simultaneously. On the other hand, it causes a delay in working. The default value is False.

## TUniSQL

Option name	Description
CommandTimeout	Specifies the amount of time that is expired before an attempt to execute a command is considered unsuccessful. Measured in seconds. If a command is successfully executed prior to the expiration of the seconds specified, CommandTimeout has no effect. The default value is 0 (infinite).

## TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CheckRowVersion	Determines whether the dataset checks for rows modifications made by another user on automatic generation of SQL statement for update or delete data. If CheckRowVersion is True and DataSet has timestamp field when only this field is added into WHERE clause of the generated SQL statement. If CheckRowVersion is True, but there is no TIMESTAMP field, then to WHERE clause all non-BLOB fields will be added. The default value is False.
CommandTimeout	Specifies the amount of time that is expired before an attempt to execute a command is considered unsuccessful. Measured in seconds. If a command is successfully executed prior to the expiration of the seconds specified, CommandTimeout has no effect. The default value is 0 (infinite).
CreateConnection	Specifies if an additional connection to a server should be established to execute an additional query in the FetchAll=False mode. If a DataSet is opened in FetchAll=False, the current connection is blocked until all records have been fetched. If this option is set to True, an additional connection is created to fetch data to avoid blocking of the current connection.
EnableBoolean	Specifies the method of representation of TINYINT(1) fields. If set to True, these fields will be represented as TBooleanFiled; otherwise, as TSmallintField. The default value is True.

FetchAll	When set to True, all records of the query are requested from the database server when 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 Locate and LocateEx methods may take a lot of time to retrieve additional records to the client side.
FieldsAsString	All non-BLOB fields are stored as string (native MySQL format). The default value is False.
NullForZeroDate	For datetime fields with invalid values, for example '2002-12-32', MySQL returns on fetch '0000-00-00' value. According to NullForZeroDate option this value will be represented as Null or '0001-01-01' ('0100-01-01' for CLR). The default value is True.

### TUniScript

The TUniScript component has no MySQL-specific options.

### TUniLoader

Option name	Description
LockTable	Locks tables while inserting data.
Delayed	Uses INSERT DELAYED syntax.
RowsPerQuery	Use the RowsPerQuery property to get or set the number of rows that will be send to the server for one time. The default value is 0. In this case rows will be grouped by 16Kb (the default value of net buffer length).
DuplicateKeys	Use the DuplicateKeys property to specify in what way conflicts with duplicated key values will be resolved.

### TUniDump

Option name	Description
AddLock	Use the AddLock property to execute LOCK TABLE before data insertion. Used only with doData in P:Devart.MyDac.TMyDump.Objects.
DisableKeys	Add /*!40000 ALTER TABLE ... DISABLE KEYS */ before inserting data. Used only with doData in P:Devart.MyDac.TMyDump.Objects.
HexBlob	If the HexBlob property is True, the BLOB values are presented in hexadecimal notation.
UseExtSyntax	Set the UseExtSyntax property to use extended syntax of INSERT on data insertion. Used only with doData in P:Devart.MyDac.TMyDump.Objects.

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UseDelayedIns	Set the UseDelayedIns property to use INSERT DELAYED. Used only with doData in P:Devart.MyDac.TMyDump.Objects.
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## 15.8 UniDAC and NexusDB

This article provides a brief overview of the NexusDB data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [NexusDB-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

The main features of the NexusDB data access provider are:

- High performance
- Easy deployment
- Comprehensive support for the latest versions of NexusDB server

Both Professional and Trial Editions of UniDAC include the NexusDB provider. Standard Edition of UniDAC does not include the NexusDB provider. NexusDB provider is supplied with source code.

### Compatibility

NexusDB provider supports NexusDB 3.x.

### Requirements

You should have installed NexusDB components for corresponding IDE. NexusDB provider uses the following NexusDB libraries: NexusDBXXXdbXX, NexusDBXXXsdXX, NexusDBXXXilXX, NexusDBXXXsrXX, NexusDBXXXptXX, NexusDBXXXtwXX, NexusDBXXXsqXX, NexusDBXXXseXX, NexusDBXXXstXX, NexusDBXXXreXX.

Before using the NexusDB provider, you have to rebuild and reinstall its provider package. You can find the detailed steps describing the installation of the package in the UniDAC Install Dir\Source\NexusDBProvider\Readme.txt file, where UniDAC Install Dir is a directory where you installed UniDAC.

## Deployment

NexusDB provider applications can be built and deployed with or without run-time libraries.

You do not need to deploy any files with NexusDB provider-based applications built without run-time packages. You can set your application to be built with run-time packages. In this case, you will need to deploy the `nexusproviderXX.bpl` file, and following NexusDB libraries: `NexusDBXXXdbXX`, `NexusDBXXXsdXX`, `NexusDBXXXIIXX`, `NexusDBXXXsrXX`, `NexusDBXXXptXX`, `NexusDBXXXtwXX`, `NexusDBXXXsqXX`, `NexusDBXXXseXX`, `NexusDBXXXstXX`, `NexusDBXXXreXX`. For more information about deployment of the UniDAC-based applications, please, refer to the common [Deployment topic](#).

## NexusDB-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as `TUniConnection`, `TUniQuery`, `TUniTable`, `TUniStoredProc`, `TUniSQL`, `TUniScript` via their `SpecificOptions` property. `SpecificOptions` is a sting list. Therefore you can use the following syntax to assign an option value:

```
UniConnection.SpecificOptions.Values['FetchAll'] := 'True';
```

Below you will find the description of allowed options grouped by components.

```
UniQuery.SpecificOptions.Values['FieldsAsString'] := 'True';
```

Below you will find the description of allowed options grouped by components.

### TUniConnection

Option name	Description
ConnectionTimeout	Specifies the amount of time in seconds that can be expired before an attempt to make a connection is considered unsuccessful.
DatabaseReadOnly	If True, no writing is required, allows for sharing databases between servers.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

CursorUpdate	Specifies what way data updates reflect on database when modifying dataset by using server NexusDB cursors (the ServerCursor option is set to True). If True, all dataset modifications pass to database by server cursors. It increases performance but doesn't allow to use procedures or enhanced queries for additional data changes. If False, all dataset updates pass to server by SQL statements generated automatically or specified in SQLUpdate, SQLInsert or SQLDelete. The default value is True.
FetchAll	When set to True, all records of the query are requested from the database server when 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 Locate and LocateEx methods may take a lot of time to retrieve additional records to the client side.
ReadOnly	Use the ReadOnly option 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.
ServerCursor	By default, ServerCursor is False, meaning that NexusDB provider reads data to the own memory when dataset is opened. NexusDB provider performs all database operations using SQL statements generated automatically or specified in SQLUpdate, SQLInsert or SQLDelete. If True, then NexusDB provider calls server NexusDB cursor for resultset record access and then reads data from it. So, stored data aren't duplicated that allows you to decrease memory charges. Data to the server can be written using server cursor or SQL queries in dependence of CursorUpdate option. So the TCustomDADataset. FetchRows, FetchAll, CachedUpdates properties don't have any influence on such cursors and only the CursorUpdate option does.

### TUniScript

The TUniScript component has no NexusDB-specific options.

### TUniLoader

Option name	Description
DirectLoad	If True, all inserted data pass to database by server NexusDB cursors. If False, all inserted data pass to server by SQL statements. The default value is True.

### TUniDump

The TUniDump component has no NexusDB-specific options.

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## 15.9 UniDAC and PostgreSQL

This article provides a brief overview of PostgreSQL data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [PostgreSQL-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

Main features of PostgreSQL data access provider are:

- Direct access to server without PostgreSQL client library
- High performance
- Easy deployment
- Comprehensive support for the latest versions of PostgreSQL server

The full list of PostgreSQL provider features can be found at the [UniDAC product page](#).

Both Professional and Trial Edition of UniDAC include the PostgreSQL provider. For Standard Edition of UniDAC, the PostgreSQL provider can be installed with PostgreSQL Data Access Components (PgDAC).

### Compatibility

PostgreSQL provider supports PostgreSQL server since 7.1 version up to 8.3.

### Requirements

The provider does not require installation of any additional software on the client.

### Deployment

To deploy Win32 applications built with run-time packages, it is not required to deploy the pgdacXX.bpl file with UniDAC Professional Edition. But it is necessary to deploy the pgdacXX.bpl file with Standard Edition of UniDAC. This happens because in UniDAC Professional Edition functionality of pgdacXX.bpl is included in the

correspondent pgproviderXX.bpl, when in Standard Edition of UniDAC, pgproviderXX.bpl is just a wrapper on pgdacXX.bpl.

The same concerns Devart.PgDac.dll and Devart.UniDac.PostgreSQL.dll assemblies in .NET applications. Devart.PgDac.dll is used only in applications built with UniDAC Standard Edition. In UniDAC Professional Edition, the Devart.UniDac.PostgreSQL.dll assembly includes functionality of Devart.PgDac.dll.

For more information about deployment of UniDAC-based applications, please, refer to the common [Deployment topic](#).

## PostgreSQL-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as TUniConnection, TUniQuery, TUniTable, TUniStoredProc, TUniSQL, TUniScript via their SpecificOptions property. SpecificOptions is a sting list. Therefore you can use the following syntax to assign an option value:

```
UniConnection.SpecificOptions.Values['CharLength'] := '1';
```

Below you will find the description of allowed options grouped by components.

### TUniConnection

Option name	Description
Charset	Setups the character set which will be used to transfer character data between client and server.
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
ProtocolVersion	Set the ProtocolVersion to pv20 to work with PostgreSQL servers 7.3 or lower that don't support the 3.0 protocol.
Schema	Use the Schema property to set the search path for the connection to the specified schema. This setting offers a convenient way to perform operations on objects in a schema other than that of the current user without having to qualify the objects with the schema name.
SSLCACert	The pathname to the certificate authority file.
SSLCert	The pathname to the certificate file.
SSLCipherList	The list of allowable ciphers to use for SSL encryption.
SSLKey	The pathname to the key file.
SSLMode	This option determines whether or with what priority an SSL connection will be negotiated with the server. If PostgreSQL is compiled without SSL support, using option smRequire will cause an error, while options smAllow and smPrefer will be accepted, but PgDAC will not in fact attempt an SSL connection.

UseUnicode Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
UnpreparedExecute	If True, the simple execute is used for SQL statement. Statement is not prepared before execute. It allows to add multiple statements separated by semicolon to the SQL property.
UseParamTypes	Set this option to True to disable automatic detection of parameter types. When this option is True, data types of parameters are set basing on the DataType property. When this option is False, data types of the parameters are detected by server automatically.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
AutoDeleteBlob	If True (the default value), the BLOBs are deleted from database automatically when a record that holds these BLOBs' OIDs is deleted from dataset.
CacheBlobs	If True (the default value), then local memory buffer is allocated to hold a copy of the BLOB content.
CommandTimeout	The time to wait for a statement to execute.
CursorWithHold	When this option is False (default), an active transaction is required to open a query in FetchAll=False mode. If there is no active transaction, PgDAC opens additional internal connection and starts transaction on this connection. When this option is True, PgDAC uses DECLARE CURSOR ... WITH HOLD statement to open the query. In this case no active transaction is required but this may take additional server resources.
DeferredBlobRead	If True, all BLOB values are fetched only when they are explicitly requested. Otherwise entire record set with any BLOB values is returned when dataset is opened. Whether BLOB values are cached locally to be reused later is controlled by the CacheLobs option.
ExtendedFieldsInfo	If True, an additional query is performed to get information about returned fields and tables they belong to. The default value is False.
FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is True.

KeySequence	Use the KeySequence property to specify the name of a sequence that will be used to fill in a key field after a new record is inserted or posted to the database.
OIDAsInt	If True, OID fields are mapped on TIntegerField. If False, values of OID fields are treated as large objects' OID, and these fields are mapped on TBlobField.
SequenceMode	Set the SequenceMode property to specify which method is used internally to generate sequenced field. The following values are allowed for this property: <ul style="list-style-type: none"> <li>smInsert New record is inserted into the dataset with the first key field populated with a sequenced value. Application may modify this field before posting the record to the database.</li> <li>smPost Database server populates key field with a sequenced value when application posts the record to the database. Any value put into the key field before post will be overwritten.</li> </ul>
UnknownAsString	If True, all PostgreSQL data types that are fetched as text, and don't have limited field size, are mapped on TStringField with default size 8192. If False, such types are mapped on TMemoField. The TEXT data type is always mapped on TMemoField regardless of this option.
UnpreparedExecute	If True, the simple execute is used for SQL statement. Statement is not prepared before execute. It allows to add multiple statements separated by semicolon to the SQL property.
UseParamTypes	Set this option to True to disable automatic detection of parameter types. When this option is True, data types of parameters are set basing on the DataType property. When this option is False, data types of the parameters are detected by server automatically.

### TUniScript

The TUniScript component has no PostgreSQL-specific options.

### TUniLoader

Option name	Description
TextMode	Use the TextMode property to load data in the text mode. TPgLoader supports two load modes: text and binary. By default the binary mode is used for a connection with 3.0 protocol. Set TextMode property to True to force text mode. In binary mode TPgLoader may work slightly faster but some data type are not supported in this mode. In text mode you can load data to columns with any PostgreSQL data type.

**BufferSize** This property contains the size of the memory buffer used by TPgLoader. When buffer is filled, the loader sends block of data to the server.

## TUniDump

The TUniDump component has no PostgreSQL-specific options.

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## 15.10 UniDAC and ODBC

This article provides a brief overview of the ODBC data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [ODBC-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

Main features of the ODBC data access provider are:

- High performance
- Easy deployment
- Support for any DBMS that comes with ODBC driver

The full list of the ODBC provider features can be found at the [UniDAC features page](#).

Both [Professional and Trial Editions](#) of UniDAC include the ODBC provider. Standard Edition of UniDAC does not include the ODBC provider.

### Compatibility

ODBC provider supports ODBC 3.x.

### Requirements

Applications that use the ODBC provider require ODBC to be installed on the client computer. In the current versions of Microsoft Windows, since Windows 2000, ODBC is already included as a standard package.

To use the ODBC provider with specific DBMS, ODBC driver for the required DBMS

must be installed.

## Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the odbcproviderXX.bpl file.

To deploy .NET applications, it is required to deploy the Devart.UniDac.ODBC.dll file. For more information about deployment of the UniDAC-based applications, please, refer to the common Deployment topic.

## ODBC-specific options

### TUniConnection

Option name	Description
ConnectionTimeout	The time to wait for a connection to open before raising an exception.
DSNTType	This option specifies the meaning of the value in the Server property. DSNTType can be one of the following: <ul style="list-style-type: none"> <li>ntAuto Autodetect data source name type</li> <li>ntName Data source name registered with ODBC Administrator (User DSN or System DSN)</li> <li>ntFile Name of a file with data source information (File DSN).</li> <li>ntConnectionString ODBC connection string</li> </ul>
UseUnicode	Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideStrings, and TStringField is replaced by TWideStringField.

### TUniSQL

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
CommandTimeout	The time to wait for a statement to be executed.
ExtendedFieldsInfo	If True, an additional query is performed to get information about the returned fields and tables they belong to. The default value is False.

FetchAll                      If True, all records of a query are requested from database server when the dataset is being opened.  
If False, records are retrieved when a data-aware component or a program requests it. The default value is False.

### **TUniScript**

The TUniDump component has no ODBC-specific options.

### **TUniLoader**

The TUniLoader component has no ODBC-specific options.

### **TUniDump**

The TUniDump component has no ODBC-specific options.

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## **15.11 UniDAC and Oracle**

This article provides a brief overview of Oracle data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [Oracle-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)
- [Oracle-specific notes](#)
- [Connecting in Direct mode](#)

### **Overview**

Oracle data access provider is based on the Oracle Data Access Components ([ODAC](#)) library, which is one of the best known Delphi data access solutions for Oracle. The main features of Oracle data access provider are:

- Direct access to the server without Oracle client (OCI)
- High performance
- Easy deployment
- Comprehensive support for the latest versions of Oracle server

The full list of Oracle provider features can be found at the [UniDAC product page](#). Both Professional and Trial Edition of UniDAC include the Oracle provider. For

Standard Edition of UniDAC, the Oracle provider can be installed with ODAC.

## Compatibility

Oracle provider supports:

- Oracle servers: 10g, 9i, 8i, 8.0, and 7.3, including Oracle 10g Express and Oracle 8i Personal and Lite editions.
- x86 versions of the following Oracle clients: 10g, 9i, 8i, 8.0, and 7.3.

## Requirements

If your application is working in the Direct mode, it is not required to install any additional software on the client. For application that has Direct mode disabled, it is required to install the Oracle client.

## Deployment

To deploy Win32 applications built with run-time packages, it is not required to deploy the odacXX.bpl file with UniDAC Professional Edition. But it is necessary to deploy the odacXX.bpl file with Standard Edition of UniDAC. This happens because in the UniDAC Professional Edition functionality of odacXX.bpl is included in the correspondent oraproviderXX.bpl, when in Standard Edition of UniDAC, oraproviderXX.bpl is just a wrapper on odacXX.bpl.

The same concerns Devart.Odac.dll and Devart.UniDac.Oracle.dll assemblies in .NET applications. Devart.Odac.dll is used only in applications built with UniDAC Standard Edition. In UniDAC Professional Edition, the Devart.UniDac.Oracle.dll assembly includes functionality of Devart.Odac.dll.

For more information about deployment of UniDAC-based applications, please, refer to the common [Deployment topic](#).

## Oracle-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as TUniConnection, TUniQuery, TUniTable, TUniStoredProc, TUniSQL, TUniScript via their SpecificOptions property. SpecificOptions is a sting list. Therefore you can use the following syntax to assign an option value:

```
UniConnection.SpecificOptions.Values['CharLength'] := '1';
```

Below you will find the description of allowed options grouped by components.

### TUniConnection

Option name	Description
CharLength	Serves for national languages support. Means the character size in bytes. Allowed values are in range [0..6 . Zero means that the actual character length will be requested from the Oracle server. The default value is 1.
Charset	Setups the character set which will be used to transfer character data between client and server. Supported with Oracle 8 client only.

ClientIdentifier	<p>Use this property to determine the client identifier in the session. The client identifier can be set in the session handle at any time in the session. Then, on the next request to the server, the information is propagated and stored in the server session. The first character of the ClientIdentifier should not be ':'. If it is, an exception will be raised.</p> <p>This property has no effect if you use the version of the server earlier than Oracle 9.</p>
ConnectMode	<p>Specifies which system privileges to use when connecting to the server. The following values are supported for this option:</p> <p>cmNormal (default) Connect as an ordinary user.</p> <p>cmSysOper Connect with SYSOPER role.</p> <p>cmSysDBA Connect with SYSDBA role.</p> <p>cmSysASM Connect with SYSASM role.</p> <p>User must have SYSOPER, SYSDBA, SYSASM or all three roles granted before he connects to the server and wishes to use any of these roles. ConnectMode is not supported for OCI 7.</p>
ConnectionTimeout	<p>The time to wait for a connection to open before raising an exception. Works only when the Direct mode is set to True.</p>
ConvertEOL	<p>Affects line break behavior in string fields and parameters. When fetching strings (including CLOBs and LONGs) with ConvertEOL = True dataset converts their line breaks from LF to CRLF form. And when posting strings to server with ConvertEOL turned on their line breaks converted from CRLF to LF form. By default, strings are not converted.</p>
DateFormat	<p>Specifies the default date format used when Oracle makes conversions from internal date format into string values and vice versa. An example of valid expression for this property could be "MM/DD/YYYY".</p>
DateLanguage	<p>Specifies the default language used when Oracle parses internal date format into string values and vice versa. Examples of valid expressions for this property could be "French", "German" etc.</p>
Direct	<p>If set to True, connection is performed directly over TCP/IP, and does not require Oracle software on the client side. Otherwise, provider connects in Client mode.</p>
EnableIntegers	<p>When set to True, the provider maps Oracle numbers with precision less than 10 to TIntegerField. If EnableIntegers is set to False, numbers are mapped to TFloatField or XXX.</p>

EnableNumbers	When set to True, the provider maps Oracle numbers with precision greater than 15 to TOraNumberField. Otherwise they are mapped to TFloatFiled.
HomeName	Set the HomeName option to select which Oracle client will be used in your application. Use this property in cases when there is a number of Oracle clients on the machine. The Oracle provider searches all available homes in the HKEY LOCAL MACHINE\SOFTWARE\ORACLE registry folder. If the HomeName option is set to an empty string, the provider uses the first directory from the list of homes encountered in environment PATH variable as the default Oracle home.
OptimizerMode	<p>Use the OptimizerMode property to get or set the default optimizer mode for connection. The OptimizerMode property can have one of the following values:</p> <p>omDefault Session optimizer mode will not be changed.</p> <p>omFirstRowsNN Instruct Oracle to optimize a SQL statement for fast response. It instructs Oracle to choose the plan that returns the first NN rows most efficiently. If you use the version of the server earlier than Oracle 9.0, these values have the same effect as omFirstRows.</p> <p>omFirstRows This mode is retained for backward compatibility and plan stability. It optimizes for the best plan to return the first single row.</p> <p>omAllRows Explicitly chooses the cost-based approach to optimize a statement block with a goal of best throughput (that is, minimum total resource consumption).</p> <p>omChoose Causes the optimizer to choose between the rule-based and cost-based approaches for a SQL statement. The optimizer selection is based on the presence of statistics for the tables accessed by the statement. If the data dictionary has statistics for at least one of these tables, then the optimizer uses the cost-based approach and optimizes with the goal of the best throughput. If the data dictionary does not have statistics for these tables, then it uses the rule-based approach.</p> <p>omRule Chooses rule-based optimization (RBO). Any other value causes the optimizer to choose cost-based optimization (CBO). The rule-based optimizer is the archaic optimizer mode from the earliest releases of Oracle Database.</p>

Schema	Use the Schema property to change the current schema of the session to the specified schema. This setting offers a convenient way to perform operations on objects in a schema other than that of the current user without having to qualify the objects with the schema name. This setting changes the current schema, but it does not change the session user or the current user, nor does it give you any additional system or object privileges for the session. If TUniConnection.Connected is True, read this property to receive the name of the current schema.
StatementCache	When set to True, the provider caches statement handles.
StatementCacheSize	Statement handle cache size.
ThreadSafety	Allows to use the OCI in multi-threaded environment. The ThreadSafety option must be True before any non blocking fetch of rows or SQL statement execution takes place.
UseUnicode	Enables or disables Unicode support. Affects on character data fetched from the server. When set to True all character data is stored as WideStrings, and TStringField is replaced with TWideStringField. Supported starting with Oracle 8.

### TUniSQL

Option name	Description
StatementCache	When set to True, the provider caches statement handles.
TemporaryLobUpdate	If True, a temporary LOB is used to write input and input/output LOB parameter into database when executing dataset's SQL statements.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
AutoClose	The OCI cursor will be closed after fetching all rows. Allows to reduce the number of opened cursors on the server.
CacheLobs	If True (the default value), then local memory buffer is allocated to hold a copy of the Lob content. See notes below for further details. If this option is set to False, it is highly recommended to set DeferredLobRead option to True. Otherwise, LOB values are fetched to the dataset, and it can result in performance loss.
DeferredLobRead	If True, all Oracle 8 Lob values are only fetched when they are explicitly requested. Otherwise entire record set with any Lob values is returned when dataset is opened. Whether Lob values are cached locally to be reused later or not is controlled by the CacheLobs option.
ExtendedFieldsInfo	If True, an additional query is performed, to get information about returned fields and the tables they belong to. This helps to generate correct updating SQL statements but may result in performance decrease. The default value is False.

FetchAll	If True, all records of the query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.
FieldsAsString	If True, all non-BLOB fields are treated as being of string datatype.
KeySequence	Use the KeySequence property to specify the name of a sequence that will be used to fill in a key field after a new record is inserted or posted to the database.
RawAsString	If True, all RAW fields are treated as being of string datatype, e.g. represented as hexadecimal string.
ScrollableCursor	If True, TUniDataSet does not cache data on the client side but uses scrollable server cursor (available since Oracle 9 only). This option can be used to reduce memory usage, because dataset stores only current fetched block. Unlike the UniDirectional option ScrollableCursor allows bidirectional dataset navigation. Note that scrollable cursor is read-only by its nature.
SequenceMode	Set the SequenceMode property to specify which method is used internally to generate sequenced field. The following values are allowed for this property:  smInsert New record is inserted into the dataset with the first key field populated with a sequenced value. Application may modify this field before posting the record to the database. smPost Database server populates key field with a sequenced value when application posts the record to the database. Any value put into key field before post will be overwritten.
StatementCache	When set to True, the provider caches statement handles.
TemporaryLobUpdate	If True, temporary LOB is used to write input and input/output LOB parameter into database when executing dataset's SQL statements.

### TUniScript

The TUniScript component has no Oracle-specific options.

### TUniLoader

Option name	Description
DirectPath	If True, data are loaded using the Oracle Direct Path Load interface. If False, data are loaded by executing an INSERT statement.

TUniLoader has the following limitations when Oracle Direct Path Load is used:

- triggers are not supported
- check constraints are not supported
- referential integrity constraints are not supported
- clustered tables are not supported

- loading of remote objects is not supported
- user-defined types are not supported
- LOBs must be specified after all scalar columns
- LONGs must be specified last
- You cannot use TUniLoader in a threaded OCI environment with Oracle client 8.17 or lower.

### **TUniDump**

The TUniDump component has no Oracle-specific options.

### **Oracle-specific notes**

This chapter describes several special cases of using Oracle data provider.

### **Connecting in Direct mode**

By default, Oracle provider works with the server through Oracle Call Interface (Client mode). However, working through OCI requires Oracle client software to be installed on target workstations. This is inconvenient and causes additional installation and administration expenses. Furthermore, there are some situations in which installation of Oracle client is not advisable or may even be impossible. To overcome these problems, the Oracle provider includes an option to connect to Oracle directly over the network using the TCP/IP protocol (Direct mode). Connecting in Direct mode does not require Oracle client software to be installed on target machines. The only requirement for running an ODAC-based application that uses the Direct mode is that the operating system must support the TCP/IP protocol.

To connect to an Oracle server in Direct mode, set the [Direct](#)

specific option of your TUniConnection object to True, and fill the TUniConnection.Server property with a string that contains the host address of the database server, port number, and the Oracle System Identifier (SID) or the Oracle Service Name in the following format: Host:Port:SID or Host:Port:sid=SID or Host:Port:sn=ServiceName.

#### **Note:**

If **sid** or **sn** aren't set then **SID** is used by default.

If **SID** and **Service Name** are equal then **TOrasession.Server**

property can be set using

**SID**

or

**Service Name**

Note that the syntax used to set up the Server property is different in Direct mode and in Client mode. In Client mode, the Server property must be set to the TNS name of the Oracle server.

To return to working through OCI, just set the Direct specific option to False and fill the Server property with the TNS name of your server.

Applications that use Client mode and those that use Direct mode have similar size and performance. The security of using the Direct mode is the same as using Client without Oracle Advanced Security. However, Direct mode has certain limitations:

- Connect using the TCP/IP network protocol only.
- Some types are not available, like OBJECT, ARRAY, REF, XML, BINARY DOUBLE, BINARY FLOAT.
- Certain problems may occur when using firewalls.
- NLS conversion on the client side is not supported.
- Transparent Application Failover is not supported.
- Statement caching is not available.
- OS authentication and changing expired passwords features are not available.
- The DES authentication is used.
- Oracle Advanced Security is not supported.
- We do not guarantee stability of multithreaded applications. It is highly recommended to use the separate TUniConnection component for each thread when using UniDAC from different threads.

Please note that we do not guarantee Direct mode compatibility with all Oracle servers and in every network. We have tested Direct mode for all versions of Oracle servers for Windows on a local network. Other platforms may cause some incompatibility issues.

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## 15.12 UniDAC and SQLite

This article provides a brief overview of the SQLite data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [SQLite-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)
- [Encryption](#)

- [Collation](#)

## Overview

The main features of the SQLite data access provider are:

- High performance
- Easy deployment
- Comprehensive support for the latest versions of SQLite

The full list of SQLite provider features can be found at the [UniDAC product page](#).

Both Professional and Trial Edition of UniDAC include the SQLite provider. Standard Edition of UniDAC does not include the SQLite provider.

## Compatibility

SQLite provider supports SQLite 3.

## Requirements

Applications that use the SQLite provider require SQLite client library (sqlite3.dll). The SQLite provider dynamically loads SQLite client DLL available on user systems. To locate DLL you can set the ClientLibrary specific option of TUniConnection with the path to the client library. By default the SQLite provider searches a client library in directories specified in the PATH environment variable.

## Deployment

To deploy Win32 applications built with run-time packages, it is required to deploy the liteproviderXX.bpl file.

To deploy .NET applications, it is required to deploy the Devart.UniDac.SQLite.dll file.

For more information about deployment of UniDAC-based applications, please, refer to the common [Deployment topic](#).

## SQLite-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as TUniConnection, TUniQuery, TUniTable, TUniStoredProc, TUniSQL, TUniScript via their SpecificOptions property. SpecificOptions is a sting list. Therefore you can use the following syntax to assign an option value:

```
UniConnection.SpecificOptions.Values['CharLength'] := '1';
```

Below you will find the description of allowed options grouped by components.

**TUniConnection**

<b>Option name</b>	<b>Description</b>
ASCIIDataBase	Enables or disables ASCII support. The default value is False. <b>Note:</b> For this option usage set the UseUnicode option to false.
BusyTimeout	Use the ClientLibrary option to set or get the timeout of waiting for locked resource (database or table). If resource is not unlocked during the time specified in BusyTimeout, then SQLite returns the SQLITE_BUSY error. Default value of this option is 0.
ClientLibrary	Use the ClientLibrary option to set or get the client library location.
DateFormat	Defines the format for storing dates in the database. If it is not specified, the default yyyy-mm-dd format will be used.
DefaultCollations	Enables or disables automatic default collations registration on connection establishing. List of available default collations: <ul style="list-style-type: none"> <li>• UniNoCase - allows to compare unicode strings case-insensitively.</li> </ul>
EnableSharedCache	Enables or disables the Shared-Cache mode for SQLite database. Default value of this option is False.
ExtendedFieldsInfo	If True, the driver performs additional queries to the database when opening a dataset. These queries return information about which fields of the dataset are required or autoincrement. Set this option to True, if you need the Required property of fields be set automatically.
EncryptionKey	This property is used for password input and for working with encrypted database. Password can be set or changed using <b>EncryptDatabase</b> method.
ForegnKeys	Enables or disables the enforcement of foreign key constraints. Foreign key constraints are disabled by default in SQLite, so this option can be used to force enabling or disabling them by the application. Default value of this option is True.
ForceCreateDatabase	Used to force TLiteConnection to create a new database before opening a connection, if the database does not exist.
ReadUncommitted	Enables or disables Read-Uncommitted isolation mode. A database connection in read-uncommitted mode does not attempt to obtain read-locks before reading from database tables as described above. This can lead to inconsistent query results if another database connection modifies a table while it is being read, but it also means that a read-transaction opened by a connection in read-uncommitted mode can neither block nor be blocked by any other connection. Default value of this option is False.
TimeFormat	Defines the format for storing time in the database. If it is not specified, the default hh24:mi:ss format will be used.

UseUnicode      Enables or disables Unicode support. Affects character data fetched from the server. When set to True, all character data is stored as WideString, and TStringField is replaced by TWideStringField.

### TUniSQL

The TUniScript component has no SQLite-specific options.

### TUniQuery, TUniTable, TUniStoredProc

Option name	Description
FetchAll	If True, all records of a query are requested from database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is False.

### TUniScript

The TUniScript component has no SQLite-specific options.

### TUniLoader

The TUniScript component has no SQLite-specific options.

### TUniDump

The TUniScript component has no SQLite-specific options.

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## 15.13 UniDAC and SQL Server

This article provides a brief overview of SQL Server data access provider for UniDAC, describes some useful features and helps you get started quickly.

- [Overview](#)
- [Compatibility](#)
- [Requirements](#)
- [Deployment](#)
- [SQL Server-specific options](#)
  - [TUniConnection](#)
  - [TUniSQL](#)
  - [TUniQuery, TUniTable, TUniStoredProc](#)
  - [TUniScript](#)
  - [TUniLoader](#)
  - [TUniDump](#)

### Overview

SQL Server data access provider is based on the SQL Server Data Access Components ([SDAC](#)) library, which is one of the best known Delphi data access

solutions for SQL Server. The main features of SQL Server data access provider are:

- Access to the SQL Server through the lowest documented protocol level (OLE DB)
- High performance
- Easy deployment
- Comprehensive support for the latest versions of SQL Server

The full list of SQL Server provider features can be found at the [UniDAC product page](#).

Both Professional and Trial Edition of UniDAC include the SQL Server provider. For Standard Edition of UniDAC, the SQL Server provider can be installed with SDAC.

## Compatibility

SQL Server provider supports:

- Servers: SQL Server 2005 (including Compact and Express editions), SQL Server 2000, SQL Server 7, and MSDE.
- Clients: SQL OLE DB and SQL Native Client.

## Requirements

SQL Server provider requires OLE DB or SQL Native Client installed on workstation. In the current versions of Microsoft Windows, since Windows 2000, OLE DB is already included as a standard package. But it's highly recommended to download the latest version (higher than 2.5) of Microsoft Data Access Components (MDAC) or SQL Native Provider.

Some features of SQL Server 2005 are available only with SQL Native Provider.

If you are working with SQL Server Compact Edition, you should have it installed.

You can download SQL Server Compact Edition from the site of Microsoft.

## Deployment

To deploy Win32 applications built with run-time packages it is not required to deploy the sdacXX.bpl file with UniDAC Professional Edition. But it is necessary to deploy the sdacXX.bpl file with Standard Edition of UniDAC. This happens because in the UniDAC Professional Edition functionality of sdacXX.bpl is included in the correspondent msproviderXX.bpl, when in Standard Edition of UniDAC, msproviderXX.bpl is just a wrapper on sdacXX.bpl.

The same concerns Devart.Sdac.dll and Devart.UniDac.MSSQL.dll assemblies in .NET applications. Devart.Sdac.dll is used only in applications built with UniDAC Standard Edition. In UniDAC Professional Edition, the Devart.UniDac.MSSQL.dll assembly includes functionality of Devart.Sdac.dll.

For more information about deployment of UniDAC-based applications, please, refer to the common [Deployment topic](#).

## SQL Server-specific options

Though UniDAC is components that provide unified interface to work with different database servers, it also lets you tune the behaviour for each server individually. For thin setup of a certain database server, UniDAC provides server-specific options. These options can be applied to such components as TUniConnection, TUniQuery, TUniTable, TUniStoredProc, TUniSQL, TUniScript via their SpecificOptions property. SpecificOptions is a string list. Therefore you can use the following syntax to assign an option value:

```
UniConnection.SpecificOptions.Values['ApplicationName'] := 'My application';
```

Below you will find the description of allowed options grouped by components.

### TUniConnection

Option name	Description
ApplicationName	The name of a client application. The default value is the name of the executable file of your application.
Authentication	Use the Authentication property to specify authentication service used by the database server to identify a user. The Authentication property accepts one of the following values: <ul style="list-style-type: none"> <li>auWindows Uses Windows NT/2000/XP integrated security, or "SSPI" (Security Support Provider Interface). Username, Password and LoginPrompt properties are ignored.</li> <li>auServer (default) An alternative way of identifying users by database server. To establish a connection valid Username and Password either hardcoded into application or provided in server login prompt fields are required.</li> </ul>
AutoTranslate	When set to True, character strings sent between the client and server are translated by converting through Unicode to minimize problems in matching extended characters between the code pages on the client and the server.
CompactAutoShrinkThreshold	Specifies the amount of free space in the database file before automatic shrink will start. Measured in percents. The default value is 60.
CompactDefaultLockEscalation	Specifies how many locks should be performed before trying escalation from row to page or from page to table. The default value is 100.
CompactDefaultLockTimeout	Specifies how much time a transaction will wait for a lock. The default value is 2000.
CompactFlushInterval	Specifies the interval at which committed transactions are flushed to disk. Measured in seconds. The default value is 10.

CompactInitMode	Use this property to specify the file mode that will be used to open the database file. The InitMode property accepts one of the following values:  imExclusive Database file is opened for exclusive use. This mode prevents others from opening this database file. imReadOnly Database file is opened for reading. All operations that write to database are unallowable. imReadWrite (default) Both read and write operations are allowed. imShareRead Opens a database file preventing others from opening the same file in the read mode.
CompactLockEscalation	Specifies how many locks should be performed before trying escalation from row to page or from page to table. Measured in milliseconds. The default value is 100.
CompactLockTimeout	Specifies how much time a transaction will wait for a lock. Measured in milliseconds. The default value is 2000.
CompactMaxBufferSize	Specifies how much memory SQL Server Compact Edition can use before flushing changes to disc. Measured in kilobytes. The default value is 640.
CompactMaxDatabaseSize	Specified maximum size of the main database file. Measured in megabytes. The default value is 128.
CompactTempFileDirectory	Specifies the temp file directory. If this option is not assigned, the current database is used as a temporary database.
CompactTempFileMaxSize	Specified maximum size of the temporary database file. Measured in megabytes. The default value is 128.
CompactTransactionCommitMode	Specifies in what way the buffer pool will be flushed on transaction commit. The following two values are allowed: cmAsynchCommit Asynchronous commit to disk. cmSynchCommit (default) Synchronous commit to disk.

CompactVersion	Specifies which version of SQL Server Compact Edition will be used.  cvAuto (default)  Version of SQL Server Compact Edition will be chosen automatically depending on database version. If database is not provided, the higher available server version will be chosen.  cv30  Uses SQL Server Compact Edition Version 3.0 or 3.1.  cv35  Uses SQL Server Compact Edition Version 3.5.
ConnectionTimeout	Use ConnectionTimeout to specify the amount of time, in seconds, that can expire before an attempt to consider a connection unsuccessful. The default value is 15 seconds.
Encrypt	Specifies if data should be encrypted before sending it over the network. The default value is False.
FailoverPartner	Specifies the SQL Server name to which SQL Native Client will reconnect when a failover of the principal SQL Server occurs. This option is supported only for SQL Server 2005 using SQL Native Client as an OLE DB provider.
InitialFileName	Specifies the name of the main database file. This database will be default database for the connection. SQL Server attaches the database to the server if it has not been attached to the server yet. So, this property can be used to connect to the database that has not been attached to the server yet.
Language	A SQL Server language name. Identifies the language used for system message selection and formatting. The language must be installed on the computer running an instance of SQL Server otherwise the connection will fail.
MultipleActiveResultSets	Enables support for SQL Server 2005 Multiple Active Result Sets (MARS) technology. It allows applications to have more than one pending request per connection, and in particular, to have more than one active default result set per connection. Current session is not blocked when using FetchAll = False, and it is not necessary for OLE DB to create additional sessions for any query executing. MARS is only supported by SQL Server 2005 with using SQL Native Client as OLE DB provider.
NetworkLibrary	The name of the Net-Library (DLL) used to communicate with an instance of SQL Server. The name should not include the path or the .dll file name extension. The default name is provided by the SQL Server Client Network Utility.

OLEDBProvider	<p>This property allows you to specify a provider from the list of supported providers. The default value of this property is prAuto. In this case a provider of the most recent version is used. Some features added to SQL Server 2005 require the SQL Native Client (prNativeClient) provider to be used. If chosen provider is not installed, an exception is raised. This property can have the following values:</p> <p>prAuto (default)</p> <p>The default value. If the SQL Native Client provider is found, equals to prNativeClient, otherwise equals to prSQL.</p> <p>prSQL</p> <p>Uses the provider preinstalled with Windows that has limited functionality.</p> <p>prNativeClient</p> <p>Uses the SQL Native Client. It should be installed on the computer to use this Provider value. This provider offers the maximum functionality set.</p> <p>prCompact</p> <p>SQL Server 2005 Compact Edition provider.</p>
PacketSize	<p>Network packet size in bytes. The packet size property value must be between 512 and 32,767. The default network packet size is 4,096.</p>
PersistSecurityInfo	<p>The data source object is allowed to persist sensitive authentication information such as password along with other authentication information.</p>

QuotedIdentifier	<p>Causes Microsoft SQL Server to follow the SQL-92 rules regarding quotation mark delimiting identifiers and literal strings. Identifiers delimited by double quotation marks can be either Transact-SQL reserved keywords or can contain characters not usually allowed by the Transact-SQL syntax rules for identifiers.</p> <p>QuotedIdentifier must be True when creating or manipulating indexes on computed columns or indexed views. If QuotedIdentifier is False, CREATE, UPDATE, INSERT, and DELETE statements on tables with indexes on computed columns or indexed views will fail.</p> <p><b>True (default)</b> Identifiers can be delimited by double quotation marks, and literals must be delimited by single quotation marks. All strings delimited by double quotation marks are interpreted as object identifiers. Therefore, quoted identifiers do not have to follow the Transact-SQL rules for identifiers. They can be reserved keywords and can include characters not usually allowed in Transact-SQL identifiers. Double quotation marks cannot be used to delimit literal string expressions; single quotation marks must be used to enclose literal strings. If a single quotation mark (') is a part of the literal string, it can be represented by two single quotation marks ("). QuotedIdentifier must be True when reserved keywords are used for object names in the database.</p> <p><b>False (BDE compatibility)</b> Identifiers cannot be quoted and must follow all Transact-SQL rules for identifiers. Literals can be delimited by either single or double quotation marks. If a literal string is delimited by double quotation marks, the string can contain embedded single quotation marks, such as apostrophes.</p>
TrustServerCertificate	Lets enabling traffic encryption without validation. The default value is False. This option is only supported by SQL Server 2005 with using SQL Native Client as OLE DB provider.
WorkstationID	A string identifying the workstation. The default value is the name of your machine.

## TUniSQL

Option name	Description
CommandTimeout	Use CommandTimeout to specify the amount of time that expires before an attempt to execute a command is considered unsuccessful. Is measured in seconds. If a command is successfully executed prior to the expiration of the seconds specified, CommandTimeout has no effect. The default value is 0 (infinite).

**TUniQuery, TUniTable, TUniStoredProc**

<b>Option name</b>	<b>Description</b>
CheckRowVersion	Determines whether the dataset checks for rows modifications made by another user on automatic generation of SQL statement for update or delete data. If CheckRowVersion property is False and DataSet has keyfields, the WHERE clause of SQL statement is generated basing on these keyfields. If there is no primary key and no Identity field, then all non-BLOB fields will take part in generating SQL statements. If CheckRowVersion is True and DataSet has TIMESTAMP field, only this field is included into WHERE clause of generated SQL statement. Otherwise, all non BLOB fields are included. All mentioned fields refer to the current UpdatingTable. The default value is False. The CheckRowVersion option requires enabled DMLRefresh.
CommandTimeout	Use CommandTimeout to specify the amount of time that expires before an attempt to execute a command is considered unsuccessful. Is measured in seconds. If a command is successfully executed prior to the expiration of the seconds specified, CommandTimeout has no effect. The default value is 0 (infinite).
CursorUpdate	Specifies what way data updates reflect on database when modifying dataset by using server cursors ctKeySet and ctDynamic. If the CursorUpdate property is True, all dataset modifications pass to database by server cursors. If the CursorUpdate property is False, all dataset updates pass to server by SQL statements generated automatically or specified in SQLUpdate, SQLInsert or SQLDelete. The default value is True.
FetchAll	If True, all records of the query are requested from the database server when the dataset is being opened. If False, records are retrieved when a data-aware component or a program requests it. The default value is True.
QueryIdentity	Specifies whether to request Identity field value, if such exists, on execution Insert or Append method. If to refuse of getting Identity you can have an impact on performance of Insert or Append by about 20%. Affects only for ctDefaultResultSet cursor. If you are inserting value into SQL VARIANT field, and QueryIdentity is True then an error is raised. The default value is True.

**UniqueRecords** Use UniqueRecords to specify whether to query additional key fields from the server. If UniqueRecords is False, keyfields are not queried from the server when they are not included in the query explicitly. For example, the result of the query execution "SELECT ShipName FROM Orders" holds the only field ShipName. When used with [ReadOnly](#) property set to True, UniqueRecords option gives insignificant advantage of performance. But in this case SQLRefresh will be generated in simplified way. If UniqueRecord is True, keyfields needed for complete automatic generation of SQLInsert, SQLUpdate, SQLDelete or SQLRefresh statements are queried from the server implicitly. For example, the result of query execution "SELECT ShipName FROM Orders" holds at least two fields ShipName and OrderID. The default value is False. Has effect only for ctDefaultResultSet cursor.

### TUniScript

The TUniScript component has no SQL Server-specific options.

### TUniLoader

Option name	Description
KeepIdentity	Use the KeepIdentity property to specify in what way IDENTITY column values must be handled. If KeepIdentity is set to False, IDENTITY columns will be initialized by the server. Any value assigned to such column in your application is ignored. If KeepIdentity is set to True, the IDENTITY property will not be available for all IDENTITY fields accepting NULL. So in this case unique values should be generated and assigned by the client application. The default value of the KeepIdentity property is False.
KeepNulls	If this option is set to False, each NULL value inserted into a field with a DEFAULT constraint will be replaced with the default value. If KeepNulls is set to True, NULL values inserted into a field with a DEFAULT constraint will not be replaced with the default values. The default value of the KeepNulls property is False.
RowsPerBatch	Use the RowsPerBatch property to specify the number of rows to load in a single batch. Server optimizes loading according to this value. The default value of this option is Unknown.
KilobytesPerBatch	Use the KilobytesPerBatch option to specify the size of data in kilobytes to load in a single batch. The default value of this option is Unknown.
LockTable	Use the LockTable property to specify if the table-level lock is performed while loading is in progress. Setting this option to True should improve the performance greatly. If this option is set to False, the locking behaviour is determined by the table option. The default value of the LockTable option is False.

**CheckConstraints** Use the CheckConstraints property to specify if the table constraints are checked during loading. If this option is set to False, the table constraints are not checked. The default value of the CheckConstraints option is False.

## TUniDump

Option name	Description
IdentityInsert	Use the IdentityInsert property to add SET IDENTITY INSERT TableName ON at the beginning of the script and SET IDENTITY INSERT TableName OFF at the end of the script. The first line allows explicit values to be inserted into the identity column of a table and INSERT statements are generated with IDENTITY field values. Otherwise the IDENTITY field will not be included to the INSERT statements. SET IDENTITY INSERT will not be added while the option is ON if the table does not have a field identified as IDENTITY or there are no records in the table.

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## 15.14 Database Specific Aspects of 64-bit Development

### Oracle Connectivity Aspects

#### **OCI mode:**

Since at design-time Rad Studio XE 2 works only with x32 libraries and if a connection to the server is needed at design-time, you need to install Oracle Client (x32) regardless of the intended platform. (If the x32 client is needed only for development, you can use only Oracle Instant Client). By default, UniDAC use DEFAULT of Oracle Client, that is why, if a x64 client is the default client at design-time, you need to specify a x32 client. To prevent conflicts between different versions of Oracle Client on the end-user side, you can leave the Home property empty, in this case, the default client will be used.

#### **DIRECT mode:**

Since there is no need to install Oracle Client for the DIRECT mode, the development of applications for the x64 platform does not differ from the development of application for Windows x86.

### SQL Server Connectivity Aspects

If you are working in the Direct mode or developing a 32-bit application only, then the development process will not be different for you, except some peculiarities of each particular platform. But if you are developing a 64-bit application, you have to be aware of specifics of working with client libraries at design-time and run-time. To connect to a SQL Server database at design-time, you must have its 32-bit client

library. You have to place it to the C:\Windows\SysWOW64 directory. This requirement flows out from the fact that RAD Studio XE2 is a 32-bit application and it cannot load 64-bit libraries at design-time. To work with a SQL Server database at run-time (64-bit application), you must have the 64-bit client library placed to the C:\Windows\System32 directory.

## MySQL Connectivity Aspects

### Client mode:

If you are developing a 64-bit application, you have to be aware of specifics of working with client libraries at design-time and run-time. To connect to a MySQL database at design-time, you must have its 32-bit client library. You have to place it to the C:\Windows\SysWOW64 directory. This requirement flows out from the fact that RAD Studio XE2 is a 32-bit application and it cannot load 64-bit libraries at design-time. To work with a MySQL database in run-time (64-bit application), you must have the 64-bit client library placed to the C:\Windows\System32 directory.

### DIRECT mode:

Since there is no need to install client library for the DIRECT mode, the specifics of developing applications that use UniDAC as data access components, depends exclusively on peculiarities of each target platform.

## InterBase and FireBird Connectivity Aspects

To work with InterBase and Firebird, UniDAC uses their client libraries (gds32.dll and fbclient.dll correspondingly). If you are developing a 32-bit application, then the development process will not be different for you, except some peculiarities of each particular platform. But if you are developing a 64-bit application, you have to be aware of specifics of working with client libraries at design-time and run-time. To connect to an InterBase or Firebird database at design-time, you must have its 32-bit client library. You have to place it to the C:\Windows\SysWOW64 directory. This requirement flows out from the fact that RAD Studio XE2 is a 32-bit application and it cannot load 64-bit libraries in design-time. To work with an InterBase or Firebird database at run-time (64-bit application), you must have the 64-bit client library placed to the C:\Windows\System32 directory.

## PostgreSQL Connectivity Aspects

Since UniDAC does not require that the PostgreSQL client be installed to work with the database, the development of applications for the x64 platform does not differ from the development of application for Windows x86.

## SQLite Connectivity Aspects

Presently, developers of SQLite do not provide a ready driver for x64 platforms, that is why, for x64 applications you need to manually compile the sqlite library (for example, in MS VisualStudio). By default, the sqlite libraries must be placed to the following directories: for Win32 you need only the x32 library placed into C:\Windows\System32, and for windows x64, the x64 library should be placed to C:\Windows\System32 and the x32 library to C:\Windows\SysWow64. >If the libraries are located as described above, you don't have to make additional settings for different target platforms when developing applications to work with the SQLite database; the required libraries will be correctly located both at design-time and run-time. Besides, when delivering your application to its end-users, you can supply the required library (x32 or x64) together with the application by placing it to the folder that contains the executable file. (If at design-time you don't need to connect

to the database, then the x32 library is not needed either.)

If the libraries are located in different directories, then at design-time you will have to specify the path to the x32 library in the ClientLibrary option, and when building the final application for the x64 platform, you will have to specify the path to the x64 library.

## MS Access Connectivity Aspects

When developing cross-platform application to work with the MS Access database, you should remember that it is impossible to install two (32- and 64-bit) drivers on the same system (Microsoft limitation). That is why, if you need to connect to the database at design-time, the 32-bit driver must be installed on the development computer, since Rad Studio XE 2 uses x32 libraries at design-time. If no such connection is needed, you can install the x64 MS Access driver. All the other aspects of x64 and x32 development are identical.

## Other ODBC Connectivity Aspects

As regards all other providers using ODBC, for information on drivers for different platforms and specifics contact their developers.

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# 16 Reference

This page shortly describes units that exist in UniDAC.

## Units

Unit Name	Description
<a href="#">CRAccess</a>	This unit contains base classes for accessing databases.
<a href="#">CRBatchMove</a>	This unit contains implementation of the TCRBatchMove component.
<a href="#">CRDataTypeMap</a>	This unit contains base classes for Data Type Mapping
<a href="#">CREncryption</a>	This unit contains base classes for data encryption.
<a href="#">CRVio</a>	This unit contains classes, used for establishing HTTP connections.
<a href="#">DAAlerter</a>	This unit contains the base class for the TUniAlerter component.
<a href="#">DADump</a>	This unit contains the base class for the TUniDump component.

<a href="#">DALoader</a>	This unit contains the base class for the TUniLoader component.
<a href="#">DAScript</a>	This unit contains the base class for the TUniScript component.
<a href="#">DASQLMonitor</a>	This unit contains the base class for the TUniSQLMonitor component.
<a href="#">DBAccess</a>	This unit contains base classes for most of the components.
<a href="#">Devart.Dac.DataAdapter</a>	This unit contains implementation of the DADDataAdapter class.
<a href="#">Devart.UniDac.DataAdapter</a>	This unit contains implementation of the UniDataAdapter class.
<a href="#">LiteCollation</a>	This unit contains types for registering user-defined collations.
<a href="#">LiteFunction</a>	This unit contains types for registering user-defined functions.
<a href="#">MemData</a>	This unit contains classes for storing data in memory.
<a href="#">MemDS</a>	This unit contains implementation of the TMemDataSet class.
MemUtils	This unit contains auxiliary procedures and functions used in the DAC code.
<a href="#">SQLiteUniProvider</a>	This unit contains the TLiteUtils class, that allows to use features of SQLite database.
<a href="#">Uni</a>	This unit contains main components of UniDAC.
<a href="#">UniAlerter</a>	This unit contains the implementation of the TUniAlerter component.
<a href="#">UniDacVcl</a>	This unit contains the visual constituent of UniDAC.
<a href="#">UniDump</a>	This unit contains the implementation of the TUniDump component.
<a href="#">UniLoader</a>	This unit contains the implementation of the TUniLoader component.

<a href="#">UniProvider</a>	This unit contains the TUniProvider class for linking the server-specific providers to application.
<a href="#">UniScript</a>	This unit contains the implementation of the TUniScript component.
<a href="#">UniSQLMonitor</a>	This unit contains the implementation of the TUniSQLMonitor component.
<a href="#">VirtualTable</a>	This unit contains implementation of the TVirtualTable component.

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## 16.1 CRAccess

This unit contains base classes for accessing databases.

### Classes

Name	Description
<a href="#">TCRCursor</a>	A base class for classes that work with database cursors.

### Types

Name	Description
<a href="#">TBeforeFetchProc</a>	This type is used for the <a href="#">TCustomDADataset.BeforeFetch</a> event.

### Enumerations

Name	Description
<a href="#">TCRIsolationLevel</a>	Specifies how to handle transactions containing database modifications.
<a href="#">TCRTransactionAction</a>	Specifies the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

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### 16.1.1 Classes

Classes in the **CRAccess** unit.

#### Classes

Name	Description
<a href="#">TCRCursor</a>	A base class for classes that work with database cursors.

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### 16.1.1.1 TCRCursor Class

A base class for classes that work with database cursors.  
For a list of all members of this type, see [TCRCursor](#) members.

#### Unit

[CRAccess](#)

#### Syntax

```
TCRCursor = class(TSharedObject);
```

#### Remarks

TCRCursor is a base class for classes that work with database cursors.

#### Inheritance Hierarchy

[TSharedObject](#)  
TCRCursor

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#### 16.1.1.1.1 Members

[TCRCursor](#) class overview.

#### Properties

Name	Description
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.

#### Methods

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.

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## 16.1.2 Types

Types in the **CRAccess** unit.

### Types

Name	Description
<a href="#">TBeforeFetchProc</a>	This type is used for the <a href="#">TCustomDADataset.BeforeFetch</a> event.

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### 16.1.2.1 TBeforeFetchProc Procedure Reference

This type is used for the [TCustomDADataset.BeforeFetch](#) event.

### Unit

[CRAccess](#)

### Syntax

```
TBeforeFetchProc = procedure (var Cancel: boolean) of object;
```

### Parameters

*Cancel*

True, if the current fetch operation should be aborted.

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## 16.1.3 Enumerations

Enumerations in the **CRAccess** unit.

### Enumerations

Name	Description
<a href="#">TCRIsolationLevel</a>	Specifies how to handle transactions containing database modifications.
<a href="#">TCRTransactionAction</a>	Specifies the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

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### 16.1.3.1 TCRIsolationLevel Enumeration

Specifies how to handle transactions containing database modifications.

### Unit

[CRAccess](#)

**Syntax**

```
TCRIsolationLevel = (ilReadCommitted);
```

**Values**

Value	Meaning
<b>ilReadCommitted</b>	The default transaction behavior. If the transaction contains DML that requires row locks held by another transaction, then the DML statement waits until the row locks are released.

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**16.1.3.2 TCRTransactionAction Enumeration**

Specifies the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

**Unit**

[CRAccess](#)

**Syntax**

```
TCRTransactionAction = (taCommit, taRollback);
```

**Values**

Value	Meaning
<b>taCommit</b>	Transaction is committed.
<b>taRollback</b>	Transaction is rolled back.

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**16.2 CRBatchMove**

This unit contains implementation of the TCRBatchMove component.

**Classes**

Name	Description
<a href="#">TCRBatchMove</a>	Transfers records between datasets.

**Types**

Name	Description
<a href="#">TCRBatchMoveProgressEvent</a>	This type is used for the <a href="#">TCRBatchMove</a> . <a href="#">OnBatchMoveProgress</a> event.

**Enumerations**

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

[TCRBatchMode](#)

Used to set the type of the batch operation that will be executed after calling the [TCRBatchMove.Execute](#) method.

[TCRFieldMappingMode](#)

Used to specify the way fields of the destination and source datasets will be mapped to each other if the [TCRBatchMove.Mappings](#) list is empty.

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## 16.2.1 Classes

Classes in the **CRBatchMove** unit.

### Classes

Name	Description
<a href="#">TCRBatchMove</a>	Transfers records between datasets.

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### 16.2.1.1 TCRBatchMove Class

Transfers records between datasets.  
For a list of all members of this type, see [TCRBatchMove](#) members.

### Unit

[CRBatchMove](#)

### Syntax

```
TCRBatchMove = class (TComponent);
```

### Remarks

The TCRBatchMove component transfers records between datasets. Use it to copy dataset records to another dataset or to delete datasets records that match records in another dataset. The [TCRBatchMove.Mode](#) property determines the desired operation type, the [TCRBatchMove.Source](#) and [TCRBatchMove.Destination](#) properties indicate corresponding datasets.

**Note:** A TCRBatchMove component is added to the Data Access page of the component palette, not to the server Access page.

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#### 16.2.1.1.1 Members

[TCRBatchMove](#) class overview.

### Properties

<b>Name</b>	<b>Description</b>
<a href="#">AbortOnKeyViol</a>	Used to specify whether the batch operation should be terminated immediately after key or integrity violation.
<a href="#">AbortOnProblem</a>	Used to specify whether the batch operation should be terminated immediately when it is necessary to truncate data to make it fit the specified Destination.
<a href="#">ChangedCount</a>	Used to get the number of records changed in the destination dataset.
<a href="#">CommitCount</a>	Used to set the number of records to be batch moved before commit occurs.
<a href="#">Destination</a>	Used to specify the destination dataset for the batch operation.
<a href="#">FieldMappingMode</a>	Used to specify the way fields of destination and source datasets will be mapped to each other if the <a href="#">TCRBatchMove.Mappings</a> list is empty.
<a href="#">KeyViolCount</a>	Used to get the number of records that could not be moved to or from the destination dataset because of integrity or key violations.
<a href="#">Mappings</a>	Used to set field matching between source and destination datasets for the batch operation.
<a href="#">Mode</a>	Used to set the type of the batch operation that will be executed after calling the <a href="#">TCRBatchMove.Execute</a> method.
<a href="#">MovedCount</a>	Used to get the number of records that were read from the source dataset during the batch operation.
<a href="#">ProblemCount</a>	Used to get the number of records that could not be added to the destination dataset because of the field type mismatch.

[RecordCount](#)

Used to indicate the maximum number of records in the source dataset that will be applied to the destination dataset.

[Source](#)

Used to specify the source dataset for the batch operation.

## Methods

Name	Description
<a href="#">Execute</a>	Performs the batch operation.

## Events

Name	Description
<a href="#">OnBatchMoveProgress</a>	Occurs when providing feedback to the user about the batch operation in progress is needed.

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### 16.2.1.1.2 Properties

Properties of the **TCRBatchMove** class.

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

## Public

Name	Description
<a href="#">ChangedCount</a>	Used to get the number of records changed in the destination dataset.
<a href="#">KeyViolCount</a>	Used to get the number of records that could not be moved to or from the destination dataset because of integrity or key violations.
<a href="#">MovedCount</a>	Used to get the number of records that were read from the source dataset during the batch operation.
<a href="#">ProblemCount</a>	Used to get the number of records that could not be added to the destination dataset because of the field type mismatch.

## Published

Name	Description
<a href="#">AbortOnKeyViol</a>	Used to specify whether the batch operation should be terminated immediately after key or integrity violation.
<a href="#">AbortOnProblem</a>	Used to specify whether the batch operation should be terminated immediately when it is necessary to truncate data to make it fit the specified Destination.
<a href="#">CommitCount</a>	Used to set the number of records to be batch moved before commit occurs.
<a href="#">Destination</a>	Used to specify the destination dataset for the batch operation.
<a href="#">FieldMappingMode</a>	Used to specify the way fields of destination and source datasets will be mapped to each other if the <a href="#">TCRBatchMove.Mappings</a> list is empty.
<a href="#">Mappings</a>	Used to set field matching between source and destination datasets for the batch operation.
<a href="#">Mode</a>	Used to set the type of the batch operation that will be executed after calling the <a href="#">TCRBatchMove.Execute</a> method.
<a href="#">RecordCount</a>	Used to indicate the maximum number of records in the source dataset that will be applied to the destination dataset.
<a href="#">Source</a>	Used to specify the source dataset for the batch operation.

**See Also**

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

---

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#### 16.2.1.1.2.1 AbortOnKeyViol Property

Used to specify whether the batch operation should be terminated immediately after key or integrity violation.

#### Class

[TCRBatchMove](#)

#### Syntax

```
property AbortOnKeyViol: boolean default True;
```

#### Remarks

Use the AbortOnKeyViol property to specify whether the batch operation is terminated immediately after key or integrity violation.

---

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#### 16.2.1.1.2.2 AbortOnProblem Property

Used to specify whether the batch operation should be terminated immediately when it is necessary to truncate data to make it fit the specified Destination.

#### Class

[TCRBatchMove](#)

#### Syntax

```
property AbortOnProblem: boolean default True;
```

#### Remarks

Use the AbortOnProblem property to specify whether the batch operation is terminated immediately when it is necessary to truncate data to make it fit the specified Destination.

---

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#### 16.2.1.1.2.3 ChangedCount Property

Used to get the number of records changed in the destination dataset.

#### Class

[TCRBatchMove](#)

#### Syntax

```
property ChangedCount: Longint;
```

#### Remarks

Use the ChangedCount property to get the number of records changed in the destination dataset. It shows the number of records that were updated in the bmUpdate or bmAppendUpdate mode or were deleted in the bmDelete mode.

---

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## 16.2.1.1.2.4 CommitCount Property

Used to set the number of records to be batch moved before commit occurs.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property CommitCount: integer default 0;
```

**Remarks**

Use the CommitCount property to set the number of records to be batch moved before the commit occurs. If it is set to 0, the operation will be chunked to the number of records to fit 32 Kb.

---

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## 16.2.1.1.2.5 Destination Property

Used to specify the destination dataset for the batch operation.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property Destination: TDataSet;
```

**Remarks**

Specifies the destination dataset for the batch operation.

---

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## 16.2.1.1.2.6 FieldMappingMode Property

Used to specify the way fields of destination and source datasets will be mapped to each other if the [Mappings](#) list is empty.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property FieldMappingMode: TCRFieldMappingMode default  
mmFieldIndex;
```

**Remarks**

Specifies in what way fields of destination and source datasets will be mapped to each other if the [Mappings](#) list is empty.

---

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## 16.2.1.1.2.7 KeyViolCount Property

Used to get the number of records that could not be moved to or from the destination dataset because of integrity or key violations.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property KeyViolCount: Longint;
```

**Remarks**

Use the KeyViolCount property to get the number of records that could not be replaced, added, deleted from the destination dataset because of integrity or key violations.

If [AbortOnKeyViol](#) is True, then KeyViolCount will never exceed one, because the operation aborts when the integrity or key violation occurs.

**See Also**

- [AbortOnKeyViol](#)

---

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## 16.2.1.1.2.8 Mappings Property

Used to set field matching between source and destination datasets for the batch operation.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property Mappings: _TStrings;
```

**Remarks**

Use the Mappings property to set field matching between the source and destination datasets for the batch operation. By default fields matching is based on their position in the datasets. To map the column ColName in the source dataset to the column with the same name in the destination dataset, use:  
ColName

**Example**

To map a column named SourceColName in the source dataset to the column named DestColName in the destination dataset, use:

```
DestColName=SourceColName
```

---

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## 16.2.1.1.2.9 Mode Property

Used to set the type of the batch operation that will be executed after calling the [Execute](#) method.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property Mode: TCRBatchMode default bmAppend;
```

**Remarks**

Use the Mode property to set the type of the batch operation that will be executed after calling the [Execute](#) method.

---

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## 16.2.1.1.2.10 MovedCount Property

Used to get the number of records that were read from the source dataset during the batch operation.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property MovedCount: Longint;
```

**Remarks**

Use the MovedCount property to get the number of records that were read from the source dataset during the batch operation. This number includes records that caused key or integrity violations or were trimmed.

---

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## 16.2.1.1.2.11 ProblemCount Property

Used to get the number of records that could not be added to the destination dataset because of the field type mismatch.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property ProblemCount: Longint;
```

**Remarks**

Use the ProblemCount property to get the number of records that could not be added to the destination dataset because of the field type mismatch. If [AbortOnProblem](#) is True, then ProblemCount will never exceed one, because the operation aborts when the problem occurs.

## See Also

- [AbortOnProblem](#)

---

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### 16.2.1.1.2.12 RecordCount Property

Used to indicate the maximum number of records in the source dataset that will be applied to the destination dataset.

## Class

[TCRBatchMove](#)

## Syntax

```
property RecordCount: Longint default 0;
```

## Remarks

Determines the maximum number of records in the source dataset, that will be applied to the destination dataset. If it is set to 0, all records in the source dataset will be applied to the destination dataset, starting from the first record. If RecordCount is greater than 0, up to the RecordCount records are applied to the destination dataset, starting from the current record in the source dataset. If RecordCount exceeds the number of records left in the source dataset, batch operation terminates after reaching last record.

---

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### 16.2.1.1.2.13 Source Property

Used to specify the source dataset for the batch operation.

## Class

[TCRBatchMove](#)

## Syntax

```
property Source: TDataSet;
```

## Remarks

Specifies the source dataset for the batch operation.

---

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### 16.2.1.1.3 Methods

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

## Public

Name	Description
<a href="#">Execute</a>	Performs the batch operation.

**See Also**

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

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## 16.2.1.1.3.1 Execute Method

Performs the batch operation.

**Class**

[TCRBatchMove](#)

**Syntax**

```
procedure Execute;
```

**Remarks**

Call the Execute method to perform the batch operation.

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## 16.2.1.1.4 Events

Events of the **TCRBatchMove** class.

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

**Published**

Name	Description
<a href="#">OnBatchMoveProgress</a>	Occurs when providing feedback to the user about the batch operation in progress is needed.

**See Also**

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

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## 16.2.1.1.4.1 OnBatchMoveProgress Event

Occurs when providing feedback to the user about the batch operation in progress is needed.

**Class**

[TCRBatchMove](#)

**Syntax**

```
property OnBatchMoveProgress: TCRBatchMoveProgressEvent;
```

**Remarks**

Write the OnBatchMoveProgress event handler to provide feedback to the user about the batch operation progress.

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**16.2.2 Types**

Types in the **CRBatchMove** unit.

**Types**

Name	Description
<a href="#">TCRBatchMoveProgressEvent</a>	This type is used for the <a href="#">TCRBatchMove.OnBatchMoveProgress</a> event.

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**16.2.2.1 TCRBatchMoveProgressEvent Procedure Reference**

This type is used for the [TCRBatchMove.OnBatchMoveProgress](#) event.

**Unit**

[CRBatchMove](#)

**Syntax**

```
TCRBatchMoveProgressEvent = procedure (Sender: TObject; Percent: integer) of object;
```

**Parameters***Sender*

An object that raised the event.

*Percent*

Percentage of the batch operation progress.

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**16.2.3 Enumerations**

Enumerations in the **CRBatchMove** unit.

**Enumerations**

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

[TCRBatchMode](#)

Used to set the type of the batch operation that will be executed after calling the [TCRBatchMove.Execute](#) method.

[TCRFieldMappingMode](#)

Used to specify the way fields of the destination and source datasets will be mapped to each other if the [TCRBatchMove.Mappings](#) list is empty.

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**16.2.3.1 TCRBatchMode Enumeration**

Used to set the type of the batch operation that will be executed after calling the [TCRBatchMove.Execute](#) method.

**Unit**

[CRBatchMove](#)

**Syntax**

```
TCRBatchMode = (bmAppend, bmUpdate, bmAppendUpdate, bmDelete);
```

**Values**

Value	Meaning
<b>bmAppend</b>	Appends the records from the source dataset to the destination dataset. The default mode.
<b>bmAppendUpdate</b>	Replaces records in the destination dataset with the matching records from the source dataset. If there is no matching record in the destination dataset, the record will be appended to it.
<b>bmDelete</b>	Deletes records from the destination dataset if there are matching records in the source dataset.
<b>bmUpdate</b>	Replaces records in the destination dataset with the matching records from the source dataset.

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**16.2.3.2 TCRFieldMappingMode Enumeration**

Used to specify the way fields of the destination and source datasets will be mapped to each other if the [TCRBatchMove.Mappings](#) list is empty.

**Unit**

[CRBatchMove](#)

**Syntax**

```
TCRFieldMappingMode = (mmFieldIndex, mmFieldName);
```

**Values**

Value	Meaning
<b>mmFieldIndex</b>	Specifies that the fields of the destination dataset will be mapped to the fields of the source dataset by field index.
<b>mmFieldName</b>	Mapping is performed by field names.

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**16.3 CRDataTypeMap**

This unit contains base classes for Data Type Mapping

**Classes**

Name	Description
<a href="#">EDataMappingError</a>	Occurs when unable to map data to a specified type.
<a href="#">EDataTypeMappingError</a>	Base class for errors occurring at data mapping
<a href="#">EInvalidDBTypeMapping</a>	Occurs when DB field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties.
<a href="#">EInvalidFieldTypeMapping</a>	Occurs when Delphi field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties.
<a href="#">EUnsupportedDataTypeMapping</a>	Occurs when attempting to register or perform unsupported data type mapping.
<a href="#">TMapRule</a>	Setting rule for data type mapping

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**16.3.1 Classes**

Classes in the **CRDataTypeMap** unit.

**Classes**

Name	Description
<a href="#">EDataMappingError</a>	Occurs when unable to map data to a specified type.
<a href="#">EDataTypeMappingError</a>	Base class for errors occurring at data mapping

[EInvalidDBTypeMapping](#)

Occurs when DB field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties.

[EInvalidFieldTypeMapping](#)

Occurs when Delphi field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties.

[EUnsupportedDataTypeMapping](#)

Occurs when attempting to register or perform unsupported data type mapping.

[TMapRule](#)

Setting rule for data type mapping

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### 16.3.1.1 EDataMappingError Class

Occurs when unable to map data to a specified type.  
For a list of all members of this type, see [EDataMappingError](#) members.

#### Unit

[CRDataTypeMap](#)

#### Syntax

```
EDataMappingError = class (EDataTypeMappingError) ;
```

#### Remarks

EDataMappingError occurs when unable to map data to a specified type. Use EDataMappingError in an exception handling block.

#### Inheritance Hierarchy

[EDataTypeMappingError](#)

**EDataMappingError**

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#### 16.3.1.1.1 Members

[EDataMappingError](#) class overview.

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### 16.3.1.2 EDataTypeMappingError Class

Base class for errors occurring at data mapping  
For a list of all members of this type, see [EDataTypeMappingError](#) members.

## Unit

[CRDataTypeMap](#)

## Syntax

```
EDataTypeMappingError = class (Exception);
```

## Remarks

Base class for errors occurring at data mapping

---

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### 16.3.1.2.1 Members

[EDataTypeMappingError](#) class overview.

---

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### 16.3.1.3 EInvalidDBTypeMapping Class

Occurs when DB field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties.

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

## Unit

[CRDataTypeMap](#)

## Syntax

```
EInvalidDBTypeMapping = class (EDataTypeMappingError);
```

## Remarks

EInvalidDBTypeMapping occurs when DB field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties. Use EInvalidDBTypeMapping in an exception handling block.

## Inheritance Hierarchy

[EDataTypeMappingError](#)

**EInvalidDBTypeMapping**

---

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### 16.3.1.3.1 Members

[EInvalidDBTypeMapping](#) class overview.

---

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### 16.3.1.4 EInvalidFieldTypeMapping Class

Occurs when Delphi field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties.

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

**Unit**[CRDataTypeMap](#)**Syntax**

```
EInvalidFieldTypeMapping = class (EDataTypeMappingError) ;
```

**Remarks**

EInvalidFieldTypeMapping occurs when Delphi field type is set incorrectly or when attempting to set Length or Scale for a type that doesn't have such properties. Use EInvalidFieldTypeMapping in an exception handling block.

**Inheritance Hierarchy**[EDataTypeMappingError](#)**EInvalidFieldTypeMapping**

---

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## 16.3.1.4.1 Members

[EInvalidFieldTypeMapping](#) class overview.

---

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**16.3.1.5 EUnsupportedDataTypeMapping Class**

Occurs when attempting to register or perform unsupported data type mapping. For a list of all members of this type, see [EUnsupportedDataTypeMapping](#) members.

**Unit**[CRDataTypeMap](#)**Syntax**

```
EUnsupportedDataTypeMapping = class (EDataTypeMappingError) ;
```

**Remarks**

EUnsupportedDataTypeMapping occurs when attempting to register or perform unsupported data type mapping. Use EUnsupportedDataTypeMapping in an exception handling block.

**Inheritance Hierarchy**[EDataTypeMappingError](#)**EUnsupportedDataTypeMapping**

---

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## 16.3.1.5.1 Members

[EUnsupportedDataTypeMapping](#) class overview.

---

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### 16.3.1.6 TMapRule Class

Setting rule for data type mapping  
For a list of all members of this type, see [TMapRule](#) members.

#### Unit

[CRDataTypeMap](#)

#### Syntax

```
TMapRule = class (TCollectionItem);
```

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#### 16.3.1.6.1 Members

[TMapRule](#) class overview.

#### Properties

Name	Description
<a href="#">DBLengthMax</a>	Maximum DB field size
<a href="#">DBLengthMin</a>	Minimum DB field size
<a href="#">DBScaleMax</a>	Maximum DB field scale
<a href="#">DBScaleMin</a>	Minimal DB field scale
<a href="#">DBType</a>	DB field type, that the rule is applied to.
<a href="#">FieldLength</a>	Delphi field length
<a href="#">FieldName</a>	field name in DataSet
<a href="#">FieldScale</a>	Delphi field scale
<a href="#">IgnoreErrors</a>	Ignore data conversion errors. Default value is False.

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#### 16.3.1.6.2 Properties

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

#### Public

Name	Description
<a href="#">DBLengthMax</a>	Maximum DB field size
<a href="#">DBLengthMin</a>	Minimum DB field size
<a href="#">DBScaleMax</a>	Maximum DB field scale
<a href="#">DBScaleMin</a>	Minimal DB field scale
<a href="#">DBType</a>	DB field type, that the rule is applied to.
<a href="#">FieldLength</a>	Delphi field length

[FieldName](#)  
[FieldScale](#)  
[IgnoreErrors](#)

field name in DataSet  
Delphi field scale  
Ignore data conversion errors. Default value is False.

### See Also

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

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#### 16.3.1.6.2.1 DBLengthMax Property

Maximum DB field size

### Class

[TMapRule](#)

### Syntax

```
property DBLengthMax: Integer;
```

---

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#### 16.3.1.6.2.2 DBLengthMin Property

Minimum DB field size

### Class

[TMapRule](#)

### Syntax

```
property DBLengthMin: Integer;
```

---

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#### 16.3.1.6.2.3 DBScaleMax Property

Maximum DB field scale

### Class

[TMapRule](#)

### Syntax

```
property DBScaleMax: Integer;
```

---

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## 16.3.1.6.2.4 DBScaleMin Property

Minimal DB field scale

**Class**

[TMapRule](#)

**Syntax**

```
property DBScaleMin: Integer;
```

---

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## 16.3.1.6.2.5 DBType Property

DB field type, that the rule is applied to.

**Class**

[TMapRule](#)

**Syntax**

```
property DBType: Word;
```

---

**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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## 16.3.1.6.2.6 FieldLength Property

Delphi field length

**Class**

[TMapRule](#)

**Syntax**

```
property FieldLength: Integer;
```

---

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## 16.3.1.6.2.7 FieldName Property

field name in DataSet

**Class**

[TMapRule](#)

**Syntax**

```
property FieldName: string;
```

---

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## 16.3.1.6.2.8 FieldScale Property

Delphi field scale

**Class**

[TMapRule](#)

**Syntax**

```
property FieldScale: Integer;
```

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## 16.3.1.6.2.9 IgnoreErrors Property

Ignore data conversion errors. Default value is False.

**Class**

[TMapRule](#)

**Syntax**

```
property IgnoreErrors: Boolean;
```

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## 16.4 CREncryption

This unit contains base classes for data encryption.

**Classes**

Name	Description
<a href="#">TCREncryptor</a>	The class that performs data encryption and decryption. For the list of all members of this type, see CREncryption members.

**Enumerations**

Name	Description
<a href="#">TCREncDataHeader</a>	Specifies whether the additional information is stored with the encrypted data.
<a href="#">TCREncryptionAlgorithm</a>	Specifies the algorithm of data encryption.
<a href="#">TCRHashAlgorithm</a>	Specifies the algorithm of generating hash data.
<a href="#">TCRInvalidHashAction</a>	Specifies the action to perform on data fetching when hash data is invalid.

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## 16.4.1 Classes

Classes in the **CREncryption** unit.

### Classes

Name	Description
<a href="#">TCREncryptor</a>	The class that performs data encryption and decryption. For the list of all members of this type, see CREncryption members.

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### 16.4.1.1 TCREncryptor Class

The class that performs data encryption and decryption. For the list of all members of this type, see CREncryption members. For a list of all members of this type, see [TCREncryptor](#) members.

### Unit

[CREncryption](#)

### Syntax

```
TCREncryptor = class (TComponent) ;
```

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#### 16.4.1.1.1 Members

[TCREncryptor](#) class overview.

### Properties

Name	Description
<a href="#">DataHeader</a>	Specifies whether the additional information is stored with the encrypted data.
<a href="#">EncryptionAlgorithm</a>	Specifies the algorithm of data encryption.
<a href="#">HashAlgorithm</a>	Specifies the algorithm of generating hash data.
<a href="#">InvalidHashAction</a>	Specifies the action to perform on data fetching when hash data is invalid.
<a href="#">Password</a>	Used to set a password that is used to generate a key for encryption.

## Methods

Name	Description
<a href="#">SetKey</a>	Sets a key, using which data is encrypted.

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### 16.4.1.1.2 Properties

Properties of the **TCREncryptor** class.

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

## Published

Name	Description
<a href="#">DataHeader</a>	Specifies whether the additional information is stored with the encrypted data.
<a href="#">EncryptionAlgorithm</a>	Specifies the algorithm of data encryption.
<a href="#">HashAlgorithm</a>	Specifies the algorithm of generating hash data.
<a href="#">InvalidHashAction</a>	Specifies the action to perform on data fetching when hash data is invalid.
<a href="#">Password</a>	Used to set a password that is used to generate a key for encryption.

## See Also

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

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### 16.4.1.1.2.1 DataHeader Property

Specifies whether the additional information is stored with the encrypted data.

## Class

[TCREncryptor](#)

## Syntax

```
property DataHeader: TCREncDataHeader default ehTagAndHash;
```

## Remarks

Use DataHeader to specify whether the additional information is stored with the encrypted data. Default value is ehTagAndHash.

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#### 16.4.1.1.2.2 EncryptionAlgorithm Property

Specifies the algorithm of data encryption.

##### **Class**

[TCREncryptor](#)

##### **Syntax**

```
property EncryptionAlgorithm: TCREncryptionAlgorithm default eaBlowfish;
```

##### **Remarks**

Use EncryptionAlgorithm to specify the algorithm of data encryption. Default value is caBlowfish.

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#### 16.4.1.1.2.3 HashAlgorithm Property

Specifies the algorithm of generating hash data.

##### **Class**

[TCREncryptor](#)

##### **Syntax**

```
property HashAlgorithm: TCRHashAlgorithm default haSHA1;
```

##### **Remarks**

Use HashAlgorithm to specify the algorithm of generating hash data. This property is used only if hash is stored with the encrypted data (the DataHeader property is set to ehTagAndHash). Default value is haSHA1.

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#### 16.4.1.1.2.4 InvalidHashAction Property

Specifies the action to perform on data fetching when hash data is invalid.

##### **Class**

[TCREncryptor](#)

##### **Syntax**

```
property InvalidHashAction: TCRInvalidHashAction default ihFail;
```

##### **Remarks**

Use InvalidHashAction to specify the action to perform on data fetching when hash data is invalid. This property is used only if hash is stored with the encrypted data (the DataHeader property is set to ehTagAndHash). Default value is ihFail. If the DataHeader property is set to ehTagAndHash, then on data fetching from a server

the hash check is performed for each record in the following way: after data decryption its hash is calculated and compared with the hash stored in the field. If these values don't coincide, it means that the stored data is incorrect, and depending on the value of the InvalidHashAction property one of the following actions is performed: ihFail - the EInvalidHash exception is raised and further data reading from the server is interrupted. ihSkipData - the value of the field for this record is set to Null. No exception is raised. ihIgnoreError - in spite of the fact that the data is not valid, the value is set in the field. No exception is raised.

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#### 16.4.1.1.2.5 Password Property

Used to set a password that is used to generate a key for encryption.

### Class

[TCREncryptor](#)

### Syntax

```
property Password: string;
```

### Remarks

Use Password to set a password that is used to generate a key for encryption. Note: Calling of the SetKey method clears the Password property.

### See Also

- [SetKey](#)

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#### 16.4.1.1.3 Methods

Methods of the **TCREncryptor** class.

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

### Public

Name	Description
<a href="#">SetKey</a>	Sets a key, using which data is encrypted.

### See Also

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

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## 16.4.1.1.3.1 SetKey Method

Sets a key, using which data is encrypted.

**Class**

[TCREncryptor](#)

**Syntax**

```
procedure SetKey(const Key; Count: Integer); overload;procedure
SetKey(const Key: TBytes; Offset: Integer; Count: Integer);
overload;
```

**Parameters**

*Key*

*Offset*

Sets a key with an offset, using which data is encrypted.

*Count*

Sets a key, using which data is encrypted.

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**16.4.2 Enumerations**

Enumerations in the **CREncryption** unit.

**Enumerations**

Name	Description
<a href="#">TCREncDataHeader</a>	Specifies whether the additional information is stored with the encrypted data.
<a href="#">TCREncryptionAlgorithm</a>	Specifies the algorithm of data encryption.
<a href="#">TCRHashAlgorithm</a>	Specifies the algorithm of generating hash data.
<a href="#">TCRInvalidHashAction</a>	Specifies the action to perform on data fetching when hash data is invalid.

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**16.4.2.1 TCREncDataHeader Enumeration**

Specifies whether the additional information is stored with the encrypted data.

**Unit**

[CREncryption](#)

**Syntax**

```
TCREncDataHeader = (ehTagAndHash, ehTag, ehNone);
```

**Values**

Value	Meaning
<b>ehNone</b>	No additional information is stored.
<b>ehTag</b>	GUID and the random initialization vector are stored with the encrypted data.
<b>ehTagAndHash</b>	Hash, GUID, and the random initialization vector are stored with the encrypted data.

**See Also**

- Data Encryption

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**16.4.2.2 TCREncryptionAlgorithm Enumeration**

Specifies the algorithm of data encryption.

**Unit**

[CREncryption](#)

**Syntax**

```
TCREncryptionAlgorithm = (eaTripleDES, eaBlowfish, eaAES128, eaAES192, eaAES256, eaCast128, eaRC4);
```

**Values**

Value	Meaning
<b>eaAES128</b>	The AES encryption algorithm with key size of 128 bits is used.
<b>eaAES192</b>	The AES encryption algorithm with key size of 192 bits is used.
<b>eaAES256</b>	The AES encryption algorithm with key size of 256 bits is used.
<b>eaBlowfish</b>	The Blowfish encryption algorithm is used.
<b>eaCast128</b>	The CAST-128 encryption algorithm with key size of 128 bits is used.
<b>eaRC4</b>	The RC4 encryption algorithm is used.
<b>eaTripleDES</b>	The Triple DES encryption algorithm is used.

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**16.4.2.3 TCRHashAlgorithm Enumeration**

Specifies the algorithm of generating hash data.

**Unit**

[CREncryption](#)

**Syntax**

```
TCRHashAlgorithm = (haSHA1, haMD5);
```

**Values**

Value	Meaning
<b>haMD5</b>	The MD5 hash algorithm is used.
<b>haSHA1</b>	The SHA-1 hash algorithm is used.

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**16.4.2.4 TCRInvalidHashAction Enumeration**

Specifies the action to perform on data fetching when hash data is invalid.

**Unit**

[CREncryption](#)

**Syntax**

```
TCRInvalidHashAction = (ihFail, ihSkipData, ihIgnoreError);
```

**Values**

Value	Meaning
<b>ihFail</b>	An exception is raised.
<b>ihIgnoreError</b>	Hash checking is not performed. No exception is raised.
<b>ihSkipData</b>	If hash is invalid the field value is set to Null. No exception is raised.

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**16.5 CRVio**

This unit contains classes, used for establishing HTTP connections.

**Classes**

Name	Description
<a href="#">THttpOptions</a>	The class contains settings for HTTP connection.
<a href="#">TProxyOptions</a>	This class is used when connecting through proxy server to establish an HTTP connection.

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**16.5.1 Classes**

Classes in the **CRVio** unit.

**Classes**

Name	Description
<a href="#">THttpOptions</a>	The class contains settings for HTTP connection.
<a href="#">TProxyOptions</a>	This class is used when connecting through proxy server to establish an HTTP connection.

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### 16.5.1.1 THttpOptions Class

The class contains settings for HTTP connection.  
For a list of all members of this type, see [THttpOptions](#) members.

#### Unit

[CRVio](#)

#### Syntax

```
THttpOptions = class(TPersistent);
```

#### Remarks

The THttpOptions class contains settings for HTTP connection.  
For more information on HTTP tunneling refer to the [Network Tunneling](#) article.

#### See Also

- [Network Tunneling](#)

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#### 16.5.1.1.1 Members

[THttpOptions](#) class overview.

#### Properties

Name	Description
<a href="#">Password</a>	Holds the password for HTTP authorization.
<a href="#">ProxyOptions</a>	Holds a TProxyOptions object that contains settings for proxy connection.
<a href="#">Url</a>	Holds the url of the tunneling PHP script.
<a href="#">Username</a>	Holds the user name for HTTP authorization.

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## 16.5.1.1.2 Properties

Properties of the **THttpOptions** class.

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

**Published**

Name	Description
<a href="#">Password</a>	Holds the password for HTTP authorization.
<a href="#">ProxyOptions</a>	Holds a TProxyOptions object that contains settings for proxy connection.
<a href="#">Url</a>	Holds the url of the tunneling PHP script.
<a href="#">Username</a>	Holds the user name for HTTP authorization.

**See Also**

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

---

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## 16.5.1.1.2.1 Password Property

Holds the password for HTTP authorization.

**Class**

[THttpOptions](#)

**Syntax**

```
property Password: string;
```

**Remarks**

The Password property holds the password for HTTP authorization.

---

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## 16.5.1.1.2.2 ProxyOptions Property

Holds a TProxyOptions object that contains settings for proxy connection.

**Class**

[THttpOptions](#)

**Syntax**

```
property ProxyOptions: TProxyOptions;
```

**Remarks**

The ProxyOptions property holds a TProxyOptions object that contains settings for

proxy connection.

If it is necessary to connect to server in another network, sometimes the client can reach it only through proxy. In this case in addition to connection string you have to setup ProxyOptions.

---

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#### 16.5.1.1.2.3 Url Property

Holds the url of the tunneling PHP script.

#### Class

[THttpOptions](#)

#### Syntax

```
property Url: string;
```

#### Remarks

The Url property holds the url of the tunneling PHP script. For example, if the script is in the server root, the url can be the following: `http://server/tunnel.php`.

---

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#### 16.5.1.1.2.4 Username Property

Holds the user name for HTTP authorization.

#### Class

[THttpOptions](#)

#### Syntax

```
property Username: string;
```

#### Remarks

The Username property holds the user name for HTTP authorization.

---

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### 16.5.1.2 TProxyOptions Class

This class is used when connecting through proxy server to establish an HTTP connection.

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

#### Unit

[CRVio](#)

#### Syntax

```
TProxyOptions = class(TPersistent);
```

#### Remarks

The TProxyOptions class is used when connecting through proxy server to establish an HTTP connection.

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#### 16.5.1.2.1 Members

[TProxyOptions](#) class overview.

### Properties

Name	Description
<a href="#">Hostname</a>	Holds the host name or IP address to connect to proxy server.
<a href="#">Password</a>	Holds the password for the proxy server account.
<a href="#">Port</a>	Used to specify the port number for TCP/IP connection with proxy server.
<a href="#">Username</a>	Holds the proxy server account name.

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#### 16.5.1.2.2 Properties

Properties of the **TProxyOptions** class.

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

### Published

Name	Description
<a href="#">Hostname</a>	Holds the host name or IP address to connect to proxy server.
<a href="#">Password</a>	Holds the password for the proxy server account.
<a href="#">Port</a>	Used to specify the port number for TCP/IP connection with proxy server.
<a href="#">Username</a>	Holds the proxy server account name.

### See Also

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

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## 16.5.1.2.2.1 Hostname Property

Holds the host name or IP address to connect to proxy server.

**Class**

[TProxyOptions](#)

**Syntax**

```
property Hostname: string;
```

**Remarks**

The Hostname property holds the host name or IP address to connect to proxy server.

---

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## 16.5.1.2.2.2 Password Property

Holds the password for the proxy server account.

**Class**

[TProxyOptions](#)

**Syntax**

```
property Password: string;
```

**Remarks**

The Password property holds the password for the proxy server account.

---

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## 16.5.1.2.2.3 Port Property

Used to specify the port number for TCP/IP connection with proxy server.

**Class**

[TProxyOptions](#)

**Syntax**

```
property Port: integer default 0;
```

**Remarks**

Use the Port property to specify the port number for TCP/IP connection with proxy server.

---

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## 16.5.1.2.2.4 Username Property

Holds the proxy server account name.

**Class**

[TProxyOptions](#)

### Syntax

```
property Username: string;
```

### Remarks

The Username property holds the proxy server account name.

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## 16.6 DAAlerter

This unit contains the base class for the TUniAlerter component.

### Classes

Name	Description
<a href="#">TDAAlerter</a>	A base class that defines functionality for database event notification.

### Types

Name	Description
<a href="#">TAlerterErrorEvent</a>	This type is used for the TDAAlerter.OnError event.
<a href="#">TAlerterEventEvent</a>	This type is used for the E: Devart.UniDac.TUniAlerter.OnEvent event.

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### 16.6.1 Classes

Classes in the **DAAlerter** unit.

### Classes

Name	Description
<a href="#">TDAAlerter</a>	A base class that defines functionality for database event notification.

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#### 16.6.1.1 TDAAlerter Class

A base class that defines functionality for database event notification. For a list of all members of this type, see [TDAAlerter](#) members.

### Unit

[DAAlerter](#)

## Syntax

```
TDAAlerter = class (TComponent);
```

## Remarks

TDAAlerter is a base class that defines functionality for descendant classes support database event notification. Applications never use TDAAlerter objects directly. Instead they use descendants of TDAAlerter.

The TDAAlerter component allows you to register interest in and handle events posted by a database server. Use TDAAlerter to handle events for responding to actions and database changes made by other applications. To get events, an application must register required events. To do this, set the Events property to the required events and call the Start method. When one of the registered events occurs OnEvent handler is called.

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### 16.6.1.1.1 Members

[TDAAlerter](#) class overview.

## Properties

Name	Description
<a href="#">Active</a>	Used to determine if TDAAlerter waits for messages.
<a href="#">AutoRegister</a>	Used to automatically register events whenever connection opens.
<a href="#">Connection</a>	Used to specify the connection for TDAAlerter.

## Methods

Name	Description
<a href="#">SendEvent</a>	Sends an event with Name and content Message.
<a href="#">Start</a>	Starts waiting process.
<a href="#">Stop</a>	Stops waiting process.

## Events

Name	Description
<a href="#">OnError</a>	Occurs if an exception occurs in waiting process

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### 16.6.1.1.2 Properties

Properties of the **TDAAlerter** class.

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

topic.

## Public

Name	Description
<a href="#">Active</a>	Used to determine if TDAAlerter waits for messages.
<a href="#">AutoRegister</a>	Used to automatically register events whenever connection opens.
<a href="#">Connection</a>	Used to specify the connection for TDAAlerter.

## See Also

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

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### 16.6.1.1.2.1 Active Property

Used to determine if TDAAlerter waits for messages.

## Class

[TDAAlerter](#)

## Syntax

```
property Active: boolean default False;
```

## Remarks

Check the Active property to know whether TDAlerter waits for messages or not. Set it to True to register events.

## See Also

- [Start](#)
- [Stop](#)

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### 16.6.1.1.2.2 AutoRegister Property

Used to automatically register events whenever connection opens.

## Class

[TDAAlerter](#)

## Syntax

```
property AutoRegister: boolean default False;
```

## Remarks

Set the AutoRegister property to True to automatically register events whenever connection opens.

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### 16.6.1.1.2.3 Connection Property

Used to specify the connection for TDAAlerter.

## Class

[TDAAlerter](#)

## Syntax

```
property Connection: TCustomDAConnection;
```

## Remarks

Use the Connection property to specify the connection for TDAAlerter.

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### 16.6.1.1.3 Methods

Methods of the **TDAAlerter** class.

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

## Public

Name	Description
<a href="#">SendEvent</a>	Sends an event with Name and content Message.
<a href="#">Start</a>	Starts waiting process.
<a href="#">Stop</a>	Stops waiting process.

## See Also

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

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### 16.6.1.1.3.1 SendEvent Method

Sends an event with Name and content Message.

## Class

[TDAAlerter](#)

## Syntax

```
procedure SendEvent(const EventName: string; const Message: string);
```

## Parameters

### *EventName*

Holds the event name.

### *Message*

Holds the content Message of the event.

## Remarks

Use SendEvent procedure to send an event with Name and content Message.

---

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### 16.6.1.1.3.2 Start Method

Starts waiting process.

## Class

[TDAAlerter](#)

## Syntax

```
procedure Start;
```

## Remarks

Call the Start method to run waiting process. After starting TDAAlerter waits for messages with names defined by the Events property.

## See Also

- [Stop](#)
  - [Active](#)
- 

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### 16.6.1.1.3.3 Stop Method

Stops waiting process.

## Class

[TDAAlerter](#)

## Syntax

```
procedure Stop;
```

## Remarks

Call Stop method to end waiting process.

## See Also

- [Start](#)

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#### 16.6.1.1.4 Events

Events of the **TDAAlerter** class.

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

#### Public

Name	Description
<a href="#">OnError</a>	Occurs if an exception occurs in waiting process

#### See Also

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

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#### 16.6.1.1.4.1 OnError Event

Occurs if an exception occurs in waiting process

#### Class

[TDAAlerter](#)

#### Syntax

```
property OnError: TAlerterErrorEvent;
```

#### Remarks

The OnError event occurs if an exception occurs in waiting process. Alerter stops in this case. The exception can be accessed using the E parameter.

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## 16.6.2 Types

Types in the **DAAlerter** unit.

#### Types

Name	Description
<a href="#">TAlerterErrorEvent</a>	This type is used for the TDAAlerter.OnError event.
<a href="#">TAlerterEventEvent</a>	This type is used for the E: Devart.UniDac.TUniAlerter.OnEvent event.

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### 16.6.2.1 TAlerterErrorEvent Procedure Reference

This type is used for the TDAAlerter.OnError event.

#### Unit

[DAAlerter](#)

#### Syntax

```
TAlerterErrorEvent = procedure (Sender: TDAAlerter; E: Exception)
of object;
```

#### Parameters

*Sender*

An object that raised the event.

*E*

Exception object.

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### 16.6.2.2 TAlerterEventEvent Procedure Reference

This type is used for the E:Devart.UniDac.TUniAlerter.OnEvent event.

#### Unit

[DAAlerter](#)

#### Syntax

```
TAlerterEventEvent = procedure (Sender: TDAAlerter; const
EventName: string; const Message: string) of object;
```

#### Parameters

*Sender*

An object that raised the event.

*EventName*

A name of event (alert or pipe).

*Message*

The content of message waiting process receives.

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## 16.7 DADump

This unit contains the base class for the TUniDump component.

#### Classes

Name	Description
<a href="#">TDADump</a>	A base class that defines functionality for descendant classes that dump database objects to a script.

[TDADumpOptions](#)

This class allows setting up the behaviour of the TDADump class.

**Types**

Name	Description
<a href="#">TDABackupProgressEvent</a>	This type is used for the <a href="#">TDADump.OnBackupProgress</a> event.
<a href="#">TDARestoreProgressEvent</a>	This type is used for the <a href="#">TDADump.OnRestoreProgress</a> event.

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**16.7.1 Classes**

Classes in the **DADump** unit.

**Classes**

Name	Description
<a href="#">TDADump</a>	A base class that defines functionality for descendant classes that dump database objects to a script.
<a href="#">TDADumpOptions</a>	This class allows setting up the behaviour of the TDADump class.

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**16.7.1.1 TDADump Class**

A base class that defines functionality for descendant classes that dump database objects to a script.

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

**Unit**

[DADump](#)

**Syntax**

```
TDADump = class (TComponent) ;
```

**Remarks**

TDADump is a base class that defines functionality for descendant classes that dump database objects to a script. Applications never use TDADump objects directly. Instead they use descendants of TDADump.

Use TDADump descendants to dump database objects, such as tables, stored procedures, and functions for backup or for transferring the data to another SQL server. The dump contains SQL statements to create the table or other database

objects and/or populate the table.

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#### 16.7.1.1.1 Members

[TDADump](#) class overview.

### Properties

Name	Description
<a href="#">Connection</a>	Used to specify a connection object that will be used to connect to a data store.
<a href="#">Debug</a>	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">Options</a>	Used to specify the behaviour of a TDADump component.
<a href="#">SQL</a>	Used to set or get the dump script.
<a href="#">TableNames</a>	Used to set the names of the tables to dump.

### Methods

Name	Description
<a href="#">Backup</a>	Dumps database objects to the <a href="#">TDADump.SQL</a> property.
<a href="#">BackupQuery</a>	Dumps the results of a particular query.
<a href="#">BackupToFile</a>	Dumps database objects to the specified file.
<a href="#">BackupToStream</a>	Dumps database objects to the stream.
<a href="#">Restore</a>	Executes a script contained in the SQL property.
<a href="#">RestoreFromFile</a>	Executes a script from a file.
<a href="#">RestoreFromStream</a>	Executes a script received from the stream.

### Events

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

[OnBackupProgress](#)

Occurs to indicate the [TDADump.Backup](#), M: Devart.Dac.TDADump.BackupToFile(System.String) or M: Devart.Dac.TDADump.BackupToStream (Borland.Vcl.TStream) method execution progress.

[OnError](#)

Occurs when server raises some error on [TDADump.Restore](#).

[OnRestoreProgress](#)

Occurs to indicate the [TDADump.Restore](#), [TDADump.RestoreFromFile](#), or [TDADump.RestoreFromStream](#) method execution progress.

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## 16.7.1.1.2 Properties

Properties of the **TDADump** class.

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

**Public**

Name	Description
<a href="#">Connection</a>	Used to specify a connection object that will be used to connect to a data store.
<a href="#">Options</a>	Used to specify the behaviour of a TDADump component.

**Published**

Name	Description
<a href="#">Debug</a>	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">SQL</a>	Used to set or get the dump script.
<a href="#">TableNames</a>	Used to set the names of the tables to dump.

**See Also**

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

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#### 16.7.1.1.2.1 Connection Property

Used to specify a connection object that will be used to connect to a data store.

### Class

[TDADump](#)

### 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 TCustomDAConnection descendant to the Connection property.

### See Also

- [TCustomDAConnection](#)

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#### 16.7.1.1.2.2 Debug Property

Used to display executing statement, all its parameters' values, and the type of parameters.

### Class

[TDADump](#)

### Syntax

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

### Remarks

Used to display executing statement, all its parameters' values, and the type of parameters.

### See Also

- [TCustomDADataSet.Debug](#)
- [TCustomDASQL.Debug](#)

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## 16.7.1.1.2.3 Options Property

Used to specify the behaviour of a TDADump component.

**Class**

[TDADump](#)

**Syntax**

```
property Options: TDADumpOptions;
```

**Remarks**

Use the Options property to specify the behaviour of a TDADump component. Descriptions of all options are in the table below.

Option Name	Description
<a href="#">AddDrop</a>	Used to add drop statements to a script before creating statements.
<a href="#">GenerateHeader</a>	Used to add a comment header to a script.
<a href="#">QuoteNames</a>	Used for TDADump to quote all database object names in generated SQL statements.

---

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## 16.7.1.1.2.4 SQL Property

Used to set or get the dump script.

**Class**

[TDADump](#)

**Syntax**

```
property SQL: _TStrings;
```

**Remarks**

Use the SQL property to get or set the dump script. The SQL property stores script that is executed by the [Restore](#) method. This property will store the result of [Backup](#) and [BackupQuery](#). At design time the SQL property can be edited by invoking the String List editor in Object Inspector.

**See Also**

- [Restore](#)
  - [Backup](#)
  - [BackupQuery](#)
-

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#### 16.7.1.1.2.5 TableNames Property

Used to set the names of the tables to dump.

### Class

[TDADump](#)

### Syntax

```
property TableNames: string;
```

### Remarks

Use the TableNames property to set the names of the tables to dump. Table names must be separated with commas. If it is empty, the [Backup](#) method will dump all available tables.

### See Also

- [Backup](#)

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#### 16.7.1.1.3 Methods

Methods of the **TDADump** class.

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

### Public

Name	Description
<a href="#">Backup</a>	Dumps database objects to the <a href="#">TDADump.SQL</a> property.
<a href="#">BackupQuery</a>	Dumps the results of a particular query.
<a href="#">BackupToFile</a>	Dumps database objects to the specified file.
<a href="#">BackupToStream</a>	Dumps database objects to the stream.
<a href="#">Restore</a>	Executes a script contained in the SQL property.
<a href="#">RestoreFromFile</a>	Executes a script from a file.
<a href="#">RestoreFromStream</a>	Executes a script received from the stream.

### See Also

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

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#### 16.7.1.1.3.1 Backup Method

Dumps database objects to the [SQL](#) property.

### Class

[TDADump](#)

### Syntax

```
procedure Backup;
```

### Remarks

Call the Backup method to dump database objects. The result script will be stored in the [SQL](#) property.

### See Also

- [SQL](#)
  - [Restore](#)
  - [BackupToFile](#)
  - [BackupToStream](#)
  - [BackupQuery](#)
- 

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#### 16.7.1.1.3.2 BackupQuery Method

Dumps the results of a particular query.

### Class

[TDADump](#)

### Syntax

```
procedure BackupQuery(const Query: string);
```

#### Parameters

*Query*

Holds a query used for data selection.

### Remarks

Call the BackupQuery method to dump the results of a particular query. Query must be a valid select statement. If this query selects data from several tables, only data of the first table in the from list will be dumped.

### See Also

- [Restore](#)
- [Backup](#)

- [BackupToFile](#)
- [BackupToStream](#)

---

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#### 16.7.1.1.3.3 BackupToFile Method

Dumps database objects to the specified file.

### Class

[TDADump](#)

### Syntax

```
procedure BackupToFile(const FileName: string; const Query: string = '');
```

### Parameters

*FileName*

Holds the file name to dump database objects to.

*Query*

Your query to receive the data for dumping.

### Remarks

Call the BackupToFile method to dump database objects to the specified file.

### See Also

- [RestoreFromStream](#)
- [Backup](#)
- [BackupToStream](#)

---

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#### 16.7.1.1.3.4 BackupToStream Method

Dumps database objects to the stream.

### Class

[TDADump](#)

### Syntax

```
procedure BackupToStream(Stream: TStream; const Query: string = '' );
```

### Parameters

*Stream*

Holds the stream to dump database objects to.

*Query*

Your query to receive the data for dumping.

### Remarks

Call the BackupToStream method to dump database objects to the stream.

### See Also

- [RestoreFromStream](#)
  - [Backup](#)
  - [BackupToFile](#)
- 

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#### 16.7.1.1.3.5 Restore Method

Executes a script contained in the SQL property.

### Class

[TDADump](#)

### Syntax

```
procedure Restore;
```

### Remarks

Call the Restore method to execute a script contained in the SQL property.

### See Also

- [RestoreFromFile](#)
  - [RestoreFromStream](#)
  - [Backup](#)
  - [SQL](#)
- 

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#### 16.7.1.1.3.6 RestoreFromFile Method

Executes a script from a file.

### Class

[TDADump](#)

### Syntax

```
procedure RestoreFromFile(const FileName: string);
```

### Parameters

*FileName*

Holds the file name to execute a script from.

### Remarks

Call the RestoreFromFile method to execute a script from the specified file.

## See Also

- [Restore](#)
- [RestoreFromStream](#)
- [BackupToFile](#)

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### 16.7.1.1.3.7 RestoreFromStream Method

Executes a script received from the stream.

## Class

[TDADump](#)

## Syntax

```
procedure RestoreFromStream(Stream: TStream);
```

### Parameters

*Stream*

Holds a stream to receive a script to be executed.

## Remarks

Call the RestoreFromStream method to execute a script received from the stream.

## See Also

- [Restore](#)
- [RestoreFromFile](#)
- [BackupToStream](#)

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### 16.7.1.1.4 Events

Events of the **TDADump** class.

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

## Published

Name	Description
<a href="#">OnBackupProgress</a>	Occurs to indicate the <a href="#">TDADump.Backup</a> , M: Devart.Dac.TDADump.BackupToFile(System.String) or M: Devart.Dac.TDADump.BackupToStream (Borland.Vcl.TStream) method execution progress.

[OnError](#)

Occurs when server raises some error on [TDADump.Restore](#).

[OnRestoreProgress](#)

Occurs to indicate the [TDADump.Restore](#), [TDADump.RestoreFromFile](#), or [TDADump.RestoreFromStream](#) method execution progress.

**See Also**

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

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## 16.7.1.1.4.1 OnBackupProgress Event

Occurs to indicate the [Backup](#), M:Devart.Dac.TDADump.BackupToFile(System.String) or M:Devart.Dac.TDADump.BackupToStream(Borland.Vcl.TStream) method execution progress.

**Class**

[TDADump](#)

**Syntax**

```
property OnBackupProgress: TDABackupProgressEvent;
```

**Remarks**

The OnBackupProgress event occurs several times during the dumping process of the [Backup](#), M:Devart.Dac.TDADump.BackupToFile(System.String), or M:Devart.Dac.TDADump.BackupToStream(Borland.Vcl.TStream) method execution and indicates its progress. ObjectName parameter indicates the name of the currently dumping database object. ObjectNum shows the number of the current database object in the backup queue starting from zero. ObjectCount shows the quantity of database objects to dump. Percent parameter shows the current percentage of the current table data dumped, not the current percentage of the entire dump process.

**See Also**

- [Backup](#)
  - [BackupToFile](#)
  - [BackupToStream](#)
- 

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## 16.7.1.1.4.2 OnError Event

Occurs when server raises some error on [Restore](#).

**Class**

[TDADump](#)**Syntax**

```
property OnError: TOnErrorEvent;
```

**Remarks**

The OnError event occurs when server raises some error on [Restore](#).

Action indicates the action to take when the OnError handler exits. On entry into the handler, Action is always set to eaException.

**Note:** You should add the DAScript module to the 'uses' list to use the OnError event handler.

---

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#### 16.7.1.1.4.3 OnRestoreProgress Event

Occurs to indicate the [Restore](#), [RestoreFromFile](#), or [RestoreFromStream](#) method execution progress.

**Class**[TDADump](#)**Syntax**

```
property OnRestoreProgress: TDARestoreProgressEvent;
```

**Remarks**

The OnRestoreProgress event occurs several times during the dumping process of the [Restore](#), [RestoreFromFile](#), or [RestoreFromStream](#) method execution and indicates its progress. The Percent parameter of the OnRestoreProgress event handler indicates the percentage of the whole restore script execution.

**See Also**

- [Restore](#)
- [RestoreFromFile](#)
- [RestoreFromStream](#)

---

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#### 16.7.1.2 TDADumpOptions Class

This class allows setting up the behaviour of the TDADump class.

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

**Unit**[DADump](#)**Syntax**

```
TDADumpOptions = class (TPersistent);
```

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#### 16.7.1.2.1 Members

[TDADumpOptions](#) class overview.

### Properties

Name	Description
<a href="#">AddDrop</a>	Used to add drop statements to a script before creating statements.
<a href="#">GenerateHeader</a>	Used to add a comment header to a script.
<a href="#">QuoteNames</a>	Used for TDADump to quote all database object names in generated SQL statements.

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#### 16.7.1.2.2 Properties

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

### Published

Name	Description
<a href="#">AddDrop</a>	Used to add drop statements to a script before creating statements.
<a href="#">GenerateHeader</a>	Used to add a comment header to a script.
<a href="#">QuoteNames</a>	Used for TDADump to quote all database object names in generated SQL statements.

### See Also

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

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#### 16.7.1.2.2.1 AddDrop Property

Used to add drop statements to a script before creating statements.

### Class

[TDADumpOptions](#)

### Syntax

```
property AddDrop: boolean default True;
```

## Remarks

Use the AddDrop property to add drop statements to a script before creating statements.

---

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### 16.7.1.2.2.2 GenerateHeader Property

Used to add a comment header to a script.

## Class

[TDADumpOptions](#)

## Syntax

```
property GenerateHeader: boolean default True;
```

## Remarks

Use the GenerateHeader property to add a comment header to a script. It contains script generation date, DAC version, and some other information.

---

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### 16.7.1.2.2.3 QuoteNames Property

Used for TDADump to quote all database object names in generated SQL statements.

## Class

[TDADumpOptions](#)

## Syntax

```
property QuoteNames: boolean default False;
```

## Remarks

If the QuoteNames property is True, TDADump quotes all database object names in generated SQL statements.

---

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## 16.7.2 Types

Types in the **DADump** unit.

## Types

Name	Description
<a href="#">TDABackupProgressEvent</a>	This type is used for the <a href="#">TDADump.OnBackupProgress</a> event.

[TDARestoreProgressEvent](#)

This type is used for the [TDADump.OnRestoreProgress](#) event.

---

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### 16.7.2.1 TDABackupProgressEvent Procedure Reference

This type is used for the [TDADump.OnBackupProgress](#) event.

#### Unit

[DADump](#)

#### Syntax

```
TDABackupProgressEvent = procedure (Sender: TObject; ObjectName: string; ObjectNum: integer; ObjectCount: integer; Percent: integer) of object;
```

#### Parameters

*Sender*

An object that raised the event.

*ObjectName*

The name of the currently dumping database object.

*ObjectNum*

The number of the current database object in the backup queue starting from zero.

*ObjectCount*

The quantity of database objects to dump.

*Percent*

The current percentage of the current table data dumped.

---

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### 16.7.2.2 TDARestoreProgressEvent Procedure Reference

This type is used for the [TDADump.OnRestoreProgress](#) event.

#### Unit

[DADump](#)

#### Syntax

```
TDARestoreProgressEvent = procedure (Sender: TObject; Percent: integer) of object;
```

#### Parameters

*Sender*

An object that raised the event.

*Percent*

The percentage of the whole restore script execution.

---

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## 16.8 DALoader

This unit contains the base class for the TUniLoader component.

### Classes

Name	Description
<a href="#">TDAColumn</a>	Represents the attributes for column loading.
<a href="#">TDAColumns</a>	Holds a collection of <a href="#">TDAColumn</a> objects.
<a href="#">TDALoader</a>	This class allows loading external data into database.

### Types

Name	Description
<a href="#">TDAPutDataEvent</a>	This type is used for the <a href="#">TDALoader.OnPutData</a> event.
<a href="#">TGetColumnDataEvent</a>	This type is used for the <a href="#">TDALoader.OnGetColumnData</a> event.
<a href="#">TLoaderProgressEvent</a>	This type is used for the <a href="#">TDALoader.OnProgress</a> event.

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### 16.8.1 Classes

Classes in the **DALoader** unit.

#### Classes

Name	Description
<a href="#">TDAColumn</a>	Represents the attributes for column loading.
<a href="#">TDAColumns</a>	Holds a collection of <a href="#">TDAColumn</a> objects.
<a href="#">TDALoader</a>	This class allows loading external data into database.

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#### 16.8.1.1 TDAColumn Class

Represents the attributes for column loading.  
For a list of all members of this type, see [TDAColumn](#) members.

#### Unit

[DLoader](#)**Syntax**

```
TDAColumn = class (TCollectionItem);
```

**Remarks**

Each [TDALoader](#) uses [TDAColumns](#) to maintain a collection of TDAColumn objects. TDAColumn object represents the attributes for column loading. Every TDAColumn object corresponds to one of the table fields with the same name as its [TDAColumn.Name](#) property.

To create columns at design-time use the column editor of the [TDALoader](#) component.

**See Also**

- [TDALoader](#)
- [TDAColumns](#)

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## 16.8.1.1.1 Members

[TDAColumn](#) class overview.

**Properties**

Name	Description
<a href="#">FieldType</a>	Used to specify the types of values that will be loaded.
<a href="#">Name</a>	Used to specify the field name of loading table.

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## 16.8.1.1.2 Properties

Properties of the **TDAColumn** class.

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

**Published**

Name	Description
<a href="#">FieldType</a>	Used to specify the types of values that will be loaded.
<a href="#">Name</a>	Used to specify the field name of loading table.

**See Also**

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

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#### 16.8.1.1.2.1 FieldType Property

Used to specify the types of values that will be loaded.

### Class

[TDAColumn](#)

### Syntax

```
property FieldType: TFieldType default ftString;
```

### Remarks

Use the FieldType property to specify the types of values that will be loaded. Field types for columns may not match data types for the corresponding fields in the database table. [TDALoader](#) will cast data values to the types of their fields.

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#### 16.8.1.1.2.2 Name Property

Used to specify the field name of loading table.

### Class

[TDAColumn](#)

### Syntax

```
property Name: string;
```

### Remarks

Each TDAColumn corresponds to one field of the loading table. Use the Name property to specify the name of this field.

### See Also

- [FieldType](#)

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#### 16.8.1.2 TDAColumns Class

Holds a collection of [TDAColumn](#) objects.  
For a list of all members of this type, see [TDAColumns](#) members.

### Unit

[DALoader](#)

### Syntax

```
TDAColumns = class(TOwnedCollection);
```

**Remarks**

Each TDAColumns holds a collection of [TDAColumn](#) objects. TDAColumns maintains an index of the columns in its Items array. The Count property contains the number of columns in the collection. At design-time, use the Columns editor to add, remove, or modify columns.

**See Also**

- [TDALoader](#)
  - [TDAColumn](#)
- 

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## 16.8.1.2.1 Members

[TDAColumns](#) class overview.

**Properties**

Name	Description
<a href="#">Items</a>	Used to access individual columns.

---

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## 16.8.1.2.2 Properties

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

**Public**

Name	Description
<a href="#">Items</a>	Used to access individual columns.

**See Also**

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

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## 16.8.1.2.2.1 Items Property(Indexer)

Used to access individual columns.

**Class**

[TDAColumns](#)

**Syntax**

```
property Items[Index: integer]: TDAColumn; default;
```

### Parameters

#### *Index*

Holds the Index of [TDAColumn](#) to refer to.

### Remarks

Use the Items property to access individual columns. The value of the Index parameter corresponds to the Index property of [TDAColumn](#).

### See Also

- [TDAColumn](#)

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#### 16.8.1.3 TDALoader Class

This class allows loading external data into database.

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

### Unit

[DALoader](#)

### Syntax

```
TDALoader = class(TComponent);
```

### Remarks

TDALoader allows loading external data into database. To specify the name of loading table set the [TDALoader.TableName](#) property. Use the [TDALoader.Columns](#) property to access individual columns. Write the [TDALoader.OnGetColumnData](#) or [TDALoader.OnPutData](#) event handlers to read external data and pass it to the database. Call the [TDALoader.Load](#) method to start loading data.

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#### 16.8.1.3.1 Members

[TDALoader](#) class overview.

### Properties

Name	Description
<a href="#">Columns</a>	Used to add a <a href="#">TDAColumn</a> object for each field that will be loaded.
<a href="#">Connection</a>	Used to specify TCustomDACConnection in which TDALoader will be executed.

[TableName](#)

Used to specify the name of the table to which data will be loaded.

**Methods**

Name	Description
<a href="#">CreateColumns</a>	Creates <a href="#">TDAColumn</a> objects for all fields of the table with the same name as <a href="#">TDALoader.TableName</a> .
<a href="#">Load</a>	Starts loading data.
<a href="#">LoadFromDataSet</a>	Loads data from the specified dataset.
<a href="#">PutColumnData</a>	Overloaded. Puts the value of individual columns.

**Events**

Name	Description
<a href="#">OnGetColumnData</a>	Occurs when it is needed to put column values.
<a href="#">OnProgress</a>	Occurs if handling data loading progress of the <a href="#">TDALoader</a> . <a href="#">LoadFromDataSet</a> method is needed.
<a href="#">OnPutData</a>	Occurs when putting loading data by rows is needed.

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## 16.8.1.3.2 Properties

Properties of the **TDALoader** class.

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

**Public**

Name	Description
<a href="#">Columns</a>	Used to add a <a href="#">TDAColumn</a> object for each field that will be loaded.
<a href="#">Connection</a>	Used to specify <a href="#">TCustomDAConnection</a> in which <a href="#">TDALoader</a> will be executed.
<a href="#">TableName</a>	Used to specify the name of the table to which data will be loaded.

---

**See Also**

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

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#### 16.8.1.3.2.1 Columns Property

Used to add a [TDAColumn](#) object for each field that will be loaded.

**Class**

[TDALoader](#)

**Syntax**

```
property Columns: TDAColumns stored IsColumnsStored;
```

**Remarks**

Use the Columns property to add a [TDAColumn](#) object for each field that will be loaded.

**See Also**

- [TDAColumns](#)
- 

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#### 16.8.1.3.2.2 Connection Property

Used to specify TCustomDAConnection in which TDALoader will be executed.

**Class**

[TDALoader](#)

**Syntax**

```
property Connection: TCustomDAConnection;
```

**Remarks**

Use the Connection property to specify TCustomDAConnection in which TDALoader will be executed. If Connection is not connected, the [Load](#) method calls [TCustomDAConnection.Connect](#).

**See Also**

- [TCustomDAConnection](#)
- 

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## 16.8.1.3.2.3 TableName Property

Used to specify the name of the table to which data will be loaded.

**Class**

[TDALoader](#)

**Syntax**

```
property TableName: string;
```

**Remarks**

Set the TableName property to specify the name of the table to which data will be loaded. Add TDAColumn objects to [Columns](#) for the fields that are needed to be loaded.

**See Also**

- [TDAColumn](#)
  - [TCustomDAConnection.GetTableNames](#)
- 

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## 16.8.1.3.3 Methods

Methods of the **TDALoader** class.

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

**Public**

Name	Description
<a href="#">CreateColumns</a>	Creates <a href="#">TDAColumn</a> objects for all fields of the table with the same name as <a href="#">TDALoader.TableName</a> .
<a href="#">Load</a>	Starts loading data.
<a href="#">LoadFromDataSet</a>	Loads data from the specified dataset.
<a href="#">PutColumnData</a>	Overloaded. Puts the value of individual columns.

**See Also**

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

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## 16.8.1.3.3.1 CreateColumns Method

Creates [TDAColumn](#) objects for all fields of the table with the same name as [TableName](#).

## Class

[TDALoader](#)

## Syntax

```
procedure CreateColumns;
```

## Remarks

Call the CreateColumns method to create [TDAColumn](#) objects for all fields of the table with the same name as [TableName](#). If columns were created before, they will be recreated. You can call CreateColumns from the component popup menu at design-time. After you can customize column loading by setting properties of TDAColumn objects.

## See Also

- [TDAColumn](#)
- [TableName](#)

---

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### 16.8.1.3.3.2 Load Method

Starts loading data.

## Class

[TDALoader](#)

## Syntax

```
procedure Load; virtual;
```

## Remarks

Call the Load method to start loading data. At first it is necessary to [create columns](#) and write one of the [OnPutData](#) or [OnGetColumnData](#) event handlers.

## See Also

- [OnGetColumnData](#)
- [OnPutData](#)

---

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### 16.8.1.3.3.3 LoadFromDataSet Method

Loads data from the specified dataset.

## Class

[TDALoader](#)

## Syntax

```
procedure LoadFromDataSet (DataSet: TDataSet);
```

### Parameters

*DataSet*

Holds the dataset to load data from.

## Remarks

Call the LoadFromDataSet method to load data from the specified dataset. There is no need to create columns and write event handlers for [OnPutData](#) and [OnGetColumnData](#) before calling this method.

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### 16.8.1.3.3.4 PutColumnData Method

Puts the value of individual columns.

## Class

[TDALoader](#)

## Overload List

Name	Description
<a href="#">PutColumnData(Col: integer; Row: integer; <b>const</b> Value: variant)</a>	Puts the value of individual columns by the column index.
<a href="#">PutColumnData(<b>const</b> ColName: string; Row: integer; <b>const</b> Value: variant)</a>	Puts the value of individual columns by the column name.

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Puts the value of individual columns by the column index.

## Class

[TDALoader](#)

## Syntax

```
procedure PutColumnData(Col: integer; Row: integer; const Value: variant); overload; virtual
```

### Parameters

*Col*

Holds the index of a loading column. The first column has index 0.

*Row*

Holds the number of loading row. Row starts from 1.

*Value*

Holds the column value.

## Remarks

Call the PutColumnData method to put the value of individual columns. The Col parameter indicates the index of loading column. The first column has index 0. The Row parameter indicates the number of the loading row. Row starts from 1. This overloaded method works faster because it searches the right index by its index, not by the index name.

The value of a column should be assigned to the Value parameter.

## See Also

- [TDALoader.OnPutData](#)

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Puts the value of individual columns by the column name.

## Class

[TDALoader](#)

## Syntax

```
procedure PutColumnData(const ColName: string; Row: integer; const Value: variant); overload
```

### Parameters

*ColName*

Holds the name of a loading column.

*Row*

Holds the number of loading row. Row starts from 1.

*Value*

Holds the column value.

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### 16.8.1.3.4 Events

Events of the **TDALoader** class.

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

## Public

Name	Description
<a href="#">OnGetColumnData</a>	Occurs when it is needed to put column values.
<a href="#">OnProgress</a>	Occurs if handling data loading progress of the <a href="#">TDALoader</a> . <a href="#">LoadFromDataSet</a> method is needed.
<a href="#">OnPutData</a>	Occurs when putting loading data by rows is needed.

**See Also**

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

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## 16.8.1.3.4.1 OnGetColumnData Event

Occurs when it is needed to put column values.

**Class**

[TDALoader](#)

**Syntax**

```
property OnGetColumnData: TGetColumnDataEvent;
```

**Remarks**

Write the OnGetColumnData event handler to put column values. [TDALoader](#) calls the OnGetColumnData event handler for each column in the loop. Column points to a [TDAColumn](#) object that corresponds to the current loading column. Use its Name or Index property to identify what column is loading. The Row parameter indicates the current loading record. TDALoader increments the Row parameter when all the columns of the current record are loaded. The first row is 1. Set EOF to True to stop data loading. Fill the Value parameter by column values. To start loading call the [Load](#) method.

Another way to load data is using the [OnPutData](#) event.

**Example**

This handler loads 1000 rows.

```
procedure TfmMain.GetColumnData(Sender: TObject;  
    Column: TDAColumn; Row: Integer; var Value: Variant;  
    var EOF: Boolean);  
begin  
    if Row <= 1000 then begin  
        case Column.Index of  
            0: Value := Row;  
            1: Value := Random(100);  
            2: Value := Random*100;  
            3: Value := 'abc01234567890123456789';  
            4: Value := Date;  
        else  
            Value := Null;  
        end;  
    end  
    else  
        EOF := True;  
end;
```

**See Also**

- [OnPutData](#)
- [Load](#)

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#### 16.8.1.3.4.2 OnProgress Event

Occurs if handling data loading progress of the [LoadFromDataSet](#) method is needed.

### Class

[TDALoader](#)

### Syntax

```
property OnProgress: TLoaderProgressEvent;
```

### Remarks

Add a handler to this event if you want to handle data loading progress of the [LoadFromDataSet](#) method.

### See Also

- [LoadFromDataSet](#)

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#### 16.8.1.3.4.3 OnPutData Event

Occurs when putting loading data by rows is needed.

### Class

[TDALoader](#)

### Syntax

```
property OnPutData: TDAPutDataEvent;
```

### Remarks

Write the OnPutData event handler to put loading data by rows. Note that rows should be loaded from the first in the ascending order. To start loading, call the [Load](#) method.

### Example

This handler loads 1000 rows.

```
procedure TfmMain.PutData(Sender: TDALoader);  
var  
    Count: Integer;  
    i: Integer;  
begin  
    Count := StrToInt(edRows.Text);  
    for i := 1 to Count do begin
```

```

Sender.PutColumnData(0, i, 1);
Sender.PutColumnData(1, i, Random(100));
Sender.PutColumnData(2, i, Random*100);
Sender.PutColumnData(3, i, 'abc01234567890123456789');
Sender.PutColumnData(4, i, Date);
end;
end;

```

## See Also

- [TDALoader.PutColumnData](#)
- [Load](#)
- [OnGetColumnData](#)

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## 16.8.2 Types

Types in the **DALoader** unit.

### Types

Name	Description
<a href="#">TDAPutDataEvent</a>	This type is used for the <a href="#">TDALoader.OnPutData</a> event.
<a href="#">TGetColumnDataEvent</a>	This type is used for the <a href="#">TDALoader.OnGetColumnData</a> event.
<a href="#">TLoaderProgressEvent</a>	This type is used for the <a href="#">TDALoader.OnProgress</a> event.

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### 16.8.2.1 TDAPutDataEvent Procedure Reference

This type is used for the [TDALoader.OnPutData](#) event.

#### Unit

[DALoader](#)

#### Syntax

```
TDAPutDataEvent = procedure (Sender: TDALoader) of object;
```

#### Parameters

*Sender*

An object that raised the event.

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### 16.8.2.2 TGetColumnDataEvent Procedure Reference

This type is used for the [TDALoader.OnGetColumnData](#) event.

#### Unit

[DALoader](#)

#### Syntax

```
TGetColumnDataEvent = procedure (Sender: TObject; Column: TDAColumn; Row: integer; var Value: variant; var IsEOF: boolean) of object;
```

#### Parameters

##### *Sender*

An object that raised the event.

##### *Column*

Points to [TDAColumn](#) object that corresponds to the current loading column.

##### *Row*

Indicates the current loading record.

##### *Value*

Holds column values.

##### *IsEOF*

True, if data loading needs to be stopped.

---

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### 16.8.2.3 TLoaderProgressEvent Procedure Reference

This type is used for the [TDALoader.OnProgress](#) event.

#### Unit

[DALoader](#)

#### Syntax

```
TLoaderProgressEvent = procedure (Sender: TObject; Percent: integer) of object;
```

#### Parameters

##### *Sender*

An object that raised the event.

##### *Percent*

Percentage of the load operation progress.

---

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## 16.9 DAScript

This unit contains the base class for the TUniScript component.

#### Classes

Name	Description
<a href="#">TDAScript</a>	Makes it possible to execute several SQL statements one by one.
<a href="#">TDAStatement</a>	This class has attributes and methods for controlling single SQL statement of a script.
<a href="#">TDAStatements</a>	Holds a collection of <a href="#">TDAStatement</a> objects.

### Types

Name	Description
<a href="#">TAfterStatementExecuteEvent</a>	This type is used for the <a href="#">TDAScript.AfterExecute</a> event.
<a href="#">TBeforeStatementExecuteEvent</a>	This type is used for the <a href="#">TDAScript.BeforeExecute</a> event.
<a href="#">TOnErrorEvent</a>	This type is used for the <a href="#">TDAScript.OnError</a> event.

### Enumerations

Name	Description
<a href="#">TErrorAction</a>	Indicates the action to take when the OnError handler exits.

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## 16.9.1 Classes

Classes in the **DAScript** unit.

### Classes

Name	Description
<a href="#">TDAScript</a>	Makes it possible to execute several SQL statements one by one.
<a href="#">TDAStatement</a>	This class has attributes and methods for controlling single SQL statement of a script.
<a href="#">TDAStatements</a>	Holds a collection of <a href="#">TDAStatement</a> objects.

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### 16.9.1.1 TDAScript Class

Makes it possible to execute several SQL statements one by one. For a list of all members of this type, see [TDAScript](#) members.

#### Unit

[DAScript](#)

#### Syntax

```
TDAScript = class (TComponent);
```

#### Remarks

Often it is necessary to execute several SQL statements one by one. This can be performed using a lot of components such as [TCustomDASQL](#) descendants. Usually it isn't the best solution. With only one TDAScript descendant component you can execute several SQL statements as one. This sequence of statements is called script. To separate single statements use semicolon (;) or slash (/) and for statements that can contain semicolon, only slash. Note that slash must be the first character in line.

Errors that occur during execution can be processed in the [TDAScript.OnError](#) event handler. By default, on error TDAScript shows exception and continues execution.

#### See Also

- [TCustomDASQL](#)

---

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#### 16.9.1.1.1 Members

[TDAScript](#) class overview.

#### Properties

Name	Description
<a href="#">Connection</a>	Used to specify the connection in which the script will be executed.
<a href="#">DataSet</a>	Refers to a dataset that holds the result set of query execution.
<a href="#">Debug</a>	Used to display the script execution and all its parameter values.
<a href="#">Delimiter</a>	Used to set the delimiter string that separates script statements.
<a href="#">EndLine</a>	Used to get the current statement last line number in a script.

<a href="#">EndOffset</a>	Used to get the offset in the last line of the current statement.
<a href="#">EndPos</a>	Used to get the end position of the current statement.
<a href="#">Macros</a>	Used to change SQL script text in design- or run-time easily.
<a href="#">SQL</a>	Used to get or set script text.
<a href="#">StartLine</a>	Used to get the current statement start line number in a script.
<a href="#">StartOffset</a>	Used to get the offset in the first line of the current statement.
<a href="#">StartPos</a>	Used to get the start position of the current statement in a script.
<a href="#">Statements</a>	Contains a list of statements obtained from the SQL property.

## Methods

Name	Description
<a href="#">BreakExec</a>	Stops script execution.
<a href="#">ErrorOffset</a>	Used to get the offset of the statement if the Execute method raised an exception.
<a href="#">Execute</a>	Executes a script.
<a href="#">ExecuteFile</a>	Executes SQL statements contained in a file.
<a href="#">ExecuteNext</a>	Executes the next statement in the script and then stops.
<a href="#">ExecuteStream</a>	Executes SQL statements contained in a stream object.
<a href="#">FindMacro</a>	Indicates whether a specified macro exists in a dataset.
<a href="#">MacroByName</a>	Finds a Macro with the name passed in Name.

## Events

Name	Description
<a href="#">AfterExecute</a>	Occurs after a SQL script execution.

[BeforeExecute](#)

Occurs when taking a specific action before executing the current SQL statement is needed.

[OnError](#)

Occurs when server raises an error.

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#### 16.9.1.1.2 Properties

Properties of the **TDAScript** class.

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

#### Public

Name	Description
<a href="#">Connection</a>	Used to specify the connection in which the script will be executed.
<a href="#">DataSet</a>	Refers to a dataset that holds the result set of query execution.
<a href="#">EndLine</a>	Used to get the current statement last line number in a script.
<a href="#">EndOffset</a>	Used to get the offset in the last line of the current statement.
<a href="#">EndPos</a>	Used to get the end position of the current statement.
<a href="#">StartLine</a>	Used to get the current statement start line number in a script.
<a href="#">StartOffset</a>	Used to get the offset in the first line of the current statement.
<a href="#">StartPos</a>	Used to get the start position of the current statement in a script.
<a href="#">Statements</a>	Contains a list of statements obtained from the SQL property.

#### Published

Name	Description
<a href="#">Debug</a>	Used to display the script execution and all its parameter values.

[Delimiter](#)

Used to set the delimiter string that separates script statements.

[Macros](#)

Used to change SQL script text in design- or run-time easily.

[SQL](#)

Used to get or set script text.

### See Also

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

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#### 16.9.1.1.2.1 Connection Property

Used to specify the connection in which the script will be executed.

### Class

[TDAScript](#)

### Syntax

```
property Connection: TCustomDAConnection;
```

### Remarks

Use the Connection property to specify the connection in which the script will be executed. If Connection is not connected, the [Execute](#) method calls the Connect method of Connection.

Set at design-time by selecting from the list of provided [TCustomDAConnection](#) objects.

At run-time, set the Connection property to reference an existing TCustomDAConnection object.

### See Also

- [TCustomDAConnection](#)
- 

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#### 16.9.1.1.2.2 DataSet Property

Refers to a dataset that holds the result set of query execution.

### Class

[TDAScript](#)

### Syntax

```
property DataSet: TCustomDADataSet;
```

## Remarks

Set the DataSet property to retrieve the results of the SELECT statements execution inside a script.

## See Also

- [ExecuteNext](#)
- [Execute](#)

---

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### 16.9.1.1.2.3 Debug Property

Used to display the script execution and all its parameter values.

## Class

[TDAScript](#)

## Syntax

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

## Remarks

Set the Debug property to True to display the script execution and all its parameter values. Also displays the type of parameters.

---

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### 16.9.1.1.2.4 Delimiter Property

Used to set the delimiter string that separates script statements.

## Class

[TDAScript](#)

## Syntax

```
property Delimiter: string stored IsDelimiterStored;
```

## Remarks

Use the Delimiter property to set the delimiter string that separates script statements. By default it is semicolon (;). You can use slash (/) to separate statements that can contain semicolon if the Delimiter property's default value is semicolon. Note that slash must be the first character in line.

---

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### 16.9.1.1.2.5 EndLine Property

Used to get the current statement last line number in a script.

## Class

[TDAScript](#)

### Syntax

```
property EndLine: Int64;
```

### Remarks

Use the EndLine property to get the current statement last line number in a script.

---

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#### 16.9.1.1.2.6 EndOffset Property

Used to get the offset in the last line of the current statement.

### Class

[TDAScript](#)

### Syntax

```
property EndOffset: Int64;
```

### Remarks

Use the EndOffset property to get the offset in the last line of the current statement.

---

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#### 16.9.1.1.2.7 EndPos Property

Used to get the end position of the current statement.

### Class

[TDAScript](#)

### Syntax

```
property EndPos: Int64;
```

### Remarks

Use the EndPos property to get the end position of the current statement (the position of the last character in the statement) in a script.

---

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#### 16.9.1.1.2.8 Macros Property

Used to change SQL script text in design- or run-time easily.

### Class

[TDAScript](#)

### Syntax

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

## Remarks

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

## See Also

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

---

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### 16.9.1.1.2.9 SQL Property

Used to get or set script text.

## Class

[TDAScript](#)

## Syntax

```
property SQL: _TStrings;
```

## Remarks

Use the SQL property to get or set script text.

---

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### 16.9.1.1.2.10 StartLine Property

Used to get the current statement start line number in a script.

## Class

[TDAScript](#)

## Syntax

```
property StartLine: Int64;
```

## Remarks

Use the StartLine property to get the current statement start line number in a script.

---

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## 16.9.1.1.2.11 StartOffset Property

Used to get the offset in the first line of the current statement.

**Class**

[TDAScript](#)

**Syntax**

```
property StartOffset: Int64;
```

**Remarks**

Use the StartOffset property to get the offset in the first line of the current statement.

---

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## 16.9.1.1.2.12 StartPos Property

Used to get the start position of the current statement in a script.

**Class**

[TDAScript](#)

**Syntax**

```
property StartPos: Int64;
```

**Remarks**

Use the StartPos property to get the start position of the current statement (the position of the first statement character) in a script.

---

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## 16.9.1.1.2.13 Statements Property

Contains a list of statements obtained from the SQL property.

**Class**

[TDAScript](#)

**Syntax**

```
property Statements: TDASentences;
```

**Remarks**

Contains a list of statements that are obtained from the SQL property. Use the Access Statements property to view SQL statement, set parameters or execute the specified statement. Statements is a zero-based array of statement records. Index specifies the array element to access.

For example, consider the following script:

```
CREATE TABLE A (FIELD1 INTEGER);  
INSERT INTO A VALUES (1);  
INSERT INTO A VALUES (2);  
INSERT INTO A VALUES (3);
```

```
CREATE TABLE B (FIELD1 INTEGER);
INSERT INTO B VALUES (1);
INSERT INTO B VALUES (2);
INSERT INTO B VALUES (3);
```

**Note:** The list of statements is created and filled when the value of Statements property is requested. That's why the first access to the Statements property can take a long time.

## Example

You can use the Statements property in the following way:

```
procedure TForm1.Button1Click(Sender: TObject);
var
  i: integer;
begin
  with Script do
  begin
    for i := 0 to Statements.Count - 1 do
      if Copy(Statements[i].SQL, 1, 6) <> 'CREATE' then
        Statements[i].Execute;
    end;
  end;
end;
```

## See Also

- [TDAStatements](#)

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### 16.9.1.1.3 Methods

Methods of the **TDAScript** class.

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

## Public

Name	Description
<a href="#">BreakExec</a>	Stops script execution.
<a href="#">ErrorOffset</a>	Used to get the offset of the statement if the Execute method raised an exception.
<a href="#">Execute</a>	Executes a script.
<a href="#">ExecuteFile</a>	Executes SQL statements contained in a file.
<a href="#">ExecuteNext</a>	Executes the next statement in the script and then stops.
<a href="#">ExecuteStream</a>	Executes SQL statements contained in a stream object.

[FindMacro](#)

Indicates whether a specified macro exists in a dataset.

[MacroByName](#)

Finds a Macro with the name passed in Name.

### See Also

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

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#### 16.9.1.1.3.1 BreakExec Method

Stops script execution.

### Class

[TDAScript](#)

### Syntax

```
procedure BreakExec; virtual;
```

### Remarks

Call the BreakExec method to stop script execution.

---

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#### 16.9.1.1.3.2 ErrorOffset Method

Used to get the offset of the statement if the Execute method raised an exception.

### Class

[TDAScript](#)

### Syntax

```
function ErrorOffset: Int64;
```

### Return Value

offset of an error.

### Remarks

Call the ErrorOffset method to get the offset of the statement if the Execute method raised an exception.

### See Also

- [OnError](#)
- 

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#### 16.9.1.1.3.3 Execute Method

Executes a script.

#### Class

[TDAScript](#)

#### Syntax

```
procedure Execute; virtual;
```

#### Remarks

Call the Execute method to execute a script. If server raises an error, the OnError event occurs.

#### See Also

- [ExecuteNext](#)
- [OnError](#)
- [ErrorOffset](#)

---

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#### 16.9.1.1.3.4 ExecuteFile Method

Executes SQL statements contained in a file.

#### Class

[TDAScript](#)

#### Syntax

```
procedure ExecuteFile(const FileName: string);
```

#### Parameters

*FileName*

Holds the file name.

#### Remarks

Call the ExecuteFile method to execute SQL statements contained in a file. Script doesn't load full content into memory. Reading and execution is performed by blocks of 64k size. Therefore, it is optimal to use it for big files.

---

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#### 16.9.1.1.3.5 ExecuteNext Method

Executes the next statement in the script and then stops.

#### Class

[TDAScript](#)

#### Syntax

```
function ExecuteNext: boolean; virtual;  
Return Value
```

True, if there are any statements left in the script, False otherwise.

### Remarks

Use the ExecuteNext method to execute the next statement in the script statement and stop. If server raises an error, the OnError event occurs.

### See Also

- [Execute](#)
  - [OnError](#)
  - [ErrorOffset](#)
- 

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#### 16.9.1.1.3.6 ExecuteStream Method

Executes SQL statements contained in a stream object.

### Class

[TDAScript](#)

### Syntax

```
procedure ExecuteStream(Stream: TStream);
```

#### Parameters

*Stream*

Holds the stream object from which the statements will be executed.

### Remarks

Call the ExecuteStream method to execute SQL statements contained in a stream object. Reading from the stream and execution is performed by blocks of 64k size.

---

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#### 16.9.1.1.3.7 FindMacro Method

Indicates whether a specified macro exists in a dataset.

### Class

[TDAScript](#)

### Syntax

```
function FindMacro(Name: string): TMacro;
```

#### Parameters

*Name*

Holds the name of the macro to search for.

#### Return Value

a TMacro object, if a macro with matching name was found, otherwise returns nil.

## Remarks

Call the FindMacro method to determine if a specified macro exists. If FindMacro finds a macro with a matching name, it returns a TMacro object for the specified Name. Otherwise it returns nil.

## See Also

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

---

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### 16.9.1.1.3.8 MacroByName Method

Finds a Macro with the name passed in Name.

## Class

[TDAScript](#)

## Syntax

```
function MacroByName(Name: string): TMacro;
```

### Parameters

*Name*

Holds the name of the Macro to search for.

### Return Value

the Macro, if a match was found.

## Remarks

Call the MacroByName method to find a Macro with the name passed in Name. If a match was found, MacroByName returns the Macro. 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 FindMacro method.

To assign the value of macro use the [TMacro.Value](#) property.

## See Also

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

---

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## 16.9.1.1.4 Events

Events of the **TDAScript** class.

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

**Published**

Name	Description
<a href="#">AfterExecute</a>	Occurs after a SQL script execution.
<a href="#">BeforeExecute</a>	Occurs when taking a specific action before executing the current SQL statement is needed.
<a href="#">OnError</a>	Occurs when server raises an error.

**See Also**

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

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## 16.9.1.1.4.1 AfterExecute Event

Occurs after a SQL script execution.

**Class**

[TDAScript](#)

**Syntax**

**property** AfterExecute: [TAfterStatementExecuteEvent](#);

**Remarks**

Occurs after a SQL script has been executed.

**See Also**

- [Execute](#)
- 

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## 16.9.1.1.4.2 BeforeExecute Event

Occurs when taking a specific action before executing the current SQL statement is needed.

**Class**

[TDAScript](#)

**Syntax**

**property** BeforeExecute: [TBeforeStatementExecuteEvent](#);

### Remarks

Write the BeforeExecute event handler to take specific action before executing the current SQL statement. SQL holds text of the current SQL statement. Write SQL to change the statement that will be executed. Set Omit to True to skip statement execution.

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#### 16.9.1.1.4.3 OnError Event

Occurs when server raises an error.

### Class

[TDAScript](#)

### Syntax

**property** OnError: [TOnErrorEvent](#);

### Remarks

Occurs when server raises an error.

Action indicates the action to take when the OnError handler exits. On entry into the handler, Action is always set to eaFail.

### See Also

- [ErrorOffset](#)

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#### 16.9.1.2 TDASStatement Class

This class has attributes and methods for controlling single SQL statement of a script.

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

### Unit

[DAScript](#)

### Syntax

```
TDASStatement = class (TCollectionItem);
```

### Remarks

TDAScript contains SQL statements, represented as TDASStatement objects. The TDASStatement class has attributes and methods for controlling single SQL statement of a script.

### See Also

- [TDAScript](#)
- [TDAStatements](#)

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#### 16.9.1.2.1 Members

[TDASatement](#) class overview.

### Properties

Name	Description
<a href="#">EndLine</a>	Used to determine the number of the last statement line in a script.
<a href="#">EndOffset</a>	Used to get the offset in the last line of the statement.
<a href="#">EndPos</a>	Used to get the end position of the statement in a script.
<a href="#">Omit</a>	Used to avoid execution of a statement.
<a href="#">Params</a>	Contains parameters for an SQL statement.
<a href="#">Script</a>	Used to determine the TDAScript object the SQL Statement belongs to.
<a href="#">SQL</a>	Used to get or set the text of an SQL statement.
<a href="#">StartLine</a>	Used to determine the number of the first statement line in a script.
<a href="#">StartOffset</a>	Used to get the offset in the first line of a statement.
<a href="#">StartPos</a>	Used to get the start position of the statement in a script.

### Methods

Name	Description
<a href="#">Execute</a>	Executes a statement.

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#### 16.9.1.2.2 Properties

Properties of the **TDASatement** class.

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

### Public

Name	Description
<a href="#">EndLine</a>	Used to determine the number of the last statement line in a script.
<a href="#">EndOffset</a>	Used to get the offset in the last line of the statement.
<a href="#">EndPos</a>	Used to get the end position of the statement in a script.
<a href="#">Omit</a>	Used to avoid execution of a statement.
<a href="#">Params</a>	Contains parameters for an SQL statement.
<a href="#">Script</a>	Used to determine the TDAStatement object the SQL Statement belongs to.
<a href="#">SQL</a>	Used to get or set the text of an SQL statement.
<a href="#">StartLine</a>	Used to determine the number of the first statement line in a script.
<a href="#">StartOffset</a>	Used to get the offset in the first line of a statement.
<a href="#">StartPos</a>	Used to get the start position of the statement in a script.

### See Also

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

---

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#### 16.9.1.2.2.1 EndLine Property

Used to determine the number of the last statement line in a script.

### Class

[TDAStatement](#)

### Syntax

```
property EndLine: integer;
```

### Remarks

Use the EndLine property to determine the number of the last statement line in a script.

---

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## 16.9.1.2.2.2 EndOffset Property

Used to get the offset in the last line of the statement.

**Class**

[TDASatement](#)

**Syntax**

```
property EndOffset: integer;
```

**Remarks**

Use the EndOffset property to get the offset in the last line of the statement.

---

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## 16.9.1.2.2.3 EndPos Property

Used to get the end position of the statement in a script.

**Class**

[TDASatement](#)

**Syntax**

```
property EndPos: integer;
```

**Remarks**

Use the EndPos property to get the end position of the statement (the position of the last character in the statement) in a script.

---

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## 16.9.1.2.2.4 Omit Property

Used to avoid execution of a statement.

**Class**

[TDASatement](#)

**Syntax**

```
property Omit: boolean;
```

**Remarks**

Set the Omit property to True to avoid execution of a statement.

---

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## 16.9.1.2.2.5 Params Property

Contains parameters for an SQL statement.

**Class**

[TDASatement](#)

## Syntax

```
property Params: TDAParams;
```

## Remarks

Contains parameters for an SQL statement.

Access Params at runtime to view and set parameter names, values, and data types dynamically. Params is a zero-based array of parameter records. Index specifies the array element to access.

## See Also

- [TDAParam](#)

---

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### 16.9.1.2.2.6 Script Property

Used to determine the TDAScript object the SQL Statement belongs to.

## Class

[TDAScript](#)

## Syntax

```
property Script: TDAScript;
```

## Remarks

Use the Script property to determine the TDAScript object the SQL Statement belongs to.

---

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### 16.9.1.2.2.7 SQL Property

Used to get or set the text of an SQL statement.

## Class

[TDAScript](#)

## Syntax

```
property SQL: string;
```

## Remarks

Use the SQL property to get or set the text of an SQL statement.

---

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## 16.9.1.2.2.8 StartLine Property

Used to determine the number of the first statement line in a script.

**Class**

[TDASStatement](#)

**Syntax**

```
property StartLine: integer;
```

**Remarks**

Use the StartLine property to determine the number of the first statement line in a script.

---

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## 16.9.1.2.2.9 StartOffset Property

Used to get the offset in the first line of a statement.

**Class**

[TDASStatement](#)

**Syntax**

```
property StartOffset: integer;
```

**Remarks**

Use the StartOffset property to get the offset in the first line of a statement.

---

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## 16.9.1.2.2.10 StartPos Property

Used to get the start position of the statement in a script.

**Class**

[TDASStatement](#)

**Syntax**

```
property StartPos: integer;
```

**Remarks**

Use the StartPos property to get the start position of the statement (the position of the first statement character) in a script.

---

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## 16.9.1.2.3 Methods

Methods of the **TDASStatement** class.

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

**Public**

Name	Description
<a href="#">Execute</a>	Executes a statement.

**See Also**

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

---

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**16.9.1.2.3.1 Execute Method**

Executes a statement.

**Class**

[TDAStatement](#)

**Syntax**

```
procedure Execute;
```

**Remarks**

Use the Execute method to execute a statement.

---

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**16.9.1.3 TDAStatements Class**

Holds a collection of [TDAStatement](#) objects.  
For a list of all members of this type, see [TDAStatements](#) members.

**Unit**

[DAScript](#)

**Syntax**

```
TDAStatements = class(TCollection);
```

**Remarks**

Each TDAStatements holds a collection of [TDAStatement](#) objects. TDAStatements maintains an index of the statements in its Items array. The Count property contains the number of statements in the collection. Use TDAStatements class to manipulate script SQL statements.

**See Also**

- [DAScript](#)
- [TDAStatement](#)

---

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## 16.9.1.3.1 Members

[TDAStatements](#) class overview.

**Properties**

Name	Description
<a href="#">Items</a>	Used to access separate script statements.

---

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## 16.9.1.3.2 Properties

Properties of the **TDAStatements** class.

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

**Public**

Name	Description
<a href="#">Items</a>	Used to access separate script statements.

---

**See Also**

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

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## 16.9.1.3.2.1 Items Property(Indexer)

Used to access separate script statements.

**Class**

[TDAStatements](#)

**Syntax**

```
property Items[Index: Integer]: TDAStatements; default;
```

**Parameters**

*Index*

Holds the index value.

**Remarks**

Use the Items property to access individual script statements. The value of the Index parameter corresponds to the Index property of [TDAStatements](#).

**See Also**

- [TDAStatements](#)
-

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## 16.9.2 Types

Types in the **DAScript** unit.

### Types

Name	Description
<a href="#">TAfterStatementExecuteEvent</a>	This type is used for the <a href="#">TDAScript.AfterExecute</a> event.
<a href="#">TBeforeStatementExecuteEvent</a>	This type is used for the <a href="#">TDAScript.BeforeExecute</a> event.
<a href="#">TOnErrorEvent</a>	This type is used for the <a href="#">TDAScript.OnError</a> event.

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### 16.9.2.1 TAfterStatementExecuteEvent Procedure Reference

This type is used for the [TDAScript.AfterExecute](#) event.

#### Unit

[DAScript](#)

#### Syntax

```
TAfterStatementExecuteEvent = procedure (Sender: TObject; SQL: string) of object;
```

#### Parameters

*Sender*

An object that raised the event.

*SQL*

Holds the passed SQL statement.

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### 16.9.2.2 TBeforeStatementExecuteEvent Procedure Reference

This type is used for the [TDAScript.BeforeExecute](#) event.

#### Unit

[DAScript](#)

#### Syntax

```
TBeforeStatementExecuteEvent = procedure (Sender: TObject; var SQL: string; var Omit: boolean) of object;
```

#### Parameters

*Sender*

An object that raised the event.

*SQL*

Holds the passed SQL statement.

*Omit*

True, if the statement execution should be skipped.

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### 16.9.2.3 TOnErrorEvent Procedure Reference

This type is used for the [TDAScript.OnError](#) event.

#### Unit

[DAScript](#)

#### Syntax

```
TOnErrorEvent = procedure (Sender: TObject; E: Exception; SQL:
string; var Action: TErrorAction) of object;
```

#### Parameters

*Sender*

An object that raised the event.

*E*

The error code.

*SQL*

Holds the passed SQL statement.

*Action*

The action to take when the OnError handler exits.

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### 16.9.3 Enumerations

Enumerations in the **DAScript** unit.

#### Enumerations

Name	Description
<a href="#">TErrorAction</a>	Indicates the action to take when the OnError handler exits.

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#### 16.9.3.1 TErrorAction Enumeration

Indicates the action to take when the OnError handler exits.

#### Unit

[DAScript](#)

#### Syntax

```
TErrorAction = (eaAbort, eaFail, eaException, eaContinue);
```

## Values

Value	Meaning
<b>eaAbort</b>	Abort execution without displaying an error message.
<b>eaContinue</b>	Continue execution.
<b>eaException</b>	In Delphi 6 and higher exception is handled by the Application.HandleException method.
<b>eaFail</b>	Abort execution and display an error message.

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## 16.10 DASQLMonitor

This unit contains the base class for the TUniSQLMonitor component.

### Classes

Name	Description
<a href="#">TCustomDASQLMonitor</a>	A base class that introduces properties and methods to monitor dynamic SQL execution in database applications interactively.
<a href="#">TDBMonitorOptions</a>	This class holds options for dbMonitor.

### Types

Name	Description
<a href="#">TDATraceFlags</a>	Represents the set of <a href="#">TDATraceFlag</a> .
<a href="#">TMonitorOptions</a>	Represents the set of <a href="#">TMonitorOption</a> .
<a href="#">TOnSQLEvent</a>	This type is used for the <a href="#">TCustomDASQLMonitor.OnSQL</a> event.

### Enumerations

Name	Description
<a href="#">TDATraceFlag</a>	Use TraceFlags to specify which database operations the monitor should track in an application at runtime.
<a href="#">TMonitorOption</a>	Used to define where information from SQLMonitor will be displayed.

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## 16.10.1 Classes

Classes in the **DASQLMonitor** unit.

### Classes

Name	Description
<a href="#">TCustomDASQLMonitor</a>	A base class that introduces properties and methods to monitor dynamic SQL execution in database applications interactively.
<a href="#">TDBMonitorOptions</a>	This class holds options for dbMonitor.

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### 16.10.1.1 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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#### 16.10.1.1.1 Members

[TCustomDASQLMonitor](#) class overview.

### Properties

Name	Description
<a href="#">Active</a>	Used to activate monitoring of SQL.
<a href="#">DBMonitorOptions</a>	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
<a href="#">OnSQL</a>	Occurs when tracing of SQL activity on database components is needed.

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### 16.10.1.1.2 Properties

Properties of the **TCustomDASQLMonitor** class.

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

## Public

Name	Description
<a href="#">Active</a>	Used to activate monitoring of SQL.
<a href="#">DBMonitorOptions</a>	Used to set options for dbMonitor.
<a href="#">Options</a>	Used to include the desired properties for TCustomDASQLMonitor.
<a href="#">TraceFlags</a>	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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### 16.10.1.1.2.1 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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#### 16.10.1.1.2.2 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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#### 16.10.1.1.2.3 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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## 16.10.1.1.2.4 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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## 16.10.1.1.3 Events

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

**Public**

Name	Description
<a href="#">OnSQL</a>	Occurs when tracing of SQL activity on database components is needed.

**See Also**

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

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## 16.10.1.1.3.1 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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### 16.10.1.2 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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#### 16.10.1.2.1 Members

[TDBMonitorOptions](#) class overview.

## Properties

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

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#### 16.10.1.2.2 Properties

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

## Published

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

## See Also

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

---

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### 16.10.1.2.2.1 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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### 16.10.1.2.2.2 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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#### 16.10.1.2.2.3 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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#### 16.10.1.2.2.4 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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## 16.10.2 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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#### 16.10.2.1 TDATraceFlags Set

Represents the set of [TDATraceFlag](#).

##### Unit

[DASQLMonitor](#)

##### Syntax

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

---

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#### 16.10.2.2 TMonitorOptions Set

Represents the set of [TMonitorOption](#).

##### Unit

[DASQLMonitor](#)

##### Syntax

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

---

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#### 16.10.2.3 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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### 16.10.3 Enumerations

Enumerations in the **DASQLMonitor** unit.

#### Enumerations

Name	Description
<a href="#">TDATraceFlag</a>	Use TraceFlags to specify which database operations the monitor should track in an application at runtime.
<a href="#">TMonitorOption</a>	Used to define where information from SQLMonitor will be displayed.

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#### 16.10.3.1 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
<b>tfBlob</b>	This option is declared for future use.
<b>tfConnect</b>	Establishing a connection.
<b>tfError</b>	Errors of query execution.
<b>tfMisc</b>	This option is declared for future use.
<b>tfObjDestroy</b>	Destroying of components.
<b>tfParams</b>	Representing parameter values for tfQPrepare and tfQExecute.
<b>tfPool</b>	Connection pool operations.
<b>tfQExecute</b>	Execution of the queries.
<b>tfQFetch</b>	This option is declared for future use.
<b>tfQPrepare</b>	Queries preparation.
<b>tfService</b>	This option is declared for future use.
<b>tfStmt</b>	This option is declared for future use.
<b>tfTransact</b>	Processing transactions.

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### 16.10.3.2 TMonitorOption Enumeration

Used to define where information from SQLMonitor will be displayed.

#### Unit

[DASQLMonitor](#)

#### Syntax

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

#### Values

Value	Meaning
<b>moCustom</b>	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.
<b>moDBMonitor</b>	Debug information is displayed in <a href="#">DBMonitor</a> .
<b>moDialog</b>	Debug information is displayed in debug window.
<b>moHandled</b>	Component handle is included into the event description string.
<b>moSQLMonitor</b>	Debug information is displayed in Borland SQL Monitor.

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## 16.11 DBAccess

This unit contains base classes for most of the components.

#### Classes

Name	Description
<a href="#">EDAError</a>	A base class for exceptions that are raised when an error occurs on the server side.
<a href="#">TCRDataSource</a>	Provides an interface between a DAC dataset components and data-aware controls on a form.
<a href="#">TCustomConnectDialog</a>	A base class for the connect dialog components.
<a href="#">TCustomDACConnection</a>	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.

[TDAConnectionOptions](#)

This class allows setting up the behaviour of the TDAConnection class.

[TDADatasetOptions](#)

This class allows setting up the behaviour of the TDADataset class.

[TDAEncryptionOptions](#)

Used to specify the options of the data encryption in a dataset.

[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.

[TDATransaction](#)

A base class that implements functionality for controlling transactions.

[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.

**Types**

Name	Description
<a href="#">TAfterExecuteEvent</a>	This type is used for the <a href="#">TCustomDADataset.AfterExecute</a> and <a href="#">TCustomDASQL.AfterExecute</a> events.
<a href="#">TAfterFetchEvent</a>	This type is used for the <a href="#">TCustomDADataset.AfterFetch</a> event.
<a href="#">TBeforeFetchEvent</a>	This type is used for the <a href="#">TCustomDADataset.BeforeFetch</a> event.
<a href="#">TConnectionLostEvent</a>	This type is used for the <a href="#">TCustomDAConnection.OnConnectionLost</a> event.
<a href="#">TDAConnectionErrorEvent</a>	This type is used for the <a href="#">TCustomDAConnection.OnError</a> event.
<a href="#">TDATransactionErrorEvent</a>	This type is used for the <a href="#">TDATransaction.OnError</a> event.
<a href="#">TRefreshOptions</a>	Represents the set of <a href="#">TRefreshOption</a> .
<a href="#">TUpdateExecuteEvent</a>	This type is used for the <a href="#">TCustomDADataset.AfterUpdateExecute</a> and <a href="#">TCustomDADataset.BeforeUpdateExecute</a> events.

**Enumerations**

Name	Description
<a href="#">TLabelSet</a>	Sets the language of labels in the connect dialog.
<a href="#">TRefreshOption</a>	Indicates when the editing record will be refreshed.
<a href="#">TRetryMode</a>	Specifies the application behavior when connection is lost.

**Variables**

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

[ChangeCursor](#)

When set to True allows data access components to change screen cursor for the execution time.

[MacroChar](#)

Determinates what character is used for macros.

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### 16.11.1 Classes

Classes in the **DBAccess** unit.

#### Classes

Name	Description
<a href="#">EDAEError</a>	A base class for exceptions that are raised when an error occurs on the server side.
<a href="#">TCRDataSource</a>	Provides an interface between a DAC dataset components and data-aware controls on a form.
<a href="#">TCustomConnectDialog</a>	A base class for the connect dialog components.
<a href="#">TCustomDAConnection</a>	A base class for components used to establish connections.
<a href="#">TCustomDADataset</a>	Encapsulates general set of properties, events, and methods for working with data accessed through various database engines.
<a href="#">TCustomDASQL</a>	A base class for components executing SQL statements that do not return result sets.
<a href="#">TCustomDAUpdateSQL</a>	A base class for components that provide DML statements for more flexible control over data modifications.
<a href="#">TDAConnectionOptions</a>	This class allows setting up the behaviour of the TDAConnection class.
<a href="#">TDADatasetOptions</a>	This class allows setting up the behaviour of the TDADataset class.
<a href="#">TDAEncryptionOptions</a>	Used to specify the options of the data encryption in a dataset.

<a href="#">TDAMapRule</a>	Class that forms rules for Data Type Mapping.
<a href="#">TDAMapRules</a>	Used for adding rules for DataSet fields mapping with both identifying by field name and by field type and Delphi field types.
<a href="#">TDAMetaData</a>	A class for retrieving metainformation of the specified database objects in the form of dataset.
<a href="#">TDAParam</a>	A class that forms objects to represent the values of the <a href="#">parameters set</a> .
<a href="#">TDAParams</a>	This class is used to manage a list of TDAParam objects for an object that uses field parameters.
<a href="#">TDATransaction</a>	A base class that implements functionality for controlling transactions.
<a href="#">TMacro</a>	Object that represents the value of a macro.
<a href="#">TMacros</a>	Controls a list of TMacro objects for the <a href="#">TCustomDASQL.Macros</a> or <a href="#">TCustomDADataset</a> components.
<a href="#">TPoolingOptions</a>	This class allows setting up the behaviour of the connection pool.

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#### 16.11.1.1 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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## 16.11.1.1.1 Members

[EDAEError](#) class overview.

**Properties**

Name	Description
<a href="#">Component</a>	Contains the component that caused the error.
<a href="#">ErrorCode</a>	Determines the error code returned by the server.

---

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## 16.11.1.1.2 Properties

Properties of the **EDAEError** class.

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

**Public**

Name	Description
<a href="#">Component</a>	Contains the component that caused the error.
<a href="#">ErrorCode</a>	Determines the error code returned by the server.

**See Also**

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

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## 16.11.1.1.2.1 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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## 16.11.1.1.2.2 ErrorCode Property

Determines the error code returned by the server.

**Class**

[EDAError](#)

### Syntax

```
property ErrorCode: integer;
```

### Remarks

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

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#### 16.11.1.2 TCRDataSource Class

Provides an interface between a DAC dataset components and data-aware controls on a form.

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

### Unit

[DBAccess](#)

### Syntax

```
TCRDataSource = class(TDataSource);
```

### Remarks

TCRDataSource provides an interface between a DAC dataset components and data-aware controls on a form.

TCRDataSource inherits its functionality directly from the TDataSource component. At design time assign individual data-aware components' DataSource properties from their drop-down listboxes.

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#### 16.11.1.2.1 Members

[TCRDataSource](#) class overview.

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#### 16.11.1.3 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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16.11.1.3.1 Members

[TCustomConnectDialog](#) class overview.

## Properties

Name	Description
<a href="#">CancelButton</a>	Used to specify the label for the Cancel button.
<a href="#">Caption</a>	Used to set the caption of dialog box.
<a href="#">ConnectButton</a>	Used to specify the label for the Connect button.
<a href="#">DialogClass</a>	Used to specify the class of the form that will be displayed to enter login information.
<a href="#">LabelSet</a>	Used to set the language of buttons and labels captions.
<a href="#">PasswordLabel</a>	Used to specify a prompt for password edit.
<a href="#">Retries</a>	Used to indicate the number of retries of failed connections.
<a href="#">SavePassword</a>	Used for the password to be displayed in ConnectDialog in asterisks.
<a href="#">ServerLabel</a>	Used to specify a prompt for the server name edit.
<a href="#">StoreLogInfo</a>	Used to specify whether the login information should be kept in system registry after a connection was established.
<a href="#">UsernameLabel</a>	Used to specify a prompt for username edit.

## Methods

Name	Description
<a href="#">Execute</a>	Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.
<a href="#">GetServerList</a>	Retrieves a list of available server names.

---

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#### 16.11.1.3.2 Properties

Properties of the **TCustomConnectDialog** class.

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

#### Public

Name	Description
<a href="#">CancelButton</a>	Used to specify the label for the Cancel button.
<a href="#">Caption</a>	Used to set the caption of dialog box.
<a href="#">ConnectButton</a>	Used to specify the label for the Connect button.
<a href="#">DialogClass</a>	Used to specify the class of the form that will be displayed to enter login information.
<a href="#">LabelSet</a>	Used to set the language of buttons and labels captions.
<a href="#">PasswordLabel</a>	Used to specify a prompt for password edit.
<a href="#">Retries</a>	Used to indicate the number of retries of failed connections.
<a href="#">SavePassword</a>	Used for the password to be displayed in ConnectDialog in asterisks.
<a href="#">ServerLabel</a>	Used to specify a prompt for the server name edit.
<a href="#">StoreLogInfo</a>	Used to specify whether the login information should be kept in system registry after a connection was established.
<a href="#">UsernameLabel</a>	Used to specify a prompt for username edit.

#### See Also

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

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#### 16.11.1.3.2.1 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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#### 16.11.1.3.2.2 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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#### 16.11.1.3.2.3 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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#### 16.11.1.3.2.4 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 UniDAC installation directory.

## See Also

- [GetServerList](#)

---

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### 16.11.1.3.2.5 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 lsEnglish.

---

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### 16.11.1.3.2.6 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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## 16.11.1.3.2.7 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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## 16.11.1.3.2.8 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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## 16.11.1.3.2.9 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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## 16.11.1.3.2.10 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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## 16.11.1.3.2.11 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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## 16.11.1.3.3 Methods

Methods of the **TCustomConnectDialog** class.

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

**Public**

<b>Name</b>	<b>Description</b>
<a href="#">Execute</a>	Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.
<a href="#">GetServerList</a>	Retrieves a list of available server names.

**See Also**

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

---

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## 16.11.1.3.3.1 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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## 16.11.1.3.3.2 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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**16.11.1.4 TCustomDAConnection Class**

A base class for components used to establish connections.

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

**Unit**

[DBAccess](#)

## Syntax

```
TCustomDAConnection = class (TCustomConnection);
```

## Remarks

TCustomDAConnection is a base class for components that establish connection with database, provide customised login support, and perform transaction control. Do not create instances of TCustomDAConnection. To add a component that represents a connection to a source of data, use descendants of the TCustomDAConnection class.

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16.11.1.4.1 Members

[TCustomDAConnection](#) class overview.

## Properties

Name	Description
<a href="#">ConnectDialog</a>	Allows to link a <a href="#">TCustomConnectDialog</a> component.
<a href="#">ConvertEOL</a>	Allows customizing line breaks in string fields and parameters.
<a href="#">InTransaction</a>	Indicates whether the transaction is active.
<a href="#">LoginPrompt</a>	Specifies whether a login dialog appears immediately before opening a new connection.
<a href="#">Options</a>	Specifies the connection behavior.
<a href="#">Password</a>	Serves to supply a password for login.
<a href="#">Pooling</a>	Enables or disables using connection pool.
<a href="#">PoolingOptions</a>	Specifies the behaviour of connection pool.
<a href="#">Server</a>	Serves to supply the server name for login.
<a href="#">Username</a>	Used to supply a user name for login.

## Methods

Name	Description
<a href="#">ApplyUpdates</a>	Overloaded. Applies changes in datasets.

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

## Events

Name	Description
<a href="#">OnConnectionLost</a>	This event occurs when connection was lost.
<a href="#">OnError</a>	This event occurs when an error has arisen in the connection.

## 16.11.1.4.2 Properties

Properties of the **TCustomDAConnection** class.

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

**Public**

Name	Description
<a href="#">ConnectDialog</a>	Allows to link a <a href="#">TCustomConnectDialog</a> component.
<a href="#">ConvertEOL</a>	Allows customizing line breaks in string fields and parameters.
<a href="#">InTransaction</a>	Indicates whether the transaction is active.
<a href="#">LoginPrompt</a>	Specifies whether a login dialog appears immediately before opening a new connection.
<a href="#">Options</a>	Specifies the connection behavior.
<a href="#">Password</a>	Serves to supply a password for login.
<a href="#">Pooling</a>	Enables or disables using connection pool.
<a href="#">PoolingOptions</a>	Specifies the behaviour of connection pool.
<a href="#">Server</a>	Serves to supply the server name for login.
<a href="#">Username</a>	Used to supply a user name for login.

**See Also**

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

---

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## 16.11.1.4.2.1 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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#### 16.11.1.4.2.2 ConvertEOL Property

Allows customizing line breaks in string fields and parameters.

### Class

[TCustomDAConnection](#)

### 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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#### 16.11.1.4.2.3 InTransaction Property

Indicates whether the transaction is active.

### Class

[TCustomDAConnection](#)

### 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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#### 16.11.1.4.2.4 LoginPrompt Property

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

#### Class

[TCustomDAConnection](#)

#### Syntax

```
property LoginPrompt default True;
```

#### 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 UniDacVcl unit appears to the uses clause.

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#### 16.11.1.4.2.5 Options Property

Specifies the connection behavior.

#### Class

[TCustomDAConnection](#)

#### 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
<a href="#">DefaultSortType</a>	Used 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 <a href="#">TMemDataSet.IndexFieldNames</a> property of a dataset.
<a href="#">DisconnectedMode</a>	Used to open a connection only when needed for performing a server call and closes after performing the operation.
<a href="#">KeepDesignConnected</a>	Used to prevent 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 connection breaks.

**See Also**

- [Disconnected Mode](#)
  - [Working in an Unstable Network](#)
- 

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## 16.11.1.4.2.6 Password Property

Serves to supply a password for login.

**Class**

[TCustomDAConnection](#)

**Syntax**

```
property Password: string;
```

**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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## 16.11.1.4.2.7 Pooling Property

Enables or disables using connection pool.

**Class**

[TCustomDAConnection](#)

**Syntax**

```
property Pooling: boolean default False;
```

## Remarks

Normally, when TCustomDAConnection 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. TCustomDAConnection 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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### 16.11.1.4.2.8 PoolingOptions Property

Specifies the behaviour of connection pool.

## Class

[TCustomDAConnection](#)

## 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
<a href="#">ConnectionLifetime</a>	Used to specify the maximum time during which an opened connection can be used by connection pool.
<a href="#">MaxPoolSize</a>	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.

[Validate](#)

Used for a connection to be validated when it is returned from the pool.

### See Also

- [Pooling](#)
- 

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#### 16.11.1.4.2.9 Server Property

Serves to supply the server name for login.

### Class

[TCustomDAConnection](#)

### 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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#### 16.11.1.4.2.10 Username Property

Used to supply a user name for login.

### Class

[TCustomDAConnection](#)

### 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, UniDAC 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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### 16.11.1.4.3 Methods

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

## Public

Name	Description
<a href="#">ApplyUpdates</a>	Overloaded. Applies changes in datasets.
<a href="#">Commit</a>	Commits current transaction.
<a href="#">Connect</a>	Establishes a connection to the server.
<a href="#">CreateDataSet</a>	Creates a dataset component.
<a href="#">CreateSQL</a>	Creates a component for queries execution.
<a href="#">Disconnect</a>	Performs disconnect.
<a href="#">ExecProc</a>	Allows to execute stored procedure or function providing its name and parameters.
<a href="#">ExecProcEx</a>	Allows to execute a stored procedure or function.
<a href="#">ExecSQL</a>	Executes a SQL statement with parameters.
<a href="#">ExecSQLEx</a>	Executes any SQL statement outside the TQuery or TSQL components.
<a href="#">GetDatabaseNames</a>	Returns a database list from the server.
<a href="#">GetStoredProcNames</a>	Returns a list of stored procedures from the server.
<a href="#">GetTableNames</a>	Provides a list of available tables names.

[MonitorMessage](#)

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

[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

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

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#### 16.11.1.4.3.1 ApplyUpdates Method

Applies changes in datasets.

### Class

[TCustomDAConnection](#)

### Overload List

Name	Description
<a href="#">ApplyUpdates</a>	Applies changes from all active datasets.
<a href="#">ApplyUpdates(DataSets: array of TCustomDADataSet)</a>	Applies changes from the specified datasets.

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Applies changes from all active datasets.

### Class

[TCustomDAConnection](#)

### 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(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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### 16.11.1.4.3.2 Commit Method

Commits current transaction.

## Class

[TCustomDAConnection](#)

## 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](#)
  - [TCustomUniDataSet.SpecificOptions](#)
- 

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#### 16.11.1.4.3.3 Connect Method

Establishes a connection to the server.

### Class

[TCustomDAConnection](#)

### Syntax

```
procedure Connect;
```

### 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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#### 16.11.1.4.3.4 CreateDataSet Method

Creates a dataset component.

### Class

[TCustomDAConnection](#)

### Syntax

```
function CreateDataSet: TCustomDADataset; virtual;
```

### Return Value

Returns a new instance of the class.

### Remarks

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

---

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#### 16.11.1.4.3.5 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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#### 16.11.1.4.3.6 Disconnect Method

Performs disconnect.

### Class

[TCustomDAConnection](#)

### 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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## 16.11.1.4.3.7 ExecProc Method

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

**Class**

[TCustomDAConnection](#)

**Syntax**

```
function ExecProc(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:= MyUniConnection1.ExecProc('My Sum', [10, 20]);
Label2.Caption:= MyUniConnection1.ParamByName('Result').AsString;
```

## See Also

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

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### 16.11.1.4.3.8 ExecProcEx Method

Allows to execute a stored procedure or function.

## Class

[TCustomDAConnection](#)

## Syntax

```
function ExecProcEx(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', 'Param_Name2', 'Param_Value2'])
```

### See Also

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

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#### 16.11.1.4.3.9 ExecSQL Method

Executes a SQL statement with parameters.

### Class

[TCustomDAConnection](#)

### Syntax

```
function ExecSQL(Text: string): variant; overload; function ExecSQL  
(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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### 16.11.1.4.3.10 ExecSQLEx Method

Executes any SQL statement outside the TQuery or TSQL components.

## Class

[TCustomDAConnection](#)

## Syntax

```
function ExecSQLEx(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

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

## See Also

- [ExecSQL](#)
- 

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### 16.11.1.4.3.11 GetDatabaseNames Method

Returns a database list from the server.

## Class

[TCustomDAConnection](#)

## 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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### 16.11.1.4.3.12 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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### 16.11.1.4.3.13 GetTableNames Method

Provides a list of available tables names.

## Class

[TCustomDAConnection](#)

## 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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### 16.11.1.4.3.14 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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### 16.11.1.4.3.15 RemoveFromPool Method

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

## Class

[TCustomDAConnection](#)

## 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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#### 16.11.1.4.3.16 Rollback Method

Discards all current data changes and ends transaction.

### Class

[TCustomDAConnection](#)

### 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](#)
- [TCustomUniDataSet.SpecificOptions](#)

---

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#### 16.11.1.4.3.17 StartTransaction Method

Begins a new user transaction.

### Class

[TCustomDAConnection](#)

### 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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## 16.11.1.4.4 Events

Events of the **TCustomDAConnection** class.

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

**Public**

Name	Description
<a href="#">OnConnectionLost</a>	This event occurs when connection was lost.
<a href="#">OnError</a>	This event occurs when an error has arisen in the connection.

**See Also**

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

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## 16.11.1.4.4.1 OnConnectionLost Event

This event occurs when connection was lost.

**Class**

[TCustomDAConnection](#)

**Syntax**

```
property OnConnectionLost: TConnectionLostEvent;
```

**Remarks**

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

**Note:** you should explicitly add the [MemData](#) unit to the 'uses' list to use the OnConnectionLost event handler.

---

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## 16.11.1.4.4.2 OnError Event

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

**Class**

[TCustomDAConnection](#)**Syntax**

```
property OnError: TDAConnectionErrorEvent;
```

**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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**16.11.1.5 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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**16.11.1.5.1 Members**

[TCustomDADataset](#) class overview.

**Properties**

Name	Description
<a href="#">BaseSQL</a>	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.

<a href="#">Connection</a>	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a>	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DetailFields</a>	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a>	Used to keep dataset opened after connection is closed.
<a href="#">Encryption</a>	Used to specify the options of the data encryption in a dataset.
<a href="#">FetchRows</a>	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a>	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a>	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a>	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a>	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.

<a href="#">MacroCount</a>	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a>	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a>	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.
<a href="#">MasterSource</a>	Used to specify the data source component which binds current dataset to the master one.
<a href="#">Options</a>	Used to specify the behaviour of TCustomDADataset object.
<a href="#">ParamCheck</a>	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a>	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a>	Used to view and set parameter names, values, and data types dynamically.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a>	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a>	Used to indicate when the editing record is refreshed.
<a href="#">RowsAffected</a>	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SQL</a>	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a>	Used to specify a SQL statement that will be used when applying a deletion to a record.

<a href="#">SQLInsert</a>	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a>	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a>	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLUpdate</a>	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">UniDirectional</a>	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.

## Methods

Name	Description
<a href="#">AddWhere</a>	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BreakExec</a>	Breaks execution of the SQL statement on the server.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">CreateBlobStream</a>	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.

<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a>	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">Execute</a>	Executes a SQL statement on the server.
<a href="#">Executing</a>	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a>	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a>	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a>	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FindKey</a>	Searches for a record which contains specified field values.
<a href="#">FindMacro</a>	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a>	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.
<a href="#">FindParam</a>	Determines if a parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a>	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a>	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a>	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a>	Retrieves the scale of a number field.

<a href="#">GetOrderBy</a>	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a>	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a>	Locks the current record.
<a href="#">MacroByName</a>	Finds a Macro with the name passed in Name.
<a href="#">ParamByName</a>	Sets or uses parameter information for a specific parameter based on its name.
<a href="#">Prepare</a>	Allocates, opens, and parses cursor for a query.
<a href="#">RefreshRecord</a>	Actualizes field values for the current record.
<a href="#">RestoreSQL</a>	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a>	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveSQL</a>	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

<a href="#">SetOrderBy</a>	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQLSaved</a>	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">UnLock</a>	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <a href="#">ApplyUpdates</a> method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

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

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### 16.11.1.5.2 Properties

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

**Public**

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a>	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">Connection</a>	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a>	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DetailFields</a>	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a>	Used to keep dataset opened after connection is closed.
<a href="#">Encryption</a>	Used to specify the options of the data encryption in a dataset.
<a href="#">FetchRows</a>	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a>	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a>	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.

<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a>	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a>	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">MacroCount</a>	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a>	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a>	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.
<a href="#">MasterSource</a>	Used to specify the data source component which binds current dataset to the master one.

<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Options</a>	Used to specify the behaviour of TCustomDADataset object.
<a href="#">ParamCheck</a>	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a>	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a>	Used to view and set parameter names, values, and data types dynamically.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a>	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a>	Used to indicate when the editing record is refreshed.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a>	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

<a href="#">SQL</a>	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a>	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a>	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a>	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a>	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLUpdate</a>	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">UniDirectional</a>	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

### See Also

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

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#### 16.11.1.5.2.1 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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#### 16.11.1.5.2.2 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 [TCustomDAConnection](#) or its descendant class objects.

At runtime, link an instance of a [TCustomDAConnection](#) descendant to the Connection property.

---

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#### 16.11.1.5.2.3 Debug Property

Used to display executing statement, all its parameters' values, and the type of parameters.

#### Class

[TCustomDADataSet](#)

#### Syntax

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

#### Remarks

Set the Debug property to True to display executing statement and all its parameters' values. Also displays the type of parameters.  
You should add the UniDACVcl unit to the uses clause of any unit in your project to make the Debug property work.

#### See Also

- [TCustomDASQL.Debug](#)

---

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#### 16.11.1.5.2.4 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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## 16.11.1.5.2.5 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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## 16.11.1.5.2.6 Encryption Property

Used to specify the options of the data encryption in a dataset.

**Class**

[TCustomDADataset](#)

**Syntax**

```
property Encryption: TDAEncryptionOptions;
```

**Remarks**

Set the properties of Encryption to specify the options of the data encryption in a dataset.

---

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## 16.11.1.5.2.7 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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## 16.11.1.5.2.8 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.

**Example**

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

**See Also**

- [AddWhere](#)

---

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## 16.11.1.5.2.9 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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#### 16.11.1.5.2.10 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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#### 16.11.1.5.2.11 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 dataset, TCustomDADataset .

#### See Also

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

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## 16.11.1.5.2.12 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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## 16.11.1.5.2.13 Macros Property

Makes it possible to change SQL queries easily.

**Class**

[TCustomDADataset](#)

**Syntax**

```
property Macros: TMacros 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**

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

**See Also**

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

- [Params](#)
- 

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#### 16.11.1.5.2.14 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](#)
  - [Master/Detail Relationships](#)
- 

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#### 16.11.1.5.2.15 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](#)
- [Master/Detail Relationships](#)

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### 16.11.1.5.2.16 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
<a href="#">AutoPrepare</a>	Used to execute automatic <a href="#">Prepare</a> on the query execution.
<a href="#">CacheCalcFields</a>	Used to enable caching of the TField.Calculated and TField.Lookup fields.
<a href="#">CompressBlobMode</a>	Used to store values of the BLOB fields in compressed form.
<a href="#">DefaultValues</a>	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
<a href="#">DetailDelay</a>	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.

<a href="#">FieldsOrigin</a>	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
<a href="#">FlatBuffers</a>	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
<a href="#">LocalMasterDetail</a>	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
<a href="#">LongStrings</a>	Used to represent string fields with the length that is greater than 255 as TStringField.
<a href="#">NumberRange</a>	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
<a href="#">QueryRecCount</a>	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.
<a href="#">QuoteNames</a>	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
<a href="#">RemoveOnRefresh</a>	Used for a dataset to locally remove a record that can not be found on the server.
<a href="#">RequiredFields</a>	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
<a href="#">ReturnParams</a>	Used to return the new value of fields to dataset after insert or update.
<a href="#">SetFieldsReadOnly</a>	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.
<a href="#">StrictUpdate</a>	Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.
<a href="#">TrimFixedChar</a>	Specifies whether to discard all trailing spaces in the string fields of a dataset.
<a href="#">UpdateAllFields</a>	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

- [Master/Detail Relationships](#)
- [TMemDataSet.CachedUpdates](#)

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#### 16.11.1.5.2.17 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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#### 16.11.1.5.2.18 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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#### 16.11.1.5.2.19 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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#### 16.11.1.5.2.20 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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#### 16.11.1.5.2.21 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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#### 16.11.1.5.2.22 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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#### 16.11.1.5.2.23 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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#### 16.11.1.5.2.24 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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### 16.11.1.5.2.25 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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### 16.11.1.5.2.26 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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### 16.11.1.5.2.27 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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#### 16.11.1.5.2.28 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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#### 16.11.1.5.2.29 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. So, **FetchAll=False** mode is a component of **UniDirectional=True** mode, and setting **UniDirectional** to **True** requires **FetchAll** to be set to **False**. Pay attention to the restrictions of [TCustomUniDataSet.SpecificOptions](#) = **False** mode. The default value of **UniDirectional** is **False**, enabling forward and backward navigation.

## See Also

- [TCustomUniDataSet.SpecificOptions](#)

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### 16.11.1.5.3 Methods

Methods of the **TCustomDADataset** class.

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

## Public

Name	Description
<a href="#">AddWhere</a>	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BreakExec</a>	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.

---

<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">CreateBlobStream</a>	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a>	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">Execute</a>	Executes a SQL statement on the server.
<a href="#">Executing</a>	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a>	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a>	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a>	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FindKey</a>	Searches for a record which contains specified field values.
<a href="#">FindMacro</a>	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a>	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.
<a href="#">FindParam</a>	Determines if a parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a>	Returns internal field types defined in the MemData and accompanying modules.

<a href="#">GetFieldObject</a>	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a>	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a>	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a>	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a>	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a>	Locks the current record.
<a href="#">MacroByName</a>	Finds a Macro with the name passed in Name.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">ParamByName</a>	Sets or uses parameter information for a specific parameter based on its name.
<a href="#">Prepare</a>	Allocates, opens, and parses cursor for a query.

<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RefreshRecord</a>	Actualizes field values for the current record.
<a href="#">RestoreSQL</a>	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a>	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveSQL</a>	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a>	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQLSaved</a>	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">UnLock</a>	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

**See Also**

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

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## 16.11.1.5.3.1 AddWhere Method

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

**Class**

[TCustomDADataSet](#)

**Syntax**

```
procedure AddWhere(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.

**See Also**

- [DeleteWhere](#)
- 

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## 16.11.1.5.3.2 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 call BreakExec only from another thread.

---

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#### 16.11.1.5.3.3 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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#### 16.11.1.5.3.4 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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## 16.11.1.5.3.5 Execute Method

Executes a SQL statement on the server.

**Class**

[TCustomDADataset](#)

**Syntax**

```
procedure Execute; virtual;
```

**Remarks**

Call the Execute method to execute a SQL statement on the server. If SQL statement is a query, Execute calls the Open method. Execute implicitly prepares SQL statement by calling the [Prepare](#) method if the [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**

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

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## 16.11.1.5.3.6 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. Use the Executing method if NonBlocking is True.

---

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## 16.11.1.5.3.7 Fetched Method

Used to learn whether TCustomDADataset has already fetched all rows.

**Class**

[TCustomDADataset](#)

## Syntax

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

### Return Value

True, if all rows are fetched.

## Remarks

Check Fetched to learn whether TCustomDADataset has already fetched all rows.

## See Also

- [Fetching](#)

---

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### 16.11.1.5.3.8 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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### 16.11.1.5.3.9 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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#### 16.11.1.5.3.10 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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#### 16.11.1.5.3.11 FindMacro Method

Indicates whether a specified macro exists in a dataset.

### Class

[TCustomDADataset](#)

### Syntax

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

#### Parameters

*Value*  
Holds the name of the macro to search for.

#### Return Value

a TMacro object, if a macro with matching name was found, otherwise returns nil.

## Remarks

Call the FindMacro method to determine if a specified macro exists. If FindMacro finds a macro with a matching name, it returns a TMacro object for the specified Name. Otherwise it returns nil.

## See Also

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

---

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### 16.11.1.5.3.12 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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## 16.11.1.5.3.13 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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## 16.11.1.5.3.14 GetDataTypes Method

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

**Class**

[TCustomDADataset](#)

**Syntax**

```
function GetDataTypes(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 GetDataTypes 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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#### 16.11.1.5.3.15 GetFieldObject Method

Returns a multireference shared object from field.

### Class

[TCustomDADataset](#)

### Syntax

```
function GetFieldObject(Field: TField): TSharedObject; overload;  
function GetFieldObject(FieldDesc: TFieldDesc): 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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#### 16.11.1.5.3.16 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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16.11.1.5.3.17 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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16.11.1.5.3.18 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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### 16.11.1.5.3.19 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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### 16.11.1.5.3.20 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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### 16.11.1.5.3.21 MacroByName Method

Finds a Macro with the name passed in Name.

## Class

[TCustomDADataSet](#)

## Syntax

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

### Parameters

#### *Value*

Holds the name of the Macro to search for.

### Return Value

the Macro, if a match was found.

## Remarks

Call the MacroByName method to find a Macro with the name passed in Name. If a match was found, MacroByName returns the Macro. 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 FindMacro method.

To assign the value of macro use the [TMacro.Value](#) property.

## Example

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

## See Also

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

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## 16.11.1.5.3.22 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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## 16.11.1.5.3.23 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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#### 16.11.1.5.3.24 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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#### 16.11.1.5.3.25 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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### 16.11.1.5.3.26 Resync Method

Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.

## Class

[TCustomDADataSet](#)

## Syntax

```
procedure Resync (Mode: TResyncMode); override;
```

## Parameters

*Mode*

Holds optional processing that Resync should handle.

## Remarks

Resync is used to resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.

---

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### 16.11.1.5.3.27 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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## 16.11.1.5.3.28 SetOrderBy Method

Builds an ORDER BY clause of a SELECT statement.

**Class**

[TCustomDADataSet](#)

**Syntax**

```
procedure SetOrderBy(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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## 16.11.1.5.3.29 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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## 16.11.1.5.3.30 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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## 16.11.1.5.4 Events

Events of the **TCustomDADataset** class.

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

**Public**

Name	Description
<a href="#">AfterExecute</a>	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a>	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a>	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BeforeFetch</a>	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a>	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.

<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.

<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

**See Also**

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

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## 16.11.1.5.4.1 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**

- [Execute](#)

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#### 16.11.1.5.4.2 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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#### 16.11.1.5.4.3 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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#### 16.11.1.5.4.4 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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### 16.11.1.5.4.5 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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### 16.11.1.6 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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## 16.11.1.6.1 Members

[TCustomDASQL](#) class overview.

**Properties**

<b>Name</b>	<b>Description</b>
<a href="#">ChangeCursor</a>	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
<a href="#">Connection</a>	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a>	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">FinalSQL</a>	Used to return a SQL statement with expanded macros.
<a href="#">MacroCount</a>	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a>	Makes it possible to change SQL queries easily.
<a href="#">ParamCheck</a>	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
<a href="#">ParamCount</a>	Indicates the number of parameters in the Params property.
<a href="#">Params</a>	Used to contain parameters for a SQL statement.
<a href="#">ParamValues</a>	Used to get or set the values of individual field parameters that are identified by name.
<a href="#">Prepared</a>	Used to indicate whether a query is prepared for execution.
<a href="#">RowsAffected</a>	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
<a href="#">Execute</a>	Overloaded. Executes SQL commands.
<a href="#">Executing</a>	Checks whether TCustomDASQL still executes a SQL statement.
<a href="#">FindMacro</a>	Searches for a macro with the specified name.
<a href="#">FindParam</a>	Finds a parameter with the specified name.
<a href="#">MacroByName</a>	Finds a Macro with the name passed in Name.
<a href="#">ParamByName</a>	Finds a parameter with the specified name.
<a href="#">Prepare</a>	Allocates, opens, and parses cursor for a query.
<a href="#">UnPrepare</a>	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">WaitExecuting</a>	Waits until TCustomDASQL executes a SQL statement.

**Events**

Name	Description
<a href="#">AfterExecute</a>	Occurs after a SQL statement has been executed.

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## 16.11.1.6.2 Properties

Properties of the **TCustomDASQL** class.

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

**Public**

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

<a href="#">ChangeCursor</a>	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
<a href="#">Connection</a>	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a>	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">FinalSQL</a>	Used to return a SQL statement with expanded macros.
<a href="#">MacroCount</a>	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a>	Makes it possible to change SQL queries easily.
<a href="#">ParamCheck</a>	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
<a href="#">ParamCount</a>	Indicates the number of parameters in the Params property.
<a href="#">Params</a>	Used to contain parameters for a SQL statement.
<a href="#">ParamValues</a>	Used to get or set the values of individual field parameters that are identified by name.
<a href="#">Prepared</a>	Used to indicate whether a query is prepared for execution.
<a href="#">RowsAffected</a>	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SQL</a>	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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#### 16.11.1.6.2.1 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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#### 16.11.1.6.2.2 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 TCustomDAConnection descendant to the Connection property.

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#### 16.11.1.6.2.3 Debug Property

Used to display executing statement, all its parameters' values, and the type of parameters.

#### Class

[TCustomDASQL](#)

#### Syntax

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

#### Remarks

Set the Debug property to True to display executing statement and all its parameters' values. Also displays the type of parameters. You should add the UniDACVcl unit to the uses clause of any unit in your project to make the Debug property work.

### See Also

- [TCustomDataSet.Debug](#)
- 

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#### 16.11.1.6.2.4 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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#### 16.11.1.6.2.5 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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#### 16.11.1.6.2.6 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. 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.

### See Also

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

---

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#### 16.11.1.6.2.7 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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#### 16.11.1.6.2.8 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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#### 16.11.1.6.2.9 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 UniSQL 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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### 16.11.1.6.2.10 ParamValues Property(Indexer)

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

## Class

[TCustomDASQL](#)

## Syntax

```
property ParamValues[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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### 16.11.1.6.2.11 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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### 16.11.1.6.2.12 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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### 16.11.1.6.2.13 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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#### 16.11.1.6.3 Methods

Methods of the **TCustomDASQL** class.

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

#### Public

Name	Description
<a href="#">Execute</a>	Overloaded. Executes SQL commands.
<a href="#">Executing</a>	Checks whether TCustomDASQL still executes a SQL statement.
<a href="#">FindMacro</a>	Searches for a macro with the specified name.
<a href="#">FindParam</a>	Finds a parameter with the specified name.
<a href="#">MacroByName</a>	Finds a Macro with the name passed in Name.
<a href="#">ParamByName</a>	Finds a parameter with the specified name.
<a href="#">Prepare</a>	Allocates, opens, and parses cursor for a query.
<a href="#">UnPrepare</a>	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">WaitExecuting</a>	Waits until TCustomDASQL executes a SQL statement.

#### See Also

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

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#### 16.11.1.6.3.1 Execute Method

Executes SQL commands.

#### Class

[TCustomDASQL](#)

#### Overload List

Name	Description
<a href="#">Execute</a>	Executes SQL commands.
<a href="#">Execute(Iter: integer)</a>	Is not used in UniDAC.

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Executes SQL commands.

### 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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Is not used in UniDAC.

### Class

[TCustomDASQL](#)

### Syntax

```
procedure Execute(Iter: integer); overload; virtual
```

#### Parameters

*Iter*

Is not used in UniDAC.

### Remarks

Is not used in UniDAC.

---

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#### 16.11.1.6.3.2 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. Executing method is used for nonblocking execution.

---

---

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#### 16.11.1.6.3.3 FindMacro Method

Searches for a macro with the specified name.

### Class

[TCustomDASQL](#)

### Syntax

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

#### Parameters

##### *Value*

Holds the name of a macro to search for.

#### Return Value

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

### Remarks

Call the FindMacro method to find a macro with the specified name in a dataset.

### See Also

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

---

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#### 16.11.1.6.3.4 FindParam Method

Finds a parameter with the specified name.

### Class

[TCustomDASQL](#)

### Syntax

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

#### 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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### 16.11.1.6.3.5 MacroByName Method

Finds a Macro with the name passed in Name.

## Class

[TCustomDASQL](#)

## Syntax

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

## Parameters

### Value

Holds the name of the Macro to search for.

## Return Value

the Macro, if a match was found.

## Remarks

Call the MacroByName method to find a Macro with the name passed in Name. If a match was found, MacroByName returns the Macro. 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 FindMacro method.

To assign the value of macro use the [TMacro.Value](#) property.

## See Also

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

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### 16.11.1.6.3.6 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

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

## See Also

- [FindParam](#)

---

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### 16.11.1.6.3.7 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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#### 16.11.1.6.3.8 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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#### 16.11.1.6.3.9 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. Use the WaitExecuting method for nonblocking execution.

#### See Also

- [Executing](#)
-

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#### 16.11.1.6.4 Events

Events of the **TCustomDASQL** class.

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

#### Public

Name	Description
<a href="#">AfterExecute</a>	Occurs after a SQL statement has been executed.

#### See Also

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

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#### 16.11.1.6.4.1 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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#### 16.11.1.7 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

- [TCustomUniDataSet.UpdateObject](#)

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16.11.1.7.1 Members

[TCustomDAUpdateSQL](#) class overview.

## Properties

Name	Description
<a href="#">DataSet</a>	Used to hold a reference to the TCustomDADataset object that is being updated.
<a href="#">DeleteObject</a>	Provides ability to perform advanced adjustment of the delete operations.
<a href="#">DeleteSQL</a>	Used when deleting a record.
<a href="#">InsertObject</a>	Provides ability to perform advanced adjustment of insert operations.
<a href="#">InsertSQL</a>	Used when inserting a record.
<a href="#">LockObject</a>	Provides ability to perform advanced adjustment of lock operations.
<a href="#">LockSQL</a>	Used to lock the current record.
<a href="#">ModifyObject</a>	Provides ability to perform advanced adjustment of modify operations.
<a href="#">ModifySQL</a>	Used when updating a record.
<a href="#">RefreshObject</a>	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
<a href="#">Apply</a>	Sets parameters for a SQL statement and executes it to update a record.
<a href="#">ExecSQL</a>	Executes a SQL statement.

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### 16.11.1.7.2 Properties

Properties of the **TCustomDAUpdateSQL** class.

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

## Public

Name	Description
<a href="#">DataSet</a>	Used to hold a reference to the <a href="#">TCustomDADataset</a> object that is being updated.
<a href="#">SQL</a>	Used to return a SQL statement for one of the <a href="#">ModifySQL</a> , <a href="#">InsertSQL</a> , or <a href="#">DeleteSQL</a> properties.

## Published

Name	Description
<a href="#">DeleteObject</a>	Provides ability to perform advanced adjustment of the delete operations.
<a href="#">DeleteSQL</a>	Used when deleting a record.
<a href="#">InsertObject</a>	Provides ability to perform advanced adjustment of insert operations.
<a href="#">InsertSQL</a>	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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#### 16.11.1.7.2.1 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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#### 16.11.1.7.2.2 DeleteObject Property

Provides ability to perform advanced adjustment of the delete operations.

### Class

[TCustomDAUpdateSQL](#)

### Syntax

```
property DeleteObject: TComponent;
```

## Remarks

Assign SQL component or a TCustomUniDataSet 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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### 16.11.1.7.2.3 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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### 16.11.1.7.2.4 InsertObject Property

Provides ability to perform advanced adjustment of insert operations.

## Class

[TCustomDAUpdateSQL](#)

## Syntax

```
property InsertObject: TComponent;
```

## Remarks

Assign SQL component or TCustomUniDataSet 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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#### 16.11.1.7.2.5 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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#### 16.11.1.7.2.6 LockObject Property

Provides ability to perform advanced adjustment of lock operations.

#### Class

[TCustomDAUpdateSQL](#)

#### Syntax

```
property LockObject: TComponent;
```

#### Remarks

Assign a SQL component or TCustomUniDataSet 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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#### 16.11.1.7.2.7 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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### 16.11.1.7.2.8 ModifyObject Property

Provides ability to perform advanced adjustment of modify operations.

## Class

[TCustomDAUpdateSQL](#)

## Syntax

```
property ModifyObject: TComponent;
```

## Remarks

Assign a SQL component or TCustomUniDataSet 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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### 16.11.1.7.2.9 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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## 16.11.1.7.2.10 RefreshObject Property

Provides ability to perform advanced adjustment of refresh operations.

**Class**

[TCustomDAUpdateSQL](#)

**Syntax**

```
property RefreshObject: TComponent;
```

**Remarks**

Assign a SQL component or TCustomUniDataSet 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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## 16.11.1.7.2.11 RefreshSQL Property

Used to specify an SQL statement that will be used for refreshing the current record by [TCustomDADataset.RefreshRecord](#) procedure.

**Class**

[TCustomDAUpdateSQL](#)

**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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## 16.11.1.7.2.12 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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### 16.11.1.7.3 Methods

Methods of the **TCustomDAUpdateSQL** class.

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

## Public

### Name

[Apply](#)

[ExecSQL](#)

### Description

Sets parameters for a SQL statement and executes it to update a record.

Executes a SQL statement.

## See Also

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

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### 16.11.1.7.3.1 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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### 16.11.1.7.3.2 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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### 16.11.1.8 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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#### 16.11.1.8.1 Members

[TDAConnectionOptions](#) class overview.

### Properties

Name	Description
<a href="#">DefaultSortType</a>	Used 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 <a href="#">TMemDataSet.IndexFieldNames</a> property of a dataset.
<a href="#">DisconnectedMode</a>	Used to open a connection only when needed for performing a server call and closes after performing the operation.
<a href="#">KeepDesignConnected</a>	Used to prevent an application from establishing a connection at the time of startup.
<a href="#">LocalFailover</a>	If True, the <a href="#">TCustomDASession.OnConnectionLost</a> event occurs and a failover operation can be performed after connection breaks.

---

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#### 16.11.1.8.2 Properties

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

### Public

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

[DefaultSortType](#)

Used 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.

[DisconnectedMode](#)

Used to open a connection only when needed for performing a server call and closes after performing the operation.

[KeepDesignConnected](#)

Used to prevent an application from establishing a connection at the time of startup.

[LocalFailover](#)

If True, the [TCustomDAConnection.OnConnectionLost](#) event occurs and a failover operation can be performed after connection breaks.

**See Also**

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

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## 16.11.1.8.2.1 DefaultSortType Property

Used 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.

**Class**

[TDAConnectionOptions](#)

**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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#### 16.11.1.8.2.2 DisconnectedMode Property

Used to open a connection only when needed for performing a server call and closes after performing the operation.

#### Class

[TDAConnectionOptions](#)

#### 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 [Disconnected Mode](#) topic for more information.

---

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#### 16.11.1.8.2.3 KeepDesignConnected Property

Used to prevent an application from establishing a connection at the time of startup.

#### Class

[TDAConnectionOptions](#)

#### 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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#### 16.11.1.8.2.4 LocalFailover Property

If True, the [TCustomDAConnection.OnConnectionLost](#) event occurs and a failover operation can be performed after connection breaks.

#### Class

[TDAConnectionOptions](#)

#### Syntax

```
property LocalFailover: boolean default False;
```

## Remarks

If True, the [TCustomDAConnection.OnConnectionLost](#) event occurs and a failover operation can be performed after connection breaks. Read the [Working in an Unstable Network](#) topic for more information about using failover.

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### 16.11.1.9 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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#### 16.11.1.9.1 Members

[TDADatasetOptions](#) class overview.

## Properties

Name	Description
<a href="#">AutoPrepare</a>	Used to execute automatic <a href="#">TCustomDADataset.Prepare</a> on the query execution.
<a href="#">CacheCalcFields</a>	Used to enable caching of the TField.Calculated and TField.Lookup fields.
<a href="#">CompressBlobMode</a>	Used to store values of the BLOB fields in compressed form.
<a href="#">DefaultValues</a>	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
<a href="#">DetailDelay</a>	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.
<a href="#">FieldsOrigin</a>	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.

---

<a href="#">FlatBuffers</a>	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
<a href="#">LocalMasterDetail</a>	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
<a href="#">LongStrings</a>	Used to represent string fields with the length that is greater than 255 as TStringField.
<a href="#">NumberRange</a>	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
<a href="#">QueryRecCount</a>	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.
<a href="#">QuoteNames</a>	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
<a href="#">RemoveOnRefresh</a>	Used for a dataset to locally remove a record that can not be found on the server.
<a href="#">RequiredFields</a>	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
<a href="#">ReturnParams</a>	Used to return the new value of fields to dataset after insert or update.
<a href="#">SetFieldsReadOnly</a>	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.

<a href="#">StrictUpdate</a>	Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.
<a href="#">TrimFixedChar</a>	Specifies whether to discard all trailing spaces in the string fields of a dataset.
<a href="#">UpdateAllFields</a>	Used to include all dataset fields in the generated UPDATE and INSERT statements.
<a href="#">UpdateBatchSize</a>	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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#### 16.11.1.9.2 Properties

Properties of the **TDADatasetOptions** class.

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

#### Public

Name	Description
<a href="#">AutoPrepare</a>	Used to execute automatic <a href="#">TCustomDADataset.Prepare</a> on the query execution.
<a href="#">CacheCalcFields</a>	Used to enable caching of the TField.Calculated and TField.Lookup fields.
<a href="#">CompressBlobMode</a>	Used to store values of the BLOB fields in compressed form.
<a href="#">DefaultValues</a>	Used to request default values/expressions from the server and assign them to the DefaultExpression property.
<a href="#">DetailDelay</a>	Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.

---

<a href="#">FieldsOrigin</a>	Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.
<a href="#">FlatBuffers</a>	Used to control how a dataset treats data of the ftString and ftVarBytes fields.
<a href="#">LocalMasterDetail</a>	Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.
<a href="#">LongStrings</a>	Used to represent string fields with the length that is greater than 255 as TStringField.
<a href="#">NumberRange</a>	Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.
<a href="#">QueryRecCount</a>	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.
<a href="#">QuoteNames</a>	Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.
<a href="#">RemoveOnRefresh</a>	Used for a dataset to locally remove a record that can not be found on the server.
<a href="#">RequiredFields</a>	Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.
<a href="#">ReturnParams</a>	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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## 16.11.1.9.2.1 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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## 16.11.1.9.2.2 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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## 16.11.1.9.2.3 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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## 16.11.1.9.2.4 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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## 16.11.1.9.2.5 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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## 16.11.1.9.2.6 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 default False;
```

**Remarks**

If True, TCustomDADataset fills the Origin property of the TField objects by appropriate value when opening a dataset.

---

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## 16.11.1.9.2.7 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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#### 16.11.1.9.2.8 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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#### 16.11.1.9.2.9 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 TMemField.

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#### 16.11.1.9.2.10 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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#### 16.11.1.9.2.11 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 [TCustomUniDataSet.SpecificOptions](#) 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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#### 16.11.1.9.2.12 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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#### 16.11.1.9.2.13 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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#### 16.11.1.9.2.14 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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#### 16.11.1.9.2.15 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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## 16.11.1.9.2.16 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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## 16.11.1.9.2.17 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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## 16.11.1.9.2.18 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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### 16.11.1.9.2.19 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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### 16.11.1.9.2.20 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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### 16.11.1.1(TDAEncryptionOptions Class

Used to specify the options of the data encryption in a dataset.  
For a list of all members of this type, see [TDAEncryptionOptions](#) members.

## Unit

[DBAccess](#)

## Syntax

```
TDAEncryptionOptions = class (TPersistent);
```

## Remarks

Set the properties of Encryption to specify the options of the data encryption in a dataset. Descriptions of all options are in the table below.

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### 16.11.1.10.1 Members

[TDAEncryptionOptions](#) class overview.

## Properties

Name	Description
<a href="#">Encryptor</a>	Used to specify the encryptor class that will perform the data encryption.
<a href="#">Fields</a>	Used to set field names for which encryption will be performed.

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### 16.11.1.10.2 Properties

Properties of the **TDAEncryptionOptions** class.

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

## Public

Name	Description
<a href="#">Encryptor</a>	Used to specify the encryptor class that will perform the data encryption.

## Published

Name	Description
<a href="#">Fields</a>	Used to set field names for which encryption will be performed.

## See Also

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

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### 16.11.1.10.2.1 Encryptor Property

Used to specify the encryptor class that will perform the data encryption.

## Class

[TDAEncryptionOptions](#)**Syntax**

```
property Encryptor: TCREncryptor;
```

**Remarks**

Use the Encryptor property to specify the encryptor class that will perform the data encryption.

---

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## 16.11.1.10.2.2 Fields Property

Used to set field names for which encryption will be performed.

**Class**[TDAEncryptionOptions](#)**Syntax**

```
property Fields: string;
```

**Remarks**

Used to set field names for which encryption will be performed.

---

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## 16.11.1.1 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.

**Inheritance Hierarchy**[TMapRule](#)**TDAMapRule**

---

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## 16.11.1.11.1 Members

[TDAMapRule](#) class overview.

**Properties**

Name	Description
<a href="#">DBLengthMax</a>	Maximum DB field length, until which the rule is applied.
<a href="#">DBLengthMin</a>	Minimum DB field length, starting from which the rule is applied.
<a href="#">DBScaleMax</a>	Maximum DB field scale, until which the rule is applied to the specified DB field.
<a href="#">DBScaleMin</a>	Minimum DB field Scale, starting from which the rule is applied to the specified DB field.
<a href="#">DBType</a>	DB field type, that the rule is applied to.
<a href="#">FieldLength</a>	The resultant field length in Delphi.
<a href="#">FieldName</a>	DataSet field name, for which the rule is applied.
<a href="#">FieldScale</a>	The resultant field Scale in Delphi.
<a href="#">FieldType</a>	Delphi field type, that the specified DB type or DataSet field will be mapped to.
<a href="#">IgnoreErrors</a>	Ignoring errors when converting data from DB to Delphi type.

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#### 16.11.1.11.2 Properties

Properties of the **TDAMapRule** class.

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

#### Published

Name	Description
<a href="#">DBLengthMax</a>	Maximum DB field length, until which the rule is applied.
<a href="#">DBLengthMin</a>	Minimum DB field length, starting from which the rule is applied.
<a href="#">DBScaleMax</a>	Maximum DB field scale, until which the rule is applied to the specified DB field.

---

<a href="#">DBScaleMin</a>	Minimum DB field Scale, starting from which the rule is applied to the specified DB field.
<a href="#">DBType</a>	DB field type, that the rule is applied to.
<a href="#">FieldLength</a>	The resultant field length in Delphi.
<a href="#">FieldName</a>	DataSet field name, for which the rule is applied.
<a href="#">FieldScale</a>	The resultant field Scale in Delphi.
<a href="#">FieldType</a>	Delphi field type, that the specified DB type or DataSet field will be mapped to.
<a href="#">IgnoreErrors</a>	Ignoring errors when converting data from DB to Delphi type.

**See Also**

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

---

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## 16.11.1.11.2.1 DBLengthMax Property

Maximum DB field length, until which the rule is applied.

**Class**

[TDAMapRule](#)

**Syntax**

```
property DBLengthMax: Integer default rlAny;
```

**Remarks**

Setting maximum DB field length, until which the rule is applied to the specified DB field.

---

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## 16.11.1.11.2.2 DBLengthMin Property

Minimum DB field length, starting from which the rule is applied.

**Class**

[TDAMapRule](#)

**Syntax**

```
property DBLengthMin: Integer default rlAny;
```

**Remarks**

Setting minimum DB field length, starting from which the rule is applied to the specified DB field.

---

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## 16.11.1.11.2.3 DBScaleMax Property

Maximum DB field scale, until which the rule is applied to the specified DB field.

**Class**

[TDAMapRule](#)

**Syntax**

```
property DBScaleMax: Integer default rlAny;
```

**Remarks**

Setting maximum DB field scale, until which the rule is applied to the specified DB field.

---

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## 16.11.1.11.2.4 DBScaleMin Property

Minimum DB field Scale, starting from which the rule is applied to the specified DB field.

**Class**

[TDAMapRule](#)

**Syntax**

```
property DBScaleMin: Integer default rlAny;
```

**Remarks**

Setting minimum DB field Scale, starting from which the rule is applied to the specified DB field.

---

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## 16.11.1.11.2.5 DBType Property

DB field type, that the rule is applied to.

**Class**

[TDAMapRule](#)

**Syntax**

```
property DBType: Word 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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#### 16.11.1.11.2.6 FieldLength Property

The resultant field length in Delphi.

#### Class

[TDAMapRule](#)

#### Syntax

```
property FieldLength: Integer default rlAny;
```

#### Remarks

Setting the Delphi field length after conversion.

---

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#### 16.11.1.11.2.7 FieldName Property

DataSet field name, for which the rule is applied.

#### Class

[TDAMapRule](#)

#### Syntax

```
property FieldName: string;
```

#### 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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#### 16.11.1.11.2.8 FieldScale Property

The resultant field Scale in Delphi.

#### Class

[TDAMapRule](#)

#### Syntax

```
property FieldScale: Integer default rlAny;
```

#### Remarks

Setting the Delphi field Scale after conversion.

---

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#### 16.11.1.11.2.9 FieldType Property

Delphi field type, that the specified DB type or DataSet field will be mapped to.

#### Class

[TDAMapRule](#)

#### Syntax

```
property FieldType: TFieldType default ftUnknown;
```

#### Remarks

Setting Delphi field type, that the specified DB type or DataSet field will be mapped to.

---

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#### 16.11.1.11.2.10 IgnoreErrors Property

Ignoring errors when converting data from DB to Delphi type.

#### Class

[TDAMapRule](#)

#### Syntax

```
property IgnoreErrors: Boolean 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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### 16.11.1.1: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);
```

#### Inheritance Hierarchy

TMapRules  
**TDAMapRules**

---

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## 16.11.1.12.1 Members

[TDAMapRules](#) class overview.

## Methods

Name	Description
<a href="#">AddDBTypeRule</a>	Overloaded. Adding rules for mapping Database field types to Delphi field types.
<a href="#">AddFieldNameRule</a>	Overloaded. Adding rules for mapping named fields to Delphi field types and setting resultant length and scale for Delphi fields
<a href="#">AddRule</a>	A unified method of adding rules for mapping a DataSet named field or DB field type with the specified length and scale to a field type with the specified length and scale in Delphi.

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## 16.11.1.12.2 Methods

Methods of the **TDAMapRules** class.

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

## Public

Name	Description
<a href="#">AddDBTypeRule</a>	Overloaded. Adding rules for mapping Database field types to Delphi field types.
<a href="#">AddFieldNameRule</a>	Overloaded. Adding rules for mapping named fields to Delphi field types and setting resultant length and scale for Delphi fields
<a href="#">AddRule</a>	A unified method of adding rules for mapping a DataSet named field or DB field type with the specified length and scale to a field type with the specified length and scale in Delphi.

## See Also

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

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#### 16.11.1.12.2.1 AddDBTypeRule Method

Adding rules for mapping Database field types to Delphi field types.

### Class

[TDAMapRules](#)

### Overload List

Name	Description
<a href="#">AddDBTypeRule(DBType: Word; FieldType: TFieldType; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types.
<a href="#">AddDBTypeRule(DBType: Word; FieldType: TFieldType; FieldLength: Integer; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types with the specified Delphi field length.
<a href="#">AddDBTypeRule(DBType: Word; FieldType: TFieldType; FieldLength: Integer; FieldScale: Integer; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types with the specified resultant length and scale of Delphi field.
<a href="#">AddDBTypeRule(DBType: Word; DBLengthMin: Integer; DBLengthMax: Integer; FieldType: TFieldType; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length of DB fields, for which the specified conversion will be applied.
<a href="#">AddDBTypeRule(DBType: Word; DBLengthMin: Integer; DBLengthMax: Integer; FieldType: TFieldType; FieldLength: Integer; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length of DB fields, for which the specified conversion will be applied.
<a href="#">AddDBTypeRule(DBType: Word; DBLengthMin: Integer; DBLengthMax: Integer; DBScaleMin: Integer; DBScaleMax: Integer; FieldType: TFieldType; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length and scale of DB fields, for which the specified conversion will be applied, and with setting the resultant Delphi field length.
<a href="#">AddDBTypeRule(DBType: Word; DBLengthMin: Integer; DBLengthMax: Integer; DBScaleMin: Integer; DBScaleMax: Integer; FieldType: TFieldType; FieldLength: Integer; FieldScale: Integer; IgnoreErrors: boolean)</a>	Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length and scale of DB fields, for which the specified conversion will be applied, and with setting the resultant Delphi field length and scale.

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Adding rules for mapping Database field types to Delphi field types.

### Class

[TDAMapRules](#)**Syntax**

```
procedure AddDBTypeRule(DBType: Word; FieldType: TFieldType;  
IgnoreErrors: boolean = False); overload
```

**Parameters**

*DBType*

DB type

*FieldType*

Delphi field type

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

**Remarks**

This method can be applied to all DB fields and Delphi fields, that support conversion between each other.

---

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Adding rules for mapping Database field types to Delphi field types with the specified Delphi field length.

**Class**[TDAMapRules](#)**Syntax**

```
procedure AddDBTypeRule(DBType: Word; FieldType: TFieldType;  
FieldLength: Integer; IgnoreErrors: boolean = False); overload
```

**Parameters**

*DBType*

DB type

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

**Remarks**

This method can be used for retrieving Delphi fields ftString, ftWideString, ftBytes, ftVarBytes.

---

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Adding rules for mapping Database field types to Delphi field types with the specified resultant length and scale of Delphi field.

**Class**

[TDAMapRules](#)**Syntax**

```
procedure AddDBTypeRule(DBType: Word; FieldType: TFieldType;  
  FieldLength: Integer; FieldScale: Integer; IgnoreErrors: boolean  
  = False); overload
```

**Parameters***DBType*

DB type

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*FieldScale*

Delphi field scale

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

**Remarks**

This method can be used for retrieving Delphi fields ftBCD and ftFMTBCD.

---

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Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length of DB fields, for which the specified conversion will be applied.

**Class**[TDAMapRules](#)**Syntax**

```
procedure AddDBTypeRule(DBType: Word; DBLengthMin: Integer;  
  DBLengthMax: Integer; FieldType: TFieldType; IgnoreErrors:  
  boolean = False); overload
```

**Parameters***DBType*

DB type

*DBLengthMin*

Minimum DB field length

*DBLengthMax*

Maximum DB field length

*FieldType*

Delphi field type

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

**Remarks**

---

This method can be applied for all DB text fields.

---

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Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length of DB fields, for which the specified conversion will be applied.

### Class

[TDAMapRules](#)

### Syntax

```
procedure AddDBTypeRule(DBType: Word; DBLengthMin: Integer;  
DBLengthMax: Integer; FieldType: TFieldType; FieldLength:  
Integer; IgnoreErrors: boolean = False); overload
```

#### Parameters

*DBType*

DB type

*DBLengthMin*

Minimum DB field length

*DBLengthMax*

Maximum DB field length

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

### Remarks

This method can be applied to DB text fields for retrieving Delphi fields ftString, ftWideString, ftBytes, ftVarBytes.

---

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Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length and scale of DB fields, for which the specified conversion will be applied, and with setting the resultant Delphi field length.

### Class

[TDAMapRules](#)

### Syntax

```
procedure AddDBTypeRule(DBType: Word; DBLengthMin: Integer;  
DBLengthMax: Integer; DBScaleMin: Integer; DBScaleMax: Integer;  
FieldType: TFieldType; IgnoreErrors: boolean = False); overload
```

#### Parameters

*DBType*

DB type

*DBLengthMin*

Minimum DB field length

*DBLengthMax*

Maximum DB field length

*DBScaleMin*

Minimum DB field scale

*DBScaleMax*

Maximum DB field scale

*FieldType*

Delphi field type

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

### Remarks

This method can be applied to those DB fields, for which it is possible to set Scale and Length.

---

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Adding rules for mapping Database field types to Delphi field types with the specified minimum and maximum length and scale of DB fields, for which the specified conversion will be applied, and with setting the resultant Delphi field length and scale.

### Class

[TDAMapRules](#)

### Syntax

```
procedure AddDBTypeRule(DBType: Word; DBLengthMin: Integer;  
DBLengthMax: Integer; DBScaleMin: Integer; DBScaleMax: Integer;  
FieldType: TFieldType; FieldLength: Integer; FieldScale:  
Integer; IgnoreErrors: boolean = False); overload
```

#### Parameters

*DBType*

DB type

*DBLengthMin*

Minimum DB field length

*DBLengthMax*

Maximum DB field length

*DBScaleMin*

Minimum DB field scale

*DBScaleMax*

Maximum DB field scale

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*FieldScale*

Delphi field scale

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

## Remarks

This method can be applied to those DB fields, for which it is possible to set Scale and Length for retrieving Delphi fields ftBCD, ftFMTBCD.

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### 16.11.1.12.2.2 AddFieldNameRule Method

Adding rules for mapping named fields to Delphi field types and setting resultant length and scale for Delphi fields

## Class

[TDAMapRules](#)

## Overload List

Name	Description
<a href="#">AddFieldNameRule(FieldName: string; FieldType: TFieldType; IgnoreErrors: Boolean)</a>	Adding rules for mapping named fields to Delphi field types.
<a href="#">AddFieldNameRule(FieldName: string; FieldType: TFieldType; FieldLength: Integer; IgnoreErrors: Boolean)</a>	Adding rules for mapping named fields to Delphi field types and setting the length for Delphi fields.
<a href="#">AddFieldNameRule(FieldName: string; FieldType: TFieldType; FieldLength: Integer; FieldScale: Integer; IgnoreErrors: Boolean)</a>	Adding rules for mapping named fields to Delphi field types and setting the resultant length and scale for Delphi fields

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Adding rules for mapping named fields to Delphi field types.

## Class

[TDAMapRules](#)

## Syntax

```
procedure AddFieldNameRule(FieldName: string; FieldType: TFieldType; IgnoreErrors: Boolean = False); overload
```

### Parameters

*FieldName*

Field name in DataSet

*FieldType*

Delphi field type

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

### Remarks

This method can be applied to all DataSet field names and Delphi fields. If the DB field type, whose name is specified in the rule, doesn't support conversion to the specified Delphi type, the [Unsupported Data Type Mapping](#) error will occur when opening DataSet.

---

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Adding rules for mapping named fields to Delphi field types and setting the length for Delphi fields.

### Class

[TDAMapRules](#)

### Syntax

```
procedure AddFieldNameRule(FieldName: string; FieldType: TFieldType; FieldLength: Integer; IgnoreErrors: Boolean = False); overload
```

#### Parameters

*FieldName*

Field name in DataSet

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

### Remarks

This method can be used for retrieving Delphi fields ftString, ftWideString, ftBytes, ftVarBytes.

---

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Adding rules for mapping named fields to Delphi field types and setting the resultant length and scale for Delphi fields

### Class

[TDAMapRules](#)

### Syntax

```
procedure AddFieldNameRule(FieldName: string; FieldType: TFieldType; FieldLength: Integer; FieldScale: Integer; IgnoreErrors: Boolean = False); overload
```

#### Parameters

*FieldName*

Field name in DataSet

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*FieldScale*

Delphi field scale

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

**Remarks**

This method can be used for retrieving Delphi fields ftBCD and ftFMTBCD.

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## 16.11.1.12.2.3 AddRule Method

A unified method of adding rules for mapping a DataSet named field or DB field type with the specified length and scale to a field type with the specified length and scale in Delphi.

**Class**

[TDAMapRules](#)

**Syntax**

```
procedure AddRule(FieldName: string; DBType: Word; DBLengthMin:
Integer; DBLengthMax: Integer; DBScaleMin: Integer; DBScaleMax:
Integer; FieldType: TFieldType; FieldLength: Integer;
FieldScale: Integer; IgnoreErrors: boolean = False); overload;
procedure AddRule(Rule: string); overload;
```

**Parameters***FieldName*

Field name in DataSet

*DBType*

DB type

*DBLengthMin*

Minimum DB field length

*DBLengthMax*

Maximum DB field length

*DBScaleMin*

Minimum DB field scale

*DBScaleMax*

Maximum DB field scale

*FieldType*

Delphi field type

*FieldLength*

Delphi field length

*FieldScale*

Delphi field scale

*IgnoreErrors*

Ignore data conversion errors. Default value is False.

### Remarks

One of two parameters requires to be specified: `FieldName` or `DBType`. Also, it is required to specify the `FieldType` parameter. The other parameters are not required, therefore it is allowed to set the `rAny` constant for them instead of a specific value. If the `rAny` constant is set, then the given rule will be applied for all fields independently on their length and scale.

For example, if it is necessary to set the field length in a database to 20 or more, then `DBLengthMin` should be set to 20, and `DBLengthMax` - to `rAny`.

If it is necessary to set scale to 5 or less, then `DBScaleMin` should be set to `rAny`, and `DBScaleMax` - to 5.

---

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#### 16.11.1.1: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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16.11.1.13.1 Members

[TDAMetaData](#) class overview.

## Properties

Name	Description
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">Connection</a>	Used to specify a connection object to use to connect to a data store.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">MetaDataKind</a>	Used to specify which kind of metainformation to show.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">Restrictions</a>	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
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetMetaDataKinds</a>	Used to get values acceptable in the MetaDataKind property.
<a href="#">GetRestrictions</a>	Used to find out which restrictions are applicable to a certain MetaDataKind.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.

<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

Name	Description
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.

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### 16.11.1.13.2 Properties

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

## Public

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.

<a href="#">Connection</a>	Used to specify a connection object to use to connect to a data store.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">MetaDataKind</a>	Used to specify which kind of metainformation to show.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Restrictions</a>	Used to provide one or more conditions restricting the list of objects to be described.

---

<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

### See Also

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

---

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#### 16.11.1.13.2.1 Connection Property

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

### Class

[TDAMetaData](#)

### Syntax

```
property Connection: TCustomDAConnection;
```

### 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 TCustomDAConnection or its descendant class objects.

At runtime, set the Connection property to reference an instantiated TCustomDAConnection object.

---

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## 16.11.1.13.2.2 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:

<b>MetaDataKind</b>	<b>Description</b>
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 <a href="#">restrictions</a> 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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## 16.11.1.13.2.3 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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### 16.11.1.13.3 Methods

Methods of the **TDAMetaData** class.

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

## Public

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetMetaDataKinds</a>	Used to get values acceptable in the <code>MetaDataKind</code> property.
<a href="#">GetRestrictions</a>	Used to find out which restrictions are applicable to a certain <code>MetaDataKind</code> .

<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.

[UpdateRecordTypes](#) (inherited from [TMemDataSet](#))

Used to indicate the update status for the current record when cached updates are enabled.

[UpdateResult](#) (inherited from [TMemDataSet](#))

Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.

[UpdatesPending](#) (inherited from [TMemDataSet](#))

Used to check the status of the cached updates buffer.

[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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#### 16.11.1.13.3.1 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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#### 16.11.1.13.3.2 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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### 16.11.1.1 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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16.11.1.14.1 Members

[TDAParam](#) class overview.

## Properties

Name	Description
<a href="#">AsBlob</a>	Used to set and read the value of the BLOB parameter as string.
<a href="#">AsBlobRef</a>	Used to set and read the value of the BLOB parameter as a TBlob object.
<a href="#">AsFloat</a>	Used to assign the value for a float field to a parameter.
<a href="#">AsInteger</a>	Used to assign the value for an integer field to the parameter.
<a href="#">AsLargeInt</a>	Used to assign the value for a LargeInteger field to the parameter.
<a href="#">AsMemo</a>	Used to assign the value for a memo field to the parameter.
<a href="#">AsMemoRef</a>	Used to set and read the value of the memo parameter as a TBlob object.
<a href="#">AsSQLTimeStamp</a>	Used to specify the value of the parameter when it represents a SQL timestamp field.
<a href="#">AsString</a>	Used to assign the string value to the parameter.
<a href="#">AsWideString</a>	Used to assign the Unicode string value to the parameter.
<a href="#">DataType</a>	Indicates the data type of the parameter.
<a href="#">IsNull</a>	Used to indicate whether the value assigned to a parameter is NULL.
<a href="#">ParamType</a>	Used to indicate the type of use for a parameter.
<a href="#">Size</a>	Specifies the size of a string type parameter.
<a href="#">Value</a>	Used to represent the value of the parameter as Variant.

## Methods

Name	Description
<a href="#">AssignField</a>	Assigns field name and field value to a param.
<a href="#">AssignFieldValue</a>	Assigns the specified field properties and value to a parameter.
<a href="#">LoadFromFile</a>	Places the content of a specified file into a TDAParam object.
<a href="#">LoadFromStream</a>	Places the content from a stream into a TDAParam object.
<a href="#">SetBlobData</a>	Overloaded. Writes the data from a specified buffer to BLOB.

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#### 16.11.1.14.2 Properties

Properties of the **TDAParam** class.

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

#### Public

Name	Description
<a href="#">AsBlob</a>	Used to set and read the value of the BLOB parameter as string.
<a href="#">AsBlobRef</a>	Used to set and read the value of the BLOB parameter as a TBlob object.
<a href="#">AsFloat</a>	Used to assign the value for a float field to a parameter.
<a href="#">AsInteger</a>	Used to assign the value for an integer field to the parameter.
<a href="#">AsLargeInt</a>	Used to assign the value for a LargeInteger field to the parameter.
<a href="#">AsMemo</a>	Used to assign the value for a memo field to the parameter.
<a href="#">AsMemoRef</a>	Used to set and read the value of the memo parameter as a TBlob object.
<a href="#">AsSQLTimeStamp</a>	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
<a href="#">DataType</a>	Indicates the data type of the parameter.
<a href="#">ParamType</a>	Used to indicate the type of use for a parameter.
<a href="#">Size</a>	Specifies the size of a string type parameter.
<a href="#">Value</a>	Used to represent the value of the parameter as Variant.

**See Also**

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

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## 16.11.1.14.2.1 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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## 16.11.1.14.2.2 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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#### 16.11.1.14.2.3 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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#### 16.11.1.14.2.4 AsInteger Property

Used to assign the value for an integer field to the parameter.

### Class

[TDAParam](#)

### Syntax

```
property AsInteger: integer;
```

### 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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#### 16.11.1.14.2.5 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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### 16.11.1.14.2.6 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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### 16.11.1.14.2.7 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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### 16.11.1.14.2.8 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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## 16.11.1.14.2.9 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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## 16.11.1.14.2.10 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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## 16.11.1.14.2.11 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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## 16.11.1.14.2.12 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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## 16.11.1.14.2.13 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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## 16.11.1.14.2.14 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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## 16.11.1.14.2.15 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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## 16.11.1.14.3 Methods

Methods of the **TDAParam** class.

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

**Public**

Name	Description
<a href="#">AssignField</a>	Assigns field name and field value to a param.
<a href="#">AssignFieldValue</a>	Assigns the specified field properties and value to a parameter.
<a href="#">LoadFromFile</a>	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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#### 16.11.1.14.3.1 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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#### 16.11.1.14.3.2 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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#### 16.11.1.14.3.3 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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#### 16.11.1.14.3.4 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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### 16.11.1.14.3.5 SetBlobData Method

Writes the data from a specified buffer to BLOB.

## Class

[TDAParam](#)

## Overload List

Name	Description
<a href="#">SetBlobData(Buffer: TValueBuffer)</a>	Writes the data from a specified buffer to BLOB.
<a href="#">SetBlobData(Buffer: Pointer; Size: Integer)</a>	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: Pointer; 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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**16.11.1.1 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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## 16.11.1.15.1 Members

[TDAParams](#) class overview.

**Properties**

Name	Description
<a href="#">Items</a>	Used to iterate through all parameters.

**Methods**

Name	Description
<a href="#">FindParam</a>	Searches for a parameter with the specified name.

---

### [ParamByName](#)

Searches for a parameter with the specified name.

---

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#### 16.11.1.15.2 Properties

Properties of the **TDAParams** class.

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

#### Public

Name	Description
<a href="#">Items</a>	Used to iterate through all parameters.

#### See Also

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

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#### 16.11.1.15.2.1 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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#### 16.11.1.15.3 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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#### 16.11.1.15.3.1 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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#### 16.11.1.15.3.2 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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#### 16.11.1.1(TDATransaction Class

A base class that implements functionality for controlling transactions. For a list of all members of this type, see [TDATransaction](#) members.

### Unit

[DBAccess](#)

### Syntax

```
TDATransaction = class (TComponent) ;
```

### Remarks

TDATransaction is a base class for components implementing functionality for managing transactions.

Do not create instances of TDATransaction. Use descendants of the TDATransaction class instead.

---

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#### 16.11.1.16.1 Members

[TDATransaction](#) class overview.

### Properties

Name	Description
<a href="#">Active</a>	Used to determine if the transaction is active.
<a href="#">DefaultCloseAction</a>	Used to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

### Methods

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

[Commit](#)

Commits the current transaction.

[Rollback](#)

Discards all modifications of data associated with the current transaction and ends the transaction.

[StartTransaction](#)

Begins a new transaction.

## Events

Name	Description
<a href="#">OnError</a>	Used to process errors that occur during executing a transaction.

---

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### 16.11.1.16.2 Properties

Properties of the **TDATransaction** class.

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

## Public

Name	Description
<a href="#">Active</a>	Used to determine if the transaction is active.
<a href="#">DefaultCloseAction</a>	Used to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

## See Also

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

---

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### 16.11.1.16.2.1 Active Property

Used to determine if the transaction is active.

## Class

[TDATransaction](#)

## Syntax

```
property Active: boolean;
```

## Remarks

Indicates whether the transaction is active. This property is read-only.

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#### 16.11.1.16.2.2 DefaultCloseAction Property

Used to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

### Class

[TDATransaction](#)

### Syntax

```
property DefaultCloseAction: TCRTransactionAction default
    taRollback;
```

### Remarks

Use DefaultCloseAction to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.

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#### 16.11.1.16.3 Methods

Methods of the **TDATransaction** class.

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

### Public

Name	Description
<a href="#">Commit</a>	Commits the current transaction.
<a href="#">Rollback</a>	Discards all modifications of data associated with the current transaction and ends the transaction.
<a href="#">StartTransaction</a>	Begins a new transaction.

### See Also

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

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#### 16.11.1.16.3.1 Commit Method

Commits the current transaction.

### Class

[TDATransaction](#)

## Syntax

```
procedure Commit; virtual;
```

## Remarks

Call the Commit method to commit the current transaction. On commit server writes permanently all pending data updates associated with the current transaction to the database, and then finishes the transaction.

## See Also

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

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### 16.11.1.16.3.2 Rollback Method

Discards all modifications of data associated with the current transaction and ends the transaction.

## Class

[TDATransaction](#)

## Syntax

```
procedure Rollback; virtual;
```

## Remarks

Call Rollback to cancel all data modifications made within the current transaction to the database server, and finish the transaction.

## See Also

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

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### 16.11.1.16.3.3 StartTransaction Method

Begins a new transaction.

## Class

[TDATransaction](#)

## Syntax

```
procedure StartTransaction; virtual;
```

## Remarks

Call the `StartTransaction` method to begin a new transaction against the database server. Before calling `StartTransaction`, an application should check the [Active](#) property. If `TDATransaction.Active` is `True`, indicating that a transaction is already in progress, a subsequent call to `StartTransaction` will raise `EDatabaseError`. An active transaction must be finished by call to [Commit](#) or [Rollback](#) before call to `StartTransaction`. Call to `StartTransaction` when connection is closed also will raise `EDatabaseError`.

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

## See Also

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

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### 16.11.1.16.4 Events

Events of the **TDATransaction** class.

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

## Public

Name	Description
<a href="#">OnError</a>	Used to process errors that occur during executing a transaction.

## See Also

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

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### 16.11.1.16.4.1 OnError Event

Used to process errors that occur during executing a transaction.

## Class

[TDATransaction](#)

## Syntax

```
property OnError: TDATransactionOnErrorEvent;
```

## Remarks

Add a handler to the `OnError` event to process errors that occur during executing a transaction control statements such as [Commit](#), [Rollback](#). Check the `E` parameter to get the error code.

## See Also

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

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### 16.11.1.1 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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### 16.11.1.17.1 Members

[TMacro](#) class overview.

## Properties

Name	Description
<a href="#">Active</a>	Used to determine if the macro should be expanded.
<a href="#">AsDateTime</a>	Used to set the TDateTime value to a macro.
<a href="#">AsFloat</a>	Used to set the float value to a macro.
<a href="#">AsInteger</a>	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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#### 16.11.1.17.2 Properties

Properties of the **TMacro** class.

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

#### Public

Name	Description
<a href="#">AsDateTime</a>	Used to set the TDateTime value to a macro.
<a href="#">AsFloat</a>	Used to set the float value to a macro.
<a href="#">AsInteger</a>	Used to set the integer value to a macro.
<a href="#">AsString</a>	Used to assign the string value to a macro.

#### Published

Name	Description
<a href="#">Active</a>	Used to determine if the macro should be expanded.
<a href="#">Name</a>	Used to identify a particular macro.
<a href="#">Value</a>	Used to set the value to a macro.

#### See Also

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

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#### 16.11.1.17.2.1 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

```
UniQuery.SQL.Text := 'SELECT * FROM Dept WHERE DeptNo > 20 &Cond1';  
UniQuery.Macros[0].Value := 'and DName is NULL';  
UniQuery.Macros[0].Active:= False;
```

---

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### 16.11.1.17.2.2 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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### 16.11.1.17.2.3 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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### 16.11.1.17.2.4 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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#### 16.11.1.17.2.5 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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#### 16.11.1.17.2.6 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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#### 16.11.1.17.2.7 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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### 16.11.1.1 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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### 16.11.1.18.1 Members

[TMacros](#) class overview.

#### Properties

Name	Description
<a href="#">Items</a>	Used to iterate through all the macros parameters.

#### Methods

Name	Description
<a href="#">AssignValues</a>	Copies the macros values and properties from the specified source.
Expand	Changes the macros in the passed SQL statement to their values.
<a href="#">FindMacro</a>	Searches for a TMacro object by its name.
<a href="#">IsEqual</a>	Compares itself with another TMacro object.
<a href="#">MacroByName</a>	Used to search for a macro with the specified name.

[Scan](#)

Creates a macros from the passed SQL statement.

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## 16.11.1.18.2 Properties

Properties of the **TMacros** class.

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

**Public**

Name	Description
<a href="#">Items</a>	Used to iterate through all the macros parameters.

**See Also**

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

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## 16.11.1.18.2.1 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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## 16.11.1.18.3 Methods

Methods of the **TMacros** class.

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

**Public**

Name	Description
<a href="#">AssignValues</a>	Copies the macros values and properties from the specified source.

Expand

Changes the macros in the passed SQL statement to their values.

[FindMacro](#)

Searches for a TMacro object by its 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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#### 16.11.1.18.3.1 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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#### 16.11.1.18.3.3 FindMacro Method

Searches for a TMacro object by its 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 was found, nil otherwise.

## Remarks

Call the FindMacro method to find a macro with the name passed in Value. If a match is found, FindMacro returns the macro. 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.

---

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### 16.11.1.18.3.4 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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### 16.11.1.18.3.5 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 rather than a direct reference to the `Items` property to avoid depending on the order of the entries.

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

---

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## 16.11.1.18.3.6 Scan Method

Creates a macros from the passed SQL statement.

**Class**

[TMacros](#)

**Syntax**

```
procedure Scan(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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## 16.11.1.19 PoolingOptions 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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## 16.11.1.19.1 Members

[TPoolingOptions](#) class overview.

**Properties**

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

<a href="#">ConnectionLifetime</a>	Used to specify the maximum time during which an opened connection can be used by connection pool.
<a href="#">MaxPoolSize</a>	Used to specify the maximum number of connections that can be opened in connection pool.
<a href="#">MinPoolSize</a>	Used to specify the minimum number of connections that can be opened in the connection pool.
<a href="#">Validate</a>	Used for a connection to be validated when it is returned from the pool.

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#### 16.11.1.19.2 Properties

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

#### Published

Name	Description
<a href="#">ConnectionLifetime</a>	Used to specify the maximum time during which an opened connection can be used by connection pool.
<a href="#">MaxPoolSize</a>	Used to specify the maximum number of connections that can be opened in connection pool.
<a href="#">MinPoolSize</a>	Used to specify the minimum number of connections that can be opened in the connection pool.
<a href="#">Validate</a>	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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## 16.11.1.19.2.1 ConnectionLifetime Property

Used to specify the maximum time during which an opened connection can be used by connection pool.

**Class**

[TPoolingOptions](#)

**Syntax**

```
property ConnectionLifetime: integer default 0;
```

**Remarks**

Use the ConnectionLifeTime property to specify the maximum time during which an opened connection can be used by connection pool. Measured in milliseconds. Pool deletes connections with exceeded connection lifetime when [TCustomDAConnection](#) is about to close. If the ConnectionLifetime property is set to 0 (by default), then the lifetime of connection is infinity. ConnectionLifetime concerns only inactive connections in the pool.

---

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## 16.11.1.19.2.2 MaxPoolSize Property

Used to specify the maximum number of connections that can be opened in connection pool.

**Class**

[TPoolingOptions](#)

**Syntax**

```
property MaxPoolSize: integer default 100;
```

**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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## 16.11.1.19.2.3 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 0;
```

**Remarks**

Use the MinPoolSize property to specify the minimum number of connections that

---

can be opened in the connection pool.

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#### 16.11.1.19.2.4 Validate Property

Used for a connection to be validated when it is returned from the pool.

### Class

[TPoolingOptions](#)

### Syntax

```
property Validate: boolean default False;
```

### 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 TCustomDAConnection component.

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## 16.11.2 Types

Types in the **DBAccess** unit.

### Types

Name	Description
<a href="#">TAfterExecuteEvent</a>	This type is used for the <a href="#">TCustomDADataSet.AfterExecute</a> and <a href="#">TCustomDASQL.AfterExecute</a> events.
<a href="#">TAfterFetchEvent</a>	This type is used for the <a href="#">TCustomDADataSet.AfterFetch</a> event.
<a href="#">TBeforeFetchEvent</a>	This type is used for the <a href="#">TCustomDADataSet.BeforeFetch</a> event.
<a href="#">TConnectionLostEvent</a>	This type is used for the <a href="#">TCustomDAConnection.OnConnectionLost</a> event.
<a href="#">TDAConnectionErrorEvent</a>	This type is used for the <a href="#">TCustomDAConnection.OnError</a> event.
<a href="#">TDATransactionErrorEvent</a>	This type is used for the <a href="#">TDATransaction.OnError</a> event.
<a href="#">TRefreshOptions</a>	Represents the set of <a href="#">TRefreshOption</a> .

[TUpdateExecuteEvent](#)

This type is used for the TCustomDADataset.AfterUpdateExecute and TCustomDADataset.BeforeUpdateExecute events.

---

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### 16.11.2.1 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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### 16.11.2.2 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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### 16.11.2.3 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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### 16.11.2.4 TConnectionLostEvent Procedure Reference

This type is used for the [TCustomDAConnection.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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### 16.11.2.5 TDAConnectionErrorEvent Procedure Reference

This type is used for the [TCustomDAConnection.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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#### 16.11.2.6 TDATransactionErrorEvent Procedure Reference

This type is used for the [TDATransaction.OnError](#) event.

##### Unit

[DBAccess](#)

##### Syntax

```
TDATransactionErrorEvent = procedure (Sender: TObject; E: EDAEError  
; 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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#### 16.11.2.7 TRefreshOptions Set

Represents the set of [TRefreshOption](#).

##### Unit

[DBAccess](#)

##### Syntax

```
TRefreshOptions = set of TRefreshOption;
```

---

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#### 16.11.2.8 TUpdateExecuteEvent Procedure Reference

This type is used for the TCustomDADDataSet.AfterUpdateExecute and TCustomDADDataSet.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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## 16.11.3 Enumerations

Enumerations in the **DBAccess** unit.

### Enumerations

Name	Description
<a href="#">TLabelSet</a>	Sets the language of labels in the connect dialog.
<a href="#">TRefreshOption</a>	Indicates when the editing record will be refreshed.
<a href="#">TRetryMode</a>	Specifies the application behavior when connection is lost.

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### 16.11.3.1 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
<b>IsCustom</b>	Set the language of labels in the connect dialog manually.
<b>IsEnglish</b>	Set English as the language of labels in the connect dialog.
<b>IsFrench</b>	Set French as the language of labels in the connect dialog.
<b>IsGerman</b>	Set German as the language of labels in the connect dialog.
<b>IsItalian</b>	Set Italian as the language of labels in the connect dialog.
<b>IsPolish</b>	Set Polish as the language of labels in the connect dialog.
<b>IsPortuguese</b>	Set Portuguese as the language of labels in the connect dialog.

---

<b>IsRussian</b>	Set Russian as the language of labels in the connect dialog.
<b>IsSpanish</b>	Set Spanish as the language of labels in the connect dialog.

---

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### 16.11.3.2 TRefreshOption Enumeration

Indicates when the editing record will be refreshed.

#### Unit

[DBAccess](#)

#### Syntax

```
TRefreshOption = (roAfterInsert, roAfterUpdate, roBeforeEdit);
```

#### Values

Value	Meaning
<b>roAfterInsert</b>	Refresh is performed after inserting.
<b>roAfterUpdate</b>	Refresh is performed after updating.
<b>roBeforeEdit</b>	Refresh is performed by Edit method.

---

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### 16.11.3.3 TRetryMode Enumeration

Specifies the application behavior when connection is lost.

#### Unit

[DBAccess](#)

#### Syntax

```
TRetryMode = (rmRaise, rmReconnect, rmReconnectExecute);
```

#### Values

Value	Meaning
<b>rmRaise</b>	An exception is raised.
<b>rmReconnect</b>	Reconnect is performed and then exception is raised.
<b>rmReconnectExecute</b>	Reconnect is performed and abortive operation is reexecuted. Exception is not raised.

---

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### 16.11.4 Variables

Variables in the **DBAccess** unit.

#### Variables

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

[ChangeCursor](#)

When set to True allows data access components to change screen cursor for the execution time.

[MacroChar](#)

Determinates what character is used for macros.

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**16.11.4.1 ChangeCursor Variable**

When set to True allows data access components to change screen cursor for the execution time.

**Unit**

[DBAccess](#)

**Syntax**

```
ChangeCursor: boolean;
```

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**16.11.4.2 MacroChar Variable**

Determinates what character is used for macros.

**Unit**

[DBAccess](#)

**Syntax**

```
MacroChar: _char;
```

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**16.12 Devart.Dac.DataAdapter**

This unit contains implementation of the DADDataAdapter class.

**Classes**

Name	Description
<a href="#">DADDataAdapter</a>	DataAdapter serves as a bridge between a System.Data.DataSet and a TDataSet component (data source) for retrieving and saving data.

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## 16.12.1 Classes

Classes in the **Devart.Dac.DataAdapter** unit.

### Classes

Name	Description
<a href="#">DADDataAdapter</a>	DataAdapter serves as a bridge between a System.Data.DataSet and a TDataSet component (data source) for retrieving and saving data.

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### 16.12.1.1 DADDataAdapter Class

DataAdapter serves as a bridge between a System.Data.DataSet and a TDataSet component (data source) for retrieving and saving data.  
For a list of all members of this type, see [DADDataAdapter](#) members.

### Unit

[Devart.Dac.DataAdapter](#)

### Syntax

```
DADDataAdapter = class (TComponent);
```

### Remarks

DataAdapter serves as a bridge between a System.Data.DataSet and a TDataSet component (data source) for retrieving and saving data. DataAdapter provides this bridge by mapping [DADDataAdapter.Fill](#), which changes the data in the System.Data.DataSet to match the data in the data source, and [DADDataAdapter.Update](#), which changes the data in the data source to match the data in the System.Data.DataSet.

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#### 16.12.1.1.1 Members

[DADDataAdapter](#) class overview.

### Properties

Name	Description
<a href="#">DataSet</a>	Used to specify a TDataSet object which will be used as data source for DADDataAdapter component.

### Methods

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

[Fill](#)

Adds or refreshes rows in the System.Data.DataSet to match those in the TDataSet and creates a DataTable.

[Update](#)

Performs Insert, Edit, Delete for each inserted, updated, or deleted row in the specified System.Data.DataSet due to the ordering of the rows in the DataTable.

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#### 16.12.1.1.2 Properties

Properties of the **DDataAdapter** class.

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

#### Public

Name	Description
<a href="#">DataSet</a>	Used to specify a TDataSet object which will be used as data source for DDataAdapter component.

#### See Also

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

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#### 16.12.1.1.2.1 DataSet Property

Used to specify a TDataSet object which will be used as data source for DDataAdapter component.

#### Class

[DDataAdapter](#)

#### Syntax

```
property DataSet: TDataSet;
```

#### Remarks

Specify a TDataSet object which will be used as data source for DDataAdapter component.

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## 16.12.1.1.3 Methods

Methods of the **DADDataAdapter** class.

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

**Public**

Name	Description
<a href="#">Fill</a>	Adds or refreshes rows in the System.Data.DataSet to match those in the TDataSet and creates a DataTable.
<a href="#">Update</a>	Performs Insert, Edit, Delete for each inserted, updated, or deleted row in the specified System.Data.DataSet due to the ordering of the rows in the DataTable.

**See Also**

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

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## 16.12.1.1.3.1 Fill Method

Adds or refreshes rows in the System.Data.DataSet to match those in the TDataSet and creates a DataTable.

**Class**

[DADDataAdapter](#)

**Syntax**

```
function Fill(Data: DataSet; tableName: string): integer;
```

**Parameters***Data*

holds the dataset updates of which are to be commented to the database.

*tableName*

holds the name of the DataTable.

**Return Value**

the number of rows successfully inserted into DataSet.

**Remarks**

Adds or refreshes rows in the System.Data.DataSet to match those in the TDataSet using the DataSet parameter, and creates a DataTable named tableName. Function returns the number of rows successfully inserted into DataSet.

TDataSet object associated with DADDataAdapter must be valid, but it does not need to be opened. If TDataSet is closed before Fill is called, it is opened to retrieve data,

then closed. If TDataSet is opened before Fill is called, it remains opened. If an error is encountered while populating the dataset, rows added prior to the occurrence of the error remain in the dataset. The remainder of the operation is aborted. If TDataSet does not return any rows, fields are created and no rows are added to the DataSet, and no exception is raised.

## See Also

- [Update](#)

---

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### 16.12.1.1.3.2 Update Method

Performs Insert, Edit, Delete for each inserted, updated, or deleted row in the specified System.Data.DataSet due to the ordering of the rows in the DataTable.

## Class

[DADataAdapter](#)

## Syntax

```
function Update(Data: DataSet; tableName: string): integer;
```

### Parameters

#### *Data*

holds the dataset updates of which are to be commented to the database.

#### *tableName*

holds the name of the DataTable.

### Return Value

the number of rows successfully updated from the DataSet.

## Remarks

Performs Insert, Edit, Delete for each inserted, updated, or deleted row in the specified System.Data.DataSet due to the ordering of the rows in the DataTable. It should be noted that these statements are not performed as a batch process; each row is updated individually. Function returns the number of rows successfully updated from the DataSet.

## See Also

- [Fill](#)

---

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## 16.13 Devart.UniDac.DataAdapter

This unit contains implementation of the UniDataAdapter class.

### Classes

Name	Description
<a href="#">UniDataAdapter</a>	A class for using with TCustomUniDataSet components and as data source for retrieving and saving data.

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### 16.13.1 Classes

Classes in the **Devart.UniDac.DataAdapter** unit.

### Classes

Name	Description
<a href="#">UniDataAdapter</a>	A class for using with TCustomUniDataSet components and as data source for retrieving and saving data.

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#### 16.13.1.1 UniDataAdapter Class

A class for using with TCustomUniDataSet components and as data source for retrieving and saving data.

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

### Unit

[Devart.UniDac.DataAdapter](#)

### Syntax

```
UniDataAdapter = class (DADDataAdapter) ;
```

### Remarks

The UniDataAdapter class is designed for using with [TCustomUniDataSet](#) components and as data source for retrieving and saving data. UniDataAdapter provides this bridge by mapping [DADDataAdapter.Fill](#), which changes data in System.Data.DataSet to match data in data source, and [DADDataAdapter.Update](#), which changes data in data source to match data in System.Data.DataSet.

### Inheritance Hierarchy

[DADDataAdapter](#)

**UniDataAdapter**

## See Also

- [DADDataAdapter](#)
- [TCustomUniDataSet.UpdateObject](#)

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### 16.13.1.1.1 Members

[UniDataAdapter](#) class overview.

## Properties

Name	Description
<a href="#">DataSet</a> (inherited from <a href="#">DADDataAdapter</a> )	Used to specify a TDataSet object which will be used as data source for DADDataAdapter component.

## Methods

Name	Description
<a href="#">Fill</a> (inherited from <a href="#">DADDataAdapter</a> )	Adds or refreshes rows in the System.Data.DataSet to match those in the TDataSet and creates a DataTable.
<a href="#">Update</a> (inherited from <a href="#">DADDataAdapter</a> )	Performs Insert, Edit, Delete for each inserted, updated, or deleted row in the specified System.Data.DataSet due to the ordering of the rows in the DataTable.

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## 16.14 LiteCollation

This unit contains types for registering user-defined collations.

## Types

Name	Description
<a href="#">TLiteAnsiCollation</a>	This type is used for registering a user-defined non-Unicode collation.
<a href="#">TLiteCollation</a>	This type is used for registering a user-defined collation.

[TLiteWideCollation](#)

This type is used for registering a user-defined Unicode collation.

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### 16.14.1 Types

Types in the **LiteCollation** unit.

#### Types

Name	Description
<a href="#">TLiteAnsiCollation</a>	This type is used for registering a user-defined non-Unicode collation.
<a href="#">TLiteCollation</a>	This type is used for registering a user-defined collation.
<a href="#">TLiteWideCollation</a>	This type is used for registering a user-defined Unicode collation.

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#### 16.14.1.1 TLiteAnsiCollation Function Reference

This type is used for registering a user-defined non-Unicode collation.

#### Unit

[LiteCollation](#)

#### Syntax

```
TLiteAnsiCollation = function (Str1: AnsiString; Str2:
    AnsiString): Integer;
```

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#### 16.14.1.2 TLiteCollation Function Reference

This type is used for registering a user-defined collation.

#### Unit

[LiteCollation](#)

#### Syntax

```
TLiteCollation = function (Str1: string; Str2: string): Integer;
```

#### Remarks

Collation parameter data types depend on Delphi version.

Delphi version	Parameter data type	Description
----------------	---------------------	-------------

---

Delphi 2007 and lower	String = AnsiString	non-Unicode collation
Delphi 2009 and higher	String = WideString	Unicode collation

---

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### 16.14.1.3 TLiteWideCollation Function Reference

This type is used for registering a user-defined Unicode collation.

#### Unit

[LiteCollation](#)

#### Syntax

```
TLiteWideCollation = function (Str1: string; Str2: string):  
    Integer;
```

---

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## 16.15 LiteFunction

This unit contains types for registering user-defined functions.

#### Types

Name	Description
<a href="#">TLiteFunction</a>	This type is used for the registering a user-defined function.

---

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### 16.15.1 Types

Types in the **LiteFunction** unit.

#### Types

Name	Description
<a href="#">TLiteFunction</a>	This type is used for the registering a user-defined function.

---

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### 16.15.1.1 TLiteFunction Function Reference

This type is used for the registering a user-defined function.

#### Unit

[LiteFunction](#)

#### Syntax

```
TLiteFunction = function (InValues: array of Variant): Variant;
```

---

**Remarks**

If the UseUnicode connection specific option is true then input string parameters will be represented as WideString else input string parameters will be represented as AnsiString.

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**16.16 MemData**

This unit contains classes for storing data in memory.

**Classes**

Name	Description
<a href="#">TAttribute</a>	TAttribute is not used in UniDAC.
<a href="#">TBlob</a>	Holds large object value for field and parameter dtBlob, dtMemo data types.
<a href="#">TCompressedBlob</a>	Holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data.
<a href="#">TDBObject</a>	A base class for classes that work with user-defined data types that have attributes.
<a href="#">TObjectType</a>	This class is not used.
<a href="#">TSharedObject</a>	A base class that allows to simplify memory management for object referenced by several other objects.

**Types**

Name	Description
<a href="#">TLocateExOptions</a>	Represents the set of <a href="#">TLocateExOption</a> .
<a href="#">TUpdateReckinds</a>	Represents the set of TUpdateReckind.

**Enumerations**

Name	Description
<a href="#">TCompressBlobMode</a>	Specifies when the values should be compressed and the way they should be stored.
<a href="#">TConnLostCause</a>	Specifies the cause of the connection loss.

<a href="#">TDANumericType</a>	Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.
<a href="#">TLocateExOption</a>	Allows to set additional search parameters which will be used by the LocateEx method.
<a href="#">TSortType</a>	Specifies a sort type for string fields.
<a href="#">TUpdateReckind</a>	Indicates records for which the ApplyUpdates method will be performed.

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### 16.16.1 Classes

Classes in the **MemData** unit.

#### Classes

Name	Description
<a href="#">TAttribute</a>	TAttribute is not used in UniDAC.
<a href="#">TBlob</a>	Holds large object value for field and parameter dtBlob, dtMemo data types.
<a href="#">TCompressedBlob</a>	Holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data.
<a href="#">TDBObject</a>	A base class for classes that work with user-defined data types that have attributes.
<a href="#">TObjectType</a>	This class is not used.
<a href="#">TSharedObject</a>	A base class that allows to simplify memory management for object referenced by several other objects.

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#### 16.16.1.1 TAttribute Class

TAttribute is not used in UniDAC.

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

#### Unit

[MemData](#)

## Syntax

```
TAttribute = class(System.TObject);
```

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### 16.16.1.1.1 Members

[TAttribute](#) class overview.

## Properties

Name	Description
<a href="#">AttributeNo</a>	Returns an attribute's ordinal position in object.
<a href="#">DataSize</a>	Returns the size of an attribute value in internal representation.
<a href="#">DataType</a>	Returns the type of data that was assigned to the Attribute.
<a href="#">Length</a>	Returns the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.
<a href="#">ObjectType</a>	Returns a TObjectType object for an object attribute.
<a href="#">Offset</a>	Returns an offset of the attribute value in internal representation.
<a href="#">Owner</a>	Indicates TObjectType that uses the attribute to represent one of its attributes.
<a href="#">Scale</a>	Returns the scale of dtFloat and dtInteger attributes.
<a href="#">Size</a>	Returns the size of an attribute value in external representation.

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### 16.16.1.1.2 Properties

Properties of the **TAttribute** class.

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

## Public

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

<a href="#">AttributeNo</a>	Returns an attribute's ordinal position in object.
<a href="#">DataSize</a>	Returns the size of an attribute value in internal representation.
<a href="#">DataType</a>	Returns the type of data that was assigned to the Attribute.
<a href="#">Length</a>	Returns the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.
<a href="#">ObjectType</a>	Returns a TObjectType object for an object attribute.
<a href="#">Offset</a>	Returns an offset of the attribute value in internal representation.
<a href="#">Owner</a>	Indicates TObjectType that uses the attribute to represent one of its attributes.
<a href="#">Scale</a>	Returns the scale of dtFloat and dtInteger attributes.
<a href="#">Size</a>	Returns the size of an attribute value in external representation.

### See Also

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

---

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#### 16.16.1.1.2.1 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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#### 16.16.1.1.2.2 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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#### 16.16.1.1.2.3 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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#### 16.16.1.1.2.4 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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### 16.16.1.1.2.5 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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### 16.16.1.1.2.6 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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### 16.16.1.1.2.7 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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#### 16.16.1.1.2.8 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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#### 16.16.1.1.2.9 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 (TDateTime))
dtFloat	8 (sizeof (Double))
dtInteger	4 (sizeof (Integer))

### See Also

- [DataSize](#)
-

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### 16.16.1.2 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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#### 16.16.1.2.1 Members

[TBlob](#) class overview.

#### Properties

Name	Description
<a href="#">AsString</a>	Used to manipulate BLOB value as string.
<a href="#">AsWideString</a>	Used to manipulate BLOB value as Unicode string.
<a href="#">IsUnicode</a>	Gives choice of making TBlob store and process data in Unicode format or not.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Size</a>	Used to learn the size of the TBlob value in bytes.

#### Methods

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

<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">Assign</a>	Sets BLOB value from another TBlob object.
<a href="#">Clear</a>	Deletes the current value in TBlob object.
<a href="#">LoadFromFile</a>	Loads the contents of a file into a TBlob object.
<a href="#">LoadFromStream</a>	Copies the contents of a stream into the TBlob object.
<a href="#">Read</a>	Acquires a raw sequence of bytes from the data stored in TBlob.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.
<a href="#">SaveToFile</a>	Saves the contents of the TBlob object to a file.
<a href="#">SaveToStream</a>	Copies the contents of a TBlob object to a stream.
<a href="#">Truncate</a>	Sets new TBlob size and discards all data over it.
<a href="#">Write</a>	Stores a raw sequence of bytes into a TBlob object.

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#### 16.16.1.2.2 Properties

Properties of the **TBlob** class.

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

#### Public

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">AsString</a>	Used to manipulate BLOB value as string.
<a href="#">AsWideString</a>	Used to manipulate BLOB value as Unicode string.
<a href="#">IsUnicode</a>	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.

[Release](#) (inherited from [TSharedObject](#))

Decrements the reference count.

[Size](#)

Used to learn the size of the TBlob value in bytes.

### See Also

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

---

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#### 16.16.1.2.2.1 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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#### 16.16.1.2.2.2 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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#### 16.16.1.2.2.3 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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#### 16.16.1.2.2.4 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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#### 16.16.1.2.3 Methods

Methods of the **TBlob** class.

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

#### Public

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">Assign</a>	Sets BLOB value from another TBlob object.

<a href="#">Clear</a>	Deletes the current value in TBlob object.
<a href="#">LoadFromFile</a>	Loads the contents of a file into a TBlob object.
<a href="#">LoadFromStream</a>	Copies the contents of a stream into the TBlob object.
<a href="#">Read</a>	Acquires a raw sequence of bytes from the data stored in TBlob.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.
<a href="#">SaveToFile</a>	Saves the contents of the TBlob object to a file.
<a href="#">SaveToStream</a>	Copies the contents of a TBlob object to a stream.
<a href="#">Truncate</a>	Sets new TBlob size and discards all data over it.
<a href="#">Write</a>	Stores a raw sequence of bytes into a TBlob object.

**See Also**

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

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## 16.16.1.2.3.1 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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#### 16.16.1.2.3.2 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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#### 16.16.1.2.3.3 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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#### 16.16.1.2.3.4 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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## 16.16.1.2.3.5 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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### 16.16.1.2.3.6 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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### 16.16.1.2.3.7 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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### 16.16.1.2.3.8 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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### 16.16.1.2.3.9 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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### 16.16.1.3 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, Borland Delphi 5 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;
  TUncompressProc = function(dest: IntPtr; destLen: IntPtr; source: IntPtr; sou
var
  CompressProc: TCompressProc;
  UncompressProc: TUncompressProc;
```

## Inheritance Hierarchy

[TSharedObject](#)

[TBlob](#)

**TCompressedBlob**

## See Also

- [TBlob](#)

- [TMemDataSet.GetBlob](#)
- [TCustomDADataSet.Options](#)

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16.16.1.3.1 Members

[TCompressedBlob](#) class overview.

## Properties

Name	Description
<a href="#">AsString</a> (inherited from <a href="#">TBlob</a> )	Used to manipulate BLOB value as string.
<a href="#">AsWideString</a> (inherited from <a href="#">TBlob</a> )	Used to manipulate BLOB value as Unicode string.
<a href="#">Compressed</a>	Used to indicate if the Blob is compressed.
<a href="#">CompressedSize</a>	Used to indicate compressed size of the Blob data.
<a href="#">IsUnicode</a> (inherited from <a href="#">TBlob</a> )	Gives choice of making TBlob store and process data in Unicode format or not.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Size</a> (inherited from <a href="#">TBlob</a> )	Used to learn the size of the TBlob value in bytes.

## Methods

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">Assign</a> (inherited from <a href="#">TBlob</a> )	Sets BLOB value from another TBlob object.
<a href="#">Clear</a> (inherited from <a href="#">TBlob</a> )	Deletes the current value in TBlob object.
<a href="#">LoadFromFile</a> (inherited from <a href="#">TBlob</a> )	Loads the contents of a file into a TBlob object.
<a href="#">LoadFromStream</a> (inherited from <a href="#">TBlob</a> )	Copies the contents of a stream into the TBlob object.
<a href="#">Read</a> (inherited from <a href="#">TBlob</a> )	Acquires a raw sequence of bytes from the data stored in TBlob.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.

<a href="#">SaveToFile</a> (inherited from <a href="#">TBlob</a> )	Saves the contents of the TBlob object to a file.
<a href="#">SaveToStream</a> (inherited from <a href="#">TBlob</a> )	Copies the contents of a TBlob object to a stream.
<a href="#">Truncate</a> (inherited from <a href="#">TBlob</a> )	Sets new TBlob size and discards all data over it.
<a href="#">Write</a> (inherited from <a href="#">TBlob</a> )	Stores a raw sequence of bytes into a TBlob object.

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#### 16.16.1.3.2 Properties

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

#### Public

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">Assign</a> (inherited from <a href="#">TBlob</a> )	Sets BLOB value from another TBlob object.
<a href="#">AsString</a> (inherited from <a href="#">TBlob</a> )	Used to manipulate BLOB value as string.
<a href="#">AsWideString</a> (inherited from <a href="#">TBlob</a> )	Used to manipulate BLOB value as Unicode string.
<a href="#">Clear</a> (inherited from <a href="#">TBlob</a> )	Deletes the current value in TBlob object.
<a href="#">Compressed</a>	Used to indicate if the Blob is compressed.
<a href="#">CompressedSize</a>	Used to indicate compressed size of the Blob data.
<a href="#">IsUnicode</a> (inherited from <a href="#">TBlob</a> )	Gives choice of making TBlob store and process data in Unicode format or not.
<a href="#">LoadFromFile</a> (inherited from <a href="#">TBlob</a> )	Loads the contents of a file into a TBlob object.
<a href="#">LoadFromStream</a> (inherited from <a href="#">TBlob</a> )	Copies the contents of a stream into the TBlob object.
<a href="#">Read</a> (inherited from <a href="#">TBlob</a> )	Acquires a raw sequence of bytes from the data stored in TBlob.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.

---

<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.
<a href="#">SaveToFile</a> (inherited from <a href="#">TBlob</a> )	Saves the contents of the TBlob object to a file.
<a href="#">SaveToStream</a> (inherited from <a href="#">TBlob</a> )	Copies the contents of a TBlob object to a stream.
<a href="#">Size</a> (inherited from <a href="#">TBlob</a> )	Used to learn the size of the TBlob value in bytes.
<a href="#">Truncate</a> (inherited from <a href="#">TBlob</a> )	Sets new TBlob size and discards all data over it.
<a href="#">Write</a> (inherited from <a href="#">TBlob</a> )	Stores a raw sequence of bytes into a TBlob object.

### See Also

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

---

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#### 16.16.1.3.2.1 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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#### 16.16.1.3.2.2 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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### 16.16.1.4 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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#### 16.16.1.4.1 Members

[TDBObject](#) class overview.

#### Properties

Name	Description
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.

#### Methods

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.

---

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### 16.16.1.5 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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### 16.16.1.5.1 Members

[TObjectType](#) class overview.

## Properties

Name	Description
<a href="#">AttributeCount</a>	Used to indicate the number of attributes of type.
<a href="#">Attributes</a>	Used to access separate attributes.
<a href="#">DataType</a>	Used to indicate the type of object dtObject, dtArray or dtTable.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Size</a>	Used to learn the size of an object instance.

## Methods

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">AttributeByName</a>	Retrieves attribute information for an attribute when only the attribute's name is known.
<a href="#">FindAttribute</a>	Indicates whether a specified Attribute component is referenced in the TAttributes object.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.

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### 16.16.1.5.2 Properties

Properties of the **TObjectType** class.

For a complete list of the **TObjectType** class members, see the [TObjectType](#)

[Members](#) topic.

## Public

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">AttributeCount</a>	Used to indicate the number of attributes of type.
<a href="#">Attributes</a>	Used to access separate attributes.
<a href="#">DataType</a>	Used to indicate the type of object dtObject, dtArray or dtTable.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.
<a href="#">Size</a>	Used to learn the size of an object instance.

## See Also

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

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### 16.16.1.5.2.1 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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### 16.16.1.5.2.2 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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### 16.16.1.5.2.3 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.

## See Also

- [MemData](#)

---

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### 16.16.1.5.2.4 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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### 16.16.1.5.3 Methods

Methods of the **TObjectType** class.

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

## Public

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.
<a href="#">AttributeByName</a>	Retrieves attribute information for an attribute when only the attribute's name is known.
<a href="#">FindAttribute</a>	Indicates whether a specified Attribute component is referenced in the TAttributes object.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.

## See Also

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

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### 16.16.1.5.3.1 AttributeByName Method

Retrieves attribute information for an attribute when only the attribute's name is known.

## Class

[TObjectType](#)

## Syntax

```
function AttributeByName (Name: string): TAttribute;
```

### Parameters

#### *Name*

Holds the name of an existing attribute.

### Return Value

a TAttribute object for the specified attribute. Otherwise an exception is raised.

## Remarks

Call the AttributeByName method to retrieve attribute information for an attribute when only the attribute's name is known. Name is the name of an existing Attribute. AttributeByName returns a TAttribute object for the specified attribute. If the attribute can not be found, an exception is raised.

## See Also

- [TAttribute](#)
- [FindAttribute](#)
- [Attributes](#)

---

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### 16.16.1.5.3.2 FindAttribute Method

Indicates whether a specified Attribute component is referenced in the TAttributes object.

## Class

[TObjectType](#)

## Syntax

```
function FindAttribute (Name: string): TAttribute;
```

### 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](#)
  - [AttributeByName](#)
  - [Attributes](#)
- 

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**16.16.1.6 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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## 16.16.1.6.1 Members

[TSharedObject](#) class overview.

**Properties**

Name	Description
<a href="#">RefCount</a>	Used to return the count of reference to a TSharedObject object.

**Methods**

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

[AddRef](#)

Increments the reference count for the number of references dependent on the TSharedObject object.

[Release](#)

Decrements the reference count.

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#### 16.16.1.6.2 Properties

Properties of the **TSharedObject** class.

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

#### Public

Name	Description
<a href="#">RefCount</a>	Used to return the count of reference to a TSharedObject object.

#### See Also

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

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#### 16.16.1.6.2.1 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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#### 16.16.1.6.3 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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## 16.16.1.6.3.1 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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## 16.16.1.6.3.2 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](#)

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## 16.16.2 Types

Types in the **MemData** unit.

### Types

Name	Description
<a href="#">TLocateExOptions</a>	Represents the set of <a href="#">TLocateExOption</a> .
<a href="#">TUpdateRecKinds</a>	Represents the set of TUpdateRecKind.

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### 16.16.2.1 TLocateExOptions Set

Represents the set of [TLocateExOption](#).

#### Unit

[MemData](#)

#### Syntax

```
TLocateExOptions = set of TLocateExOption;
```

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### 16.16.2.2 TUpdateRecKinds Set

Represents the set of TUpdateRecKind.

#### Unit

[MemData](#)

#### Syntax

```
TUpdateRecKinds = set of TUpdateRecKind;
```

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## 16.16.3 Enumerations

Enumerations in the **MemData** unit.

### Enumerations

Name	Description
<a href="#">TCompressBlobMode</a>	Specifies when the values should be compressed and the way they should be stored.

<a href="#">TConnLostCause</a>	Specifies the cause of the connection loss.
<a href="#">TDANumericType</a>	Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.
<a href="#">TLocateExOption</a>	Allows to set additional search parameters which will be used by the LocateEx method.
<a href="#">TSortType</a>	Specifies a sort type for string fields.
<a href="#">TUpdateReckind</a>	Indicates records for which the ApplyUpdates method will be performed.

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### 16.16.3.1 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
<b>cbClient</b>	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.
<b>cbClientServer</b>	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. <b>Note:</b> 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.

<b>cbNone</b>	Values not compressed. The default value.
<b>cbServer</b>	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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### 16.16.3.2 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
<b>clApply</b>	Connection loss detected during DataSet.ApplyUpdates (Reconnect/Reexecute possible).
<b>clConnect</b>	Connection loss detected during connection establishing (Reconnect possible).
<b>clConnectionApply</b>	Connection loss detected during Connection.ApplyUpdates (Reconnect/Reexecute possible).
<b>clExecute</b>	Connection loss detected during SQL execution (Reconnect with exception is possible).
<b>clOpen</b>	Connection loss detected during execution of a SELECT statement (Reconnect with exception possible).
<b>clRefresh</b>	Connection loss detected during query opening (Reconnect/Reexecute possible).
<b>clServiceQuery</b>	Connection loss detected during service information request (Reconnect/Reexecute possible).
<b>clTransStart</b>	Connection loss detected during transaction start (Reconnect/Reexecute possible). clTransStart has less priority than clConnectionApply.
<b>clUnknown</b>	The connection loss reason is unknown.

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### 16.16.3.3 TDANumericType Enumeration

Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.

#### Unit

[MemData](#)

## Syntax

```
TDANumericType = (ntFloat, ntBCD, ntFmtBCD);
```

## Values

Value	Meaning
<b>ntBCD</b>	Data is stored on the client side as currency and represented as TBCDField. This format allows storing data with precision up to 0,0001.
<b>ntFloat</b>	Data stored on the client side is in double format and represented as TFloatField. The default value.
<b>ntFmtBCD</b>	Data is represented as TFMTBCDField. TFMTBCDField gives greater precision and accuracy than TBCDField, but it is slower. Not supported for Delphi 5 and C++Builder 5.

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### 16.16.3.4 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
<b>lxCaseInsensitive</b>	Similar to loCaseInsensitive. Key fields and key values are matched without regard to the case.
<b>lxNearest</b>	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.
<b>lxNext</b>	LocateEx searches from the current record.
<b>lxPartialCompare</b>	Similar to lxPartialKey, 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'.
<b>lxPartialKey</b>	Similar to loPartialKey. 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'.
<b>lxUp</b>	LocateEx searches from the current record to the first record.

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### 16.16.3.5 TSortType Enumeration

Specifies a sort type for string fields.

#### Unit

[MemData](#)

#### Syntax

```
TSortType = (stCaseSensitive, stCaseInsensitive, stBinary);
```

#### Values

Value	Meaning
<b>stBinary</b>	Sorting by character ordinal values (this comparison is also case sensitive).
<b>stCaseInsensitive</b>	Sorting without case sensitivity.
<b>stCaseSensitive</b>	Sorting with case sensitivity.

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### 16.16.3.6 TUpdateRecKind Enumeration

Indicates records for which the ApplyUpdates method will be performed.

#### Unit

[MemData](#)

#### Syntax

```
TUpdateRecKind = (ukUpdate, ukInsert, ukDelete);
```

#### Values

Value	Meaning
<b>ukDelete</b>	<a href="#">ApplyUpdates</a> will be performed for deleted records.
<b>ukInsert</b>	<a href="#">ApplyUpdates</a> will be performed for inserted records.
<b>ukUpdate</b>	<a href="#">ApplyUpdates</a> will be performed for updated records.

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## 16.17 MemDS

This unit contains implementation of the TMemDataSet class.

#### Classes

Name	Description
<a href="#">TMemDataSet</a>	A base class for working with data and manipulating data in memory.

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## 16.17.1 Classes

Classes in the **MemDS** unit.

### Classes

Name	Description
<a href="#">TMemDataSet</a>	A base class for working with data and manipulating data in memory.

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### 16.17.1.1 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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#### 16.17.1.1.1 Members

[TMemDataSet](#) class overview.

### Properties

Name	Description
<a href="#">CachedUpdates</a>	Used to enable or disable the use of cached updates for a dataset.
<a href="#">IndexFieldNames</a>	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a>	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.

[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
<a href="#">ApplyUpdates</a>	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CancelUpdates</a>	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a>	Clears the cached updates buffer.
<a href="#">DeferredPost</a>	Makes permanent changes to the database server.
<a href="#">GetBlob</a>	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">Locate</a>	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a>	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Prepare</a>	Allocates resources and creates field components for a dataset.
<a href="#">RestoreUpdates</a>	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a>	Cancels changes made to the current record when cached updates are enabled.

[SaveToXML](#)

Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

[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
<a href="#">OnUpdateError</a>	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a>	Occurs when a single update component can not handle the updates.

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### 16.17.1.1.2 Properties

Properties of the **TMemDataSet** class.

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

## Public

Name	Description
<a href="#">CachedUpdates</a>	Used to enable or disable the use of cached updates for a dataset.
<a href="#">IndexFieldNames</a>	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a>	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.

[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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#### 16.17.1.1.2.1 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 [TCustomDADataset.Options](#) is set to True.

## See Also

- [UpdatesPending](#)
  - [TMemDataSet.ApplyUpdates](#)
  - [RestoreUpdates](#)
  - [CommitUpdates](#)
  - [CancelUpdates](#)
  - [UpdateStatus](#)
  - [TCustomDADataSet.Options](#)
- 

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### 16.17.1.1.2.2 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. Ordering of column names is significant. Separate names with semicolon. 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 direction for the field. If one of these keywords is not used, the default sort direction for the field is ascending.

Use CIS, CS or BIN keywords to specify a 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 [TCustomDAConnection](#) component, the default value of sort type depends on the [TCustomDAConnection.Options](#) option of the connection. If a dataset does not use a connection ([TVirtualTable](#) dataset), the default is CS.

Read IndexFieldNames to determine the field (or fields) on which the recordset is sorted.

Ordering is processed locally.

**Note:** You cannot process ordering by BLOB fields.

## 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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#### 16.17.1.1.2.3 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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#### 16.17.1.1.2.4 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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#### 16.17.1.1.2.5 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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### 16.17.1.1.2.6 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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### 16.17.1.1.2.7 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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### 16.17.1.1.3 Methods

Methods of the **TMemDataSet** class.

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

## Public

Name	Description
<a href="#">ApplyUpdates</a>	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CancelUpdates</a>	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a>	Clears the cached updates buffer.
<a href="#">DeferredPost</a>	Makes permanent changes to the database server.
<a href="#">GetBlob</a>	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">Locate</a>	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a>	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Prepare</a>	Allocates resources and creates field components for a dataset.
<a href="#">RestoreUpdates</a>	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a>	Cancels changes made to the current record when cached updates are enabled.

[SaveToXML](#)

Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

[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](#)

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#### 16.17.1.1.3.1 ApplyUpdates Method

Writes dataset's pending cached updates to a database.

### Class

[TMemDataSet](#)

### Overload List

Name	Description
<a href="#">ApplyUpdates</a>	Writes dataset's pending cached updates to a database.
<a href="#">ApplyUpdates(const UpdateRecKinds: TUpdateRecKinds)</a>	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 MyQuery do
  begin
    Session.StartTransaction;
    try
      ... {Modify data}
      ApplyUpdates; {try to write the updates to the database}
      Session.Commit; {on success, commit the changes}
    except
      RestoreUpdates; {restore update result for applied records}
      Session.Rollback; {on failure, undo the changes}
      raise; {raise the exception to prevent a call to CommitUpdates!}
    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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#### 16.17.1.1.3.2 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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#### 16.17.1.1.3.3 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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#### 16.17.1.1.3.4 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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## 16.17.1.1.3.5 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
<a href="#">GetBlob(Field: TField)</a>	Retrieves TBlob object for a field or current record when the field itself is known.
<a href="#">GetBlob(const FieldName: string)</a>	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

```
UniQuery1.GetBlob('Comment').SaveToFile('Comment.txt');
```

## See Also

- 

[TBlob](#)

---

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### 16.17.1.1.3.6 Locate Method

Searches a dataset for a specific record and positions the cursor on it.

## Class

[TMemDataSet](#)

## Overload List

Name	Description
<a href="#">Locate(const KeyFields: array of TField; const KeyValues: variant; Options: TLocateOptions)</a>	Searches a dataset by the specified fields for a specific record and positions cursor on it.
<a href="#">Locate(const KeyFields: string; const KeyValues: variant; Options: TLocateOptions)</a>	Searches a dataset by the fields specified by name for a specific record and positions the cursor on it.

---

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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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### 16.17.1.1.3.7 LocateEx Method

Excludes features that don't need to be included to the [TMemDataSet.Locate](#) method of TDataSet.

## Class

[TMemDataSet](#)

## Overload List

Name	Description
<a href="#">LocateEx(const KeyFields: array of TField; const KeyValues: variant; Options: TLocateExOptions)</a>	Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet by the specified fields.
<a href="#">LocateEx(const KeyFields: string; const KeyValues: variant; Options: TLocateExOptions)</a>	Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> 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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## 16.17.1.1.3.8 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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## 16.17.1.1.3.9 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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## 16.17.1.1.3.10 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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## 16.17.1.1.3.11 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
<a href="#">SaveToXML(Destination: TStream)</a>	Saves the current dataset data to a stream in the XML format compatible with ADO format.
<a href="#">SaveToXML(const FileName: string)</a>	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); overload
```

**Parameters**

### *Destination*

Holds a TStream object.

## Remarks

Call the SaveToXML method to save the current dataset data to a file or a stream in the XML format compatible with ADO format.

If the destination file already exists, it is overwritten. It remains open from the first call to SaveToXML until the dataset is closed. This file can be read by other applications while it is opened, but they cannot write to the file.

When saving data to a stream, a TStream object must be created and its position must be set in a preferable value.

## See Also

- [TVirtualTable.LoadFromFile](#)
- [TVirtualTable.LoadFromStream](#)

---

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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); overload
```

### Parameters

*FileName*

Holds the name of a destination file.

---

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16.17.1.1.3.12 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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### 16.17.1.1.3.13 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](#)
- 

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### 16.17.1.1.3.14 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](#)

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### 16.17.1.1.4 Events

Events of the **TMemDataSet** class.

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

## Public

### Name

[OnUpdateError](#)

[OnUpdateRecord](#)

### Description

Occurs when an exception is generated while cached updates are applied to a database.

Occurs when a single update component can not handle the updates.

## See Also

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

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### 16.17.1.1.4.1 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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### 16.17.1.1.4.2 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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## 16.18 SQLiteUniProvider

This unit contains the TLiteUtils class, that allows to use features of SQLite database.

### Classes

Name	Description
<a href="#">TLiteUtils</a>	This class class is used for implementation specific SQLite operations, such as database encryption and collation management.

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### 16.18.1 Classes

Classes in the **SQLiteUniProvider** unit.

### Classes

Name	Description
<a href="#">TLiteUtils</a>	This class class is used for implementation specific SQLite operations, such as database encryption and collation management.

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#### 16.18.1.1 TLiteUtils Class

This class class is used for implementation specific SQLite operations, such as database encryption and collation management.

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

### Unit

[SQLiteUniProvider](#)

### Syntax

```
TLiteUtils = class (System.TObject);
```

### Remarks

Class that implements SQLite specific methods such as EncryptDatabase, RegisterCollation, UnRegisterCollation.

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#### 16.18.1.1.1 Members

[TLiteUtils](#) class overview.

### Methods

Name	Description
<a href="#">EncryptDatabase</a>	Is used for new password setting or existing password changing.
RegisterAnsiCollation	This method is used for registering a user-defined non-Unicode collation.
RegisterCollation	This method is used for registering a user-defined String collation.
RegisterFunction	This method is used for registering a user-defined function.
RegisterWideCollation	This method is used for registering a user-defined Unicode collation.
UnRegisterAnsiCollation	This method is used for unregistering a user-defined non-Unicode collation.
UnRegisterCollation	This method is used for unregistering user-defined collation.
UnRegisterFunction	This method is used for unregistering a user-defined function.
UnRegisterWideCollation	This method is used for unregistering a user-defined Unicode collation.

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#### 16.18.1.1.2 Methods

Methods of the **TLiteUtils** class.

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

#### Public

Name	Description
<a href="#">EncryptDatabase</a>	Is used for new password setting or existing password changing.
RegisterAnsiCollation	This method is used for registering a user-defined non-Unicode collation.
RegisterCollation	This method is used for registering a user-defined String collation.

RegisterFunction	This method is used for registering a user-defined function.
RegisterWideCollation	This method is used for registering a user-defined Unicode collation.
UnRegisterAnsiCollation	This method is used for unregistering a user-defined non-Unicode collation.
UnRegisterCollation	This method is used for unregistering user-defined collation.
UnRegisterFunction	This method is used for unregistering a user-defined function.
UnRegisterWideCollation	This method is used for unregistering a user-defined Unicode collation.

**See Also**

- [T LiteUtils Class](#)
- [T LiteUtils Class Members](#)

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## 16.19 Uni

This unit contains main components of UniDAC.

**Classes**

Name	Description
<a href="#">TCustomUniDataSet</a>	A base component for defining functionality for classes derived from it.
<a href="#">TUniBlob</a>	A class holding value of the BLOB fields and parameters.
<a href="#">TUniConnection</a>	A component for setting up and controlling connection to such database servers as Oracle, SQL Server, MySQL, InterBase, Firebird, and PostgreSQL.
<a href="#">TUniDataSource</a>	TUniDataSource provides an interface between a UniDAC dataset components and data-aware controls on a form.
<a href="#">TUniEncryptor</a>	The class that performs encrypting and decrypting of data.

<a href="#">TUniMacro</a>	Holds the Name, Value, and Condition for a macro.
<a href="#">TUniMacros</a>	Used to manage a list of TUniMacro objects for a TUniConnection component.
<a href="#">TUniMetaData</a>	A component for obtaining metainformation about database objects from the server.
<a href="#">TUniParam</a>	A class that is used to set the values of individual parameters passed with queries or stored procedures.
<a href="#">TUniParams</a>	Used to control TUniParam objects.
<a href="#">TUniQuery</a>	A component for executing queries and operating record sets. It also provides flexible way to update data.
<a href="#">TUniSQL</a>	A component for executing SQL statements and calling stored procedures on the database server.
<a href="#">TUniStoredProc</a>	A component for accessing and executing stored procedures and functions.
<a href="#">TUniTable</a>	A component for retrieving and updating data in a single table without writing SQL statements.
<a href="#">TUniTransaction</a>	A component for managing transactions in an application.
<a href="#">TUniUpdateSQL</a>	A component for tuning update operations for the DataSet component.

### Constants

Name	Description
<a href="#">UniDACVersion</a>	Read this constant to get current version number for UniDAC.

## 16.19.1 Classes

Classes in the **Uni** unit.

### Classes

Name	Description
<a href="#">TCustomUniDataSet</a>	A base component for defining functionality for classes derived from it.
<a href="#">TUniBlob</a>	A class holding value of the BLOB fields and parameters.
<a href="#">TUniConnection</a>	A component for setting up and controlling connection to such database servers as Oracle, SQL Server, MySQL, InterBase, Firebird, and PostgreSQL.
<a href="#">TUniDataSource</a>	TUniDataSource provides an interface between a UniDAC dataset components and data-aware controls on a form.
<a href="#">TUniEncryptor</a>	The class that performs encrypting and decrypting of data.
<a href="#">TUniMacro</a>	Holds the Name, Value, and Condition for a macro.
<a href="#">TUniMacros</a>	Used to manage a list of TUniMacro objects for a TUniConnection component.
<a href="#">TUniMetaData</a>	A component for obtaining metainformation about database objects from the server.
<a href="#">TUniParam</a>	A class that is used to set the values of individual parameters passed with queries or stored procedures.
<a href="#">TUniParams</a>	Used to control TUniParam objects.
<a href="#">TUniQuery</a>	A component for executing queries and operating record sets. It also provides flexible way to update data.
<a href="#">TUniSQL</a>	A component for executing SQL statements and calling stored procedures on the database server.

[TUniStoredProc](#)

A component for accessing and executing stored procedures and functions.

[TUniTable](#)

A component for retrieving and updating data in a single table without writing SQL statements.

[TUniTransaction](#)

A component for managing transactions in an application.

[TUniUpdateSQL](#)

A component for tuning update operations for the DataSet component.

---

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#### 16.19.1.1 TCustomUniDataSet Class

A base component for defining functionality for classes derived from it. For a list of all members of this type, see [TCustomUniDataSet](#) members.

#### Unit

[Uni](#)

#### Syntax

```
TCustomUniDataSet = class (TCustomDADataset);
```

#### Remarks

TCustomUniDataSet is a base dataset component that defines functionality for classes derived from it. Applications should never use TCustomUniDataSet objects directly. Instead of TCustomUniDataSet, they should use TCustomUniDataSet descendants, such as [TUniQuery](#) and [TUniTable](#), which inherit its dataset-related properties and methods.

#### Inheritance Hierarchy

[TMemDataSet](#)

[TCustomDADataset](#)

**TCustomUniDataSet**

#### See Also

- [TUniQuery](#)
  - [TUniTable](#)
  - [TUniStoredProc](#)
  - [TUniMetaData](#)
- 

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## 16.19.1.1.1 Members

[TCustomUniDataSet](#) class overview.

## Properties

Name	Description
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a>	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.

<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a>	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">Options</a>	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a>	Holds the parameters for a query's SQL statement.

<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SpecificOptions</a>	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">Transaction</a>	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.

[UpdateObject](#)

Points to an update object component which provides update SQL statements or update objects for flexible data update.

[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.

[UpdateTransaction](#)

Used to specify the TUniTransaction object in the context of which update commands will be executed.

**Methods**

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataSet</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataSet</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a>	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataSet</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.

<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a>	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Sets the current record in this dataset similar to the current record in another dataset.

<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">OpenNext</a>	Provides second and other result sets while executing multiresult query.
<a href="#">ParamByName</a>	Accesses parameter information based on a specified parameter name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.

<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

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

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### 16.19.1.1.2 Properties

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

## Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.

<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Clears the cached updates buffer.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataset</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.

<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a>	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.

<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if a parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a>	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.

<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Options</a>	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Sets or uses parameter information for a specific parameter based on its name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.

<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a>	Holds the parameters for a query's SQL statement.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SpecificOptions</a>	Used to provide extended settings for each data provider.

<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">Transaction</a>	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateObject</a>	Points to an update object component which provides update SQL statements or update objects for flexible data update.

[UpdateRecordTypes](#) (inherited from [TMemDataSet](#))

Used to indicate the update status for the current record when cached updates are enabled.

[UpdateResult](#) (inherited from [TMemDataSet](#))

Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.

[UpdatesPending](#) (inherited from [TMemDataSet](#))

Used to check the status of the cached updates buffer.

[UpdateStatus](#) (inherited from [TMemDataSet](#))

Indicates the current update status for the dataset when cached updates are enabled.

[UpdateTransaction](#)

Used to specify the TUniTransaction object in the context of which update commands will be executed.

### See Also

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

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#### 16.19.1.1.2.1 DMLRefresh Property

Used to refresh record by RETURNING clause when insert or update is performed.

### Class

[TCustomUniDataSet](#)

### Syntax

```
property DMLRefresh: boolean;
```

### Remarks

Use the DMLRefresh property to refresh record by RETURNING clause when insert or update is performed.  
The default value is False.

---

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#### 16.19.1.1.2.2 LastInsertId Property

Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.

### Class

[TCustomUniDataSet](#)

### Syntax

```
property LastInsertId: int64;
```

---

## Remarks

The LastInsertId property can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.

For MySQL LastInsertId returns the ID generated for an AUTO INCREMENT column by the previous query. Use this property after you have performed an INSERT query into a table that contains an AUTO INCREMENT field.

For PostgreSQL LastInsertId returns the OID value generated for an OID column in a table with OIDs by the previous query.

If the query does not perform insertion into a table that contains field of the types specified above, the value of LastInsertId won't be defined.

---

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### 16.19.1.1.2.3 Options Property

Specifies the behaviour of a TCustomUniDataSet object.

## Class

[TCustomUniDataSet](#)

## Syntax

```
property Options: TUniDataSetOptions;
```

## Remarks

The TCustomUniDataSetOptions class publishes properties defined in TDADatasetOptions. Set the properties of Options to specify the behaviour of a TCustomUniDataSet object. Their descriptions can be found in the [TCustomDADataset.Options](#) topic.

## See Also

- [TCustomDADataset.Options](#)

---

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### 16.19.1.1.2.4 Params Property

Holds the parameters for a query's SQL statement.

## Class

[TCustomUniDataSet](#)

## Syntax

```
property Params: TUniParams 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 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

- [TUniParam](#)
  - [ParamByName](#)
- 

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### 16.19.1.1.2.5 SpecificOptions Property

Used to provide extended settings for each data provider.

## Class

[TCustomUniDataSet](#)

## Syntax

```
property SpecificOptions: TSpecificOptionsList;
```

## Remarks

Use the `SpecificOptions` property to provide extended settings for each data provider. `SpecificOptions` can be setup both at design time and run time. At design time call the component editor by double click on it, and select the `Options` tab in the editor. Calling the `SpecificOptions` editor from the `Object Inspector` will open the component editor with `Options` tab active. Type or select the provider name, and change values of required properties. Then you can either close the editor, or select another provider name. Settings for all providers will be saved. `SpecificOptions` can be setup at the same time for all providers that supposed to be used.

All options are applied right before opening or executing. If an option name is not recognized, an exception is raised and the command is not executed.

For example, when you set the `SequenceMode` option like it is shown in the second example, you can execute the script with the Oracle provider, but attempt to use it with other providers will fail.

You can learn more about server specific options of [Oracle](#), [SQL Server](#), [MySQL](#), [InterBase](#), [PostgreSQL](#) in the corresponding articles.

## Example

You can also setup specific options at run time. Either of two formats can be used:

1. Using the provider name in an option name;
2. Not using the provider name in an option name;

In the second case options will be applied to the current provider, namely to the provider specified in the [TUniConnection.ProviderName](#) property of the assigned connection.

Example 1.

```
UniQuery1.SpecificOptions.Add('Oracle.ScrollableCursor=True')  
UniQuery1.SpecificOptions.Add('InterBase.FieldsAsString=True')
```

Example 2.

```
UniQuery1.SpecificOptions.Add('SequenceMode=smInsert')
```

## See Also

- [TUniConnection.ProviderName](#)
- [UniDAC and Oracle](#)
- [UniDAC and SQL Server](#)
- [UniDAC and MySQL](#)
- [UniDAC and InterBase/Firebird](#)
- [UniDAC and PostgreSQL](#)

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### 16.19.1.1.2.6 Transaction Property

Used to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

## Class

[TCustomUniDataSet](#)

## Syntax

```
property Transaction: TUniTransaction stored IsTransactionStored;
```

## Remarks

Use the Transaction property to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened. If this property is not specified, the default transaction associated with linked [TUniConnection](#) will be used. This transaction will work in AutoCommit mode.

## See Also

- [TUniTransaction](#)

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### 16.19.1.1.2.7 UpdateObject Property

Points to an update object component which provides update SQL statements or update objects for flexible data update.

## Class

[TCustomUniDataSet](#)

## Syntax

```
property UpdateObject: TUniUpdateSQL;
```

## Remarks

The UpdateObject property points to an update object component which provides update SQL statements or update objects for flexible data update.

### See Also

- [TUniUpdateSQL](#)
- 

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#### 16.19.1.1.2.8 UpdateTransaction Property

Used to specify the TUniTransaction object in the context of which update commands will be executed.

### Class

[TCustomUniDataSet](#)

### Syntax

```
property UpdateTransaction: TUniTransaction;
```

### Remarks

Use the UpdateTransaction property to specify the TUniTransaction object in the context of which update commands will be executed. Update commands are commands that are executed automatically, when data is edited in the dataset with Insert/Post, Edit/Post, or with other similar methods. If this property is not specified, the transaction object specified in the [Transaction](#) property, or the default transaction associates with linked [TUniConnection](#) will be used. This transaction will work in AutoCommit mode.

### See Also

- [Transaction](#)
  - [TUniTransaction](#)
- 

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#### 16.19.1.1.3 Methods

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

### Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.

<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Clears the cached updates buffer.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a>	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataset</a> )	Makes permanent changes to the database server.

<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.

<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a>	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.

<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">OpenNext</a>	Provides second and other result sets while executing multiresult query.
<a href="#">Options</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the behaviour of TCustomDADataset object.
<a href="#">ParamByName</a>	Accesses parameter information based on a specified parameter name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.

<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to view and set parameter names, values, and data types dynamically.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.

<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <a href="#">ApplyUpdates</a> method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

**See Also**

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

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#### 16.19.1.1.3.1 CreateProcCall Method

Assigns a command that calls stored procedure specified by name to the SQL property.

### Class

[TCustomUniDataSet](#)

### Syntax

```
procedure CreateProcCall(const Name: string);
```

#### Parameters

*Name*

Holds the stored procedure name.

### Remarks

Call the CreateProcCall method to assign a command that calls stored procedure specified by Name to the SQL property. The Overload parameter must contain the number of overloaded procedures. Retrieves the information about parameters of the procedure from server. After calling CreateProcCall you can execute stored procedure by the Execute method.

### See Also

- [TCustomDADataSet.Execute](#)
- [TCustomDAConnection.ExecProc](#)
- [TUniStoredProc](#)

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#### 16.19.1.1.3.2 FindParam Method

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

### Class

[TCustomUniDataSet](#)

### Syntax

```
function FindParam(const Value: string): TUniParam;
```

#### Parameters

*Value*

Holds the name of the param for which to search.

#### Return Value

the TUniParam object for the specified Name.

### Remarks

Call the FindParam method to determine if parameter with the specified name exists

in a dataset. Name is the name of the parameter for which to search. If FindParam finds a parameter with a matching name, it returns the TUniParam object for the specified Name. Otherwise it returns nil.

## See Also

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

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### 16.19.1.1.3.3 OpenNext Method

Provides second and other result sets while executing multiresult query.

## Class

[TCustomUniDataSet](#)

## Syntax

```
function OpenNext: boolean;
```

### Return Value

True, if DataSet opens. If there are no record sets to be represented, it will return False and the current record set will be closed.

## Remarks

Call the OpenNext method to get second and other result sets while executing multiresult query. If DataSet opens, it returns True. If there are no record sets to be represented, it will return False and the current record set will be closed.

## Example

Here is a small piece of code that demonstrates the approach of working with multiple datasets returned by a multi-statement query:

```
UniQuery.SQL.Clear;
UniQuery.SQL.Add('SELECT * FROM Table1;');
UniQuery.SQL.Add('SELECT * FROM Table2;');
UniQuery.SQL.Add('SELECT * FROM Table3;');
UniQuery.SQL.Add('SELECT * FROM Table4;');
UniQuery.SQL.Add('SELECT * FROM Table5;');
UniQuery.FetchAll := False;
UniQuery.Open;
repeat
  // < do something >
until not UniQuery.OpenNext;
```

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#### 16.19.1.1.3.4 ParamByName Method

Accesses parameter information based on a specified parameter name.

### Class

[TCustomUniDataSet](#)

### Syntax

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

### Parameters

#### Value

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

### Return Value

a TUniParam 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 an parameter's value at runtime and returns TUniParam object.

### Example

For 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

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

---

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#### 16.19.1.2 TUniBlob Class

A class holding value of the BLOB fields and parameters.  
For a list of all members of this type, see [TUniBlob](#) members.

### Unit

[Uni](#)

### Syntax

```
TUniBlob = class(TCompressedBlob);
```

### Remarks

TUniBlob is a descendant of [TCompressedBlob](#) class. It holds value of the BLOB fields and parameters.

**Note:** You can affect performance of reading/writing BLOBs by changing MemData.DefaultPieceSize variable to different value. DefaultPieceSize defines size of data portion transferred through network at the single call.

### Inheritance Hierarchy

[TSharedObject](#)  
[TBlob](#)  
[TCompressedBlob](#)  
**TUniBlob**

### See Also

- [TCompressedBlob](#)
- [TMemDataSet.GetBlob](#)

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16.19.1.2.1 Members

[TUniBlob](#) class overview.

### Properties

Name	Description
<a href="#">AsString</a> (inherited from <a href="#">TBlob</a> )	Used to manipulate BLOB value as string.
<a href="#">AsWideString</a> (inherited from <a href="#">TBlob</a> )	Used to manipulate BLOB value as Unicode string.
<a href="#">Compressed</a> (inherited from <a href="#">TCompressedBlob</a> )	Used to indicate if the Blob is compressed.
<a href="#">CompressedSize</a> (inherited from <a href="#">TCompressedBlob</a> )	Used to indicate compressed size of the Blob data.
<a href="#">IsUnicode</a> (inherited from <a href="#">TBlob</a> )	Gives choice of making TBlob store and process data in Unicode format or not.
<a href="#">RefCount</a> (inherited from <a href="#">TSharedObject</a> )	Used to return the count of reference to a TSharedObject object.
<a href="#">Size</a> (inherited from <a href="#">TBlob</a> )	Used to learn the size of the TBlob value in bytes.

### Methods

Name	Description
<a href="#">AddRef</a> (inherited from <a href="#">TSharedObject</a> )	Increments the reference count for the number of references dependent on the TSharedObject object.

---

<a href="#">Assign</a> (inherited from <a href="#">TBlob</a> )	Sets BLOB value from another TBlob object.
<a href="#">Clear</a> (inherited from <a href="#">TBlob</a> )	Deletes the current value in TBlob object.
<a href="#">LoadFromFile</a> (inherited from <a href="#">TBlob</a> )	Loads the contents of a file into a TBlob object.
<a href="#">LoadFromStream</a> (inherited from <a href="#">TBlob</a> )	Copies the contents of a stream into the TBlob object.
<a href="#">Read</a> (inherited from <a href="#">TBlob</a> )	Acquires a raw sequence of bytes from the data stored in TBlob.
<a href="#">Release</a> (inherited from <a href="#">TSharedObject</a> )	Decrements the reference count.
<a href="#">SaveToFile</a> (inherited from <a href="#">TBlob</a> )	Saves the contents of the TBlob object to a file.
<a href="#">SaveToStream</a> (inherited from <a href="#">TBlob</a> )	Copies the contents of a TBlob object to a stream.
<a href="#">Truncate</a> (inherited from <a href="#">TBlob</a> )	Sets new TBlob size and discards all data over it.
<a href="#">Write</a> (inherited from <a href="#">TBlob</a> )	Stores a raw sequence of bytes into a TBlob object.

---

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### 16.19.1.3 TUniConnection Class

A component for setting up and controlling connection to such database servers as Oracle, SQL Server, MySQL, InterBase, Firebird, and PostgreSQL. For a list of all members of this type, see [TUniConnection](#) members.

#### Unit

[Uni](#)

#### Syntax

```
TUniConnection = class(TCustomDAConnection);
```

#### Remarks

TUniConnection component is used to maintain connection to databases such as Oracle, SQL Server, MySQL, InterBase, Firebird, and PostgreSQL. Before connect you should provide connection settings such as ProviderName, Server, Username, Password, Port, and Database. Some extended connection options can be specified with the [TUniConnection.SpecificOptions](#). Set of properties that have to be assigned vary depending on used provider (the ProviderName property). To establish a database connection, it is necessary to call the [TCustomDAConnection.Connect](#) method or set the Connect property to True. There are also many properties at the connection level that affect default behavior of the queries executed within this session. Furthermore, you can control transactions using methods of this class. All components which are dedicated to perform data access, such as TUniQuery, TUniSQL, TUniScript, must have their Connection property assigned with one of

TUniConnection instances.

## Inheritance Hierarchy

[TCustomDAConnection](#)  
**TUniConnection**

## See Also

- [TCustomDADataSet.Connection](#)
- [TUniSQL.Connection](#)

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16.19.1.3.1 Members

[TUniConnection](#) class overview.

## Properties

Name	Description
<a href="#">ConnectDialog</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to link a <a href="#">TCustomConnectDialog</a> component.
<a href="#">ConvertEOL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows customizing line breaks in string fields and parameters.
<a href="#">Database</a>	Used to specify the database name that is a default source of data for SQL queries once a connection is established.
<a href="#">InTransaction</a> (inherited from <a href="#">TCustomDAConnection</a> )	Indicates whether the transaction is active.
<a href="#">LoginPrompt</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies whether a login dialog appears immediately before opening a new connection.
<a href="#">Macros</a>	Holds a collection of macros that can be used in Unified SQL statements.
<a href="#">Options</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies the connection behavior.
<a href="#">Password</a> (inherited from <a href="#">TCustomDAConnection</a> )	Serves to supply a password for login.
<a href="#">Pooling</a> (inherited from <a href="#">TCustomDAConnection</a> )	Enables or disables using connection pool.
<a href="#">PoolingOptions</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies the behaviour of connection pool.

<a href="#">Port</a>	Used to specify the port number for TCP/IP connection.
<a href="#">ProviderName</a>	Used to switch the current data access provider.
<a href="#">Server</a> (inherited from <a href="#">TCustomDAConnection</a> )	Serves to supply the server name for login.
<a href="#">SpecificOptions</a>	Used to provide extended settings for each data provider.
<a href="#">Username</a> (inherited from <a href="#">TCustomDAConnection</a> )	Used to supply a user name for login.

## Methods

Name	Description
<a href="#">ActiveMacroValueByName</a>	Returns the value of the specified macro for the current provider.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TCustomDAConnection</a> )	Overloaded. Applies changes in datasets.
<a href="#">AssignConnect</a>	Shares database connection between the TUniConnection components.
<a href="#">Commit</a> (inherited from <a href="#">TCustomDAConnection</a> )	Commits current transaction.
<a href="#">CommitRetaining</a>	Permanently stores all changes of data associated with the default database transaction to the database and then retains the transaction context.
<a href="#">Connect</a> (inherited from <a href="#">TCustomDAConnection</a> )	Establishes a connection to the server.
<a href="#">CreateDataSet</a>	Creates an instance of the <a href="#">TCustomUniDataSet</a> class and assigns its <a href="#">TCustomDADataset.Connection</a> property.
<a href="#">CreateSQL</a>	Creates an instance of the <a href="#">TUniSQL</a> class and assigns its <a href="#">TUniSQL.Connection</a> property.
<a href="#">CreateTransaction</a>	Creates an instance of the <a href="#">TUniTransaction</a> class and adds itself to its <a href="#">TUniTransaction.Connections</a> .
<a href="#">Disconnect</a> (inherited from <a href="#">TCustomDAConnection</a> )	Performs disconnect.

<a href="#">ExecProc</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to execute stored procedure or function providing its name and parameters.
<a href="#">ExecProcEx</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to execute a stored procedure or function.
<a href="#">ExecSQL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Executes a SQL statement with parameters.
<a href="#">ExecSQLEx</a> (inherited from <a href="#">TCustomDAConnection</a> )	Executes any SQL statement outside the TQuery or TSQL components.
<a href="#">GetDatabaseNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Returns a database list from the server.
<a href="#">GetStoredProcNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Returns a list of stored procedures from the server.
<a href="#">GetTableNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Provides a list of available tables names.
<a href="#">MonitorMessage</a> (inherited from <a href="#">TCustomDAConnection</a> )	Sends a specified message through the <a href="#">TCustomDASQLMonitor</a> component.
<a href="#">ParamByName</a>	Provides access to output parameters and their values after executing an SQL statement with the <a href="#">TCustomDAConnection.ExecSQL</a> method.
<a href="#">ReleaseSavepoint</a>	Destroys the specified savepoint without affecting any work that has been performed after its creation.
<a href="#">RemoveFromPool</a> (inherited from <a href="#">TCustomDAConnection</a> )	Marks the connection that should not be returned to the pool after disconnect.
<a href="#">Rollback</a> (inherited from <a href="#">TCustomDAConnection</a> )	Discards all current data changes and ends transaction.
<a href="#">RollbackRetaining</a>	Used to roll back all changes of data associated with the transaction and retain the transaction context.
<a href="#">RollbackToSavepoint</a>	Cancels all updates for the current transaction.
<a href="#">Savepoint</a>	Defines a point in the transaction to which you can later roll back.
<a href="#">StartTransaction</a>	Overloaded. Starts a new transaction at the server.

## Events

Name	Description
<a href="#">OnConnectionLost</a> (inherited from <a href="#">TCustomDAConnection</a> )	This event occurs when connection was lost.
<a href="#">OnError</a> (inherited from <a href="#">TCustomDAConnection</a> )	This event occurs when an error has arisen in the connection.

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#### 16.19.1.3.2 Properties

Properties of the **TUniConnection** class.

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

#### Public

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TCustomDAConnection</a> )	Overloaded. Applies changes in datasets.
<a href="#">Commit</a> (inherited from <a href="#">TCustomDAConnection</a> )	Commits current transaction.
<a href="#">Connect</a> (inherited from <a href="#">TCustomDAConnection</a> )	Establishes a connection to the server.
<a href="#">ConnectDialog</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to link a <a href="#">TCustomConnectDialog</a> component.
<a href="#">ConvertEOL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows customizing line breaks in string fields and parameters.
<a href="#">CreateDataSet</a> (inherited from <a href="#">TCustomDAConnection</a> )	Creates a dataset component.
<a href="#">CreateSQL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Creates a component for queries execution.
<a href="#">Disconnect</a> (inherited from <a href="#">TCustomDAConnection</a> )	Performs disconnect.
<a href="#">ExecProc</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to execute stored procedure or function providing its name and parameters.
<a href="#">ExecProcEx</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to execute a stored procedure or function.
<a href="#">ExecSQL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Executes a SQL statement with parameters.
<a href="#">ExecSQLEx</a> (inherited from <a href="#">TCustomDAConnection</a> )	Executes any SQL statement outside the TQuery or TSQL components.
<a href="#">GetDatabaseNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Returns a database list from the server.

<a href="#">GetStoredProcNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Returns a list of stored procedures from the server.
<a href="#">GetTableNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Provides a list of available tables names.
<a href="#">InTransaction</a> (inherited from <a href="#">TCustomDAConnection</a> )	Indicates whether the transaction is active.
<a href="#">LoginPrompt</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies whether a login dialog appears immediately before opening a new connection.
<a href="#">MonitorMessage</a> (inherited from <a href="#">TCustomDAConnection</a> )	Sends a specified message through the <a href="#">TCustomDASQLMonitor</a> component.
<a href="#">OnConnectionLost</a> (inherited from <a href="#">TCustomDAConnection</a> )	This event occurs when connection was lost.
<a href="#">OnError</a> (inherited from <a href="#">TCustomDAConnection</a> )	This event occurs when an error has arisen in the connection.
<a href="#">Options</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies the connection behavior.
<a href="#">Password</a> (inherited from <a href="#">TCustomDAConnection</a> )	Serves to supply a password for login.
<a href="#">Pooling</a> (inherited from <a href="#">TCustomDAConnection</a> )	Enables or disables using connection pool.
<a href="#">PoolingOptions</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies the behaviour of connection pool.
<a href="#">RemoveFromPool</a> (inherited from <a href="#">TCustomDAConnection</a> )	Marks the connection that should not be returned to the pool after disconnect.
<a href="#">Rollback</a> (inherited from <a href="#">TCustomDAConnection</a> )	Discards all current data changes and ends transaction.
<a href="#">Server</a> (inherited from <a href="#">TCustomDAConnection</a> )	Serves to supply the server name for login.
<a href="#">StartTransaction</a> (inherited from <a href="#">TCustomDAConnection</a> )	Begins a new user transaction.
<a href="#">Username</a> (inherited from <a href="#">TCustomDAConnection</a> )	Used to supply a user name for login.

## Published

Name	Description
<a href="#">Database</a>	Used to specify the database name that is a default source of data for SQL queries once a connection is established.

[Macros](#)

Holds a collection of macros that can be used in Unified SQL statements.

[Port](#)

Used to specify the port number for TCP/IP connection.

[ProviderName](#)

Used to switch the current data access provider.

[SpecificOptions](#)

Used to provide extended settings for each data provider.

### See Also

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

---

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#### 16.19.1.3.2.1 Database Property

Used to specify the database name that is a default source of data for SQL queries once a connection is established.

### Class

[TUniConnection](#)

### Syntax

```
property Database: string;
```

### Remarks

Use the Database property to specify the database name that is a default source of data for SQL queries once a connection is established.

Altering the Database property makes new database name take effect immediately. This property is available for SQL Server and MySQL providers.

#### **SQL Server provider note:**

When Database is not assigned, the SQL Server provider will use the default database for the current SQL Server login specified in the [TCustomDAConnection.Username](#) property.

### See Also

- [TCustomDAConnection.Server](#)
- [TCustomDAConnection.Username](#)
- [TCustomDAConnection.Password](#)

---

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## 16.19.1.3.2.2 Macros Property

Holds a collection of macros that can be used in Unified SQL statements.

**Class**

[TUniConnection](#)

**Syntax**

```
property Macros: TUniMacros stored IsMacrosStored;
```

**Remarks**

The Macros property holds a collection of macros that can be used in Unified SQL statements.

Connection Macros are defined by "{MacroName " and affect all associated datasets.

To work with Macros you can use traditional or "predefined" way.

For detailed information on using macros refer to article [Unified SQL](#) .

**Example**

Here is the traditional way to work with macros:

```
if UniConnection.ProviderName = 'Oracle' then
    UniConnection.MacroByName('tablename').Value := 'dept'
else
    if UniConnection.ProviderName = 'MySQL' then
        UniConnection.MacroByName('tablename').Value := 'test.dept';
```

**See Also**

- 

[Unified SQL](#)

---

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## 16.19.1.3.2.3 Port Property

Used to specify the port number for TCP/IP connection.

**Class**

[TUniConnection](#)

**Syntax**

```
property Port: integer default 0;
```

**Remarks**

Use the Port property to specify the port number for TCP/IP connection. This property is available only for the MySQL provider.

The default value is 0.

## See Also

- [TCustomDAConnection.Server](#)
- [Database](#)

---

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### 16.19.1.3.2.4 ProviderName Property

Used to switch the current data access provider.

## Class

[TUniConnection](#)

## Syntax

```
property ProviderName: string;
```

## Remarks

UniDAC consists of [two constituents](#). The first constituent is the general UniDAC Engine that provides unified programming interface for developers. The second constituent is the data access layer which consists of data access providers. These providers are intended for interacting between UniDAC Engine and database servers. The ProviderName property is intended to switch the current data access provider. If the value of ProviderName is changed while a connection is active, the connection will be forced to close. The following four providers names are acceptable:

- Oracle - provider for Oracle;
- SQL Server - provider for Microsoft SQL Server;
- MySQL - provider for MySQL;
- InterBase - provider for InterBase, Firebird, and Yaffil database servers.
- PostgreSQL - provider for PostgreSQL.

## See Also

- [TCustomDAConnection.Server](#)
- [Database](#)
- [Port](#)

---

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### 16.19.1.3.2.5 SpecificOptions Property

Used to provide extended settings for each data provider.

## Class

[TUniConnection](#)

## Syntax

```
property SpecificOptions: TSpecificOptionsList;
```

## Remarks

Use the SpecificOptions property to provide extended settings for each data

provider. SpecificOptions can be setup both in design time and run time. At design time call the component editor by double click on it, and select the Options tab in the editor. Calling the SpecificOptions editor from the Object Inspector will open the component editor with Options tab active. Type or select the provider name, and change values of required properties. Then you can either close the editor, or select another provider name. Settings for all providers will be saved. SpecificOptions can be setup at the same time for all providers that supposed to be used.

All options are applied at the connect time. If an option name is not recognized, an exception is raised and connection is not established.

For example, when you set the Direct option like it is shown in the second example, you can connect with the Oracle and MySQL provider, but attempt to connect with SQL Server and InterBase providers will fail.

## Example

You can also setup specific options at run time. Either of two formats can be used:

1. Using the provider name in an option name;
2. Not using the provider name in an option name;

In the second case options will be applied to the current provider, namely to the provider specified in the [ProviderName](#) property.

Example 1.

```
UniConnection1.SpecificOptions.Add('Oracle.Direct=True')
UniConnection1.SpecificOptions.Add('InterBase.CharLength=0')
```

Example 2.

```
UniConnection1.SpecificOptions.Add('Direct=True')
```

## See Also

- [ProviderName](#)
- [UniDAC and Oracle](#)
- [UniDAC and SQL Server](#)
- [UniDAC and MySQL](#)
- [UniDAC and InterBase/Firebird](#)
- [UniDAC and PostgreSQL](#)

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16.19.1.3.3 Methods

Methods of the **TUniConnection** class.

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

## Public

Name	Description
<a href="#">ActiveMacroValueByName</a>	Returns the value of the specified macro for the current provider.

<a href="#">ApplyUpdates</a> (inherited from <a href="#">TCustomDAConnection</a> )	Overloaded. Applies changes in datasets.
<a href="#">AssignConnect</a>	Shares database connection between the TUniConnection components.
<a href="#">Commit</a> (inherited from <a href="#">TCustomDAConnection</a> )	Commits current transaction.
<a href="#">CommitRetaining</a>	Permanently stores all changes of data associated with the default database transaction to the database and then retains the transaction context.
<a href="#">Connect</a> (inherited from <a href="#">TCustomDAConnection</a> )	Establishes a connection to the server.
<a href="#">ConnectDialog</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to link a <a href="#">TCustomConnectDialog</a> component.
<a href="#">ConvertEOL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows customizing line breaks in string fields and parameters.
<a href="#">CreateDataSet</a>	Creates an instance of the <a href="#">TCustomUniDataSet</a> class and assigns its <a href="#">TCustomDADataset.Connection</a> property.
<a href="#">CreateSQL</a>	Creates an instance of the <a href="#">TUniSQL</a> class and assigns its <a href="#">TUniSQL.Connection</a> property.
<a href="#">CreateTransaction</a>	Creates an instance of the <a href="#">TUniTransaction</a> class and adds itself to its <a href="#">TUniTransaction.Connections</a> .
<a href="#">Disconnect</a> (inherited from <a href="#">TCustomDAConnection</a> )	Performs disconnect.
<a href="#">ExecProc</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to execute stored procedure or function providing its name and parameters.
<a href="#">ExecProcEx</a> (inherited from <a href="#">TCustomDAConnection</a> )	Allows to execute a stored procedure or function.
<a href="#">ExecSQL</a> (inherited from <a href="#">TCustomDAConnection</a> )	Executes a SQL statement with parameters.
<a href="#">ExecSQLEx</a> (inherited from <a href="#">TCustomDAConnection</a> )	Executes any SQL statement outside the TQuery or TSQL components.
<a href="#">GetDatabaseNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Returns a database list from the server.

<a href="#">GetStoredProcNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Returns a list of stored procedures from the server.
<a href="#">GetTableNames</a> (inherited from <a href="#">TCustomDAConnection</a> )	Provides a list of available tables names.
<a href="#">InTransaction</a> (inherited from <a href="#">TCustomDAConnection</a> )	Indicates whether the transaction is active.
<a href="#">LoginPrompt</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies whether a login dialog appears immediately before opening a new connection.
<a href="#">MonitorMessage</a> (inherited from <a href="#">TCustomDAConnection</a> )	Sends a specified message through the <a href="#">TCustomDASQLMonitor</a> component.
<a href="#">OnConnectionLost</a> (inherited from <a href="#">TCustomDAConnection</a> )	This event occurs when connection was lost.
<a href="#">OnError</a> (inherited from <a href="#">TCustomDAConnection</a> )	This event occurs when an error has arisen in the connection.
<a href="#">Options</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies the connection behavior.
<a href="#">ParamByName</a>	Provides access to output parameters and their values after executing an SQL statement with the <a href="#">TCustomDAConnection.ExecSQL</a> method.
<a href="#">Password</a> (inherited from <a href="#">TCustomDAConnection</a> )	Serves to supply a password for login.
<a href="#">Pooling</a> (inherited from <a href="#">TCustomDAConnection</a> )	Enables or disables using connection pool.
<a href="#">PoolingOptions</a> (inherited from <a href="#">TCustomDAConnection</a> )	Specifies the behaviour of connection pool.
<a href="#">ReleaseSavepoint</a>	Destroys the specified savepoint without affecting any work that has been performed after its creation.
<a href="#">RemoveFromPool</a> (inherited from <a href="#">TCustomDAConnection</a> )	Marks the connection that should not be returned to the pool after disconnect.
<a href="#">Rollback</a> (inherited from <a href="#">TCustomDAConnection</a> )	Discards all current data changes and ends transaction.
<a href="#">RollbackRetaining</a>	Used to roll back all changes of data associated with the transaction and retain the transaction context.
<a href="#">RollbackToSavepoint</a>	Cancels all updates for the current transaction.

[Savepoint](#)

Defines a point in the transaction to which you can later roll back.

[Server](#) (inherited from [TCustomDAConnection](#))

Serves to supply the server name for login.

[StartTransaction](#)

Overloaded. Starts a new transaction at the server.

[Username](#) (inherited from [TCustomDAConnection](#))

Used to supply a user name for login.

**See Also**

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

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## 16.19.1.3.3.1 ActiveMacroValueByName Method

Returns the value of the specified macro for the current provider.

**Class**[TUniConnection](#)**Syntax**

```
function ActiveMacroValueByName(const Name: string): Variant;
```

**Parameters***Name*

The name of the macro.

**Return Value**

The value of the specified macro.

**See Also**

- [Unified SQL](#)

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## 16.19.1.3.3.2 AssignConnect Method

Shares database connection between the TUniConnection components.

**Class**[TUniConnection](#)**Syntax**

```
procedure AssignConnect(Source: TUniConnection);
```

**Parameters**

**Source**

Preconnected TUniConnection component which connection is to be shared with the current TUniConnection component.

**Remarks**

Use the AssignConnect method to share database connection between the TUniConnection components.

AssignConnect assumes that the Source parameter points to a preconnected TUniConnection component which connection is to be shared with the current TUniConnection component. Note that AssignConnect doesn't make any references to the Source TUniConnection component. So before disconnecting parent TUniConnection component call AssignConnect(Nil) or the Disconnect method for all assigned connections.

**See Also**

- [TCustomDAConnection.Connect](#)
- 

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## 16.19.1.3.3.3 CommitRetaining Method

Permanently stores all changes of data associated with the default database transaction to the database and then retains the transaction context.

**Class**

[TUniConnection](#)

**Syntax**

```
procedure CommitRetaining;
```

**Remarks**

Call the CommitRetaining method to permanently store to the database server all changes of data associated with the default database transaction and then retain the transaction context.

**See Also**

- [TCustomDAConnection.Commit](#)
  - [TCustomDAConnection.StartTransaction](#)
- 

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## 16.19.1.3.3.4 CreateDataSet Method

Creates an instance of the [TCustomUniDataSet](#) class and assigns its [TCustomDADataset.Connection](#) property.

**Class**

## [TUniConnection](#)

### Syntax

```
function CreateDataSet: TCustomDADataset; override;
```

#### Return Value

an instance of the class.

### Remarks

Call the CreateDataSet method to create an instance of the [TCustomUniDataSet](#) class and assign its [TCustomDADataset.Connection](#) property.

---

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#### 16.19.1.3.3.5 CreateSQL Method

Creates an instance of the [TUniSQL](#) class and assigns its [TUniSQL.Connection](#) property.

### Class

## [TUniConnection](#)

### Syntax

```
function CreateSQL: TCustomDASQL; override;
```

#### Return Value

an instance of the class.

### Remarks

Call the CreateSQL method creates an instance of the [TUniSQL](#) class and assign its [TUniSQL.Connection](#) property.

---

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#### 16.19.1.3.3.6 CreateTransaction Method

Creates an instance of the [TUniTransaction](#) class and adds itself to its [TUniTransaction.Connections](#).

### Class

## [TUniConnection](#)

### Syntax

```
function CreateTransaction: TDATransaction; override;
```

#### Return Value

an instance of the class.

### Remarks

Call the CreateTransaction method to create an instance of the [TUniTransaction](#) class and add itself to its [TUniTransaction.Connections](#).

---

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#### 16.19.1.3.3.7 ParamByName Method

Provides access to output parameters and their values after executing an SQL statement with the [TCustomDAConnection.ExecSQL](#) method.

### Class

[TUniConnection](#)

### Syntax

```
function ParamByName(const Name: string): TUniParam;
```

#### Parameters

##### Name

Holds the parameter name (should be equal to the one that occurred in the SQL statement).

#### Return Value

a reference for the matching parameter.

### Remarks

Call the ParamByName method to get access to output parameters and their values after executing an SQL statement with the [TCustomDAConnection.ExecSQL](#) method. The Name parameter should equal to the parameter name as it occurred in the SQL statement.

This method implicitly calls the [TUniSQL.ParamByName](#) method of [TUniSQL](#).

### See Also

- [TCustomDAConnection.ExecSQL](#)
- 

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#### 16.19.1.3.3.8 ReleaseSavepoint Method

Destroys the specified savepoint without affecting any work that has been performed after its creation.

### Class

[TUniConnection](#)

### Syntax

```
procedure ReleaseSavepoint(const Name: string);
```

#### Parameters

##### Name

Holds the savepoint name.

### Remarks

Call the ReleaseSavepoint method to destroy the specified savepoint without

affecting any work that has been performed after its creation.

## See Also

- [Savepoint](#)
- [RollbackToSavepoint](#)

---

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### 16.19.1.3.3.9 RollbackRetaining Method

Used to roll back all changes of data associated with the transaction and retain the transaction context.

## Class

[TUniConnection](#)

## Syntax

```
procedure RollbackRetaining;
```

## Remarks

Use the RollbackRetaining method to roll back all changes of data associated with the transaction and retain the transaction context.

**Note:** this method is only supported for the InterBase provider.

## See Also

- [TCustomDAConnection.Rollback](#)
- [TCustomDAConnection.StartTransaction](#)

---

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### 16.19.1.3.3.10 RollbackToSavepoint Method

Cancels all updates for the current transaction.

## Class

[TUniConnection](#)

## Syntax

```
procedure RollbackToSavepoint(const Name: string);
```

## Parameters

*Name*

Holds the savepoint name.

## Remarks

Call the RollbackToSavepoint method to cancel all updates for the current transaction and restore its state up to the moment of the last defined savepoint.

## See Also

- [ReleaseSavepoint](#)
  - [Savepoint](#)
  - [TCustomDAConnection.Rollback](#)
- 

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### 16.19.1.3.3.11 Savepoint Method

Defines a point in the transaction to which you can later roll back.

## Class

[TUniConnection](#)

## Syntax

```
procedure Savepoint(const Name: string);
```

## Parameters

*Name*

Holds a valid name for identifying a savepoint.

## Remarks

Call the Savepoint method to define a point in the transaction to which you can later roll back. As the parameter, you can pass any valid name to identify the savepoint.

To roll back to the last savepoint, call [RollbackToSavepoint](#).

## See Also

- [ReleaseSavepoint](#)
  - [RollbackToSavepoint](#)
- 

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### 16.19.1.3.3.12 StartTransaction Method

Starts a new transaction at the server.

## Class

[TUniConnection](#)

## Overload List

Name	Description
<a href="#">StartTransaction</a>	Call the StartTransaction method to begin a new transaction at the server.

[StartTransaction\(IsolationLevel: TCRIsoationLevel; ReadOnly: boolean\)](#) Starts a new transaction at the server, and specifies whether the transaction is read-only and how database modifications should be handled.

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Call the StartTransaction method to begin a new transaction at the server.

## Class

[TUniConnection](#)

## Syntax

```
procedure StartTransaction; overload; override
```

## Remarks

Call the StartTransaction method to begin a new transaction at the server. Before calling StartTransaction, an application should check the value of the [TCustomDAConnection.InTransaction](#) property. If the result is True, it means that a transaction is already in progress, a subsequent call to StartTransaction without first calling [TCustomDAConnection.Commit](#) or [TCustomDAConnection.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.

Use the IsolationLevel property to specify how transactions containing database modifications are handled.

Values of the TCRIsoationLevel enumeration correspond to the following isolation levels of supported database servers:

	SQL standard	Oracle	SQL Server	MySQL	InterBase /Firebird
ilReadCommitted	ReadCommitted	ilReadCommitted	ilReadCommitted	ilReadCommitted	ibReadCommitted
ilReadUncommitted	ReadUncommitted	-	ilReadUncommitted	ilReadUncommitted	-
ilRepeatableRead	RepeatableRead	-	ilRepeatableRead	ilRepeatableRead	-
ilIsolated	Serializable	-	ilIsolated	ilSerializable	ibTableStability
ilSnapshot	Serializable without locks	ilSerializable	ilSnapshot	-	ibSnapshot
ilCustom	<i>This value is introduced for future needs. Currently not implemented.</i>				

The ReadOnly parameter determines that a read-only transaction will be started. It means that data within the transaction can not be modified. You will get an exception on attempt to post any changes.

The ReadOnly parameter has sense only for Oracle and InterBase providers.

## See Also

- [TCustomDAConnection.Commit](#)
  - [TCustomDAConnection.Rollback](#)
  - [TCustomDAConnection.InTransaction](#)
  - [StartTransaction](#)
- 

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Starts a new transaction at the server, and specifies whether the transaction is read-only and how database modifications should be handled.

## Class

[TUniConnection](#)

## Syntax

```
procedure StartTransaction(IsolationLevel: TCRIsolationLevel;  
ReadOnly: boolean = False); reintroduce; overload
```

### Parameters

*IsolationLevel*

Specifies how transactions containing database modifications are handled.

*ReadOnly*

if True, a read-only transaction will be started.

---

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### 16.19.1.4 TUniDataSource Class

TUniDataSource provides an interface between a UniDAC dataset components and data-aware controls on a form.

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

## Unit

[Uni](#)

## Syntax

```
TUniDataSource = class (TCRDataSource);
```

## Remarks

TUniDataSource provides an interface between a UniDAC dataset components and data-aware controls on a form.

TUniDataSource inherits its functionality directly from the TDataSource component.

At design-time assign individual data-aware components' DataSource properties from their drop-down listboxes.

If you place onto a form a TUniDataSource component close to a dataset, this dataset will be linked to it automatically.

## Inheritance Hierarchy

[TCRDataSource](#)  
**TUniDataSource**

---

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16.19.1.4.1 Members

[TUniDataSource](#) class overview.

---

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**16.19.1.5 TUniEncryptor Class**

The class that performs encrypting and decrypting of data.  
For a list of all members of this type, see [TUniEncryptor](#) members.

**Unit**

[Uni](#)

**Syntax**

```
TUniEncryptor = class (TCREncryptor) ;
```

**Inheritance Hierarchy**

[TCREncryptor](#)  
**TUniEncryptor**

---

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16.19.1.5.1 Members

[TUniEncryptor](#) class overview.

**Properties**

Name	Description
<a href="#">DataHeader</a> (inherited from <a href="#">TCREncryptor</a> )	Specifies whether the additional information is stored with the encrypted data.
<a href="#">EncryptionAlgorithm</a> (inherited from <a href="#">TCREncryptor</a> )	Specifies the algorithm of data encryption.
<a href="#">HashAlgorithm</a> (inherited from <a href="#">TCREncryptor</a> )	Specifies the algorithm of generating hash data.
<a href="#">InvalidHashAction</a> (inherited from <a href="#">TCREncryptor</a> )	Specifies the action to perform on data fetching when hash data is invalid.
<a href="#">Password</a> (inherited from <a href="#">TCREncryptor</a> )	Used to set a password that is used to generate a key for encryption.

**Methods**

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

[SetKey](#) (inherited from [TCREncryptor](#))

Sets a key, using which data is encrypted.

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### 16.19.1.6 TUniMacro Class

Holds the Name, Value, and Condition for a macro.  
For a list of all members of this type, see [TUniMacro](#) members.

#### Unit

[Uni](#)

#### Syntax

```
TUniMacro = class (TCollectionItem);
```

#### Remarks

A TUniMacro object holds the Name, Value, and Condition for a macro. This macro can be used in Unified SQL statements.  
For detailed information on using macros refer to article [Unified SQL](#) .

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#### 16.19.1.6.1 Members

[TUniMacro](#) class overview.

#### Properties

Name	Description
<a href="#">Condition</a>	Holds a condition for the macro, which determines whether macro is evaluated to its Value or an empty string.
<a href="#">Name</a>	Used to refer to this macro in Unified SQL statements and other macros.
<a href="#">Value</a>	Holds a string expression that macro evaluates to if Condition is enabled.

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#### 16.19.1.6.2 Properties

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

#### Published

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

### [Condition](#)

Holds a condition for the macro, which determines whether macro is evaluated to its Value or an empty string.

### [Name](#)

Used to refer to this macro in Unified SQL statements and other macros.

### [Value](#)

Holds a string expression that macro evaluates to if Condition is enabled.

## See Also

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

---

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#### 16.19.1.6.2.1 Condition Property

Holds a condition for the macro, which determines whether macro is evaluated to its Value or an empty string.

## Class

[TUniMacro](#)

## Syntax

```
property Condition: string;
```

## Remarks

The Condition property holds a condition for the macro, which determines whether macro is evaluated to its Value or an empty string.

Macro condition is name of another custom TUniMacro or predefined macro like MySQL, Oracle, etc. If the condition macro is defined, the current macro evaluates to what is specified in the Value property, otherwise it returns empty string. If the condition is not specified (represents empty string), then macro always evaluates to Value.

---

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#### 16.19.1.6.2.2 Name Property

Used to refer to this macro in Unified SQL statements and other macros.

## Class

[TUniMacro](#)

## Syntax

```
property Name: string;
```

## Remarks

Macro identifier to be used in Unified SQL statements.

The Name property is used to refer to this macro in Unified SQL statements and other macros. If there are several macros with same name in Macros of TUniConnection, the one that has valid condition is used.

When the macro is used in statements or as part of value of another macro, you should enclose the Name in braces {... }. When used as condition for another macro, the braces are not required.

---

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#### 16.19.1.6.2.3 Value Property

Holds a string expression that macro evaluates to if Condition is enabled.

### Class

[TUniMacro](#)

### Syntax

```
property Value: string;
```

### Remarks

The Value property holds a string expression that macro evaluates to if Condition is enabled.

---

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#### 16.19.1.7 TUniMacros Class

Used to manage a list of TUniMacro objects for a TUniConnection component. For a list of all members of this type, see [TUniMacros](#) members.

### Unit

[Uni](#)

### Syntax

```
TUniMacros = class(TOwnedCollection);
```

### Remarks

Use TUniMacros to manage a list of TUniMacro objects for a TUniConnection component.

---

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#### 16.19.1.7.1 Members

[TUniMacros](#) class overview.

---

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#### 16.19.1.8 TUniMetaData Class

A component for obtaining metainformation about database objects from the server. For a list of all members of this type, see [TUniMetaData](#) members.

---

## Unit

[Uni](#)

## Syntax

```
TUniMetaData = class (TDAMetaData) ;
```

## Remarks

The TUniMetaData component is used to obtain metainformation from the server about objects in the database, such as tables, table columns, stored procedures, etc.

## Inheritance Hierarchy

[TMemDataSet](#)

[TDAMetaData](#)

**TUniMetaData**

## See Also

- [TCustomDADataset.Debug](#)
- [TCustomDASQL.Debug](#)
- [DBMonitor](#)

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16.19.1.8.1 Members

[TUniMetaData](#) class overview.

## Properties

Name	Description
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">Connection</a>	Used to specify the connection which will be used by TUniMetaData to request metadata from server.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.

<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">MetaDataKind</a> (inherited from <a href="#">TDAMetaData</a> )	Used to specify which kind of metainformation to show.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">Restrictions</a> (inherited from <a href="#">TDAMetaData</a> )	Used to provide one or more conditions restricting the list of objects to be described.
<a href="#">Transaction</a>	Used to set or return the transaction to be used by the component.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.

## Methods

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetMetaDataKinds</a> (inherited from <a href="#">TDAMetaData</a> )	Used to get values acceptable in the MetaDataKind property.
<a href="#">GetRestrictions</a> (inherited from <a href="#">TDAMetaData</a> )	Used to find out which restrictions are applicable to a certain MetaDataKind.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.

<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <a href="#">ApplyUpdates</a> method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

Name	Description
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.

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### 16.19.1.8.2 Properties

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

## Public

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetMetaDataKinds</a> (inherited from <a href="#">TDAMetaData</a> )	Used to get values acceptable in the MetaDataKind property.
<a href="#">GetRestrictions</a> (inherited from <a href="#">TDAMetaData</a> )	Used to find out which restrictions are applicable to a certain MetaDataKind.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">MetaDataKind</a> (inherited from <a href="#">TDAMetaData</a> )	Used to specify which kind of metainformation to show.

<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Restrictions</a> (inherited from <a href="#">TDAMetaData</a> )	Used to provide one or more conditions restricting the list of objects to be described.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Published

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

[Connection](#)

Used to specify the connection which will be used by TUniMetaData to request metadata from server.

[Transaction](#)

Used to set or return the transaction to be used by the component.

**See Also**

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

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## 16.19.1.8.2.1 Connection Property

Used to specify the connection which will be used by TUniMetaData to request metadata from server.

**Class**

[TUniMetaData](#)

**Syntax**

```
property Connection: TUniConnection;
```

**Remarks**

Use the Connection property to specify the connection which will be used by TUniMetaData to request metadata from server. If Connection is not connected, TUniMetaData will try to establish connection using the Connect method of the associated TUniConnection object as soon as it will be necessary.

---

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## 16.19.1.8.2.2 Transaction Property

Used to set or return the transaction to be used by the component.

**Class**

[TUniMetaData](#)

**Syntax**

```
property Transaction: TUniTransaction stored IsTransactionStored;
```

**Remarks**

Use the Transaction property to set or return the transaction to be used by the component.

---

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### 16.19.1.9 TUniParam Class

A class that is used to set the values of individual parameters passed with queries or stored procedures.

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

#### Unit

[Uni](#)

#### Syntax

```
TUniParam = class (TDAParam) ;
```

#### Remarks

Use the properties of TUniParam to set the value of a parameter. Objects that use parameters create TUniParam objects to represent these parameters. For example, TUniParam objects are used by TUniSQL, TCustomUniDataSet.

TUniParam 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 how the field is displayed, edited, or calculated that are not needed in a TUniParam object. Conversely, TUniParam includes properties that indicate how the field value is passed as a parameter.

#### Inheritance Hierarchy

[TDAParam](#)

**TUniParam**

#### See Also

- [TCustomUniDataSet](#)
- [TUniSQL](#)
- [TUniParams](#)

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#### 16.19.1.9.1 Members

[TUniParam](#) class overview.

#### Properties

Name	Description
<a href="#">AsBlob</a> (inherited from <a href="#">TDAParam</a> )	Used to set and read the value of the BLOB parameter as string.
<a href="#">AsBlobRef</a> (inherited from <a href="#">TDAParam</a> )	Used to set and read the value of the BLOB parameter as a TBlob object.
<a href="#">AsFloat</a> (inherited from <a href="#">TDAParam</a> )	Used to assign the value for a float field to a parameter.

<a href="#">AsInteger</a> (inherited from <a href="#">TDAParam</a> )	Used to assign the value for an integer field to the parameter.
<a href="#">AsLargeInt</a> (inherited from <a href="#">TDAParam</a> )	Used to assign the value for a LargeInteger field to the parameter.
<a href="#">AsMemo</a> (inherited from <a href="#">TDAParam</a> )	Used to assign the value for a memo field to the parameter.
<a href="#">AsMemoRef</a> (inherited from <a href="#">TDAParam</a> )	Used to set and read the value of the memo parameter as a TBlob object.
<a href="#">AsSQLTimeStamp</a> (inherited from <a href="#">TDAParam</a> )	Used to specify the value of the parameter when it represents a SQL timestamp field.
<a href="#">AsString</a> (inherited from <a href="#">TDAParam</a> )	Used to assign the string value to the parameter.
<a href="#">AsWideString</a> (inherited from <a href="#">TDAParam</a> )	Used to assign the Unicode string value to the parameter.
<a href="#">DataType</a> (inherited from <a href="#">TDAParam</a> )	Indicates the data type of the parameter.
<a href="#">IsNull</a> (inherited from <a href="#">TDAParam</a> )	Used to indicate whether the value assigned to a parameter is NULL.
<a href="#">ParamType</a> (inherited from <a href="#">TDAParam</a> )	Used to indicate the type of use for a parameter.
<a href="#">Size</a> (inherited from <a href="#">TDAParam</a> )	Specifies the size of a string type parameter.
<a href="#">Value</a> (inherited from <a href="#">TDAParam</a> )	Used to represent the value of the parameter as Variant.

## Methods

Name	Description
<a href="#">AssignField</a> (inherited from <a href="#">TDAParam</a> )	Assigns field name and field value to a param.
<a href="#">AssignFieldValue</a> (inherited from <a href="#">TDAParam</a> )	Assigns the specified field properties and value to a parameter.
<a href="#">LoadFromFile</a> (inherited from <a href="#">TDAParam</a> )	Places the content of a specified file into a TDAParam object.
<a href="#">LoadFromStream</a> (inherited from <a href="#">TDAParam</a> )	Places the content from a stream into a TDAParam object.
<a href="#">SetBlobData</a> (inherited from <a href="#">TDAParam</a> )	Overloaded. Writes the data from a specified buffer to BLOB.

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### 16.19.1.1(TUniParams Class

Used to control TUniParam objects.  
For a list of all members of this type, see [TUniParams](#) members.

#### Unit

[Uni](#)

#### Syntax

```
TUniParams = class(TDAParams);
```

#### Remarks

Use TUniParams to manage a list of TUniParam objects for an object that uses field parameters. For example, TUniStoredProc objects and TUniQuery objects use TUniParams objects to create and access their parameters.

#### Inheritance Hierarchy

[TDAParams](#)

**TUniParams**

#### See Also

- [TUniParam](#)
- [TCustomDASQL.Params](#)
- [TCustomDADataset.Params](#)
- [TCustomDADataset.Params](#)
- [TCustomDASQL.Params](#)
- [TUniParam](#)

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### 16.19.1.10.1 Members

[TUniParams](#) class overview.

#### Properties

Name	Description
<a href="#">Items</a> (inherited from <a href="#">TDAParams</a> )	Used to iterate through all parameters.

#### Methods

Name	Description
<a href="#">FindParam</a> (inherited from <a href="#">TDAParams</a> )	Searches for a parameter with the specified name.
<a href="#">ParamByName</a> (inherited from <a href="#">TDAParams</a> )	Searches for a parameter with the specified name.

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### 16.19.1.1 TUniQuery Class

A component for executing queries and operating record sets. It also provides flexible way to update data.

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

#### Unit

[Uni](#)

#### Syntax

```
TUniQuery = class(TCustomUniDataSet);
```

#### Remarks

TUniQuery is a direct descendant of the [TCustomUniDataSet](#) component. It publishes most of its inherited properties and events so that they can be manipulated at design-time.

Use TUniQuery to perform fetching, insertion, deletion and update of record by dynamically generated SQL statements. TUniQuery provides automatic blocking of records, their checking before edit and refreshing after post. 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, TUniQuery will retrieve primary keys for UpdatingTable from metadata. TUniQuery 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](#)  
[TCustomUniDataSet](#)  
**TUniQuery**

#### See Also

- [Master/Detail Relationships](#)
  - [TUniStoredProc](#)
  - [TUniTable](#)
-

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16.19.1.11.1 Members

[TUniQuery](#) class overview.

## Properties

Name	Description
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.

<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">LockMode</a>	Used to specify what kind of lock will be performed when editing a record.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.

<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.

<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateTransaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which update commands will be executed.
<a href="#">UpdatingTable</a>	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
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.

<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataset</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataset</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomUniDataset</a> )	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.

<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataset.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataset</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataset</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.

<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <a href="#">ApplyUpdates</a> method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	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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#### 16.19.1.11.2 Properties

Properties of the **TUniQuery** class.

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

### Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.

- [Connection](#) (inherited from [TCustomDADataset](#)) Used to specify a connection object to use to connect to a data store.
- [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.
- [CreateProcCall](#) (inherited from [TCustomUniDataSet](#)) Assigns a command that calls stored procedure specified by name to the SQL property.
- [Debug](#) (inherited from [TCustomDADataset](#)) Used to display executing statement, all its parameters' values, and the type of parameters.
- [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.
- [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.
- [DMLRefresh](#) (inherited from [TCustomUniDataSet](#)) Used to refresh record by RETURNING clause when insert or update is performed.)
- [Encryption](#) (inherited from [TCustomDADataset](#)) Used to specify the options of the data encryption in a dataset.
- [Execute](#) (inherited from [TCustomDADataset](#)) 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 learn whether TCustomDADataset has already 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.

- [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.
- [FindKey](#) (inherited from [TCustomDADataset](#)) Searches for a record which contains specified field values.
- [FindMacro](#) (inherited from [TCustomDADataset](#)) Indicates whether a specified macro exists in a dataset.
- [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 [TCustomUniDataSet](#)) Determines if 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.
- [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.
- [IndexFieldNames](#) (inherited from [TMemDataSet](#)) Used to get or set the list of fields on which the recordset is sorted.

<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.

<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.

<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.

<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <code>ApplyUpdates</code> method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.
<a href="#">UpdateTransaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <code>TUniTransaction</code> object in the context of which update commands will be executed.

## Published

Name	Description
<a href="#">LockMode</a>	Used to specify what kind of lock will be performed when editing a record.
<a href="#">UpdatingTable</a>	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

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

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### 16.19.1.11.2.1 LockMode Property

Used to specify what kind of lock will be performed when editing a record.

## Class

[TUniQuery](#)

## Syntax

```
property LockMode: TLockMode;
```

## Remarks

Use the LockMode property to define what kind of lock will be performed when editing a record. Locking a record is useful in creating multi-user applications. It prevents modification of a record by several users at the same time. Locking is performed by the RefreshRecord method. The default value is ImNone.

## See Also

- [TUniStoredProc.LockMode](#)
- [TUniTable.LockMode](#)

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### 16.19.1.11.2.2 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

[TUniQuery](#)

## 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 [TCustomUniDataSet.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

For example:

1. For the query where the only allowed value for UpdatingTable property is 'Orders';
2. For the query where allowed values for UpdatingTable are 'Orders' and 'Order Details'.

In the first case (or on default) editable field is ShipName, in the second  Quantity field.

Example 1.

```
SELECT OrderID, ShipName FROM Orders;
```

Example 2.

```
SELECT A.OrderID, A.ShipName, B.Quantity FROM Orders A,  
[Order Details] B WHERE (A.OrderID=B.OrderID);
```

---

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### 16.19.1.1:TUniSQL Class

A component for executing SQL statements and calling stored procedures on the database server.

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

## Unit

[Uni](#)

## Syntax

```
TUniSQL = class (TCustomDASQL);
```

## Remarks

The TUniSQL component is a direct descendant of the [TCustomDASQL](#) class.

Use The TUniSQL component when a client application must execute SQL statement or the PL/SQL block, and call stored procedure on the database server. The SQL statement should not retrieve rows from the database.

## Inheritance Hierarchy

[TCustomDASQL](#)

**TUniSQL**

## See Also

- [TUniQuery](#)
- [TUniScript](#)

---

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## 16.19.1.12.1 Members

[TUniSQL](#) class overview.

## Properties

Name	Description
<a href="#">ChangeCursor</a> (inherited from <a href="#">TCustomDASQL</a> )	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
<a href="#">Connection</a>	Used to specify the connection in which the script will be executed.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to return a SQL statement with expanded macros.
<a href="#">LastInsertId</a>	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDASQL</a> )	Makes it possible to change SQL queries easily.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDASQL</a> )	Indicates the number of parameters in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to contain parameters for a SQL statement.
<a href="#">ParamValues</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to get or set the values of individual field parameters that are identified by name.
<a href="#">Prepared</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to indicate whether a query is prepared for execution.

<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SpecificOptions</a>	Provides extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called.
<a href="#">Transaction</a>	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

## Methods

Name	Description
<a href="#">BreakExec</a>	Breaks execution of a SQL statement on the server.
<a href="#">CreateProcCall</a>	Assigns a command that calls stored procedure specified by Name to the SQL property.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDASQL</a> )	Overloaded. Executes SQL commands.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDASQL</a> )	Checks whether TCustomDASQL still executes a SQL statement.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDASQL</a> )	Searches for a macro with the specified name.
<a href="#">FindParam</a>	Searches for a parameter with the specified name.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDASQL</a> )	Finds a Macro with the name passed in Name.
<a href="#">ParamByName</a>	Searches for a parameter with the specified name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDASQL</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">UnPrepare</a> (inherited from <a href="#">TCustomDASQL</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">WaitExecuting</a> (inherited from <a href="#">TCustomDASQL</a> )	Waits until TCustomDASQL executes a SQL statement.

## Events

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDASQL</a> )	Occurs after a SQL statement has been executed.

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#### 16.19.1.12.2 Properties

Properties of the **TUniSQL** class.

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

#### Public

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDASQL</a> )	Occurs after a SQL statement has been executed.
<a href="#">ChangeCursor</a> (inherited from <a href="#">TCustomDASQL</a> )	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDASQL</a> )	Overloaded. Executes SQL commands.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDASQL</a> )	Checks whether TCustomDASQL still executes a SQL statement.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to return a SQL statement with expanded macros.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDASQL</a> )	Searches for a macro with the specified name.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomDASQL</a> )	Finds a parameter with the specified name.
<a href="#">LastInsertId</a>	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDASQL</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDASQL</a> )	Makes it possible to change SQL queries easily.

<a href="#">ParamByName</a> (inherited from <a href="#">TCustomDASQL</a> )	Finds a parameter with the specified name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDASQL</a> )	Indicates the number of parameters in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to contain parameters for a SQL statement.
<a href="#">ParamValues</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to get or set the values of individual field parameters that are identified by name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDASQL</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to indicate whether a query is prepared for execution.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called.
<a href="#">UnPrepare</a> (inherited from <a href="#">TCustomDASQL</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">WaitExecuting</a> (inherited from <a href="#">TCustomDASQL</a> )	Waits until TCustomDASQL executes a SQL statement.

## Published

Name	Description
<a href="#">Connection</a>	Used to specify the connection in which the script will be executed.
<a href="#">SpecificOptions</a>	Provides extended settings for each data provider.

## [Transaction](#)

Used to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

### See Also

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

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#### 16.19.1.12.2.1 Connection Property

Used to specify the connection in which the script will be executed.

### Class

[TUniSQL](#)

### Syntax

```
property Connection: TUniConnection;
```

### Remarks

Use the Connection property to specify the connection in which the script will be executed. If Connection is not connected, the [TCustomDASQL.Execute](#) method calls the Connect method of Connection.

### See Also

- [TUniConnection](#)

---

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#### 16.19.1.12.2.2 LastInsertId Property

Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.

### Class

[TUniSQL](#)

### Syntax

```
property LastInsertId: int64;
```

### Remarks

The LastInsertId property can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement. For MySQL LastInsertId returns the ID generated for an AUTO INCREMENT column by the previous query. Use this property after you have performed an INSERT query

into a table that contains an AUTO INCREMENT field.

For PostgreSQL LastInsertId returns the OID value generated for an OID column in a table with OIDs by the previous query.

If the query does not perform insertion into a table that contains field of the types specified above, the value of LastInsertId won't be defined.

---

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#### 16.19.1.12.2.3 SpecificOptions Property

Provides extended settings for each data provider.

### Class

[TUniSQL](#)

### Syntax

```
property SpecificOptions: TSpecificOptionsList;
```

### Remarks

Use the SpecificOptions property to provide extended settings for each data provider. SpecificOptions can be setup both design time and run time.

At design time call the component editor by double click on it, and select the Options tab in the editor. Calling the SpecificOptions editor from the Object Inspector will open the component editor with Options tab active. Type or select the provider name, and change values of required properties. Then you can either close the editor, or select another provider name. Settings for all providers will be saved. SpecificOptions can be setup at the same time for all providers that supposed to be used.

All options are applied right before executing. If an option name is not recognized, an exception is raised and commands are not executed.

### Example

You can also setup specific options at run time. Either of two formats can be used:

1. Using the provider name in an option name;
2. Not using the provider name in an option name.

In the second case options will be applied to the current provider, namely to the provider specified in the [TUniConnection.ProviderName](#) property of assigned connection.

When you set the AutoDDL option like it is shown in the second example, you can execute the script with the InterBase provider, but attempt to execute it with other providers will fail.

Example 1.

```
UniSQL1.SpecificOptions.Add('InterBase.AutoDDL=True')
```

Example 2.

```
UniSQL1.SpecificOptions.Add('AutoDDL=True')
```

### See Also

- [TUniConnection.ProviderName](#)

- [UniDAC and Oracle](#)
- [UniDAC and SQL Server](#)
- [UniDAC and MySQL](#)
- [UniDAC and InterBase/Firebird](#)
- [UniDAC and PostgreSQL](#)

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#### 16.19.1.12.2.4 Transaction Property

Used to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

### Class

[TUniSQL](#)

### Syntax

```
property Transaction: TUniTransaction stored IsTransactionStored;
```

### Remarks

Use the Transaction property to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened. If this property is not specified, the default transaction associated with linked [TUniConnection](#) will be used. This transaction will work in AutoCommit mode.

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#### 16.19.1.12.3 Methods

Methods of the **TUniSQL** class.

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

### Public

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDASQL</a> )	Occurs after a SQL statement has been executed.
<a href="#">BreakExec</a>	Breaks execution of a SQL statement on the server.
<a href="#">ChangeCursor</a> (inherited from <a href="#">TCustomDASQL</a> )	Enables or disables changing screen cursor when executing commands in the NonBlocking mode.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateProcCall</a>	Assigns a command that calls stored procedure specified by Name to the SQL property.

<a href="#">Debug</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDASQL</a> )	Overloaded. Executes SQL commands.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDASQL</a> )	Checks whether TCustomDASQL still executes a SQL statement.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to return a SQL statement with expanded macros.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDASQL</a> )	Searches for a macro with the specified name.
<a href="#">FindParam</a>	Searches for a parameter with the specified name.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDASQL</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDASQL</a> )	Makes it possible to change SQL queries easily.
<a href="#">ParamByName</a>	Searches for a parameter with the specified name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDASQL</a> )	Indicates the number of parameters in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to contain parameters for a SQL statement.
<a href="#">ParamValues</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to get or set the values of individual field parameters that are identified by name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDASQL</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to indicate whether a query is prepared for execution.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDASQL</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.

[SQL](#) (inherited from [TCustomDASQL](#))

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

[UnPrepare](#) (inherited from [TCustomDASQL](#))

Frees the resources allocated for a previously prepared query on the server and client sides.

[WaitExecuting](#) (inherited from [TCustomDASQL](#))

Waits until TCustomDASQL executes a SQL statement.

### See Also

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

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#### 16.19.1.12.3.1 BreakExec Method

Breaks execution of a SQL statement on the server.

### Class

[TUniSQL](#)

### Syntax

```
procedure BreakExec;
```

### Remarks

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

### See Also

- [TCustomDASQL.Execute](#)

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#### 16.19.1.12.3.2 CreateProcCall Method

Assigns a command that calls stored procedure specified by Name to the SQL property.

### Class

[TUniSQL](#)

### Syntax

```
procedure CreateProcCall(const Name: string);
```

### Parameters

**Name**

Holds the stoped procedure name.

**Remarks**

Call the CreateProcCall method to assign a command that calls stored procedure specified by Name to the SQL property. This procedure also retrieves information about parameters of the procedure from server. After calling CreateProcCall you can assign parameter values of the stored procedure using, for example, [TCustomDASQL.Params](#) or [ParamByName](#), and then execute it with the [TCustomDASQL.Execute](#) method.

**See Also**

- [TCustomDASQL.Execute](#)
  - [TUniStoredProc](#)
- 

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## 16.19.1.12.3.3 FindParam Method

Searches for a parameter with the specified name.

**Class**

[TUniSQL](#)

**Syntax**

```
function FindParam(const Value: string): TUniParam;
```

**Parameters***Value*

Holds the name of the parameter to search.

**Return Value**

a parameter, if a match is found. Nil otherwise.

**Remarks**

Call the FindParam method to find a parameter with the name passed in Name argument. If a match is found, FindParam returns the parameter. Otherwise, it returns nil.

**See Also**

- [TUniParam](#)
  - [ParamByName](#)
- 

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## 16.19.1.12.3.4 ParamByName Method

Searches for a parameter with the specified name.

**Class**

[TUniSQL](#)

**Syntax**

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

**Parameters***Value*

Holds the name of the parameter to search.

**Return Value**

a parameter, if a match is found. Nil otherwise.

**Remarks**

Call the ParamByName method to find a parameter with the name passed as Name. If a match is found, ParamByName returns the parameter. Otherwise, it raises an exception.

**Example**

```
UniSQL1.Execute;  
Edit1.Text := UniSQL1.ParamByName('Contact').AsString;
```

**See Also**

- [TUniParam](#)
- [FindParam](#)

---

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**16.19.1.1.TUniStoredProc Class**

A component for accessing and executing stored procedures and functions. For a list of all members of this type, see [TUniStoredProc](#) members.

**Unit**

[Uni](#)

**Syntax**

```
TUniStoredProc = class(TCustomUniDataSet);
```

**Remarks**

Use TUniStoredProc to access stored procedures on the database server. You need only to define the StoredProcName property, and the SQL statement to call the stored procedure will be generated automatically.

Use the Execute method at runtime to generate request that instructs server to execute procedure and PrepareSQL to describe parameters at run time

## Inheritance Hierarchy

[TMemDataSet](#)  
[TCustomDADataset](#)  
[TCustomUniDataSet](#)  
**TUniStoredProc**

## See Also

- [TUniQuery](#)
- [TUniSQL](#)

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16.19.1.13.1 Members

[TUniStoredProc](#) class overview.

## Properties

Name	Description
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.

<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">LockMode</a>	Used to specify what kind of lock will be performed when editing a record.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.

<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.

<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">StoredProcName</a>	Used to specify the name of the stored procedure to call on the server.
<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateTransaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which update commands will be executed.

## Methods

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.

<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">ExecProc</a>	Executes a SQL statement on the server.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.

<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> ) )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.

<a href="#">PrepareSQL</a>	Describes the stored procedure parameters.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataset</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataset</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataset</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataset</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.

<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.

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#### 16.19.1.13.2 Properties

Properties of the **TUniStoredProc** class.

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

#### Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.

<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to refresh record by RETURNING clause when insert or update is performed.

<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.

<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.

<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.

<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataset</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataset</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.

<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataSet.RefreshRecord</a> procedure.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataSet</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataSet</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <a href="#">ApplyUpdates</a> method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

[UpdateTransaction](#) (inherited from [TCustomUniDataSet](#))

Used to specify the TUniTransaction object in the context of which update commands will be executed.

## Published

Name	Description
<a href="#">LockMode</a>	Used to specify what kind of lock will be performed when editing a record.
<a href="#">StoredProcName</a>	Used to specify the name of the stored procedure to call on the server.

## See Also

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

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### 16.19.1.13.2.1 LockMode Property

Used to specify what kind of lock will be performed when editing a record.

## Class

[TUniStoredProc](#)

## Syntax

```
property LockMode: TLockMode;
```

## Remarks

Use the LockMode property to define what kind of lock will be performed when editing a record. Locking a record is useful in creating multi-user applications. It prevents modification of a record by several users at the same time. Locking is performed by the RefreshRecord method. The default value is lmNone.

## See Also

- [TUniQuery.LockMode](#)
- [TUniTable.LockMode](#)

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### 16.19.1.13.2.2 StoredProcName Property

Used to specify the name of the stored procedure to call on the server.

## Class

[TUniStoredProc](#)

## Syntax

```
property StoredProcName: string;
```

## Remarks

Use the `StoredProcName` property to specify the name of the stored procedure to call on the server. If `StoredProcName` does not match the name of an existing stored procedure on the server, then when the application attempts to prepare the procedure prior to execution, an exception is raised.

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### 16.19.1.13.3 Methods

Methods of the **TUniStoredProc** class.

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

## Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by <code>AddWhere</code> , <code>SetOrderBy</code> , and <code>FilterSQL</code> .
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Used to enable or disable the use of cached updates for a dataset.

<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">ExecProc</a>	Executes a SQL statement on the server.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.

<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> ) )	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.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.

<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.

<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">PrepareSQL</a>	Describes the stored procedure parameters.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.

<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataset</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataset</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.

- [SQLRefresh](#) (inherited from [TCustomDADataset](#)) Used to specify a SQL statement that will be used to refresh current record by calling the [TCustomDADataset.RefreshRecord](#) procedure.
- [SQLSaved](#) (inherited from [TCustomDADataset](#)) Determines if the [SQL](#) property value was saved to the [BaseSQL](#) property.
- [SQLUpdate](#) (inherited from [TCustomDADataset](#)) Used to specify a SQL statement that will be used when applying an update to a dataset.
- [Transaction](#) (inherited from [TCustomUniDataset](#))  
) Used to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
- [UniDirectional](#) (inherited from [TCustomDADataset](#)) Used if an application does not need bidirectional access to records in the result set.
- [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.
- [UpdateObject](#) (inherited from [TCustomUniDataset](#)) Points to an update object component which provides update SQL statements or update objects for flexible data update.
- [UpdateRecordTypes](#) (inherited from [TMemDataset](#)) Used to indicate the update status for the current record when cached updates are enabled.
- [UpdateResult](#) (inherited from [TMemDataset](#)) Reads the status of the latest call to the [ApplyUpdates](#) method while cached updates are enabled.
- [UpdatesPending](#) (inherited from [TMemDataset](#)) Used to check the status of the cached updates buffer.
- [UpdateStatus](#) (inherited from [TMemDataset](#)) Indicates the current update status for the dataset when cached updates are enabled.
- [UpdateTransaction](#) (inherited from [TCustomUniDataset](#)) Used to specify the [TUniTransaction](#) object in the context of which update commands will be executed.

**See Also**

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

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## 16.19.1.13.3.1 ExecProc Method

Executes a SQL statement on the server.

**Class**

[TUniStoredProc](#)

**Syntax**

```
procedure ExecProc;
```

**Remarks**

The ExecProc method is equal to the [TCustomDADataset.Execute](#) method. It is included for compatibility with the TStoredProc component.

**See Also**

- [TCustomDADataset.Execute](#)
- 

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## 16.19.1.13.3.2 PrepareSQL Method

Describes the stored procedure parameters.

**Class**

[TUniStoredProc](#)

**Syntax**

```
procedure PrepareSQL(IsQuery: boolean = False);
```

**Parameters**

*IsQuery*

If True, the SELECT statement is generated.

**Remarks**

Call the PrepareSQL method to describe parameters of stored procedure. The Execute method calls it automatically if it is necessary. You can define parameters at design time if ParameterEditor is open. Set the IsQuery parameter to True to prepare SELECT statement. Set it to False or omit it to prepare EXECUTE PROCEDURE statement. This parameter has sense only for InterBase server.

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### 16.19.1.1 TUniTable Class

A component for retrieving and updating data in a single table without writing SQL statements.

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

#### Unit

[Uni](#)

#### Syntax

```
TUniTable = class(TCustomUniDataSet);
```

#### Remarks

The TUniTable component allows retrieving and updating data in a single table without writing SQL statements. Use TUniTable to access data in a table . Use the TableName property to specify table name. TUniTable uses the KeyFields property to build SQL statements for updating table data. KeyFields is a string containing a semicolon-delimited list of the field names.

#### Inheritance Hierarchy

[TMemDataSet](#)  
[TCustomDADataset](#)  
[TCustomUniDataSet](#)  
**TUniTable**

#### See Also

- [Master/Detail Relationships](#)
- [TCustomUniDataSet](#)
- [TUniQuery](#)
- [TUniStoredProc](#)

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#### 16.19.1.14.1 Members

[TUniTable](#) class overview.

#### Properties

Name	Description
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.

<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.

<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">LockMode</a>	Used to specify what kind of lock will be performed when editing a record.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">OrderFields</a>	Used to build ORDER BY clause of SQL statements.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.

<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">TableName</a>	Used to specify the name of the database table this component encapsulates.
<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.

[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.

[UpdateTransaction](#) (inherited from [TCustomUniDataSet](#))

Used to specify the TUniTransaction object in the context of which update commands will be executed.

## Methods

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.

<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">FindNearest</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">FindParam</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Determines if parameter with the specified name exists in a dataset.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">GetDataType</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns internal field types defined in the MemData and accompanying modules.
<a href="#">GetFieldObject</a> (inherited from <a href="#">TCustomDADataset</a> )	Returns a multireference shared object from field.
<a href="#">GetFieldPrecision</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the precision of a number field.
<a href="#">GetFieldScale</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves the scale of a number field.
<a href="#">GetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Retrieves an ORDER BY clause from a SQL statement.
<a href="#">GotoCurrent</a> (inherited from <a href="#">TCustomDADataset</a> )	Sets the current record in this dataset similar to the current record in another dataset.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.

<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">PrepareSQL</a>	Used to determine KeyFields and build query for TUniTable.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.

<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

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

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### 16.19.1.14.2 Properties

Properties of the **TUniTable** class.

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

## Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.

<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataset</a> )	Clears the cached updates buffer.
<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataset</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataset</a> )	Makes permanent changes to the database server.

<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.
<a href="#">FetchRows</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to define the number of rows to be transferred across the network at the same time.
<a href="#">FilterSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to change the WHERE clause of SELECT statement and reopen a query.
<a href="#">FinalSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.
<a href="#">FindKey</a> (inherited from <a href="#">TCustomDADataset</a> )	Searches for a record which contains specified field values.
<a href="#">FindMacro</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether a specified macro exists in a dataset.

- [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 [TCustomUniDataSet](#)) Determines if 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.
- [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.)
- [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.
- [KeyFields](#) (inherited from [TCustomDADataset](#)) Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
- [LastInsertId](#) (inherited from [TCustomUniDataSet](#)) Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
- [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.

<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.

<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.

<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.
<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataset</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.

<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.
<a href="#">UpdateTransaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the TUniTransaction object in the context of which update commands will be executed.

## Published

Name	Description
<a href="#">LockMode</a>	Used to specify what kind of lock will be performed when editing a record.
<a href="#">OrderFields</a>	Used to build ORDER BY clause of SQL statements.
<a href="#">TableName</a>	Used to specify the name of the database table this component encapsulates.

## See Also

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

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### 16.19.1.14.2.1 LockMode Property

Used to specify what kind of lock will be performed when editing a record.

## Class

[TUniTable](#)

## Syntax

```
property LockMode: TLockMode default lmOptimistic;
```

## Remarks

Use the LockMode property to define what kind of lock will be performed when editing a record. Locking a record is useful in creating multi-user applications. It prevents modification of a record by several users at the same time. Locking is performed by the RefreshRecord method.

The default value is `ImNone`.

### See Also

- [TUniStoredProc.LockMode](#)
  - [TUniQuery.LockMode](#)
- 

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#### 16.19.1.14.2.2 OrderFields Property

Used to build ORDER BY clause of SQL statements.

### Class

[TUniTable](#)

### Syntax

```
property OrderFields: string;
```

### Remarks

TUniTable uses the OrderFields property to build ORDER BY clause of SQL statements. To set several field names to this property separate them with commas. TUniTable is reopened when OrderFields is being changed.

### See Also

- [TUniTable](#)
- 

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#### 16.19.1.14.2.3 TableName Property

Used to specify the name of the database table this component encapsulates.

### Class

[TUniTable](#)

### Syntax

```
property TableName: string;
```

### Remarks

Use the TableName property to specify the name of the database table this component encapsulates. If [TCustomDADataset.Connection](#) is assigned at design time, select a valid table name from the TableName drop-down list in Object Inspector.

### See Also

- [TUniQuery](#)

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#### 16.19.1.14.3 Methods

Methods of the **TUniTable** class.

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

### Public

Name	Description
<a href="#">AddWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Adds condition to the WHERE clause of SELECT statement in the SQL property.
<a href="#">AfterExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after a component has executed a query to database.
<a href="#">AfterFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after dataset finishes fetching data from server.
<a href="#">AfterUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs after executing insert, delete, update, lock and refresh operations.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">BaseSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.
<a href="#">BeforeFetch</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before dataset is going to fetch block of records from the server.
<a href="#">BeforeUpdateExecute</a> (inherited from <a href="#">TCustomDADataset</a> )	Occurs before executing insert, delete, update, lock, and refresh operations.
<a href="#">BreakExec</a> (inherited from <a href="#">TCustomDADataset</a> )	Breaks execution of the SQL statement on the server.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.

<a href="#">Connection</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a connection object to use to connect to a data store.
<a href="#">CreateBlobStream</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.
<a href="#">CreateProcCall</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Assigns a command that calls stored procedure specified by name to the SQL property.
<a href="#">Debug</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteWhere</a> (inherited from <a href="#">TCustomDADataset</a> )	Removes WHERE clause from the SQL property and assigns the BaseSQL property.
<a href="#">DetailFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.
<a href="#">Disconnected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to keep dataset opened after connection is closed.
<a href="#">DMLRefresh</a> (inherited from <a href="#">TCustomUniDataSet</a> ) )	Used to refresh record by RETURNING clause when insert or update is performed.
<a href="#">Encryption</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the options of the data encryption in a dataset.
<a href="#">Execute</a> (inherited from <a href="#">TCustomDADataset</a> )	Executes a SQL statement on the server.
<a href="#">Executing</a> (inherited from <a href="#">TCustomDADataset</a> )	Indicates whether SQL statement is still being executed.
<a href="#">Fetched</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset has already fetched all rows.
<a href="#">Fetching</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is still fetching rows.
<a href="#">FetchingAll</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to learn whether TCustomDADataset is fetching all rows to the end.

- [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.
- [FindKey](#) (inherited from [TCustomDADataset](#)) Searches for a record which contains specified field values.
- [FindMacro](#) (inherited from [TCustomDADataset](#)) Indicates whether a specified macro exists in a dataset.
- [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 [TCustomUniDataSet](#)) Determines if 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.
- [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.
- [IndexFieldNames](#) (inherited from [TMemDataSet](#)) Used to get or set the list of fields on which the recordset is sorted.

<a href="#">IsQuery</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to check whether SQL statement returns rows.
<a href="#">KeyFields</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.
<a href="#">LastInsertId</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Can be used with MySQL and PostgreSQL servers to get the value of the ID field after executing INSERT statement.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Lock</a> (inherited from <a href="#">TCustomDADataset</a> )	Locks the current record.
<a href="#">MacroByName</a> (inherited from <a href="#">TCustomDADataset</a> )	Finds a Macro with the name passed in Name.
<a href="#">MacroCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to get the number of macros associated with the Macros property.
<a href="#">Macros</a> (inherited from <a href="#">TCustomDADataset</a> )	Makes it possible to change SQL queries easily.
<a href="#">MasterFields</a> (inherited from <a href="#">TCustomDADataset</a> )	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.
<a href="#">MasterSource</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the data source component which binds current dataset to the master one.

<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">OpenNext</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Provides second and other result sets while executing multiresult query.
<a href="#">Options</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Specifies the behaviour of a TCustomUniDataSet object.
<a href="#">ParamByName</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Accesses parameter information based on a specified parameter name.
<a href="#">ParamCheck</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.
<a href="#">ParamCount</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate how many parameters are there in the Params property.
<a href="#">Params</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Holds the parameters for a query's SQL statement.
<a href="#">Prepare</a> (inherited from <a href="#">TCustomDADataset</a> )	Allocates, opens, and parses cursor for a query.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">PrepareSQL</a>	Used to determine KeyFields and build query for TUniTable.
<a href="#">ReadOnly</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to prevent users from updating, inserting, or deleting data in the dataset.
<a href="#">RefreshOptions</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate when the editing record is refreshed.
<a href="#">RefreshRecord</a> (inherited from <a href="#">TCustomDADataset</a> )	Actualizes field values for the current record.
<a href="#">RestoreSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Restores the SQL property modified by AddWhere and SetOrderBy.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.

<a href="#">Resync</a> (inherited from <a href="#">TCustomDADataset</a> )	Resynchronize the dataset with underlying physical data when making calls that may change the internal cursor position.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">RowsAffected</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.
<a href="#">SaveSQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Saves the SQL property value to BaseSQL.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">SetOrderBy</a> (inherited from <a href="#">TCustomDADataset</a> )	Builds an ORDER BY clause of a SELECT statement.
<a href="#">SpecificOptions</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to provide extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to provide a SQL statement that a query component executes when its Open method is called.
<a href="#">SQLDelete</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used when applying a deletion to a record.
<a href="#">SQLInsert</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify the SQL statement that will be used when applying an insertion to a dataset.
<a href="#">SQLLock</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to perform a record lock.
<a href="#">SQLRefresh</a> (inherited from <a href="#">TCustomDADataset</a> )	Used to specify a SQL statement that will be used to refresh current record by calling the <a href="#">TCustomDADataset.RefreshRecord</a> procedure.
<a href="#">SQLSaved</a> (inherited from <a href="#">TCustomDADataset</a> )	Determines if the <a href="#">SQL</a> property value was saved to the <a href="#">BaseSQL</a> property.

<a href="#">SQLUpdate</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used to specify a SQL statement that will be used when applying an update to a dataset.
<a href="#">Transaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.
<a href="#">UniDirectional</a> (inherited from <a href="#">TCustomDADataSet</a> )	Used if an application does not need bidirectional access to records in the result set.
<a href="#">UnLock</a> (inherited from <a href="#">TCustomDADataSet</a> )	Releases a record lock.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateObject</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Points to an update object component which provides update SQL statements or update objects for flexible data update.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the <code>ApplyUpdates</code> method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.
<a href="#">UpdateTransaction</a> (inherited from <a href="#">TCustomUniDataSet</a> )	Used to specify the <code>TUniTransaction</code> object in the context of which update commands will be executed.

**See Also**

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

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## 16.19.1.14.3.1 PrepareSQL Method

Used to determine KeyFields and build query for TUniTable.

**Class**

[TUniTable](#)

**Syntax**

```
procedure PrepareSQL;
```

**Remarks**

Use the PrepareSQL property to determine KeyFields and build query for TUniTable. PrepareSQL is called implicitly when TUniTable is opening.

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**16.19.1.15 TUniTransaction Class**

A component for managing transactions in an application. For a list of all members of this type, see [TUniTransaction](#) members.

**Unit**

[Uni](#)

**Syntax**

```
TUniTransaction = class(TDAtTransaction);
```

**Remarks**

The TUniTransaction component is used to provide discrete transaction control over connection. It can be used for manipulating simple local and global transactions.

**Inheritance Hierarchy**

[TDAtTransaction](#)

**TUniTransaction**

**See Also**

- [Transactions](#)
- [TCustomDAConnection.StartTransaction](#)
- [TCustomDAConnection.Commit](#)
- [TCustomDAConnection.Rollback](#)

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## 16.19.1.15.1 Members

[TUniTransaction](#) class overview.

**Properties**

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

<a href="#">Active</a> (inherited from <a href="#">TDATransaction</a> )	Used to determine if the transaction is active.
<a href="#">Connections</a>	Used to specify a connection for the given index.
<a href="#">ConnectionsCount</a>	Used to get the number of connections associated with the transaction component.
<a href="#">DefaultCloseAction</a> (inherited from <a href="#">TDATransaction</a> )	Used to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.
<a href="#">IsolationLevel</a>	Used to specify how the transactions containing database modifications are handled.

## Methods

Name	Description
<a href="#">AddConnection</a>	Binds a TCustomDAConnection object with the transaction component.
<a href="#">Commit</a> (inherited from <a href="#">TDATransaction</a> )	Commits the current transaction.
<a href="#">RemoveConnection</a>	Disassociates the specified connections from the transaction.
<a href="#">Rollback</a> (inherited from <a href="#">TDATransaction</a> )	Discards all modifications of data associated with the current transaction and ends the transaction.
<a href="#">StartTransaction</a> (inherited from <a href="#">TDATransaction</a> )	Begins a new transaction.

## Events

Name	Description
<a href="#">OnError</a> (inherited from <a href="#">TDATransaction</a> )	Used to process errors that occur during executing a transaction.

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16.19.1.15.2 Properties

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

**Public**

Name	Description
<a href="#">Active</a> (inherited from <a href="#">TDATransaction</a> )	Used to determine if the transaction is active.
<a href="#">Commit</a> (inherited from <a href="#">TDATransaction</a> )	Commits the current transaction.
<a href="#">Connections</a>	Used to specify a connection for the given index.
<a href="#">ConnectionsCount</a>	Used to get the number of connections associated with the transaction component.
<a href="#">DefaultCloseAction</a> (inherited from <a href="#">TDATransaction</a> )	Used to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.
<a href="#">OnError</a> (inherited from <a href="#">TDATransaction</a> )	Used to process errors that occur during executing a transaction.
<a href="#">Rollback</a> (inherited from <a href="#">TDATransaction</a> )	Discards all modifications of data associated with the current transaction and ends the transaction.
<a href="#">StartTransaction</a> (inherited from <a href="#">TDATransaction</a> ) )	Begins a new transaction.

**Published**

Name	Description
<a href="#">IsolationLevel</a>	Used to specify how the transactions containing database modifications are handled.

**See Also**

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

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16.19.1.15.2.1 Connections Property(Indexer)

Used to specify a connection for the given index.

**Class**

[TUniTransaction](#)

**Syntax**

```
property Connections[Index: integer]: TUniConnection;
```

## Parameters

### *Index*

Holds the index to specify the connection for.

## Remarks

Specifies a connection for the given index.

## See Also

- [ConnectionsCount](#)
- [RemoveConnection](#)
- [AddConnection](#)

---

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### 16.19.1.15.2.2 ConnectionsCount Property

Used to get the number of connections associated with the transaction component.

## Class

[TUniTransaction](#)

## Syntax

```
property ConnectionsCount: integer;
```

## Remarks

Use the ConnectionsCount property for getting the number of connections associated with the transaction component.

---

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### 16.19.1.15.2.3 IsolationLevel Property

Used to specify how the transactions containing database modifications are handled.

## Class

[TUniTransaction](#)

## Syntax

```
property IsolationLevel: TCRIsolationLevel;
```

## Remarks

Use the IsolationLevel property to specify how the transactions containing database modifications are handled.

---

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## 16.19.1.15.3 Methods

Methods of the **TUniTransaction** class.

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

**Public**

Name	Description
<a href="#">Active</a> (inherited from <a href="#">TDATransaction</a> )	Used to determine if the transaction is active.
<a href="#">AddConnection</a>	Binds a TCustomDAConnection object with the transaction component.
<a href="#">Commit</a> (inherited from <a href="#">TDATransaction</a> )	Commits the current transaction.
<a href="#">DefaultCloseAction</a> (inherited from <a href="#">TDATransaction</a> )	Used to specify the transaction behaviour when it is destroyed while being active, or when one of its connections is closed with the active transaction.
<a href="#">OnError</a> (inherited from <a href="#">TDATransaction</a> )	Used to process errors that occur during executing a transaction.
<a href="#">RemoveConnection</a>	Disassociates the specified connections from the transaction.
<a href="#">Rollback</a> (inherited from <a href="#">TDATransaction</a> )	Discards all modifications of data associated with the current transaction and ends the transaction.
<a href="#">StartTransaction</a> (inherited from <a href="#">TDATransaction</a> )	Begins a new transaction.

**See Also**

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

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## 16.19.1.15.3.1 AddConnection Method

Binds a TCustomDAConnection object with the transaction component.

**Class**

[TUniTransaction](#)

**Syntax**

```
procedure AddConnection(Connection: TUniConnection);
```

**Parameters**

### Connection

Holds a TCustomDAConnection object to associate with the transaction component.

### Remarks

Use the AddConnection method to associate a TCustomDAConnection object with the transaction component.

### See Also

- [RemoveConnection](#)

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#### 16.19.1.15.3.2 RemoveConnection Method

Disassociates the specified connections from the transaction.

### Class

[TUniTransaction](#)

### Syntax

```
procedure RemoveConnection (Connection: TUniConnection);
```

### Parameters

#### Connection

Holds the connections to disassociate.

### Remarks

Call the RemoveConnection method to disassociate the specified connections from the transaction.

### See Also

- [Connections](#)
- [AddConnection](#)

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#### 16.19.1.1(TUniUpdateSQL Class

A component for tuning update operations for the DataSet component. For a list of all members of this type, see [TUniUpdateSQL](#) members.

### Unit

[Uni](#)

### Syntax

```
TUniUpdateSQL = class (TCustomDAUpdateSQL);
```

## Remarks

Use the TUniUpdateSQL component to provide DML statements for the dataset components that return read-only result set. This component also allows setting objects that can be used for executing update operations. You may prefer to use directly SQLInsert, SQLUpdate, and SQLDelete properties of the [TCustomDADataSet](#) descendants.

## Inheritance Hierarchy

[TCustomDAUpdateSQL](#)  
**TUniUpdateSQL**

## See Also

- [TCustomUniDataSet.UpdateObject](#)

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16.19.1.16.1 Members

[TUniUpdateSQL](#) class overview.

## Properties

Name	Description
<a href="#">DataSet</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Used to hold a reference to the TCustomDADataSet object that is being updated.
<a href="#">DeleteObject</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Provides ability to perform advanced adjustment of the delete operations.
<a href="#">DeleteSQL</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Used when deleting a record.
<a href="#">InsertObject</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Provides ability to perform advanced adjustment of insert operations.
<a href="#">InsertSQL</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Used when inserting a record.
<a href="#">LockObject</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Provides ability to perform advanced adjustment of lock operations.
<a href="#">LockSQL</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Used to lock the current record.
<a href="#">ModifyObject</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Provides ability to perform advanced adjustment of modify operations.
<a href="#">ModifySQL</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Used when updating a record.

[RefreshObject](#) (inherited from [TCustomDAUpdateSQL](#))

Provides ability to perform advanced adjustment of refresh operations.

[RefreshSQL](#) (inherited from [TCustomDAUpdateSQL](#))

Used to specify an SQL statement that will be used for refreshing the current record by [TCustomDADataSet.RefreshRecord](#) procedure.

[SQL](#) (inherited from [TCustomDAUpdateSQL](#))

Used to return a SQL statement for one of the [ModifySQL](#), [InsertSQL](#), or [DeleteSQL](#) properties.

## Methods

Name	Description
<a href="#">Apply</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Sets parameters for a SQL statement and executes it to update a record.
<a href="#">ExecSQL</a> (inherited from <a href="#">TCustomDAUpdateSQL</a> )	Executes a SQL statement.

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## 16.19.2 Constants

Constants in the **Uni** unit.

### Constants

Name	Description
<a href="#">UniDACVersion</a>	Read this constant to get current version number for UniDAC.

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### 16.19.2.1 UniDACVersion Constant

Read this constant to get current version number for UniDAC.

### Unit

[Uni](#)

### Syntax

```
UniDACVersion = '4.6.12';
```

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## 16.20 UniAlerter

This unit contains the implementation of the TUniAlerter component.

### Classes

Name	Description
<a href="#">TUniAlerter</a>	A component for sending and receiving database events.

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### 16.20.1 Classes

Classes in the **UniAlerter** unit.

### Classes

Name	Description
<a href="#">TUniAlerter</a>	A component for sending and receiving database events.

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#### 16.20.1.1 TUniAlerter Class

A component for sending and receiving database events.  
For a list of all members of this type, see [TUniAlerter](#) members.

### Unit

[UniAlerter](#)

### Syntax

```
TUniAlerter = class(TDAAlerter);
```

### Remarks

The TUniAlerter component allows you to register interest in and handle events posted by a database server. Use TUniAlerter to handle events for responding to actions and database changes made by other applications. To get events application must register required events. To do it set the Events property to the required events and call the Start method. When one of the registered events occurs the OnEvent handler is called.

Events are transaction-based. This means that the waiting connection does not get event until the transaction posting the event commits.

**Note:** not all DBMS supports event notification. Currently TUniAlerter can be used with Oracle, PostgreSQL, and InterBase(Firebird).

TUniAlerter uses the following DBMS-specific features to send and receive events:

Oracle: *DBMS\_ALERT* package;

PostgreSQL: *NOTIF* and *LISTEN* commands;

InterBase: *POST\_EVENT* command;

## Inheritance Hierarchy

[TDAAlerter](#)  
**TUniAlerter**

---

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### 16.20.1.1.1 Members

[TUniAlerter](#) class overview.

### Properties

Name	Description
<a href="#">Active</a> (inherited from <a href="#">TDAAlerter</a> )	Used to determine if TDAAlerter waits for messages.
<a href="#">AutoRegister</a> (inherited from <a href="#">TDAAlerter</a> )	Used to automatically register events whenever connection opens.
<a href="#">Connection</a>	Used to specify the connection for TUniAlerter.

### Methods

Name	Description
<a href="#">SendEvent</a> (inherited from <a href="#">TDAAlerter</a> )	Sends an event with Name and content Message.
<a href="#">Start</a> (inherited from <a href="#">TDAAlerter</a> )	Starts waiting process.
<a href="#">Stop</a> (inherited from <a href="#">TDAAlerter</a> )	Stops waiting process.

### Events

Name	Description
<a href="#">OnError</a> (inherited from <a href="#">TDAAlerter</a> )	Occurs if an exception occurs in waiting process

---

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### 16.20.1.1.2 Properties

Properties of the **TUniAlerter** class.

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

### Public

Name	Description
<a href="#">Active</a> (inherited from <a href="#">TDAAlerter</a> )	Used to determine if TDAAlerter waits for messages.

[AutoRegister](#) (inherited from [TDAAlerter](#))

Used to automatically register events whenever connection opens.

[OnError](#) (inherited from [TDAAlerter](#))

Occurs if an exception occurs in waiting process

[SendEvent](#) (inherited from [TDAAlerter](#))

Sends an event with Name and content Message.

[Start](#) (inherited from [TDAAlerter](#))

Starts waiting process.

[Stop](#) (inherited from [TDAAlerter](#))

Stops waiting process.

## Published

### Name

[Connection](#)

### Description

Used to specify the connection for TUniAlerter.

## See Also

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

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### 16.20.1.1.2.1 Connection Property

Used to specify the connection for TUniAlerter.

## Class

[TUniAlerter](#)

## Syntax

```
property Connection: TUniConnection;
```

## Remarks

Use the Connection property to specify the connection for TUniAlerter.

## See Also

- [TUniConnection](#)

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## 16.21 UniDacVcl

This unit contains the visual constituent of UniDAC.

## Classes

### Name

### Description

[TUniConnectDialog](#)

A class that provides a dialog box for user to supply his login information.

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## 16.21.1 Classes

Classes in the **UniDacVcl** unit.

### Classes

Name	Description
<a href="#">TUniConnectDialog</a>	A class that provides a dialog box for user to supply his login information.

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### 16.21.1.1 TUniConnectDialog Class

A class that provides a dialog box for user to supply his login information. For a list of all members of this type, see [TUniConnectDialog](#) members.

### Unit

[UniDacVcl](#)

### Syntax

```
TUniConnectDialog = class (TCustomConnectDialog);
```

### Remarks

The TUniConnectDialog component is a direct descendant of TCustomConnectDialog class. Use TUniConnectDialog to provide dialog box for user to supply provider name, server name, database, user name, port number, and password. You may want to customize appearance of dialog box using this class's properties.

### Inheritance Hierarchy

[TCustomConnectDialog](#)  
**TUniConnectDialog**

### See Also

- [TCustomDAConnection.ConnectDialog](#)

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#### 16.21.1.1.1 Members

[TUniConnectDialog](#) class overview.

### Properties

Name	Description
<a href="#">CancelButton</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify the label for the Cancel button.
<a href="#">Caption</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to set the caption of dialog box.
<a href="#">ConnectButton</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify the label for the Connect button.
<a href="#">Connection</a>	Points to the associated TUniConnection object.
<a href="#">DatabaseLabel</a>	Used to specify a prompt for database name edit.
<a href="#">DialogClass</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify the class of the form that will be displayed to enter login information.
<a href="#">LabelSet</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to set the language of buttons and labels captions.
<a href="#">PasswordLabel</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify a prompt for password edit.
<a href="#">PortLabel</a>	Used to specify a prompt for port number edit.
<a href="#">ProviderLabel</a>	Used to specify a prompt for provider name.
<a href="#">Retries</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to indicate the number of retries of failed connections.
<a href="#">SavePassword</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used for the password to be displayed in ConnectDialog in asterisks.
<a href="#">ServerLabel</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify a prompt for the server name edit.
<a href="#">StoreLogInfo</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify whether the login information should be kept in system registry after a connection was established.
<a href="#">UsernameLabel</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify a prompt for username edit.

## Methods

Name	Description
<a href="#">Execute</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.
<a href="#">GetServerList</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Retrieves a list of available server names.

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#### 16.21.1.1.2 Properties

Properties of the **TUniConnectDialog** class.

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

### Public

Name	Description
<a href="#">CancelButton</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify the label for the Cancel button.
<a href="#">Caption</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to set the caption of dialog box.
<a href="#">ConnectButton</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify the label for the Connect button.
<a href="#">Connection</a>	Points to the associated TUniConnection object.
<a href="#">DialogClass</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify the class of the form that will be displayed to enter login information.
<a href="#">Execute</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.
<a href="#">GetServerList</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Retrieves a list of available server names.
<a href="#">LabelSet</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to set the language of buttons and labels captions.
<a href="#">PasswordLabel</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify a prompt for password edit.
<a href="#">Retries</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to indicate the number of retries of failed connections.
<a href="#">SavePassword</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used for the password to be displayed in ConnectDialog in asterisks.
<a href="#">ServerLabel</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify a prompt for the server name edit.
<a href="#">StoreLogInfo</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify whether the login information should be kept in system registry after a connection was established.
<a href="#">UsernameLabel</a> (inherited from <a href="#">TCustomConnectDialog</a> )	Used to specify a prompt for username edit.

### Published

Name	Description
<a href="#">DatabaseLabel</a>	Used to specify a prompt for database name edit.
<a href="#">PortLabel</a>	Used to specify a prompt for port number edit.
<a href="#">ProviderLabel</a>	Used to specify a prompt for provider name.

**See Also**

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

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## 16.21.1.1.2.1 Connection Property

Points to the associated TUniConnection object.

**Class**

[TUniConnectDialog](#)

**Syntax**

```
property Connection: TUniConnection;
```

**Remarks**

The Connection property points to the associated TUniConnection object. This property is read only.

---

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## 16.21.1.1.2.2 DatabaseLabel Property

Used to specify a prompt for database name edit.

**Class**

[TUniConnectDialog](#)

**Syntax**

```
property DatabaseLabel: string;
```

**Remarks**

Use the DatabaseLabel property to specify a prompt for database name edit.

---

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## 16.21.1.1.2.3 PortLabel Property

Used to specify a prompt for port number edit.

**Class**

[TUniConnectDialog](#)

### Syntax

```
property PortLabel: string;
```

### Remarks

Use the PortLabel property to specify a prompt for port number edit.

---

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#### 16.21.1.1.2.4 ProviderLabel Property

Used to specify a prompt for provider name.

### Class

[TUniConnectDialog](#)

### Syntax

```
property ProviderLabel: string;
```

### Remarks

Use the ProviderLabel property to specify a prompt for provider name.

---

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## 16.22 UniDump

This unit contains the implementation of the TUniDump component.

### Classes

Name	Description
<a href="#">TUniDump</a>	The class that serves for storing data from tables or editable views as a script and for restoring data from a received script.

---

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### 16.22.1 Classes

Classes in the **UniDump** unit.

### Classes

Name	Description
<a href="#">TUniDump</a>	The class that serves for storing data from tables or editable views as a script and for restoring data from a received script.

---

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### 16.22.1.1 TUniDump Class

The class that serves for storing data from tables or editable views as a script and for restoring data from a received script.  
For a list of all members of this type, see [TUniDump](#) members.

#### Unit

[UniDump](#)

#### Syntax

```
TUniDump = class (TDADump) ;
```

#### Remarks

TUniDump serves to store data from tables or editable views as a script and to restore data from a received script.

Use the [TDADump.TableNames](#) property to specify the list of objects to be stored. To launch a generating script, call the [TDADump.Backup](#) method.

TUniDump also can generate scripts for a query. Just call the [TDADump.BackupQuery](#) method and pass a query statement into it. The object list assigned to the TableNames property is ignored if you call [TDADump.BackupQuery](#). The generated script can be viewed in the [TDADump.SQL](#) property.

TUniDump works on the client side. It causes large network loading.

#### Inheritance Hierarchy

[TDADump](#)

**TUniDump**

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#### 16.22.1.1.1 Members

[TUniDump](#) class overview.

#### Properties

Name	Description
<a href="#">Connection</a> (inherited from <a href="#">TDADump</a> )	Used to specify a connection object that will be used to connect to a data store.
<a href="#">Debug</a> (inherited from <a href="#">TDADump</a> )	Used to display executing statement, all its parameters' values, and the type of parameters.
<a href="#">Options</a> (inherited from <a href="#">TDADump</a> )	Used to specify the behaviour of a TDADump component.
<a href="#">SQL</a> (inherited from <a href="#">TDADump</a> )	Used to set or get the dump script.
<a href="#">TableNames</a> (inherited from <a href="#">TDADump</a> )	Used to set the names of the tables to dump.

## Methods

Name	Description
<a href="#">Backup</a> (inherited from <a href="#">TDADump</a> )	Dumps database objects to the <a href="#">TDADump.SQL</a> property.
<a href="#">BackupQuery</a> (inherited from <a href="#">TDADump</a> )	Dumps the results of a particular query.
<a href="#">BackupToFile</a> (inherited from <a href="#">TDADump</a> )	Dumps database objects to the specified file.
<a href="#">BackupToStream</a> (inherited from <a href="#">TDADump</a> )	Dumps database objects to the stream.
<a href="#">Restore</a> (inherited from <a href="#">TDADump</a> )	Executes a script contained in the SQL property.
<a href="#">RestoreFromFile</a> (inherited from <a href="#">TDADump</a> )	Executes a script from a file.
<a href="#">RestoreFromStream</a> (inherited from <a href="#">TDADump</a> )	Executes a script received from the stream.

## Events

Name	Description
<a href="#">OnBackupProgress</a> (inherited from <a href="#">TDADump</a> )	Occurs to indicate the <a href="#">TDADump.Backup</a> , M: Devart.Dac.TDADump.BackupToFile(System.String) or M:Devart.Dac.TDADump.BackupToStream(Borland.Vcl.TStream) method execution progress.
<a href="#">OnError</a> (inherited from <a href="#">TDADump</a> )	Occurs when server raises some error on <a href="#">TDADump.Restore</a> .
<a href="#">OnRestoreProgress</a> (inherited from <a href="#">TDADump</a> )	Occurs to indicate the <a href="#">TDADump.Restore</a> , <a href="#">TDADump.RestoreFromFile</a> , or <a href="#">TDADump.RestoreFromStream</a> method execution progress.

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## 16.23 UniLoader

This unit contains the implementation of the TUniLoader component.

### Classes

Name	Description
<a href="#">TUniLoader</a>	TUniLoader allows to load external data into a database table.

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## 16.23.1 Classes

Classes in the **UniLoader** unit.

### Classes

Name	Description
<a href="#">TUniLoader</a>	TUniLoader allows to load external data into a database table.

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### 16.23.1.1 TUniLoader Class

TUniLoader allows to load external data into a database table. For a list of all members of this type, see [TUniLoader](#) members.

### Unit

[UniLoader](#)

### Syntax

```
TUniLoader = class(TDALoader);
```

### Remarks

TUniLoader serves for fast loading of data to the database. To specify the name of the loading table set the TableName property. Use the Columns property to access individual columns. Write OnGetColumnData or OnPutData event handlers to read external data and pass it to the database. Call the Load method to start loading data.

For each type of database server TUniLoader uses its specific interfaces for loading with maximum speed.

For Oracle the Direct Path Load interface is used.

For SQL Server loading is based on the memory-based bulk-copy operations using the IRowsetFastLoad interface.

For PostgreSQL data are loaded using the COPY command.

For MySQL, InterBase, and Firebird loading uses INSERT SQL statements. In this case several rows are combined in one statement if possible. In Firebird 2.0 and higher INSERT statements are combined in one EXECUTE BLOCK statement.

### Inheritance Hierarchy

[TDALoader](#)  
**TUniLoader**

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#### 16.23.1.1.1 Members

[TUniLoader](#) class overview.

### Properties

Name	Description
<a href="#">Columns</a> (inherited from <a href="#">TDALoader</a> )	Used to add a <a href="#">TDAColumn</a> object for each field that will be loaded.
<a href="#">Connection</a> (inherited from <a href="#">TDALoader</a> )	Used to specify TCustomDACConnection in which TDALoader will be executed.
<a href="#">TableName</a> (inherited from <a href="#">TDALoader</a> )	Used to specify the name of the table to which data will be loaded.

### Methods

Name	Description
<a href="#">CreateColumns</a> (inherited from <a href="#">TDALoader</a> )	Creates <a href="#">TDAColumn</a> objects for all fields of the table with the same name as <a href="#">TDALoader.TableName</a> .
<a href="#">Load</a> (inherited from <a href="#">TDALoader</a> )	Starts loading data.
<a href="#">LoadFromDataSet</a> (inherited from <a href="#">TDALoader</a> )	Loads data from the specified dataset.
<a href="#">PutColumnData</a> (inherited from <a href="#">TDALoader</a> )	Overloaded. Puts the value of individual columns.

### Events

Name	Description
<a href="#">OnGetColumnData</a> (inherited from <a href="#">TDALoader</a> )	Occurs when it is needed to put column values.
<a href="#">OnProgress</a> (inherited from <a href="#">TDALoader</a> )	Occurs if handling data loading progress of the <a href="#">TDALoader.LoadFromDataSet</a> method is needed.
<a href="#">OnPutData</a> (inherited from <a href="#">TDALoader</a> )	Occurs when putting loading data by rows is needed.

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## 16.24 UniProvider

This unit contains the TUniProvider class for linking the server-specific providers to application.

### Classes

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

[TUniProvider](#)

A base class components that are intended to link the server-specific providers to application.

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## 16.24.1 Classes

Classes in the **UniProvider** unit.

### Classes

Name	Description
<a href="#">TUniProvider</a>	A base class components that are intended to link the server-specific providers to application.

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### 16.24.1.1 TUniProvider Class

A base class components that are intended to link the server-specific providers to application.

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

### Unit

[UniProvider](#)

### Syntax

```
TUniProvider = class(TComponent);
```

### Remarks

TUniProvider is a base class for components that are intended to link the server-specific providers to application.

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#### 16.24.1.1.1 Members

[TUniProvider](#) class overview.

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## 16.25 UniScript

This unit contains the implementation of the TUniScript component.

### Classes

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

[TUniScript](#)

A component for executing several SQL statements one by one.

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## 16.25.1 Classes

Classes in the **UniScript** unit.

### Classes

Name	Description
<a href="#">TUniScript</a>	A component for executing several SQL statements one by one.

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### 16.25.1.1 TUniScript Class

A component for executing several SQL statements one by one. For a list of all members of this type, see [TUniScript](#) members.

### Unit

[UniScript](#)

### Syntax

```
TUniScript = class (TDAScript);
```

### Remarks

Often it is necessary to execute several SQL statements one by one. Known way is using a lot of components such as [TUniSQL](#). Usually it is not a good solution. With only one TUniScript component you can execute several SQL statements as one. This sequence of statements is named script. To separate single statements use semicolon (;), slash (/), and for PL/SQL in Oracle - only slash, also keyword 'GO' for SQL Server and DELIMITER for MySQL server. Note that slash must be the first character in line.

Errors that occur while execution can be processed in the [TDAScript.OnError](#) event handler. By default, on error TUniScript shows exception and continues execution.

### Inheritance Hierarchy

[TDAScript](#)

**TUniScript**

### See Also

- [TUniSQL](#)

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## 16.25.1.1.1 Members

[TUniScript](#) class overview.

## Properties

Name	Description
<a href="#">Connection</a>	Used to specify the connection in which the script will be executed.
<a href="#">DataSet</a>	Used to retrieve the results of SELECT statements execution inside a script.
<a href="#">Debug</a> (inherited from <a href="#">TDAScript</a> )	Used to display the script execution and all its parameter values.
<a href="#">Delimiter</a> (inherited from <a href="#">TDAScript</a> )	Used to set the delimiter string that separates script statements.
<a href="#">EndLine</a> (inherited from <a href="#">TDAScript</a> )	Used to get the current statement last line number in a script.
<a href="#">EndOffset</a> (inherited from <a href="#">TDAScript</a> )	Used to get the offset in the last line of the current statement.
<a href="#">EndPos</a> (inherited from <a href="#">TDAScript</a> )	Used to get the end position of the current statement.
<a href="#">Macros</a> (inherited from <a href="#">TDAScript</a> )	Used to change SQL script text in design- or run-time easily.
<a href="#">SpecificOptions</a>	Provides extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TDAScript</a> )	Used to get or set script text.
<a href="#">StartLine</a> (inherited from <a href="#">TDAScript</a> )	Used to get the current statement start line number in a script.
<a href="#">StartOffset</a> (inherited from <a href="#">TDAScript</a> )	Used to get the offset in the first line of the current statement.
<a href="#">StartPos</a> (inherited from <a href="#">TDAScript</a> )	Used to get the start position of the current statement in a script.
<a href="#">Statements</a> (inherited from <a href="#">TDAScript</a> )	Contains a list of statements obtained from the SQL property.

[Transaction](#)

Used to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

**Methods**

Name	Description
<a href="#">BreakExec</a> (inherited from <a href="#">TDAScript</a> )	Stops script execution.
<a href="#">ErrorOffset</a> (inherited from <a href="#">TDAScript</a> )	Used to get the offset of the statement if the Execute method raised an exception.
<a href="#">Execute</a> (inherited from <a href="#">TDAScript</a> )	Executes a script.
<a href="#">ExecuteFile</a> (inherited from <a href="#">TDAScript</a> )	Executes SQL statements contained in a file.
<a href="#">ExecuteNext</a> (inherited from <a href="#">TDAScript</a> )	Executes the next statement in the script and then stops.
<a href="#">ExecuteStream</a> (inherited from <a href="#">TDAScript</a> )	Executes SQL statements contained in a stream object.
<a href="#">FindMacro</a> (inherited from <a href="#">TDAScript</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">MacroByName</a> (inherited from <a href="#">TDAScript</a> )	Finds a Macro with the name passed in Name.

**Events**

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TDAScript</a> )	Occurs after a SQL script execution.
<a href="#">BeforeExecute</a> (inherited from <a href="#">TDAScript</a> )	Occurs when taking a specific action before executing the current SQL statement is needed.
<a href="#">OnError</a> (inherited from <a href="#">TDAScript</a> )	Occurs when server raises an error.

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## 16.25.1.1.2 Properties

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

**Public**

Name	Description
<a href="#">BreakExec</a> (inherited from <a href="#">TDAScript</a> )	Stops script execution.

<a href="#">EndLine</a> (inherited from <a href="#">TDAScript</a> )	Used to get the current statement last line number in a script.
<a href="#">EndOffset</a> (inherited from <a href="#">TDAScript</a> )	Used to get the offset in the last line of the current statement.
<a href="#">EndPos</a> (inherited from <a href="#">TDAScript</a> )	Used to get the end position of the current statement.
<a href="#">ErrorOffset</a> (inherited from <a href="#">TDAScript</a> )	Used to get the offset of the statement if the Execute method raised an exception.
<a href="#">Execute</a> (inherited from <a href="#">TDAScript</a> )	Executes a script.
<a href="#">ExecuteFile</a> (inherited from <a href="#">TDAScript</a> )	Executes SQL statements contained in a file.
<a href="#">ExecuteNext</a> (inherited from <a href="#">TDAScript</a> )	Executes the next statement in the script and then stops.
<a href="#">ExecuteStream</a> (inherited from <a href="#">TDAScript</a> )	Executes SQL statements contained in a stream object.
<a href="#">FindMacro</a> (inherited from <a href="#">TDAScript</a> )	Indicates whether a specified macro exists in a dataset.
<a href="#">MacroByName</a> (inherited from <a href="#">TDAScript</a> )	Finds a Macro with the name passed in Name.
<a href="#">StartLine</a> (inherited from <a href="#">TDAScript</a> )	Used to get the current statement start line number in a script.
<a href="#">StartOffset</a> (inherited from <a href="#">TDAScript</a> )	Used to get the offset in the first line of the current statement.
<a href="#">StartPos</a> (inherited from <a href="#">TDAScript</a> )	Used to get the start position of the current statement in a script.
<a href="#">Statements</a> (inherited from <a href="#">TDAScript</a> )	Contains a list of statements obtained from the SQL property.

## Published

Name	Description
<a href="#">AfterExecute</a> (inherited from <a href="#">TDAScript</a> )	Occurs after a SQL script execution.
<a href="#">BeforeExecute</a> (inherited from <a href="#">TDAScript</a> )	Occurs when taking a specific action before executing the current SQL statement is needed.
<a href="#">Connection</a>	Used to specify the connection in which the script will be executed.

<a href="#">DataSet</a>	Used to retrieve the results of SELECT statements execution inside a script.
<a href="#">Debug</a> (inherited from <a href="#">TDAScript</a> )	Used to display the script execution and all its parameter values.
<a href="#">Delimiter</a> (inherited from <a href="#">TDAScript</a> )	Used to set the delimiter string that separates script statements.
<a href="#">Macros</a> (inherited from <a href="#">TDAScript</a> )	Used to change SQL script text in design- or run-time easily.
<a href="#">OnError</a> (inherited from <a href="#">TDAScript</a> )	Occurs when server raises an error.
<a href="#">SpecificOptions</a>	Provides extended settings for each data provider.
<a href="#">SQL</a> (inherited from <a href="#">TDAScript</a> )	Used to get or set script text.
<a href="#">Transaction</a>	Used to specify the <a href="#">TUniTransaction</a> object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

### See Also

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

---

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#### 16.25.1.1.2.1 Connection Property

Used to specify the connection in which the script will be executed.

### Class

[TUniScript](#)

### Syntax

```
property Connection: TUniConnection;
```

### Remarks

Use the Connection property to specify the connection in which the script will be executed. If Connection is not connected, the [TDAScript.Execute](#) method calls the Connect method of Connection.

### See Also

- [TUniConnection](#)

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#### 16.25.1.1.2.2 DataSet Property

Used to retrieve the results of SELECT statements execution inside a script.

#### Class

[TUniScript](#)

#### Syntax

```
property DataSet: TCustomUniDataSet;
```

#### Remarks

Use the DataSet property to retrieve the results of SELECT statements execution inside a script.

#### See Also

- [TDAScript.Execute](#)
- 

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#### 16.25.1.1.2.3 SpecificOptions Property

Provides extended settings for each data provider.

#### Class

[TUniScript](#)

#### Syntax

```
property SpecificOptions: \_TStrings;
```

#### Remarks

Use the SpecificOptions property to provide extended settings for each data provider. SpecificOptions can be setup both design time and run time. At design time call the component editor by double click on it, and select the Options tab in the editor. Calling the SpecificOptions editor from the Object Inspector will open the component editor with Options tab active. Type or select the provider name, and change values of required properties. Then you can either close the editor, or select another provider name. Settings for all providers will be saved. SpecificOptions can be setup at the same time for all providers that supposed to be used.

All options are applied right before executing. If an option name is not recognized, an exception is raised and commands are not executed.

#### Example

You can also setup specific options at run time. Either of two formats can be used:

1. Using the provider name in an option name;

## 2. Not using the provider name in an option name

In the second case options will be applied to the current provider, namely to the provider specified in the [TUniConnection.ProviderName](#) property of assigned connection.

When you set the AutoDDL option like it is shown in the second example, you can execute the script with the InterBase provider, but attempt to execute it with other providers will fail.

Example 1.

```
UniScript1.SpecificOptions.Add('InterBase.AutoDDL=True')
```

Example 2.

```
UniScript1.SpecificOptions.Add('AutoDDL=True')
```

## See Also

- [TUniConnection.ProviderName](#)
- [UniDAC and Oracle](#)
- [UniDAC and SQL Server](#)
- [UniDAC and MySQL](#)
- [UniDAC and InterBase/Firebird](#)
- [UniDAC and PostgreSQL](#)

---

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### 16.25.1.1.2.4 Transaction Property

Used to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened.

## Class

[TUniScript](#)

## Syntax

```
property Transaction: TUniTransaction stored IsTransactionStored;
```

## Remarks

Use the Transaction property to specify the [TUniTransaction](#) object in the context of which SQL commands will be executed, and queries retrieving data will be opened. If this property is not specified, the default transaction associated with linked [TUniConnection](#) will be used. This transaction will work in AutoCommit mode.

---

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## 16.26 UniSQLMonitor

This unit contains the implementation of the TUniSQLMonitor component.

## Classes

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

[TUniSQLMonitor](#)

This component serves for monitoring dynamic SQL execution in UniDAC-based applications.

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## 16.26.1 Classes

Classes in the **UniSQLMonitor** unit.

### Classes

Name	Description
<a href="#">TUniSQLMonitor</a>	This component serves for monitoring dynamic SQL execution in UniDAC-based applications.

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### 16.26.1.1 TUniSQLMonitor Class

This component serves for monitoring dynamic SQL execution in UniDAC-based applications.

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

### Unit

[UniSQLMonitor](#)

### Syntax

```
TUniSQLMonitor = class (TCustomDASQLMonitor);
```

### Remarks

Use TUniSQLMonitor to monitor dynamic SQL execution in UniDAC-based applications. TUniSQLMonitor provides two ways of displaying debug information: with dialog window, [DBMonitor](#) or Borland SQL Monitor. Furthermore to receive debug information the [TCustomDASQLMonitor.OnSQL](#) event can be used. Also it is possible to use all these ways at the same time, though an application may have only one TUniSQLMonitor object. If an application has no TUniSQLMonitor instance, the Debug window is available to display SQL statements to be sent.

### Inheritance Hierarchy

[TCustomDASQLMonitor](#)

**TUniSQLMonitor**

### See Also

- [TCustomDADataset.Debug](#)
- [TCustomDASQL.Debug](#)
- [DBMonitor](#)

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#### 16.26.1.1.1 Members

[TUniSQLMonitor](#) class overview.

### Properties

Name	Description
<a href="#">Active</a> (inherited from <a href="#">TCustomDASQLMonitor</a> )	Used to activate monitoring of SQL.
<a href="#">DBMonitorOptions</a> (inherited from <a href="#">TCustomDASQLMonitor</a> )	Used to set options for dbMonitor.
<a href="#">Options</a> (inherited from <a href="#">TCustomDASQLMonitor</a> )	Used to include the desired properties for TCustomDASQLMonitor.
<a href="#">TraceFlags</a> (inherited from <a href="#">TCustomDASQLMonitor</a> )	Used to specify which database operations the monitor should track in an application at runtime.

### Events

Name	Description
<a href="#">OnSQL</a> (inherited from <a href="#">TCustomDASQLMonitor</a> )	Occurs when tracing of SQL activity on database components is needed.

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## 16.27 VirtualTable

This unit contains implementation of the TVirtualTable component.

### Classes

Name	Description
<a href="#">TVirtualTable</a>	A base class for storing data in memory.

### Types

Name	Description
<a href="#">TVirtualTableOptions</a>	Represents the set of <a href="#">TVirtualTableOption</a> .

### Enumerations

Name	Description
<a href="#">TVirtualTableOption</a>	Specifies the actions to take on fields data at the time of opening or closing TVirtualTable dataset.

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## 16.27.1 Classes

Classes in the **VirtualTable** unit.

### Classes

Name	Description
<a href="#">TVirtualTable</a>	A base class for storing data in memory.

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### 16.27.1.1 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 server Access page.

### Inheritance Hierarchy

[TMemDataSet](#)  
**TVirtualTable**

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## 16.27.1.1.1 Members

[TVirtualTable](#) class overview.

## Properties

Name	Description
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Options</a>	Used to specify actions to take on the fields data at the time of opening or closing TVirtualTable dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.

## Methods

Name	Description
<a href="#">AddField</a>	Adds a new TFieldDef object with the name determined by Name.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">Assign</a>	Copies fields and data from another TDataSet component.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.

<a href="#">Clear</a>	Removes all records from TVirtualTable.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteField</a>	Deletes a field specified by name.
<a href="#">DeleteFields</a>	Deletes all fields.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">LoadFromFile</a>	Loads data from file into a TVirtualTable component.
<a href="#">LoadFromStream</a>	Copies data of a stream into a TVirtualTable component.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToFile</a>	Saves data of a TVirtualTable component to a file.
<a href="#">SaveToStream</a>	Copies data from a TVirtualTable component to a stream.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Events

Name	Description
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.

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### 16.27.1.1.2 Properties

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

## Public

Name	Description
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.

<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.
<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancel changes made to the current record when cached updates are enabled.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.

<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.
<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

## Published

Name	Description
<a href="#">Options</a>	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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### 16.27.1.1.2.1 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];
```

## 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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### 16.27.1.1.3 Methods

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

**Public**

Name	Description
<a href="#">AddField</a>	Adds a new TFieldDef object with the name determined by Name.
<a href="#">ApplyUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Writes dataset's pending cached updates to a database.
<a href="#">Assign</a>	Copies fields and data from another TDataSet component.
<a href="#">CachedUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Used to enable or disable the use of cached updates for a dataset.
<a href="#">CancelUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears all pending cached updates from cache and restores dataset in its prior state.
<a href="#">Clear</a>	Removes all records from TVirtualTable.
<a href="#">CommitUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Clears the cached updates buffer.
<a href="#">DeferredPost</a> (inherited from <a href="#">TMemDataSet</a> )	Makes permanent changes to the database server.
<a href="#">DeleteField</a>	Deletes a field specified by name.
<a href="#">DeleteFields</a>	Deletes all fields.
<a href="#">GetBlob</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.
<a href="#">IndexFieldNames</a> (inherited from <a href="#">TMemDataSet</a> )	Used to get or set the list of fields on which the recordset is sorted.
<a href="#">LoadFromFile</a>	Loads data from file into a TVirtualTable component.
<a href="#">LoadFromStream</a>	Copies data of a stream into a TVirtualTable component.
<a href="#">LocalConstraints</a> (inherited from <a href="#">TMemDataSet</a> )	Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.
<a href="#">LocalUpdate</a> (inherited from <a href="#">TMemDataSet</a> )	Used to prevent implicit update of rows on database server.

<a href="#">Locate</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Searches a dataset for a specific record and positions the cursor on it.
<a href="#">LocateEx</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Excludes features that don't need to be included to the <a href="#">TMemDataSet.Locate</a> method of TDataSet.
<a href="#">OnUpdateError</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when an exception is generated while cached updates are applied to a database.
<a href="#">OnUpdateRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Occurs when a single update component can not handle the updates.
<a href="#">Prepare</a> (inherited from <a href="#">TMemDataSet</a> )	Allocates resources and creates field components for a dataset.
<a href="#">Prepared</a> (inherited from <a href="#">TMemDataSet</a> )	Determines whether a query is prepared for execution or not.
<a href="#">RestoreUpdates</a> (inherited from <a href="#">TMemDataSet</a> )	Marks all records in the cache of updates as unapplied.
<a href="#">RevertRecord</a> (inherited from <a href="#">TMemDataSet</a> )	Cancels changes made to the current record when cached updates are enabled.
<a href="#">SaveToFile</a>	Saves data of a TVirtualTable component to a file.
<a href="#">SaveToStream</a>	Copies data from a TVirtualTable component to a stream.
<a href="#">SaveToXML</a> (inherited from <a href="#">TMemDataSet</a> )	Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.
<a href="#">UnPrepare</a> (inherited from <a href="#">TMemDataSet</a> )	Frees the resources allocated for a previously prepared query on the server and client sides.
<a href="#">UpdateRecordTypes</a> (inherited from <a href="#">TMemDataSet</a> )	Used to indicate the update status for the current record when cached updates are enabled.

<a href="#">UpdateResult</a> (inherited from <a href="#">TMemDataSet</a> )	Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.
<a href="#">UpdatesPending</a> (inherited from <a href="#">TMemDataSet</a> )	Used to check the status of the cached updates buffer.
<a href="#">UpdateStatus</a> (inherited from <a href="#">TMemDataSet</a> )	Indicates the current update status for the dataset when cached updates are enabled.

**See Also**

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

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## 16.27.1.1.3.1 AddField Method

Adds a new TFieldDef object with the name determined by Name.

**Class**

[TVirtualTable](#)

**Syntax**

```
procedure AddField(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 specified 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.

**Example**

```
VirtualTable1.AddField('CODE', ftInteger, 0);
VirtualTable1.AddField('NAME', ftString, 30);
```

## See Also

- [DeleteField](#)
- [DeleteFields](#)

---

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### 16.27.1.1.3.2 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.

## Example

```
UniQuery1.SQL.Text := 'SELECT * FROM DEPT';  
UniQuery1.Active := True;  
VirtualTable1.Assign(UniQuery1);  
VirtualTable1.Active := True;
```

## See Also

- [TVirtualTable](#)

---

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### 16.27.1.1.3.3 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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## 16.27.1.1.3.4 DeleteField Method

Deletes a field specified by name.

**Class**

[TVirtualTable](#)

**Syntax**

```
procedure DeleteField(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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## 16.27.1.1.3.5 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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#### 16.27.1.1.3.6 LoadFromFile Method

Loads data from file into a TVirtualTable component.

### Class

[TVirtualTable](#)

### Syntax

```
procedure LoadFromFile(const FileName: string; LoadFields: boolean = True);
```

### Parameters

#### *FileName*

Holds the name of the file to load data from.

#### *LoadFields*

Indicates whether to load fields from the file.

### Remarks

Call the LoadFromFile method to load data from file into a TVirtualTable component. Specify the name of the file to load into the field as the value of the FileName parameter. This file may be an XML document in ADO-compatible format or in virtual table data format. File format will be detected automatically.

---

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#### 16.27.1.1.3.7 LoadFromStream Method

Copies data of a stream into a TVirtualTable component.

### Class

[TVirtualTable](#)

### Syntax

```
procedure LoadFromStream(Stream: TStream; LoadFields: boolean = True);
```

### Parameters

#### *Stream*

Holds the stream from which the field's value is copied.

#### *LoadFields*

Indicates whether to load fields from the stream.

### Remarks

Call the LoadFromStream method to copy data of a stream into a TVirtualTable component. Specify the stream from which the field's value is copied as the value of the Stream parameter. Data in the stream may be in ADO-compatible format or in virtual table data format. Data format will be detected automatically.

---

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## 16.27.1.1.3.8 SaveToFile Method

Saves data of a TVirtualTable component to a file.

**Class**

[TVirtualTable](#)

**Syntax**

```
procedure SaveToFile(const FileName: string; StoreFields: boolean = True);
```

**Parameters**

*FileName*

Holds the name of the file to save data to.

*StoreFields*

Indicates whether to save fields to a file.

**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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## 16.27.1.1.3.9 SaveToStream Method

Copies data from a TVirtualTable component to a stream.

**Class**

[TVirtualTable](#)

**Syntax**

```
procedure SaveToStream(Stream: TStream; StoreFields: boolean = True);
```

**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.

**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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**16.27.2 Types**

Types in the **VirtualTable** unit.

**Types**

Name	Description
<a href="#">TVirtualTableOptions</a>	Represents the set of <a href="#">TVirtualTableOption</a> .

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### 16.27.2.1 TVirtualTableOptions Set

Represents the set of [TVirtualTableOption](#).

#### Unit

[VirtualTable](#)

#### Syntax

```
TVirtualTableOptions = set of TVirtualTableOption;
```

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### 16.27.3 Enumerations

Enumerations in the **VirtualTable** unit.

#### Enumerations

Name	Description
<a href="#">TVirtualTableOption</a>	Specifies the actions to take on fields data at the time of opening or closing <a href="#">TVirtualTable</a> dataset.

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#### 16.27.3.1 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
<b>voPersistentData</b>	Dataset will not dispose of its data at the time of dataset closing.
<b>voStored</b>	Dataset will keep its data set at design-time in DFM file along with other form's stored properties.

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# Index

## - 6 -

64-bit Development with Embarcadero RAD Studio XE2 92

## - A -

AbortOnKeyViol Property 157  
 AbortOnProblem Property 157  
 Active Property  
     TCustomDASQLMonitor 249  
     TDAAlerter 187  
     TDATransaction 426  
     TMacro 431  
 ActiveMacroValueByName Method 559  
 AddConnection Method 658  
 AddDBTypeRule Method 392  
 AddDrop Property 204  
 AddField Method 692  
 AddFieldNameRule Method 397  
 AddRef Method 484  
 AddRule Method 399  
 AddWhere Method 324  
 AfterExecute Event  
     TCustomDADataset 341  
     TCustomDASQL 359  
     TDAScript 236  
 AfterFetch Event 342  
 AfterUpdateExecute Event 342  
 Apply Method 367  
 ApplyUpdates Method  
     ApplyUpdates 498, 499  
     TCustomDACConnection 280  
     TMemDataSet 498  
 AsBlob Property 413  
 AsBlobRef Property 413  
 AsDateTime Property 432  
 AsFloat Property  
     TDAParam 414  
     TMacro 432  
 AsInteger Property  
     TDAParam 414  
     TMacro 432

AsLargeInt Property 414  
 AsMemo Property 415  
 AsMemoRef Property 415  
 Assign Method  
     TBlob 467  
     TVirtualTable 693  
 AssignConnect Method 559  
 AssignField Method 419  
 AssignFieldValue Method 419  
 AssignValues Method 436  
 AsSQLTimeStamp Property 415  
 AsString Property  
     TBlob 465  
     TDAParam 416  
     TMacro 433  
 AsWideString Property  
     TBlob 465  
     TDAParam 416  
 AttributeByName Method 480  
 AttributeCount Property 478  
 AttributeNo Property 459  
 Attributes Property(Indexer) 478  
 AutoPrepare Property 376  
 AutoRegister Property 187

## - B -

Backup Method 198  
 BackupQuery Method 198  
 BackupToFile Method 199  
 BackupToStream Method 199  
 BaseSQL Property 304  
 BeforeExecute Event 236  
 BeforeFetch Event 342  
 BeforeUpdateExecute Event 343  
 bmAppend 164  
 bmAppendUpdate 164  
 bmDelete 164  
 bmUpdate 164  
 BreakExec Method  
     TCustomDADataset 324  
     TDAScript 232  
     TUniSQL 605

## - C -

CacheCalcFields Property 376

- CachedUpdates Property 493
  - CancelButton Property 265
  - CancelUpdates Method 500
  - Caption Property 266
  - cbClient 486
  - cbClientServer 486
  - cbNone 486
  - cbServer 486
  - ChangeCursor Property 347
  - ChangeCursor Variable 447
  - ChangedCount Property 157
  - clApply 487
  - clConnect 487
  - clConnectionApply 487
  - Clear Method
    - TBlob 468
    - TVirtualTable 693
  - clExecute 487
  - clOpen 487
  - clRefresh 487
  - clServiceQuery 487
  - clTransStart 487
  - clUnknown 487
  - Columns Property 213
  - Commit Method
    - TCustomDAConnection 281
    - TDATransaction 427
  - CommitCount Property 158
  - CommitRetaining Method 560
  - CommitUpdates Method 501
  - Compatibility 41
  - Compatibility with Previous Versions 91
  - Component List 39
  - Component Property 262
  - CompressBlobMode Property 377
  - Compressed Property 475
  - CompressedSize Property 475
  - Condition Property 569
  - Connect Method 282
  - ConnectButton Property 266
  - ConnectDialog Property 273
  - Connecting to Database 49
  - Connection Property
    - TCustomDADataset 304
    - TCustomDASQL 347
    - TDAAlerter 188
    - TDADump 195
    - TDALoader 213
    - TDAMetaData 405
    - TDAScript 226
    - TUniAlerter 664
    - TUniConnectDialog 668
    - TUniMetaData 576
    - TUniScript 679
    - TUniSQL 601
  - ConnectionLifetime Property 440
  - Connections Property(Indexer) 656
  - ConnectionsCount Property 657
  - ConvertEOL Property 274
  - CRAccess Unit Members 149
  - CRBatchMove Unit Members 152
  - CRDataTypeMap Unit Members 165
  - CreateBlobStream Method 325
  - CreateColumns Method 214
  - CreateDataSet Method
    - TCustomDAConnection 282
    - TUniConnection 560
  - CreateProcCall Method
    - TCustomUniDataSet 543
    - TUniSQL 605
  - CreateSQL Method
    - TCustomDAConnection 283
    - TUniConnection 561
  - CreateTransaction Method 561
  - CREncryption Unit Members 172
  - CRVio Unit Members 179
- D -**
- DAAlerter Unit Members 185
  - DADDataAdapter Class 448
  - DADDataAdapter.DataSet Property 449
  - DADDataAdapter.Fill Method 450
  - DADDataAdapter.Update Method 451
  - DADump Unit Members 191
  - DALoader Unit Members 207
  - DAScript Unit Members 221
  - DASQLMonitor Unit Members 247
  - Data Encryption 76
  - Data Type Mapping 70
  - Data Types 52
  - Database Property 553
  - Database Specific Aspects of 64-bit Development 145
  - DatabaseLabel Property 668
  - DataHeader Property 174

- DataSet Manager 86
  - DataSet Property
    - DADDataAdapter 449
    - TCustomDAUpdateSQL 362
    - TDAScript 226
    - TUniScript 680
  - DataSize Property 460
  - DataType Property
    - TAttribute 460
    - TDAParam 417
    - TObjectType 479
  - DBAccess Unit Members 257
  - DBLengthMax Property
    - TDAMapRule 387
    - TMapRule 170
  - DBLengthMin Property
    - TDAMapRule 387
    - TMapRule 170
  - DBMonitor 90
  - DBMonitorOptions Property 250
  - DBScaleMax Property
    - TDAMapRule 388
    - TMapRule 170
  - DBScaleMin Property
    - TDAMapRule 388
    - TMapRule 171
  - DBType Property
    - TDAMapRule 388
    - TMapRule 171
  - Debug Property
    - TCustomDADDataSet 305
    - TCustomDASQL 347
    - TDADump 195
    - TDAScript 227
  - DefaultCloseAction Property 427
  - DefaultSortType Property 370
  - DefaultValues Property 377
  - DeferredPost Method 501
  - DeleteField Method 694
  - DeleteFields Method 694
  - DeleteObject Property 362
  - DeleteSQL Property 363
  - DeleteWhere Method 325
  - Delimiter Property 227
  - Demo Projects 32
  - Deployment 46
  - Destination Property 158
  - DetailDelay Property 378
  - DetailFields Property 305
  - Devart.Dac.DataAdapter Unit Members 447
  - Devart.UniDac.DataAdapter Unit Members 452
  - DialogClass Property 266
  - Disconnect Method 283
  - Disconnected Mode 69
  - Disconnected Property 306
  - DisconnectedMode Property 371
  - DMLRefresh Property 532
- E -**
- eaAbort 246
  - eaAES128 178
  - eaAES192 178
  - eaAES256 178
  - eaBlowfish 178
  - eaCast128 178
  - eaContinue 246
  - eaException 246
  - eaFail 246
  - eaRC4 178
  - eaTripleDES 178
  - EDAError Class 261
  - EDAError.Component Property 262
  - EDAError.ErrorCode Property 262
  - EDataMappingError Class 166
  - EDataTypeMappingError Class 166
  - Editions 4
  - ehNone 177
  - ehTag 177
  - ehTagAndHash 177
  - EInvalidDBTypeMapping Class 167
  - EInvalidFieldTypeMapping Class 167
  - Encryption Property 306
  - EncryptionAlgorithm Property 175
  - Encryptor Property 384
  - EndLine Property
    - TDAScript 227
    - TDASStatement 239
  - EndOffset Property
    - TDAScript 228
    - TDASStatement 240
  - EndPos Property
    - TDAScript 228
    - TDASStatement 240
  - ErrorCode Property 262
  - ErrorOffset Method 232

EUnsupportedDataTypeMapping Class 168  
 ExecProc Method  
     TCustomDAConnection 284  
     TUniStoredProc 630  
 ExecProcEx Method 285  
 ExecSQL Method  
     TCustomDAConnection 286  
     TCustomDAUpdateSQL 368  
 ExecSQLEx Method 287  
 Execute Method  
     Execute 354  
     TCRBatchMove 162  
     TCustomConnectDialog 270  
     TCustomDADataset 326  
     TCustomDASQL 353  
     TDAScript 233  
     TDAStatement 243  
 ExecuteFile Method 233  
 ExecuteNext Method 233  
 ExecuteStream Method 234  
 Executing Method  
     TCustomDADataset 326  
     TCustomDASQL 354  
 Executing Stored Procedures 64

## - F -

Features 25  
 Fetched Method 326  
 Fetching Method 327  
 FetchingAll Method 327  
 FetchRows Property 306  
 FieldLength Property  
     TDAMapRule 389  
     TMapRule 171  
 FieldMappingMode Property 158  
 FieldName Property  
     TDAMapRule 389  
     TMapRule 171  
 Fields Property 385  
 FieldScale Property  
     TDAMapRule 389  
     TMapRule 172  
 FieldsOrigin Property 378  
 FieldType Property  
     TDAColumn 209  
     TDAMapRule 390  
 Fill Method 450

FilterSQL Property 307  
 FinalSQL Property  
     TCustomDADataset 307  
     TCustomDASQL 348  
 FindAttribute Method 481  
 FindKey Method 328  
 FindMacro Method  
     TCustomDADataset 328  
     TCustomDASQL 355  
     TDAScript 234  
     TMacros 436  
 FindNearest Method 329  
 FindParam Method  
     TCustomDADataset 330  
     TCustomDASQL 355  
     TCustomUniDataSet 543  
     TDAParams 424  
     TUniSQL 606  
 FlatBuffers Property 378

## - G -

GenerateHeader Property 205  
 GetBlob Method 502  
 GetDatabaseNames Method 288  
 GetDataTypes Method 330  
 GetFieldObject Method 331  
 GetFieldPrecision Method 331  
 GetFieldScale Method 332  
 GetMetaDataKinds Method 409  
 GetOrderBy Method 332  
 GetRestrictions Method 409  
 GetServerList Method 270  
 GetStoredProcNames Method 288  
 GetTableNames Method 289  
 Getting Started 6  
 Getting Support 48  
 GotoCurrent Method 333

## - H -

haMD5 178  
 haSHA1 178  
 HashAlgorithm Property 175  
 Host Property 253  
 Hostname Property 184

**- I -**

IgnoreErrors Property  
     TDAMapRule 390  
     TMapRule 172  
 ihFail 179  
 ihIgnoreError 179  
 ihSkipData 179  
 ilReadCommitted 151  
 Increasing Performance 77  
 IndexFieldNames Property 494  
 InsertObject Property 363  
 InsertSQL Property 364  
 InTransaction Property 274  
 InvalidHashAction Property 175  
 IsEqual Method 437  
 IsNull Property 417  
 IsolationLevel Property 657  
 IsQuery Property 308  
 IsUnicode Property 466  
 Items Property(Indexer)  
     TDAColumns 210  
     TDAParams 423  
     TDAStatements 244  
     TMacros 435

**- K -**

KeepDesignConnected Property 371  
 KeyFields Property 308  
 KeyViolCount Property 159

**- L -**

LabelSet Property 267  
 LastInsertId Property  
     TCustomUniDataSet 532  
     TUniSQL 601  
 Length Property 460  
 Licensing and Subscriptions 47  
 LiteCollation Unit Members 453  
 LiteFunction Unit Members 455  
 Load Method 215  
 LoadFromDataSet Method 215  
 LoadFromFile Method  
     TBlob 468

TDAParam 420  
 TVirtualTable 695  
 LoadFromStream Method  
     TBlob 468  
     TDAParam 420  
     TVirtualTable 695  
 LocalConstraints Property 495  
 LocalFailover Property 371  
 LocalMasterDetail Property 379  
 LocalUpdate Property 495  
 Locate Method 503  
 LocateEx Method 505  
 Lock Method 333  
 LockMode Property  
     TUniQuery 595  
     TUniStoredProc 622  
     TUniTable 645  
 LockObject Property 364  
 LockSQL Property 364  
 LoginPrompt Property 275  
 LongStrings Property 379  
 IsCustom 445  
 IsEnglish 445  
 IsFrench 445  
 IsGerman 445  
 IsItalian 445  
 IsPolish 445  
 IsPortuguese 445  
 IsRussian 445  
 IsSpanish 445  
 IxCasInsensitive 488  
 IxNearest 488  
 IxNext 488  
 IxPartialCompare 488  
 IxPartialKey 488  
 IxUp 488

**- M -**

MacroByName Method  
     TCustomDADataset 334  
     TCustomDASQL 356  
     TDAScript 235  
     TMacros 437  
 MacroChar Variable 447  
 MacroCount Property  
     TCustomDADataset 309  
     TCustomDASQL 348

Macros 79  
 Macros Property  
     TCustomDADataset 309  
     TCustomDASQL 349  
     TDAScript 228  
     TUniConnection 554  
 Mappings Property 159  
 Master/Detail Relationships 61  
 MasterFields Property 310  
 MasterSource Property 310  
 MaxPoolSize Property 440  
 MemData Unit Members 456  
 MemDS Unit Members 489  
 MetaDataKind Property 406  
 Migration Wizard 92  
 MinPoolSize Property 440  
 mmFieldIndex 164  
 mmFieldName 164  
 moCustom 257  
 moDBMonitor 257  
 Mode Property 160  
 moDialog 257  
 ModifyObject Property 365  
 ModifySQL Property 365  
 moHandled 257  
 MonitorMessage Method 290  
 moSQLMonitor 257  
 MovedCount Property 160

## - N -

Name Property  
     TDAColumn 209  
     TMacro 433  
     TUniMacro 569  
 Network Tunneling 63  
 ntBCD 487  
 ntFloat 487  
 ntFmtBCD 487  
 NumberRange Property 379

## - O -

ObjectType Property 461  
 Offset Property 461  
 Omit Property 240  
 OnBackupProgress Event 202

OnBatchMoveProgress Event 162  
 OnConnectionLost Event 292  
 OnError Event  
     TCustomDACConnection 292  
     TDAAlerter 190  
     TDADump 202  
     TDAScript 237  
     TDATransaction 429  
 OnGetColumnData Event 218  
 OnProgress Event 219  
 OnPutData Event 219  
 OnRestoreProgress Event 203  
 OnSQL Event 251  
 OnUpdateError Event 511  
 OnUpdateRecord Event 512  
 OpenNext Method 544  
 Options Property  
     TCustomDACConnection 275  
     TCustomDADataset 311  
     TCustomDASQLMonitor 250  
     TCustomUniDataSet 533  
     TDADump 196  
     TVirtualTable 689  
 OrderFields Property 646  
 Overview 1  
 Owner Property 461

## - P -

ParamByName Method  
     TCustomDADataset 335  
     TCustomDASQL 356  
     TCustomUniDataSet 545  
     TDAParams 424  
     TUniConnection 562  
     TUniSQL 607  
 ParamCheck Property  
     TCustomDADataset 313  
     TCustomDASQL 349  
 ParamCount Property  
     TCustomDADataset 313  
     TCustomDASQL 350  
 Params Property  
     TCustomDADataset 314  
     TCustomDASQL 350  
     TCustomUniDataSet 533  
     TDASStatement 240  
 ParamType Property 417

ParamValues Property(Indexer) 351  
 Password Property  
     TCREncryptor 176  
     TCustomDAConnection 276  
     THttpOptions 181  
     TProxyOptions 184  
 PasswordLabel Property 267  
 Pooling Property 276  
 PoolingOptions Property 277  
 Port Property  
     TDBMonitorOptions 253  
     TProxyOptions 184  
     TUniConnection 554  
 PortLabel Property 668  
 Prepare Method  
     TCustomDADataSet 335  
     TCustomDASQL 357  
     TMemDataSet 507  
 Prepared Property  
     TCustomDASQL 351  
     TMemDataSet 495  
 PrepareSQL Method  
     TUniStoredProc 630  
     TUniTable 654  
 ProblemCount Property 160  
 ProviderLabel Property 669  
 ProviderName Property 555  
 ProxyOptions Property 181  
 PutColumnData Method 216

## - Q -

QueryRecCount Property 380  
 QuoteNames Property  
     TDADatasetOptions 380  
     TDADumpOptions 205

## - R -

Read Method 469  
 ReadOnly Property 314  
 ReconnectTimeout Property 254  
 RecordCount Property 161  
 RefCount Property 483  
 RefreshObject Property 366  
 RefreshOptions Property 315  
 RefreshRecord Method 336

RefreshSQL Property 366  
 Release Method 484  
 ReleaseSavepoint Method 562  
 RemoveConnection Method 659  
 RemoveFromPool Method 290  
 RemoveOnRefresh Property 380  
 RequiredFields Property 381  
 Requirements 40  
 Restore Method 200  
 RestoreFromFile Method 200  
 RestoreFromStream Method 201  
 RestoreSQL Method 336  
 RestoreUpdates Method 507  
 Restrictions Property 406  
 Resync Method 337  
 Retries Property 268  
 ReturnParams Property 381  
 RevertRecord Method 508  
 rmRaise 446  
 rmReconnect 446  
 rmReconnectExecute 446  
 roAfterInsert 446  
 roAfterUpdate 446  
 roBeforeEdit 446  
 Rollback Method  
     TCustomDAConnection 291  
     TDATransaction 428  
 RollbackRetaining Method 563  
 RollbackToSavepoint Method 563  
 RowsAffected Property  
     TCustomDADataSet 315  
     TCustomDASQL 352

## - S -

SavePassword Property 268  
 Savepoint Method 564  
 SaveSQL Method 337  
 SaveToFile Method  
     TBlob 470  
     TVirtualTable 696  
 SaveToStream Method  
     TBlob 470  
     TVirtualTable 696  
 SaveToXML Method 508  
 Scale Property 462  
 Scan Method 438  
 Script Property 241

SendEvent Method 188  
SendTimeout Property 254  
Server Property 278  
ServerLabel Property 268  
SetBlobData Method 421  
SetFieldsReadOnly Property 382  
SetKey Method 177  
SetOrderBy Method 338  
Size Property  
    TAttribute 462  
    TBlob 466  
    TDAParam 418  
    TObjectType 479  
Source Property 161  
SpecificOptions Property  
    TCustomUniDataSet 534  
    TUniConnection 555  
    TUniScript 680  
    TUniSQL 602  
SQL Property  
    TCustomDADataset 316  
    TCustomDASQL 352  
    TDADump 196  
    TDAScript 229  
    TDASTatement 241  
SQL Property(Indexer) 366  
SQLDelete Property 316  
SQLInsert Property 317  
SQLiteUniProvider Unit Members 513  
SQLLock Property 317  
SQLRefresh Property 318  
SQLSaved Method 338  
SQLUpdate Property 319  
Start Method 189  
StartLine Property  
    TDAScript 229  
    TDASTatement 242  
StartOffset Property  
    TDAScript 230  
    TDASTatement 242  
StartPos Property  
    TDAScript 230  
    TDASTatement 242  
StartTransaction Method  
    StartTransaction 565, 566  
    TCustomDACConnection 291  
    TDATransaction 428  
    TUniConnection 564

Statements Property 230  
stBinary 489  
stCaseInsensitive 489  
stCaseSensitive 489  
Stop Method 189  
StoredProcName Property 622  
StoreLogInfo Property 268  
StrictUpdate Property 382

## - T -

TableName Property  
    TDALoader 214  
    TUniTable 646  
TableNames Property 197  
taCommit 152  
TAfterExecuteEvent Procedure Reference 442  
TAfterFetchEvent Procedure Reference 442  
TAfterStatementExecuteEvent Procedure Reference 245  
TAlertErrorEvent Procedure Reference 191  
TAlertEventEvent Procedure Reference 191  
taRollback 152  
TAttribute Class 457  
TAttribute.AttributeNo Property 459  
TAttribute.DataSize Property 460  
TAttribute.DataType Property 460  
TAttribute.Length Property 460  
TAttribute.ObjectType Property 461  
TAttribute.Offset Property 461  
TAttribute.Owner Property 461  
TAttribute.Scale Property 462  
TAttribute.Size Property 462  
TBeforeFetchEvent Procedure Reference 442  
TBeforeFetchProc Procedure Reference 151  
TBeforeStatementExecuteEvent Procedure Reference 245  
TBlob Class 463  
TBlob.Assign Method 467  
TBlob.AsString Property 465  
TBlob.AsWideString Property 465  
TBlob.Clear Method 468  
TBlob.IsUnicode Property 466  
TBlob.LoadFromFile Method 468  
TBlob.LoadFromStream Method 468  
TBlob.Read Method 469  
TBlob.SaveToFile Method 470  
TBlob.SaveToStream Method 470

TBlob.Size Property	466	TCustomConnectDialog.ConnectButton Property	266
TBlob.Truncate Method	471	TCustomConnectDialog.DialogClass Property	266
TBlob.Write Method	471	TCustomConnectDialog.Execute Method	270
TCompressBlobMode Enumeration	486	TCustomConnectDialog.GetServerList Method	270
TCompressedBlob Class	472	TCustomConnectDialog.LabelSet Property	267
TCompressedBlob.Compressed Property	475	TCustomConnectDialog.PasswordLabel Property	267
TCompressedBlob.CompressedSize Property	475	TCustomConnectDialog.Retries Property	268
TConnectionLostEvent Procedure Reference	443	TCustomConnectDialog.SavePassword Property	268
TConnLostCause Enumeration	487	TCustomConnectDialog.ServerLabel Property	268
TCRBatchMode Enumeration	164	TCustomConnectDialog.StoreLogInfo Property	268
TCRBatchMove Class	153	TCustomConnectDialog.UsernameLabel Property	269
TCRBatchMove.AbortOnKeyViol Property	157	TCustomDAConnection Class	270
TCRBatchMove.AbortOnProblem Property	157	TCustomDAConnection.ApplyUpdates Method	280
TCRBatchMove.ChangedCount Property	157	TCustomDAConnection.Commit Method	281
TCRBatchMove.CommitCount Property	158	TCustomDAConnection.Connect Method	282
TCRBatchMove.Destination Property	158	TCustomDAConnection.ConnectDialog Property	273
TCRBatchMove.Execute Method	162	TCustomDAConnection.ConvertEOL Property	274
TCRBatchMove.FieldMappingMode Property	158	TCustomDAConnection.CreateDataSet Method	282
TCRBatchMove.KeyViolCount Property	159	TCustomDAConnection.CreateSQL Method	283
TCRBatchMove.Mappings Property	159	TCustomDAConnection.Disconnect Method	283
TCRBatchMove.Mode Property	160	TCustomDAConnection.ExecProc Method	284
TCRBatchMove.MovedCount Property	160	TCustomDAConnection.ExecProcEx Method	285
TCRBatchMove.OnBatchMoveProgress Event	162	TCustomDAConnection.ExecSQL Method	286
TCRBatchMove.ProblemCount Property	160	TCustomDAConnection.ExecSQLEx Method	287
TCRBatchMove.RecordCount Property	161	TCustomDAConnection.GetDatabaseNames Method	288
TCRBatchMove.Source Property	161	TCustomDAConnection.GetStoredProcNames Method	288
TCRBatchMoveProgressEvent Procedure Reference	163	TCustomDAConnection.GetTableNames Method	289
TCRCursor Class	150	TCustomDAConnection.InTransaction Property	274
TCRDataSource Class	263	TCustomDAConnection.LoginPrompt Property	275
TCREncDataHeader Enumeration	177	TCustomDAConnection.MonitorMessage Method	290
TCREncryptionAlgorithm Enumeration	178	TCustomDAConnection.OnConnectionLost Event	292
TCREncryptor Class	173	TCustomDAConnection.OnError Event	292
TCREncryptor.DataHeader Property	174	TCustomDAConnection.Options Property	275
TCREncryptor.EncryptionAlgorithm Property	175	TCustomDAConnection.Password Property	276
TCREncryptor.HashAlgorithm Property	175	TCustomDAConnection.Pooling Property	276
TCREncryptor.InvalidHashAction Property	175	TCustomDAConnection.PoolingOptions Property	277
TCREncryptor.Password Property	176	TCustomDAConnection.RemoveFromPool Method	290
TCREncryptor.SetKey Method	177		
TCRFieldMappingMode Enumeration	164		
TCRHashAlgorithm Enumeration	178		
TCRInvalidHashAction Enumeration	179		
TCRIsolationLevel Enumeration	151		
TCRTransactionAction Enumeration	152		
TCustomConnectDialog Class	263		
TCustomConnectDialog.CancelButton Property	265		
TCustomConnectDialog.Caption Property	266		

- TCustomDAConnection.Rollback Method 291  
TCustomDAConnection.Server Property 278  
TCustomDAConnection.StartTransaction Method 291  
TCustomDAConnection.Username Property 278  
TCustomDADataset Class 293  
TCustomDADataset.AddWhere Method 324  
TCustomDADataset.AfterExecute Event 341  
TCustomDADataset.AfterFetch Event 342  
TCustomDADataset.AfterUpdateExecute Event 342  
TCustomDADataset.BaseSQL Property 304  
TCustomDADataset.BeforeFetch Event 342  
TCustomDADataset.BeforeUpdateExecute Event 343  
TCustomDADataset.BreakExec Method 324  
TCustomDADataset.Connection Property 304  
TCustomDADataset.CreateBlobStream Method 325  
TCustomDADataset.Debug Property 305  
TCustomDADataset.DeleteWhere Method 325  
TCustomDADataset.DetailFields Property 305  
TCustomDADataset.Disconnected Property 306  
TCustomDADataset.Encryption Property 306  
TCustomDADataset.Execute Method 326  
TCustomDADataset.Executing Method 326  
TCustomDADataset.Fetched Method 326  
TCustomDADataset.Fetching Method 327  
TCustomDADataset.FetchingAll Method 327  
TCustomDADataset.FetchRows Property 306  
TCustomDADataset.FilterSQL Property 307  
TCustomDADataset.FinalSQL Property 307  
TCustomDADataset.FindKey Method 328  
TCustomDADataset.FindMacro Method 328  
TCustomDADataset.FindNearest Method 329  
TCustomDADataset.FindParam Method 330  
TCustomDADataset.GetDataTypes Method 330  
TCustomDADataset.GetFieldObject Method 331  
TCustomDADataset.GetFieldPrecision Method 331  
TCustomDADataset.GetFieldScale Method 332  
TCustomDADataset.GetOrderBy Method 332  
TCustomDADataset.GotoCurrent Method 333  
TCustomDADataset.IsQuery Property 308  
TCustomDADataset.KeyFields Property 308  
TCustomDADataset.Lock Method 333  
TCustomDADataset.MacroByName Method 334  
TCustomDADataset.MacroCount Property 309  
TCustomDADataset.Macros Property 309  
TCustomDADataset.MasterFields Property 310  
TCustomDADataset.MasterSource Property 310  
TCustomDADataset.Options Property 311  
TCustomDADataset.ParamByName Method 335  
TCustomDADataset.ParamCheck Property 313  
TCustomDADataset.ParamCount Property 313  
TCustomDADataset.Params Property 314  
TCustomDADataset.Prepare Method 335  
TCustomDADataset.ReadOnly Property 314  
TCustomDADataset.RefreshOptions Property 315  
TCustomDADataset.RefreshRecord Method 336  
TCustomDADataset.RestoreSQL Method 336  
TCustomDADataset.Resync Method 337  
TCustomDADataset.RowsAffected Property 315  
TCustomDADataset.SaveSQL Method 337  
TCustomDADataset.SetOrderBy Method 338  
TCustomDADataset.SQL Property 316  
TCustomDADataset.SQLDelete Property 316  
TCustomDADataset.SQLInsert Property 317  
TCustomDADataset.SQLLock Property 317  
TCustomDADataset.SQLRefresh Property 318  
TCustomDADataset.SQLSaved Method 338  
TCustomDADataset.SQLUpdate Property 319  
TCustomDADataset.UniDirectional Property 319  
TCustomDADataset.Unlock Method 339  
TCustomDASQL Class 343  
TCustomDASQL.AfterExecute Event 359  
TCustomDASQL.ChangeCursor Property 347  
TCustomDASQL.Connection Property 347  
TCustomDASQL.Debug Property 347  
TCustomDASQL.Execute Method 354  
TCustomDASQL.Executing Method 354  
TCustomDASQL.FinalSQL Property 348  
TCustomDASQL.FindMacro Method 355  
TCustomDASQL.FindParam Method 355  
TCustomDASQL.MacroByName Method 356  
TCustomDASQL.MacroCount Property 348  
TCustomDASQL.Macros Property 349  
TCustomDASQL.ParamByName Method 356  
TCustomDASQL.ParamCheck Property 349  
TCustomDASQL.ParamCount Property 350  
TCustomDASQL.Params Property 350  
TCustomDASQL.ParamValues Property(Indexer) 351  
TCustomDASQL.Prepare Method 357  
TCustomDASQL.Prepared Property 351  
TCustomDASQL.RowsAffected Property 352  
TCustomDASQL.SQL Property 352

- TCustomDASQL.UnPrepare Method 358  
 TCustomDASQL.WaitExecuting Method 358  
 TCustomDASQLMonitor Class 248  
 TCustomDASQLMonitor.Active Property 249  
 TCustomDASQLMonitor.DBMonitorOptions Property 250  
 TCustomDASQLMonitor.OnSQL Event 251  
 TCustomDASQLMonitor.Options Property 250  
 TCustomDASQLMonitor.TraceFlags Property 251  
 TCustomDAUpdateSQL Class 359  
 TCustomDAUpdateSQL.Apply Method 367  
 TCustomDAUpdateSQL.DataSet Property 362  
 TCustomDAUpdateSQL.DeleteObject Property 362  
 TCustomDAUpdateSQL.DeleteSQL Property 363  
 TCustomDAUpdateSQL.ExecSQL Method 368  
 TCustomDAUpdateSQL.InsertObject Property 363  
 TCustomDAUpdateSQL.InsertSQL Property 364  
 TCustomDAUpdateSQL.LockObject Property 364  
 TCustomDAUpdateSQL.LockSQL Property 364  
 TCustomDAUpdateSQL.ModifyObject Property 365  
 TCustomDAUpdateSQL.ModifySQL Property 365  
 TCustomDAUpdateSQL.RefreshObject Property 366  
 TCustomDAUpdateSQL.RefreshSQL Property 366  
 TCustomDAUpdateSQL.SQL Property(Indexer) 366  
 TCustomUniDataSet Class 518  
 TCustomUniDataSet.CreateProcCall Method 543  
 TCustomUniDataSet.DMLRefresh Property 532  
 TCustomUniDataSet.FindParam Method 543  
 TCustomUniDataSet.LastInsertId Property 532  
 TCustomUniDataSet.OpenNext Method 544  
 TCustomUniDataSet.Options Property 533  
 TCustomUniDataSet.ParamByName Method 545  
 TCustomUniDataSet.Params Property 533  
 TCustomUniDataSet.SpecificOptions Property 534  
 TCustomUniDataSet.Transaction Property 535  
 TCustomUniDataSet.UpdateObject Property 535  
 TCustomUniDataSet.UpdateTransaction Property 536  
 TDAAlerter Class 185  
 TDAAlerter.Active Property 187  
 TDAAlerter.AutoRegister Property 187  
 TDAAlerter.Connection Property 188  
 TDAAlerter.OnError Event 190  
 TDAAlerter.SendEvent Method 188  
 TDAAlerter.Start Method 189  
 TDAAlerter.Stop Method 189  
 TDABackupProgressEvent Procedure Reference 206  
 TDAColumn Class 207  
 TDAColumn.FieldType Property 209  
 TDAColumn.Name Property 209  
 TDAColumns Class 209  
 TDAColumns.Items Property(Indexer) 210  
 TDAConnectionErrorEvent Procedure Reference 443  
 TDAConnectionOptions Class 368  
 TDAConnectionOptions.DefaultSortType Property 370  
 TDAConnectionOptions.DisconnectedMode Property 371  
 TDAConnectionOptions.KeepDesignConnected Property 371  
 TDAConnectionOptions.LocalFailover Property 371  
 TDADatasetOptions Class 372  
 TDADatasetOptions.AutoPrepare Property 376  
 TDADatasetOptions.CacheCalcFields Property 376  
 TDADatasetOptions.CompressBlobMode Property 377  
 TDADatasetOptions.DefaultValues Property 377  
 TDADatasetOptions.DetailDelay Property 378  
 TDADatasetOptions.FieldsOrigin Property 378  
 TDADatasetOptions.FlatBuffers Property 378  
 TDADatasetOptions.LocalMasterDetail Property 379  
 TDADatasetOptions.LongStrings Property 379  
 TDADatasetOptions.NumberRange Property 379  
 TDADatasetOptions.QueryRecCount Property 380  
 TDADatasetOptions.QuoteNames Property 380  
 TDADatasetOptions.RemoveOnRefresh Property 380  
 TDADatasetOptions.RequiredFields Property 381  
 TDADatasetOptions.ReturnParams Property 381  
 TDADatasetOptions.SetFieldsReadOnly Property 382  
 TDADatasetOptions.StrictUpdate Property 382  
 TDADatasetOptions.TrimFixedChar Property 382  
 TDADatasetOptions.UpdateAllFields Property 383  
 TDADatasetOptions.UpdateBatchSize Property 383  
 TDADump Class 192  
 TDADump.Backup Method 198  
 TDADump.BackupQuery Method 198  
 TDADump.BackupToFile Method 199  
 TDADump.BackupToStream Method 199

- TDADump.Connection Property 195
- TDADump.Debug Property 195
- TDADump.OnBackupProgress Event 202
- TDADump.OnError Event 202
- TDADump.OnRestoreProgress Event 203
- TDADump.Options Property 196
- TDADump.Restore Method 200
- TDADump.RestoreFromFile Method 200
- TDADump.RestoreFromStream Method 201
- TDADump.SQL Property 196
- TDADump.TableNames Property 197
- TDADumpOptions Class 203
- TDADumpOptions.AddDrop Property 204
- TDADumpOptions.GenerateHeader Property 205
- TDADumpOptions.QuoteNames Property 205
- TDAEncryptionOptions Class 383
- TDAEncryptionOptions.Encryptor Property 384
- TDAEncryptionOptions.Fields Property 385
- TDALoader Class 211
- TDALoader.Columns Property 213
- TDALoader.Connection Property 213
- TDALoader.CreateColumns Method 214
- TDALoader.Load Method 215
- TDALoader.LoadFromDataSet Method 215
- TDALoader.OnGetColumnData Event 218
- TDALoader.OnProgress Event 219
- TDALoader.OnPutData Event 219
- TDALoader.PutColumnData Method 216
- TDALoader.TableName Property 214
- TDAMapRule Class 385
- TDAMapRule.DBLengthMax Property 387
- TDAMapRule.DBLengthMin Property 387
- TDAMapRule.DBScaleMax Property 388
- TDAMapRule.DBScaleMin Property 388
- TDAMapRule.DBType Property 388
- TDAMapRule.FieldLength Property 389
- TDAMapRule.FieldName Property 389
- TDAMapRule.FieldScale Property 389
- TDAMapRule.FieldType Property 390
- TDAMapRule.IgnoreErrors Property 390
- TDAMapRules Class 390
- TDAMapRules.AddDBTypeRule Method 392
- TDAMapRules.AddFieldNameRule Method 397
- TDAMapRules.AddRule Method 399
- TDAMetaData Class 400
- TDAMetaData.Connection Property 405
- TDAMetaData.GetMetaDataKinds Method 409
- TDAMetaData.GetRestrictions Method 409
- TDAMetaData.MetaDataKind Property 406
- TDAMetaData.Restrictions Property 406
- TDANumericType Enumeration 487
- TDAParam Class 410
- TDAParam.AsBlob Property 413
- TDAParam.AsBlobRef Property 413
- TDAParam.AsFloat Property 414
- TDAParam.AsInteger Property 414
- TDAParam.AsLargeInt Property 414
- TDAParam.AsMemo Property 415
- TDAParam.AsMemoRef Property 415
- TDAParam.AssignField Method 419
- TDAParam.AssignFieldValue Method 419
- TDAParam.AsSQLTimeStamp Property 415
- TDAParam.AsString Property 416
- TDAParam.AsWideString Property 416
- TDAParam.DataType Property 417
- TDAParam.IsNull Property 417
- TDAParam.LoadFromFile Method 420
- TDAParam.LoadFromStream Method 420
- TDAParam.ParamType Property 417
- TDAParam.SetBlobData Method 421
- TDAParam.Size Property 418
- TDAParam.Value Property 418
- TDAParams Class 422
- TDAParams.FindParam Method 424
- TDAParams.Items Property(Indexer) 423
- TDAParams.ParamByName Method 424
- TDAPutDataEvent Procedure Reference 220
- TDARestoreProgressEvent Procedure Reference 206
- TDAScript Class 223
- TDAScript.AfterExecute Event 236
- TDAScript.BeforeExecute Event 236
- TDAScript.BreakExec Method 232
- TDAScript.Connection Property 226
- TDAScript.DataSet Property 226
- TDAScript.Debug Property 227
- TDAScript.Delimiter Property 227
- TDAScript.EndLine Property 227
- TDAScript.EndOffset Property 228
- TDAScript.EndPos Property 228
- TDAScript.ErrorOffset Method 232
- TDAScript.Execute Method 233
- TDAScript.ExecuteFile Method 233
- TDAScript.ExecuteNext Method 233
- TDAScript.ExecuteStream Method 234
- TDAScript.FindMacro Method 234

- TDAScript.MacroByName Method 235
- TDAScript.Macros Property 228
- TDAScript.OnError Event 237
- TDAScript.SQL Property 229
- TDAScript.StartLine Property 229
- TDAScript.StartOffset Property 230
- TDAScript.StartPos Property 230
- TDAScript.Statements Property 230
- TDASTatement Class 237
- TDASTatement.EndLine Property 239
- TDASTatement.EndOffset Property 240
- TDASTatement.EndPos Property 240
- TDASTatement.Execute Method 243
- TDASTatement.Omit Property 240
- TDASTatement.Params Property 240
- TDASTatement.Script Property 241
- TDASTatement.SQL Property 241
- TDASTatement.StartLine Property 242
- TDASTatement.StartOffset Property 242
- TDASTatement.StartPos Property 242
- TDASTatements Class 243
- TDASTatements.Items Property(Indexer) 244
- TDATraceFlag Enumeration 256
- TDATraceFlags Set 255
- TDATransaction Class 425
- TDATransaction.Active Property 426
- TDATransaction.Commit Method 427
- TDATransaction.DefaultCloseAction Property 427
- TDATransaction.OnError Event 429
- TDATransaction.Rollback Method 428
- TDATransaction.StartTransaction Method 428
- TDATransactionErrorEvent Procedure Reference 444
- TDBMonitorOptions Class 252
- TDBMonitorOptions.Host Property 253
- TDBMonitorOptions.Port Property 253
- TDBMonitorOptions.ReconnectTimeout Property 254
- TDBMonitorOptions.SendTimeout Property 254
- TDBObject Class 476
- TErrorAction Enumeration 246
- tfBlob 256
- tfConnect 256
- tfError 256
- tfMisc 256
- tfObjDestroy 256
- tfParams 256
- tfPool 256
- tfQExecute 256
- tfQFetch 256
- tfQPrepare 256
- tfService 256
- tfStmt 256
- tfTransact 256
- TGetColumnDataEvent Procedure Reference 221
- THttpOptions Class 180
- THttpOptions.Password Property 181
- THttpOptions.ProxyOptions Property 181
- THttpOptions.Url Property 182
- THttpOptions.Username Property 182
- TLabelSet Enumeration 445
- TLiteAnsiCollation Function Reference 454
- TLiteCollation Function Reference 454
- TLiteFunction Function Reference 455
- TLiteUtils Class 513
- TLiteWideCollation Function Reference 455
- TLoaderProgressEvent Procedure Reference 221
- TLocateExOption Enumeration 488
- TLocateExOptions Set 485
- TMacro Class 430
- TMacro.Active Property 431
- TMacro.AsDateTime Property 432
- TMacro.AsFloat Property 432
- TMacro.AsInteger Property 432
- TMacro.AsString Property 433
- TMacro.Name Property 433
- TMacro.Value Property 433
- TMacros Class 434
- TMacros.AssignValues Method 436
- TMacros.FindMacro Method 436
- TMacros.IsEqual Method 437
- TMacros.Items Property(Indexer) 435
- TMacros.MacroByName Method 437
- TMacros.Scan Method 438
- TMapRule Class 169
- TMapRule.DBLengthMax Property 170
- TMapRule.DBLengthMin Property 170
- TMapRule.DBScaleMax Property 170
- TMapRule.DBScaleMin Property 171
- TMapRule.DBType Property 171
- TMapRule.FieldLength Property 171
- TMapRule.FieldName Property 171
- TMapRule.FieldScale Property 172
- TMapRule.IgnoreErrors Property 172
- TMemDataSet Class 490
- TMemDataSet.ApplyUpdates Method 498

- TMemDataSet.CachedUpdates Property 493
- TMemDataSet.CancelUpdates Method 500
- TMemDataSet.CommitUpdates Method 501
- TMemDataSet.DeferredPost Method 501
- TMemDataSet.GetBlob Method 502
- TMemDataSet.IndexFieldNames Property 494
- TMemDataSet.LocalConstraints Property 495
- TMemDataSet.LocalUpdate Property 495
- TMemDataSet.Locate Method 503
- TMemDataSet.LocateEx Method 505
- TMemDataSet.OnUpdateError Event 511
- TMemDataSet.OnUpdateRecord Event 512
- TMemDataSet.Prepare Method 507
- TMemDataSet.Prepared Property 495
- TMemDataSet.RestoreUpdates Method 507
- TMemDataSet.RevertRecord Method 508
- TMemDataSet.SaveToXML Method 508
- TMemDataSet.UnPrepare Method 509
- TMemDataSet.UpdateRecordTypes Property 496
- TMemDataSet.UpdateResult Method 510
- TMemDataSet.UpdatesPending Property 496
- TMemDataSet.UpdateStatus Method 510
- TMonitorOption Enumeration 257
- TMonitorOptions Set 255
- TObjectType Class 476
- TObjectType.AttributeByName Method 480
- TObjectType.AttributeCount Property 478
- TObjectType.Attributes Property(Indexer) 478
- TObjectType.DataType Property 479
- TObjectType.FindAttribute Method 481
- TObjectType.Size Property 479
- TOnErrorEvent Procedure Reference 246
- TOnSQLEvent Procedure Reference 255
- TPoolingOptions Class 438
- TPoolingOptions.ConnectionLifetime Property 440
- TPoolingOptions.MaxPoolSize Property 440
- TPoolingOptions.MinPoolSize Property 440
- TPoolingOptions.Validate Property 441
- TProxyOptions Class 182
- TProxyOptions.Hostname Property 184
- TProxyOptions.Password Property 184
- TProxyOptions.Port Property 184
- TProxyOptions.Username Property 184
- TraceFlags Property 251
- Transaction Property
  - TCustomUniDataSet 535
  - TUniMetaData 576
  - TUniScript 681
- TUniSQL 603
- Transactions 67
- TRefreshOption Enumeration 446
- TRefreshOptions Set 444
- TRetryMode Enumeration 446
- TrimFixedChar Property 382
- Truncate Method 471
- TSharedObject Class 482
- TSharedObject.AddRef Method 484
- TSharedObject.RefCount Property 483
- TSharedObject.Release Method 484
- TSortType Enumeration 489
- TUniAlerter Class 662
- TUniAlerter.Connection Property 664
- TUniBlob Class 545
- TUniConnectDialog Class 665
- TUniConnectDialog.Connection Property 668
- TUniConnectDialog.DatabaseLabel Property 668
- TUniConnectDialog.PortLabel Property 668
- TUniConnectDialog.ProviderLabel Property 669
- TUniConnection Class 547
- TUniConnection.ActiveMacroValueByName Method 559
- TUniConnection.AssignConnect Method 559
- TUniConnection.CommitRetaining Method 560
- TUniConnection.CreateDataSet Method 560
- TUniConnection.CreateSQL Method 561
- TUniConnection.CreateTransaction Method 561
- TUniConnection.Database Property 553
- TUniConnection.Macros Property 554
- TUniConnection.ParamByName Method 562
- TUniConnection.Port Property 554
- TUniConnection.ProviderName Property 555
- TUniConnection.ReleaseSavepoint Method 562
- TUniConnection.RollbackRetaining Method 563
- TUniConnection.RollbackToSavepoint Method 563
- TUniConnection.Savepoint Method 564
- TUniConnection.SpecificOptions Property 555
- TUniConnection.StartTransaction Method 565
- TUniDataSource Class 566
- TUniDump Class 670
- TUniEncryptor Class 567
- TUniLoader Class 672
- TUniMacro Class 568
- TUniMacro.Condition Property 569
- TUniMacro.Name Property 569
- TUniMacro.Value Property 570
- TUniMacros Class 570

- TUniMetaData Class 570
- TUniMetaData.Connection Property 576
- TUniMetaData.Transaction Property 576
- TUniParam Class 577
- TUniParams Class 579
- TUniProvider Class 674
- TUniQuery Class 580
- TUniQuery.LockMode Property 595
- TUniQuery.UpdatingTable Property 595
- TUniScript Class 675
- TUniScript.Connection Property 679
- TUniScript.DataSet Property 680
- TUniScript.SpecificOptions Property 680
- TUniScript.Transaction Property 681
- TUniSQL Class 596
- TUniSQL.BreakExec Method 605
- TUniSQL.Connection Property 601
- TUniSQL.CreateProcCall Method 605
- TUniSQL.FindParam Method 606
- TUniSQL.LastInsertId Property 601
- TUniSQL.ParamByName Method 607
- TUniSQL.SpecificOptions Property 602
- TUniSQL.Transaction Property 603
- TUniSQLMonitor Class 682
- TUniStoredProc Class 607
- TUniStoredProc.ExecProc Method 630
- TUniStoredProc.LockMode Property 622
- TUniStoredProc.PrepareSQL Method 630
- TUniStoredProc.StoredProcName Property 622
- TUniTable Class 631
- TUniTable.LockMode Property 645
- TUniTable.OrderFields Property 646
- TUniTable.PrepareSQL Method 654
- TUniTable.TableName Property 646
- TUniTransaction Class 654
- TUniTransaction.AddConnection Method 658
- TUniTransaction.Connections Property(Indexer) 656
- TUniTransaction.ConnectionsCount Property 657
- TUniTransaction.IsolationLevel Property 657
- TUniTransaction.RemoveConnection Method 659
- TUniUpdateSQL Class 659
- TUpdateExecuteEvent Procedure Reference 444
- TUpdateRecKind Enumeration 489
- TUpdateRecKinds Set 485
- TVirtualTable Class 684
- TVirtualTable.AddField Method 692
- TVirtualTable.Assign Method 693
- TVirtualTable.Clear Method 693
- TVirtualTable.DeleteField Method 694
- TVirtualTable.DeleteFields Method 694
- TVirtualTable.LoadFromFile Method 695
- TVirtualTable.LoadFromStream Method 695
- TVirtualTable.Options Property 689
- TVirtualTable.SaveToFile Method 696
- TVirtualTable.SaveToStream Method 696
- TVirtualTableOption Enumeration 697
- TVirtualTableOptions Set 697

## - U -

- ukDelete 489
- ukInsert 489
- ukUpdate 489
- Uni Unit Members 515
- UniAlerter Unit Members 662
- UniDAC and Adaptive Server Enterprise 97
- UniDAC and Advantage Database Server 99
- UniDAC and DB2 101
- UniDAC and DBF 103
- UniDAC and InterBase/Firebird 105
- UniDAC and Microsoft Access 110
- UniDAC and MySQL 112
- UniDAC and NexusDB 117
- UniDAC and ODBC 124
- UniDAC and Oracle 126
- UniDAC and PostgreSQL 120
- UniDAC and SQL Server 136
- UniDAC and SQLite 133
- UniDAC Basics 10
- UniDacVcl Unit Members 664
- UniDACVersion Constant 661
- UniDataAdapter Class 452
- UniDirectional Property 319
- UniDump Unit Members 669
- Unified SQL 79
- UniLoader Unit Members 671
- UniProvider Unit Members 673
- UniScript Unit Members 674
- UniSQLMonitor Unit Members 681
- UnLock Method 339
- UnPrepare Method
  - TCustomDASQL 358
  - TMemDataSet 509
- Update Method 451
- UpdateAllFields Property 383

UpdateBatchSize Property 383  
UpdateObject Property 535  
UpdateRecordTypes Property 496  
UpdateResult Method 510  
UpdatesPending Property 496  
UpdateStatus Method 510  
UpdateTransaction Property 536  
Updating data with UniDAC 59  
UpdatingTable Property 595  
Url Property 182  
Username Property  
    TCustomDACConnection 278  
    THttpOptions 182  
    TProxyOptions 184  
UsernameLabel Property 269  
Using Several DAC Products in One IDE 85

## - V -

Validate Property 441  
Value Property  
    TDAParam 418  
    TMacro 433  
    TUniMacro 570  
VirtualTable Unit Members 683  
voPersistentData 697  
voStored 697

## - W -

WaitExecuting Method 358  
What's New 28  
Working in an Unstable Network 68  
Write Method 471  
Writing GUI Applications with UniDAC 91