Table of Contents

Part I What's New .......................... 1

Part II General Information ............. 6
   1 Overview ......................................................... 6
   2 Features ......................................................... 8
   3 Requirements ............................................... 10
   4 Compatibility ............................................... 10
   5 Using Several DAC Products in One IDE ................ 14
   6 Component List ............................................. 15
   7 Hierarchy Chart ............................................. 16
   8 Editions ......................................................... 16
   9 Licensing ....................................................... 18
  10 Getting Support ........................................... 21

Part III Getting Started ................. 22
   1 Installation ................................................... 22
   2 Deployment .................................................. 25

Part IV Reference .......................... 26
   1 DALoader ....................................................... 27
      Classes ......................................................... 27
         TDALoaderOptions Class ................................. 27
         Members ..................................................... 28
         Properties .................................................. 28
         UseBlankValues Property ............................... 28
   2 DASQLMonitor .............................................. 29
      Classes ......................................................... 29
         TCustomDASQLMonitor Class ......................... 29
         Members ..................................................... 30
         Properties .................................................. 30
         Active Property ........................................... 31
         DBMonitorOptions Property ......................... 32
         Options Property ......................................... 32
         TraceFlags Property ..................................... 33
         Events ....................................................... 33
         OnSQL Event ............................................... 34
         TDBMonitorOptions Class .............................. 34
         Members ..................................................... 35
         Properties .................................................. 35
         Host Property .............................................. 36
         Port Property .............................................. 36
         ReconnectTimeout Property ......................... 37
         SendTimeout Property .................................. 37
## DBAccess

### Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Members</th>
<th>Properties</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCustomDAConnection Class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCustomConnectionDialog Class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMonitorOption Enumeration</td>
<td></td>
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### Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDATraceFlags Set</td>
<td>38</td>
</tr>
<tr>
<td>TMonitorOptions Set</td>
<td>39</td>
</tr>
<tr>
<td>TOnSQLEvent Procedure Reference</td>
<td>39</td>
</tr>
</tbody>
</table>

### Enumerations

<table>
<thead>
<tr>
<th>Enumeration</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDATraceFlag Enumeration</td>
<td>40</td>
</tr>
<tr>
<td>TMonitorOption Enumeration</td>
<td>41</td>
</tr>
</tbody>
</table>
VirtualDAC

TCustomDASQL Class

Methods

Properties

Members

Events

TCustomDASQL Class

Members

Properties

Methods
Executing Method ........................................................................................................ 160
FindMacro Method .................................................................................................... 161
FindParam Method .................................................................................................... 161
MacroByName Method ............................................................................................... 162
ParamByName Method ............................................................................................... 163
Prepare Method .......................................................................................................... 164
UnPrepare Method ...................................................................................................... 164
WaitExecuting Method .............................................................................................. 165
Events ......................................................................................................................... 165
AfterExecute Event ..................................................................................................... 166
TCustomDAUpdateSQL Class ....................................................................................... 166
Members ...................................................................................................................... 167
Properties .................................................................................................................. 168
DataSet Property ...................................................................................................... 170
DeleteObject Property ............................................................................................... 170
DeleteSQL Property ................................................................................................... 171
InsertObject Property ............................................................................................... 171
InsertSQL Property ................................................................................................... 172
LockObject Property .................................................................................................. 172
LockSQL Property ...................................................................................................... 173
ModifyObject Property .............................................................................................. 173
ModifySQL Property ................................................................................................. 174
RefreshObject Property ............................................................................................ 174
RefreshSQL Property ............................................................................................... 175
SQL Property(Indexer) ............................................................................................... 175
Methods ...................................................................................................................... 176
Apply Method .............................................................................................................. 176
ExecSQL Method ........................................................................................................ 177
TDACondition Class ................................................................................................... 178
Members ...................................................................................................................... 178
Properties .................................................................................................................. 179
Enabled Property ....................................................................................................... 179
Name Property ........................................................................................................... 180
Value Property ........................................................................................................... 180
Methods ...................................................................................................................... 180
Disable Method ......................................................................................................... 181
Enable Method ............................................................................................................ 181
TDAConditions Class .................................................................................................. 182
Members ...................................................................................................................... 182
Properties .................................................................................................................. 183
Condition Property(Indexer) ...................................................................................... 184
Enabled Property ....................................................................................................... 185
Items Property(Indexer) ............................................................................................. 185
Text Property .............................................................................................................. 185
WhereSQL Property ................................................................................................... 186
Methods ...................................................................................................................... 186
Add Method ................................................................................................................. 187
Add Method ................................................................................................................. 187
Add Method ................................................................................................................. 188
Delete Method ............................................................................................................. 189
Disable Method ......................................................................................................... 189
Enable Method ............................................................................................................ 190
Find Method ............................................................................................................... 190
Get Method ............................................................................................................... 190
Properties

IndexOf Method......................................................................................................................... 191
Remove Method......................................................................................................................... 191
TDAConnectionOptions Class..................................................................................................... 192
Members........................................................................................................................................ 193
Properties..................................................................................................................................... 192
Allow ImplicitConnect Property..................................................................................................... 194
DefaultSortType Property.............................................................................................................. 194
DisconnectedMode Property.......................................................................................................... 195
KeepDesignConnected Property................................................................................................. 196
LocalFailover Property................................................................................................................ 196
TDADataSetOptions Class............................................................................................................. 197
Members........................................................................................................................................ 197
Properties..................................................................................................................................... 200
AutoPrepare Property.................................................................................................................... 202
CacheCalcFields Property............................................................................................................. 203
CompressBlobMode Property......................................................................................................... 203
DefaultValue Property.................................................................................................................. 204
DetailDelay Property.................................................................................................................... 204
FieldsOrigin Property................................................................................................................... 205
FlatBuffers Property..................................................................................................................... 205
InsertAllSetFields Property.......................................................................................................... 206
LocalMasterDetail Property.......................................................................................................... 206
LongStrings Property.................................................................................................................... 207
MasterFieldsNullable Property.................................................................................................... 207
NumberRange Property.................................................................................................................. 207
QueryRecCount Property............................................................................................................... 208
QuoteNames Property.................................................................................................................... 208
RemoveOnRefresh Property.......................................................................................................... 209
RequiredFields Property.............................................................................................................. 209
ReturnParams Property.................................................................................................................. 210
SetFieldsReadOnly Property......................................................................................................... 210
StrictUpdate Property.................................................................................................................... 211
TrimFixedChar Property.................................................................................................................. 212
UpdateAllFields Property............................................................................................................. 212
UpdateBatchSize Property............................................................................................................. 212
TDAMapRule Class......................................................................................................................... 213
Members........................................................................................................................................ 213
Properties..................................................................................................................................... 214
DBLengthMax Property................................................................................................................... 215
DBLengthMin Property................................................................................................................... 216
DBScaleMax Property..................................................................................................................... 216
DBScaleMin Property..................................................................................................................... 217
DBType Property.......................................................................................................................... 217
FieldLength Property.................................................................................................................... 218
FieldName Property....................................................................................................................... 218
FieldScale Property...................................................................................................................... 218
FieldType Property........................................................................................................................ 219
IgnoreErrors Property.................................................................................................................... 219
TDAMapRules Class........................................................................................................................ 220
Members........................................................................................................................................ 220
Properties..................................................................................................................................... 220
IgnoreInvalidRules Property.......................................................................................................... 221
TDAMetaData Class........................................................................................................................ 222
Members........................................................................................................................................ 223
<table>
<thead>
<tr>
<th>Class</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMacros Class</td>
<td>Members</td>
</tr>
<tr>
<td></td>
<td>Properties</td>
</tr>
<tr>
<td></td>
<td>NAME PROPERTY</td>
</tr>
<tr>
<td></td>
<td>AsString Property</td>
</tr>
<tr>
<td></td>
<td>AsInteger Property</td>
</tr>
<tr>
<td></td>
<td>AsFloat Property</td>
</tr>
<tr>
<td></td>
<td>AsDateTime Property</td>
</tr>
<tr>
<td></td>
<td>Methods</td>
</tr>
<tr>
<td></td>
<td>GetMetaDataKinds Method</td>
</tr>
<tr>
<td></td>
<td>GetRestrictions Method</td>
</tr>
<tr>
<td>TDAParam Class</td>
<td>Members</td>
</tr>
<tr>
<td></td>
<td>Properties</td>
</tr>
<tr>
<td></td>
<td>AsBlob Property</td>
</tr>
<tr>
<td></td>
<td>AsBlobRef Property</td>
</tr>
<tr>
<td></td>
<td>AsFloat Property</td>
</tr>
<tr>
<td></td>
<td>AsInteger Property</td>
</tr>
<tr>
<td></td>
<td>AsLargeInt Property</td>
</tr>
<tr>
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<td>AsMemo Property</td>
</tr>
<tr>
<td></td>
<td>AsMemoRef Property</td>
</tr>
<tr>
<td></td>
<td>AsSQLTimeStamp Property</td>
</tr>
<tr>
<td></td>
<td>AsString Property</td>
</tr>
<tr>
<td></td>
<td>AsWideString Property</td>
</tr>
<tr>
<td></td>
<td>DataType Property</td>
</tr>
<tr>
<td></td>
<td>IsNull Property</td>
</tr>
<tr>
<td></td>
<td>ParamType Property</td>
</tr>
<tr>
<td></td>
<td>Size Property</td>
</tr>
<tr>
<td></td>
<td>Value Property</td>
</tr>
<tr>
<td></td>
<td>Methods</td>
</tr>
<tr>
<td></td>
<td>AssignField Method</td>
</tr>
<tr>
<td></td>
<td>AssignFieldValue Method</td>
</tr>
<tr>
<td></td>
<td>LoadFromFile Method</td>
</tr>
<tr>
<td></td>
<td>LoadFromStream Method</td>
</tr>
<tr>
<td></td>
<td>SetBlobData Method</td>
</tr>
<tr>
<td>TDAParams Class</td>
<td>Members</td>
</tr>
<tr>
<td></td>
<td>Properties</td>
</tr>
<tr>
<td></td>
<td>Items Property (Indexer)</td>
</tr>
<tr>
<td></td>
<td>Methods</td>
</tr>
<tr>
<td></td>
<td>FindParam Method</td>
</tr>
<tr>
<td></td>
<td>ParamByName Method</td>
</tr>
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<td>Members</td>
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<tr>
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<td>Properties</td>
</tr>
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<td>Name Property</td>
</tr>
<tr>
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<td>Value Property</td>
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<td>TMacros Class</td>
<td>Members</td>
</tr>
<tr>
<td></td>
<td>Properties</td>
</tr>
<tr>
<td></td>
<td>Items Property (Indexer)</td>
</tr>
</tbody>
</table>
VirtualDAC

Classes

4 MemData

Methods

AssignValues Method .............................................................. 260
Expand Method ........................................................................ 261
FindMacro Method .................................................................... 262
IsEqual Method ......................................................................... 262
MacroByName Method ............................................................... 263
Scan Method .............................................................................. 264

TPoolingOptions Class .............................................................. 264
Members .................................................................................. 265
Properties ................................................................................ 265
ConnectionLifetime Property .................................................... 266
MaxPoolSize Property ............................................................... 267
MinPoolSize Property ............................................................... 267
Validate Property ..................................................................... 267

TSmartFetchOptions Class ......................................................... 268
Members .................................................................................. 268
Properties ................................................................................ 269
Enabled Property ....................................................................... 269
LiveBlock Property .................................................................... 270
PrefetchedFields Property ......................................................... 270
SQLGetKeyValues Property ....................................................... 271

Types ...................................................................................... 271
TAfterExecuteEvent Procedure Reference .................................. 272
TAfterFetchEvent Procedure Reference ....................................... 273
TBeforeFetchEvent Procedure Reference ..................................... 273
TConnectionLostEvent Procedure Reference ................................ 274
TDAConnectionErrorEvent Procedure Reference ....................... 275
TDATransactionErrorEvent Procedure Reference ....................... 275
TRefreshOptions Set .................................................................. 276
TUpdateExecuteEvent Procedure Reference .................................. 276

Enumerations .......................................................................... 276
TCheckMode Enumeration ........................................................ 277
TLabelSet Enumeration ............................................................ 277
TRefreshOption Enumeration .................................................... 278
TRYtryMode Enumeration ........................................................ 278

Variables ................................................................................. 279
BaseSQLOldBehavior Variable .................................................. 280
ChangeCursor Variable ............................................................. 280
SQLGeneratorCompatibility Variable ........................................ 280

4 MemData .............................................................................. 281

Classes .................................................................................... 281
TAttribute Class ................................................................. 281
Members .................................................................................. 282
Properties ................................................................................ 283
AttributeNo Property .............................................................. 284
DataType Property ................................................................. 285
DataSize Property ................................................................... 285
Length Property ....................................................................... 286
ObjectTypeName Property ......................................................... 286
Offset Property ......................................................................... 286
Owner Property ......................................................................... 287
Scale Property .......................................................................... 287
Size Property ............................................................................. 288

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Members ................................................................. 289
Properties ................................................................. 290
  AsString Property ................................................. 291
  AsWideString Property ......................................... 292
  IsUnicode Property .............................................. 292
  Size Property ....................................................... 293
Methods ................................................................. 293
  Assign Method ...................................................... 294
  Clear Method ......................................................... 295
  LoadFromFile Method ............................................ 295
  LoadFromStream Method ........................................ 296
  Read Method ......................................................... 296
  SaveToFile Method ............................................... 297
  SaveToStream Method ............................................ 298
  Truncate Method .................................................. 298
  Write Method ....................................................... 299
TCompressedBlob Class ............................................. 300
Members ................................................................. 301
Properties ................................................................. 302
  Compressed Property ............................................ 303
  CompressedSize Property ....................................... 303
TDBObject Class ......................................................... 304
Members ................................................................. 304
TMemData Class ......................................................... 305
Members ................................................................. 305
TObjectType Class ...................................................... 305
Members ................................................................. 306
Properties ................................................................. 307
  AttributeCount Property ....................................... 308
  Attributes Property (Indexer) ................................. 308
  DataType Property .............................................. 309
  Size Property ....................................................... 309
Methods ................................................................. 310
  FindAttribute Method ........................................... 310
TSharedObject Class .................................................. 311
Members ................................................................. 312
Properties ................................................................. 312
  RefCount Property .............................................. 313
Methods ................................................................. 313
  AddRef Method ...................................................... 314
  Release Method .................................................... 314
Types ........................................................................ 315
  TLocateExOptions Set ............................................ 315
  TUpdateRecKinds Set ............................................. 315
Enumerations ................................................................ 316
  TCompressBlobMode Enumeration ............................... 316
  TConnLostCause Enumeration .................................. 317
  TDANumericType Enumeration .................................. 318
  TLocateExOption Enumeration .................................. 319
  TSortType Enumeration .......................................... 320
  TUpdateRecKind Enumeration .................................. 320
5 MemDS ................................................................... 321
Classes ..................................................................... 321
  TMemDataSet Class ................................................ 321
### VirtualDataSet

<table>
<thead>
<tr>
<th>Members</th>
<th>321</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties</td>
<td>325</td>
</tr>
<tr>
<td>CachedUpdates Property</td>
<td>326</td>
</tr>
<tr>
<td>IndexFieldNames Property</td>
<td>327</td>
</tr>
<tr>
<td>KeyExclusive Property</td>
<td>328</td>
</tr>
<tr>
<td>LocalConstraints Property</td>
<td>329</td>
</tr>
<tr>
<td>LocalUpdate Property</td>
<td>329</td>
</tr>
<tr>
<td>Prepared Property</td>
<td>330</td>
</tr>
<tr>
<td>Ranged Property</td>
<td>330</td>
</tr>
<tr>
<td>UpdateRecordTypes Property</td>
<td>331</td>
</tr>
<tr>
<td>UpdatesPending Property</td>
<td>331</td>
</tr>
<tr>
<td>Methods</td>
<td>332</td>
</tr>
<tr>
<td>ApplyRange Method</td>
<td>334</td>
</tr>
<tr>
<td>ApplyUpdates Method</td>
<td>335</td>
</tr>
<tr>
<td>CancelUpdates Method</td>
<td>337</td>
</tr>
<tr>
<td>CancelRange Method</td>
<td>336</td>
</tr>
<tr>
<td>CommitUpdates Method</td>
<td>338</td>
</tr>
<tr>
<td>DeferredPost Method</td>
<td>339</td>
</tr>
<tr>
<td>EditRangeEnd Method</td>
<td>340</td>
</tr>
<tr>
<td>EditRangeStart Method</td>
<td>341</td>
</tr>
<tr>
<td>GetBlob Method</td>
<td>341</td>
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<td>345</td>
</tr>
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<td>346</td>
</tr>
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<td>346</td>
</tr>
<tr>
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<td>348</td>
</tr>
<tr>
<td>RevertRecord Method</td>
<td>348</td>
</tr>
<tr>
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<td>349</td>
</tr>
<tr>
<td>SaveToXML Method</td>
<td>349</td>
</tr>
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</tr>
<tr>
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<td>351</td>
</tr>
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<td>351</td>
</tr>
<tr>
<td>SetRange Method</td>
<td>351</td>
</tr>
<tr>
<td>SetRangeEnd Method</td>
<td>352</td>
</tr>
<tr>
<td>SetRangeStart Method</td>
<td>353</td>
</tr>
<tr>
<td>UnPrepare Method</td>
<td>354</td>
</tr>
<tr>
<td>UpdateResult Method</td>
<td>354</td>
</tr>
<tr>
<td>UpdateStatus Method</td>
<td>355</td>
</tr>
<tr>
<td>Events</td>
<td>356</td>
</tr>
<tr>
<td>OnUpdateError Event</td>
<td>356</td>
</tr>
<tr>
<td>OnUpdateRecord Event</td>
<td>357</td>
</tr>
<tr>
<td>Variables</td>
<td>358</td>
</tr>
<tr>
<td>DoNotRaiseExceptionOnError Variable</td>
<td>359</td>
</tr>
<tr>
<td>SendDataSetChangeEventAfterOpen Variable</td>
<td>359</td>
</tr>
</tbody>
</table>

### VirtualDataSet

<table>
<thead>
<tr>
<th>Classes</th>
<th>360</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualDataSet Class</td>
<td>360</td>
</tr>
<tr>
<td>Members</td>
<td>360</td>
</tr>
<tr>
<td>TVirtualDataSet Class</td>
<td>363</td>
</tr>
</tbody>
</table>

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7 VirtualQuery .......................................................................................................................... 374

Classes ...................................................................................................................................... 374

TCustomVirtualQuery Class ...................................................................................................... 375
  Members .................................................................................................................................. 375
  Properties ............................................................................................................................... 383
    Options Property .................................................................................................................. 387
    SourceDataSets Property ..................................................................................................... 387
  Events .................................................................................................................................... 388
    OnRegisterCollations Event .............................................................................................. 389
    OnRegisterFunctions Event .............................................................................................. 390

TDataSetLink Class .................................................................................................................. 390
  Members .................................................................................................................................. 391
  Properties ............................................................................................................................... 391
    DataSet Property ............................................................................................................... 392
    SchemaName Property ........................................................................................................ 393
    TableName Property ......................................................................................................... 393

TDataSetLinks Class ................................................................................................................ 394
  Members .................................................................................................................................. 394
  Methods .................................................................................................................................. 395
    Add Method .......................................................................................................................... 395
    Add Method .......................................................................................................................... 396
    Add Method .......................................................................................................................... 396

TVirtualCollationManager Class ............................................................................................... 397
  Members .................................................................................................................................. 397

TVirtualFunctionManager Class ............................................................................................... 398
  Members .................................................................................................................................. 398

TVirtualQuery Class .................................................................................................................. 398
  Members .................................................................................................................................. 400
  Properties ............................................................................................................................... 408
    FetchAll Property ............................................................................................................... 412
    UpdatingTable Property ................................................................................................... 413

TVirtualQueryOptions Class ...................................................................................................... 413
  Members .................................................................................................................................. 414
  Properties ............................................................................................................................... 417
    AutoOpenSources Property .............................................................................................. 420
    FullRefresh Property ....................................................................................................... 421
    SetEmptyStrToNull Property ............................................................................................ 421
    TrimVarChar Property ....................................................................................................... 422

Types ......................................................................................................................................... 422

TRemoveFunctionsEvent Procedure Reference ........................................................................ 422

8 VirtualTable .......................................................................................................................... 423
<table>
<thead>
<tr>
<th>Classes</th>
<th>423</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualAutoIncField Class</td>
<td>423</td>
</tr>
<tr>
<td>Members</td>
<td>424</td>
</tr>
<tr>
<td>Properties</td>
<td>424</td>
</tr>
<tr>
<td>AutoGenerateValue Property</td>
<td>425</td>
</tr>
<tr>
<td>Increment Property</td>
<td>426</td>
</tr>
<tr>
<td>InitialValue Property</td>
<td>426</td>
</tr>
<tr>
<td>TVirtualTable Class</td>
<td>427</td>
</tr>
<tr>
<td>Members</td>
<td>428</td>
</tr>
<tr>
<td>Properties</td>
<td>431</td>
</tr>
<tr>
<td>DefaultSortType Property</td>
<td>433</td>
</tr>
<tr>
<td>Options Property</td>
<td>433</td>
</tr>
<tr>
<td>Methods</td>
<td>434</td>
</tr>
<tr>
<td>AddField Method</td>
<td>436</td>
</tr>
<tr>
<td>Assign Method</td>
<td>437</td>
</tr>
<tr>
<td>Clear Method</td>
<td>438</td>
</tr>
<tr>
<td>DeleteField Method</td>
<td>439</td>
</tr>
<tr>
<td>DeleteFields Method</td>
<td>439</td>
</tr>
<tr>
<td>LoadFromFile Method</td>
<td>440</td>
</tr>
<tr>
<td>LoadFromStream Method</td>
<td>440</td>
</tr>
<tr>
<td>SaveToFile Method</td>
<td>441</td>
</tr>
<tr>
<td>SaveToStream Method</td>
<td>442</td>
</tr>
<tr>
<td>Types</td>
<td>442</td>
</tr>
<tr>
<td>TVirtualTableOptions Set</td>
<td>443</td>
</tr>
<tr>
<td>Enumerations</td>
<td>443</td>
</tr>
<tr>
<td>TVirtualTableOption Enumeration</td>
<td>443</td>
</tr>
</tbody>
</table>
1  What's New

01-Jun-20 New Features in VirtualTable 11.2
• RAD Studio 10.4 Sydney is supported
• Lazarus 2.0.8 is supported
• macOS 64-bit in Lazarus is supported

26-Nov-19 New Features in VirtualTable 11.1
• Android 64-bit is supported
• Lazarus 2.0.6 is supported
• Now Trial edition for macOS and Linux is fully functional

22-Jul-19 New Features in VirtualTable 11.0
• macOS 64-bit is supported
• Release 2 for RAD Studio 10.3 Rio, Delphi 10.3 Rio, and C++Builder 10.3 Rio is now required

24-Jun-19 New Features in VirtualTable 10.6
• Lazarus 2.0.2 is supported
• The DefaultSortType property for TVirtualTable is added
• Performance of the SaveToFile/LoadFromFile methods of TVirtualTable is significantly increased

26-Nov-18 New Features in VirtualTable 10.5
• RAD Studio 10.3 Rio is supported
• Support of UPPER and LOWER functions for Unified SQL is added

09-Jul-18 New Features in VirtualTable 10.4
• Lazarus 1.8.4 is supported
• The LocalUpdate property for TVirtualQuery is added
• The AutoOpenSources option for TVirtualQuery is added

18-Jan-18 New Features in VirtualTable 10.3
• Lazarus is supported
19-Sep-17 New Features in VirtualDAC 10.2
- The performance of TVirtualQuery is significantly improved
- Application-defined functions in TVirtualQuery are supported
- Application-defined collations in TVirtualQuery are supported
- AutoInc fields in TVirtualTable are supported

05-Apr-17 New Features in VirtualDAC 10.1
- RAD Studio 10.2 Tokyo is supported
- Linux in RAD Studio 10.2 Tokyo is supported

08-Sep-16 Release of VirtualDAC 10.0
- VirtualTable is renamed to VirtualDAC
- TVirtualDataSet component is added
- TVirtualQuery component is added

25-Apr-16 New Features in VirtualTable 9.7
- RAD Studio 10.1 Berlin is supported
- Lazarus 1.6 and FPC 3.0.0 is supported

09-Sep-16 New Features in VirtualTable 9.6
- RAD Studio 10 Seattle is supported

14-Apr-15 New Features in VirtualTable 9.5
- RAD Studio XE8 is supported
- AppMethod is supported

15-Sep-14 New Features in VirtualTable 9.4
- RAD Studio XE7 is supported
- Lazarus 1.2.2 and FPC 2.6.4 is supported

29-Apr-14 New Features in VirtualTable 9.3
- RAD Studio XE6 is supported
- Android in C++Builder XE6 is supported
- Lazarus 1.2.2 and FPC 2.6.4 is supported
- An option for saving all data avoiding filter is added
25-Dec-13 New Features in VirtualTable 9.2
- iOS in C++Builder XE5 is supported
- RAD Studio XE5 Update 2 is now required
- Now .obj and .o files are supplied for C++Builder

19-Sep-13 New Features in VirtualTable 9.1
- RAD Studio XE5 is supported
- Application development for Android is supported
- Lazarus 1.0.12 is supported
- Performance is improved
- Automatic checking for new versions is added
- The ReadOnly property is added
- The voSetEmptyStrToNull option is added
- Support of the IN keyword in the TDataSet.Filter property is added
- Like operator behaviour when used in the Filter property is now similar to TClientDataSet
- The possibility to use ranges is added

25-Apr-13 New Features in VirtualTable 9.0
- RAD Studio XE4 is supported
- NEXTGEN compiler is supported
- Application development for iOS is supported
- Support of TimeStamp, Single and Extended fields is added

14-Feb-13 New Features in VirtualTable 8.6
- RAD Studio XE3 Update 2 is now required
- C++Builder 64-bit for Windows is supported

07-Nov-12 New Features in VirtualTable 8.5
- RAD Studio XE3 is supported
- Windows 8 is supported

21-Jun-12 New Features in VirtualTable 8.2
- Update 4 Hotfix 1 for RAD Studio XE2, Delphi XE2, and C++Builder XE2 is now required

02-Apr-12 New Features in VirtualTable 8.1
- Lazarus 0.9.30.4 and FPC 2.6.0 are supported
- Bug with saving BCD fields to a Stream is fixed
- Update 4 for RAD Studio XE2, Delphi XE2, and C++Builder XE2 is now required
- macOS in RAD Studio XE2 is supported
- FireMonkey support is improved

15-Sep-11 New Features in VirtualTable 8.0
- Embarcadero RAD Studio XE2 is supported
- Application development for 64-bit Windows is supported
- FireMonkey application development platform is supported
- Support of master/detail relationship is added
- OnProgress event is added

15-Jun-11 New Features in VirtualTable 7.20
- Possibility to load data without recreating persistent fields is added
- Working in design time editor is improved
- Lazarus 0.9.30 and FPC 2.4.2 is supported

10-Mar-11 New Features in VirtualTable 7.10
- Delphi & C++Builder XE Starter Edition supported

13-Sep-10 New Features in VirtualTable 7.00
- Embarcadero RAD Studio XE supported

10-Sep-09 New Features in VirtualTable 6.90
- Embarcadero RAD Studio 2010 supported

27-May-09 New Features in VirtualTable 6.80
- Added distinction between empty string and null value when saving/loading string fields
- Added support for Free Pascal under Linux

26-Feb-09 New Features in VirtualTable 6.70
- Delphi 2009 and C++Builder 2009 supported
- Extended Unicode support for Delphi 2007 added (special Unicode build)
- Free Pascal 2.2 supported
14-Nov-07 New Features in VirtualTable 6.25
- CodeGear RAD Studio 2007 supported
- Added support for TVariantField

02-Aug-07 New Features in VirtualTable 6.10
- C++Builder 2007 supported

20-Apr-07 New Features in VirtualTable 6.00
- Delphi 2007 for Win32 supported
- LargeInt fields supported
- WideMemo field type in Delphi 2006 supported
- General performance improved

16-Feb-07 New Features in VirtualTable 5.80
- Added support for Professional editions of Turbo Delphi, Turbo Delphi for .NET, Turbo C++

07-Jul-06 New Features in VirtualTable 5.70
- Support for Delphi 2006 added
- Performance of SaveToFile and LoadFromFile functions improved (12435)
- Modifying FieldDefs is accelerated

29-Apr-05 New Features in VirtualTable 5.50
- Support for Delphi 2005 added
- Update Pack 3 is required for Delphi 8

09-Apr-04 New Features in VirtualTable 5.00
- Support for Delphi 8 added

08-Oct-02 New Features in VirtualTable 4.00
- Delphi 7 support added

03-Sep-02 New Features in VirtualTable 3.90
- Kylix3 support

14-Dec-01 New Features in VirtualTable 3.50
• Support for Kylix 2 is added

20-Feb-01 New Features in VirtualTable 3.00
• Support for Kylix is added

30-Mar-00 New Features in VirtualTable 2.20
• Support for C++ Builder 5 is added

14-Oct-99 New Features in VirtualTable 2.00
• Smart refreshing is added

01-Mar-99 First release of VirtualTable 1.00

2 General Information

This section contains general information about Virtual Data Access Components

• Overview
• Features
• Requirements
• Compatibility
• Using Several DAC Products in One IDE
• Component List
• Hierarchy Chart
• Editions
• Licensing and Subscriptions
• Getting Support

2.1 Overview

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

**VirtualQuery**

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

**VirtualTable**

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

**VirtualDataSet**

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

**Description of VirtualDAC package**

- The TVirtualTable component represents an in-memory data storage that does not have linked data files. TVirtualTable allows to load data from a XML file, or from an existing dataset, and then process the data in the usual way, as in any TDataSet descendant.
- The TVirtualDataSet component does not store data in memory and interacts with data using event handlers. It can be used to represent of arbitrary data (arrays, lists etc.) in tabular form, and for modifying the data using usual TDataSet methods.
- The TVirtualQuery component is used to retrieve data simultaneously from several different RDBMS'es. Instead of a database connection, it use a collection of TDataSet descendants as the data source, to which a SQL-query can be performed.
Key Features

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

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

2.2 Features

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

General usability

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

TVirtualQuery

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

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

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

**Data storage operations**
• Local sorting and filtering, including by calculated and lookup fields
• Local master/detail relationship
• Extended capabilities for record locating

**Data exchange**
• Data export and import to/from XML (ADO format)

**Design-time enhancements**
• Advanced design-time component and property editors

**Product clarity**
• Complete documentation sets
• Helpful demo projects

**Licensing and support**
• Included annual VirtualDAC Subscription with Priority Support
• Licensed royalty-free per developer, per team, or per site
2.3 Requirements

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

2.4 Compatibility

IDE Compatibility

VirtualDAC is compatible with the following IDEs:

- Embarcadero RAD Studio 10.4 Sydney
  - Embarcadero Delphi 10.4 Sydney for Windows
  - Embarcadero Delphi 10.4 Sydney for macOS
  - Embarcadero Delphi 10.4 Sydney for Linux
  - Embarcadero Delphi 10.4 Sydney for iOS
  - Embarcadero Delphi 10.4 Sydney for Android
  - Embarcadero C++Builder 10.4 Sydney for Windows
  - Embarcadero C++Builder 10.4 Sydney for iOS
  - Embarcadero C++Builder 10.4 Sydney for Android
- Embarcadero RAD Studio 10.3 Rio (Requires Release 2 or Release 3)
  - Embarcadero Delphi 10.3 Rio for Windows
  - Embarcadero Delphi 10.3 Rio for macOS
  - Embarcadero Delphi 10.3 Rio for Linux
  - Embarcadero Delphi 10.3 Rio for iOS
  - Embarcadero Delphi 10.3 Rio for Android
  - Embarcadero C++Builder 10.3 Rio for Windows
  - Embarcadero C++Builder 10.3 Rio for macOS
  - Embarcadero C++Builder 10.3 Rio for iOS
  - Embarcadero C++Builder 10.3 Rio for Android
- Embarcadero RAD Studio 10.2 Tokyo
  - Embarcadero Delphi 10.2 Tokyo for Windows
  - Embarcadero Delphi 10.2 Tokyo for macOS
  - Embarcadero Delphi 10.2 Tokyo for Linux
  - Embarcadero Delphi 10.2 Tokyo for iOS
- Embarcadero Delphi 10.2 Tokyo for Android
- Embarcadero C++Builder 10.2 Tokyo for Windows
- Embarcadero C++Builder 10.2 Tokyo for macOS
- Embarcadero C++Builder 10.2 Tokyo for iOS
- Embarcadero C++Builder 10.2 Tokyo for Android

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

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

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

- Embarcadero RAD Studio XE7
  - Embarcadero Delphi XE7 for Windows
  - Embarcadero Delphi XE7 for macOS
  - Embarcadero Delphi XE7 for iOS
  - Embarcadero Delphi XE7 for Android
- Embarcadero C++Builder XE7 for Windows
- Embarcadero C++Builder XE7 for macOS
- Embarcadero C++Builder XE7 for iOS
- Embarcadero C++Builder XE7 for Android
- Embarcadero RAD Studio XE6
  - Embarcadero Delphi XE6 for Windows
  - Embarcadero Delphi XE6 for macOS
  - Embarcadero Delphi XE6 for iOS
  - Embarcadero Delphi XE6 for Android
  - Embarcadero C++Builder XE6 for Windows
  - Embarcadero C++Builder XE6 for macOS
  - Embarcadero C++Builder XE6 for iOS
  - Embarcadero C++Builder XE6 for Android
- Embarcadero RAD Studio XE5 (Requires Update 2)
  - Embarcadero Delphi XE5 for Windows
  - Embarcadero Delphi XE5 for macOS
  - Embarcadero Delphi XE5 for iOS
  - Embarcadero Delphi XE5 for Android
  - Embarcadero C++Builder XE5 for Windows
  - Embarcadero C++Builder XE5 for macOS
  - Embarcadero C++Builder XE5 for iOS
- Embarcadero RAD Studio XE4
  - Embarcadero Delphi XE4 for Windows
  - Embarcadero Delphi XE4 for macOS
  - Embarcadero Delphi XE4 for iOS
  - Embarcadero C++Builder XE4 for Windows
  - Embarcadero C++Builder XE4 for macOS
- Embarcadero RAD Studio XE3 (Requires Update 2)
  - Embarcadero Delphi XE3 for Windows
  - Embarcadero Delphi XE3 for macOS
  - Embarcadero C++Builder XE3 for Windows
  - Embarcadero C++Builder XE3 for macOS
- Embarcadero RAD Studio XE2 (Requires Update 4 Hotfix 1)
  - Embarcadero Delphi XE2 for Windows
  - Embarcadero Delphi XE2 for macOS
  - Embarcadero C++Builder XE2 for Windows
  - Embarcadero C++Builder XE2 for macOS
• Embarcadero RAD Studio XE
  o Embarcadero Delphi XE
  o Embarcadero C++Builder XE
• Embarcadero RAD Studio 2010
  o Embarcadero Delphi 2010
  o Embarcadero C++Builder 2010
• CodeGear RAD Studio 2009 (Requires Update 3)
  o CodeGear Delphi 2009
  o CodeGear C++Builder 2009
• CodeGear RAD Studio 2007
  o CodeGear Delphi 2007
  o CodeGear C++Builder 2007
• Borland Developer Studio 2006
  o Borland Delphi 2006
  o Borland C++Builder 2006
• Borland Delphi 7
• Borland Delphi 6 (Requires Update Pack 2 – Delphi 6 Build 6.240)
• Borland C++Builder 6 (Requires Update Pack 4 – C++Builder 6 Build 10.166)
• Lazarus 2.0.8 and Free Pascal 3.0.4 for Windows, macOS, and Linux.

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

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

Supported Target Platforms
• Windows, 32-bit and 64-bit
• macOS, 32-bit and 64-bit
• Linux, 32-bit (only in Lazarus and Free Pascal) and 64-bit
• iOS, 32-bit and 64-bit
• Android, 32-bit and 64-bit

Note that support for 64-bit Windows and macOS was introduced in RAD Studio XE2, and is not available in older versions of RAD Studio. Support for iOS is available since RAD Studio XE4, but support for iOS 64-bit is available since RAD Studio XE8. Support for Android is
Supported GUI Frameworks

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

DAC products compatibility

All DAC products are compatible with each other.

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

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

- Universal Data Access Components
- Oracle Data Access Components
- SQL Server Data Access Components
- MySQL Data Access Components
- InterBase Data Access Components
- PostgreSQL Data Access Components
- SQLite Data Access Components

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

2.5 Using Several DAC Products in One IDE

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

This topic presents a brief description of the components included in the Virtual Data Access Components library. Click on the name of each component for more information. These components do not have their own page, and are added to the Data Access page of the Component palette. TVirtualTable component is included in all VirtualDAC editions. VirtualDAC Express Edition includes only the TVirtualTable component and is absolutely free. TVirtualTable and TVirtualDataSet components are also included in all editions of other Devart Data Access Components.

VirtualDAC Express Edition components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualTable</td>
<td>Dataset that stores data in memory.</td>
</tr>
</tbody>
</table>

VirtualDAC Standard Edition components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualDataSet</td>
<td>Dataset that processes arbitrary non-tabular data.</td>
</tr>
<tr>
<td>TVirtualQuery</td>
<td>Dataset that allows to use SQL statements to retrieve data from in-memory datasets or simultaneously from several different RDBMS'es.</td>
</tr>
</tbody>
</table>

See Also

- [Hierarchy chart](#)
2.7 **Hierarchy Chart**

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

- TObject
  - TPersistent
  - TComponent
    - TDataSet
      - TMemDataSet
        - TCustomDADataset
          - TCustomVirtualQuery
          - TVirtualQuery
        - TCustomVirtualDataSet
          - TVirtualDataSet
          - TVirtualTable

2.8 **Editions**


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

**VirtualDAC Standard Edition** includes all the VirtualDAC components.

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

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

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

### VirtualDAC Edition Matrix

<table>
<thead>
<tr>
<th>Feature</th>
<th>Express</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Virtual Data Access Components</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TVirtualTable</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>TVirtualDataSet</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td>TVirtualQuery</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Desktop Application Development</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>macOS</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td>Linux</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Mobile Application Development</strong></td>
<td></td>
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<td>iOS</td>
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<td>✔️</td>
</tr>
<tr>
<td>Android</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td><strong>Design-Time Features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhanced component and property editors</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
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2.10 Getting Support

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

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

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

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

VirtualDAC Priority Support
VirtualDAC Priority Support is an advanced product support service for getting expedited individual assistance with VirtualDAC-related questions from the VirtualDAC developers.
themselves. Priority Support is carried out over email and has two business days response policy. Priority Support is available for users with an active VirtualDAC Subscription.

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

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

3 Getting Started

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

- Installation
- Deployment

3.1 Installation

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

Compiled versions of VirtualDAC are installed automatically by VirtualDAC Installer for all supported IDEs except for Lazarus. Version of VirtualDAC with Source Code must be installed manually. Installation of VirtualDAC from sources is described in the supplied ReadmeSrc.html file.

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

So before installing a new version of VirtualDAC, uninstall all previous versions of VirtualDAC you may have, and check if your new install is compatible with other Devart Data Access Components products you have installed. For more information please see Using several products in one IDE. If you run into problems or have any compatibility questions, please email virtualdac@devart.com

**Note:** You can avoid performing VirtualDAC uninstallation manually when upgrading to a new version by directing the VirtualDAC installation program to overwrite previous versions. To do this, execute the installation program from the command line with a `/f` or `/force` parameter (Start | Run and type `virtualdacXX.exe /f or /force`, specifying the full path to the appropriate version of the installation program).

### Installed packages

**Note:** `%Virtual DAC%` denotes the path to your VirtualDAC installation directory.

#### Delphi/C++Builder Win32 project packages

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>dacXX.bpl</td>
<td>DAC run-time package</td>
<td>Windows\System32</td>
</tr>
<tr>
<td>dcldacXX.bpl</td>
<td>DAC design-time package</td>
<td>Delphi\Bin</td>
</tr>
<tr>
<td>dacvclXX.bpl</td>
<td>DAC VCL support package</td>
<td>Delphi\Bin</td>
</tr>
<tr>
<td>virtualdacXX.bpl</td>
<td>VirtualDAC run-time package</td>
<td>Windows\System32</td>
</tr>
<tr>
<td>dclvirtualdacXX.bpl</td>
<td>VirtualDAC design-time package</td>
<td>Delphi\Bin</td>
</tr>
</tbody>
</table>

### Environment Changes

To compile VirtualDAC-based applications, your environment must be configured to have access to the VirtualDAC libraries. Environment changes are IDE-dependent.

For all instructions, replace `%Virtual DAC%` with the path to your VirtualDAC installation.
directory

**Delphi**
- `%Vi r t u a l D A C\ Li b` should be included in the Library Path accessible from Tools | Environment options | Library.

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

**C++Builder**

C++Builder 6:
- `$(BCB) \Vi r t u a l D A C\ Li b` should be included in the Library Path of the Default Project Options accessible from Project | Options | Directories/Conditionals.
- `$(BCB) \Vi r t u a l D A C\ I n c l u d e` should be included in the Include Path of the Default Project Options accessible from Project | Options | Directories/Conditionals.

C++Builder 2006, 2007:
- `$(BCB) \Vi r t u a l D A C\ Li b` should be included in the Library search path of the Default Project Options accessible from Project | Default Options | C++Builder | Linker | Paths and Defines.
- `$(BCB) \Vi r t u a l D A C\ I n c l u d e` should be included in the Include search path of the Default Project Options accessible from Project | Default Options | C++Builder | C++ Compiler | Paths and Defines.

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

**Lazarus**

The VirtualDAC installation program only copies VirtualDAC files. You need to install VirtualDAC packages to the Lazarus IDE manually. Open `%VirtualDAC%\Source\Lazarus1\virtualdac10.lpk` (for Trial version `%VirtualDAC%\Packages\virtualdac10.lpk`) file in Lazarus and press the Install button. After that Lazarus IDE will be rebuilt with VirtualDAC packages.

Do not press the Compile button for the package. Compiling will fail because there are no VirtualDAC sources.

To check that your environment has been properly configured, try to compile one of the demo projects included with VirtualDAC. The VirtualDAC demo projects are located in `%VirtualDAC`
3.2 Deployment

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

Deploying Windows applications built without run-time packages

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

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

Trial Limitation Warning

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

<table>
<thead>
<tr>
<th>File Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>dacXX.bpl</td>
<td>always</td>
</tr>
<tr>
<td>virtualdacXX.bpl</td>
<td>always</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>File Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>rtlXX.bpl</td>
<td>always</td>
</tr>
<tr>
<td>dbrtlXX.bpl</td>
<td>always</td>
</tr>
<tr>
<td>vcldbXXX.bpl</td>
<td>always</td>
</tr>
</tbody>
</table>

Deploying Windows applications built with run-time packages

You can set your application to be built with run-time packages by selecting the "Build with runtime packages" check box in the Project Options dialog box before compiling your application.
In this case, you will also need to deploy the following BPL files with your Windows application:

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dacXX.bpl</td>
<td>always</td>
</tr>
<tr>
<td>virtualdacXX.bpl</td>
<td>always</td>
</tr>
</tbody>
</table>

4 Reference

This page shortly describes units that exist in VirtualDAC.

Units

<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dac.DASQLMonitor</td>
<td>This unit contains the base class for the TVirtualSQLMonitor component.</td>
</tr>
<tr>
<td>Dac.DBAccess</td>
<td>This unit contains base classes for most of the components.</td>
</tr>
<tr>
<td>Dac.MemData</td>
<td>This unit contains classes for storing data in memory.</td>
</tr>
<tr>
<td>Dac.MemDS</td>
<td>This unit contains implementation of the TMemDataSet class.</td>
</tr>
<tr>
<td>Dac.VirtualDataSet</td>
<td>This unit contains implementation of the TVirtualDataSet component.</td>
</tr>
<tr>
<td>Dac.VirtualTable</td>
<td>This unit contains implementation of the TVirtualTable component.</td>
</tr>
<tr>
<td>DALoader</td>
<td>Description is not available at the moment.</td>
</tr>
<tr>
<td>DASQLMonitor</td>
<td>Description is not available at the moment.</td>
</tr>
<tr>
<td>DBAccess</td>
<td>Description is not available at the moment.</td>
</tr>
<tr>
<td>MemData</td>
<td>Description is not available at the moment.</td>
</tr>
</tbody>
</table>
### 4.1 DALoader

#### 4.1.1 Classes

Classes in the **DALoader** unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDALoaderOptions</td>
<td>Allows loading external data into database.</td>
</tr>
</tbody>
</table>

**Unit**

DALoader

**Syntax**

```pascal
TDALoaderOptions = class(TPersistent);
```
4.1.1.1.1 Members

**TDALoaderOptions** class overview.

## Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UseBlankValues</td>
<td>Forces VirtualDAC to fill the buffer with null values after loading a row to the database.</td>
</tr>
</tbody>
</table>

4.1.1.1.2 Properties

Properties of the **TDALoaderOptions** class.

For a complete list of the **TDALoaderOptions** class members, see the **TDALoaderOptions Members** topic.

## Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UseBlankValues</td>
<td>Forces VirtualDAC to fill the buffer with null values after loading a row to the database.</td>
</tr>
</tbody>
</table>

See Also

- **TDALoaderOptions Class**
- **TDALoaderOptions Class Members**

### 4.1.1.1.1.2.1 UseBlankValues Property

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

## Class

**TDALoaderOptions**
Syntax

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

Remarks

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

4.2 DASQLMonitor

4.2.1 Classes

Classes in the DASQLMonitor unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCustomDASQLMonitor</td>
<td>A base class that introduces properties and methods to monitor dynamic SQL execution in database applications interactively.</td>
</tr>
<tr>
<td>TDBMonitorOptions</td>
<td>This class holds options for dbMonitor.</td>
</tr>
</tbody>
</table>

4.2.1.1 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

```plaintext
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.

4.2.1.1.1 Members

**TCustomDASQLMonitor** class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Used to activate monitoring of SQL.</td>
</tr>
<tr>
<td>DBMonitorOptions</td>
<td>Used to set options for dbMonitor.</td>
</tr>
<tr>
<td>Options</td>
<td>Used to include the desired properties for TCustomDASQLMonitor.</td>
</tr>
<tr>
<td>TraceFlags</td>
<td>Used to specify which database operations the monitor should track in an application at runtime.</td>
</tr>
</tbody>
</table>

Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnSQL</td>
<td>Occurs when tracing of SQL activity on database components is needed.</td>
</tr>
</tbody>
</table>

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Request Support  
DAC Forum  
Provide Feedback
Properties of the `TCustomDASQLMonitor` class.

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

### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Used to activate monitoring of SQL.</td>
</tr>
<tr>
<td>DBMonitorOptions</td>
<td>Used to set options for <code>dbMonitor</code>.</td>
</tr>
<tr>
<td>Options</td>
<td>Used to include the desired properties for <code>TCustomDASQLMonitor</code>.</td>
</tr>
<tr>
<td>TraceFlags</td>
<td>Used to specify which database operations the monitor should track in an application at runtime.</td>
</tr>
</tbody>
</table>

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

#### 4.2.1.2.1 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.
4.2.1.2.2 DBMonitorOptions Property

Used to set options for dbMonitor.

Class

TCustomDASQLMonitor

Syntax

```property` DBMonitorOptions: `TDBMonitorOptions`;
```

Remarks

Use DBMonitorOptions to set options for dbMonitor.

4.2.1.2.3 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`
4.2.1.1.2.4 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
4.2.1.3.1 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

4.2.1.2 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);
```
4.2.1.2.1 Members

**TDBMonitorOptions** class overview.

Properties

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

4.2.1.2.2 Properties

Properties of the **TDBMonitorOptions** class.

For a complete list of the **TDBMonitorOptions** class members, see the **TDBMonitorOptions Members** topic.

Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>Used to set the host name or IP address of the computer where dbMonitor application runs.</td>
</tr>
<tr>
<td>Port</td>
<td>Used to set the port number for connecting to dbMonitor.</td>
</tr>
<tr>
<td>ReconnectTimeout</td>
<td>Used to set the minimum time that should be spent before reconnecting to dbMonitor is allowed.</td>
</tr>
</tbody>
</table>
4.2.1.2.2.1  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.

4.2.1.2.2.2  Port Property

Used to set the port number for connecting to dbMonitor.

Class

TDBMonitorOptions
4.2.1.2.2.3 ReconnectTimeout Property

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

Class

TDBMonitorOptions

Syntax

```pascal
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.
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.

4.2.2 Types

Types in the DASQLMonitor unit.

Types

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDATraceFlags</td>
<td>Represents the set of TDATraceFlag.</td>
</tr>
<tr>
<td>TMonitorOptions</td>
<td>Represents the set of TMonitorOption.</td>
</tr>
<tr>
<td>TOnSQLEvent</td>
<td>This type is used for the TCustomDASQLMonitor.On SQL event.</td>
</tr>
</tbody>
</table>

4.2.2.1 TDATraceFlags Set

Represents the set of TDATraceFlag.

Unit

DASQLMonitor

Syntax

TDATraceFlags = set of TDATraceFlag;
4.2.2.2 TMonitorOptions Set

Represents the set of TMonitorOption.

Unit
DASQLMonitor

Syntax

\[
\text{TMonitorOptions} = \text{set of TMonitorOption};
\]

4.2.2.3 TOnSQLEvent Procedure Reference

This type is used for the TCustomDASQLMonitor.OnSQL event.

Unit
DASQLMonitor

Syntax

\[
\text{TOnSQLEvent} = \text{procedure (Sender: TObject; Text: string; Flag: TDATraceFlag) of object;}
\]

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.

4.2.3 Enumerations

Enumerations in the DASQLMonitor unit.

Enumerations
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDATraceFlag</td>
<td>Use TraceFlags to specify which database operations the monitor should track in an application at runtime.</td>
</tr>
<tr>
<td>TMonitorOption</td>
<td>Used to define where information from SQLMonitor will be displayed.</td>
</tr>
</tbody>
</table>

### 4.2.3.1 TDATraceFlag Enumeration

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

#### Unit

DASQLMonitor

#### Syntax

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

#### Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tfBlob</td>
<td>This option is declared for future use.</td>
</tr>
<tr>
<td>tfConnect</td>
<td>Establishing a connection.</td>
</tr>
<tr>
<td>tfError</td>
<td>Errors of query execution.</td>
</tr>
<tr>
<td>tfMisc</td>
<td>This option is declared for future use.</td>
</tr>
<tr>
<td>tfObjDestroy</td>
<td>Destroying of components.</td>
</tr>
<tr>
<td>tfParams</td>
<td>Representing parameter values for tfQPrepare and tfQExecute.</td>
</tr>
<tr>
<td>tfPool</td>
<td>Connection pool operations.</td>
</tr>
<tr>
<td>tfQExecute</td>
<td>Execution of the queries.</td>
</tr>
<tr>
<td>tfQFetch</td>
<td>This option is declared for future use.</td>
</tr>
<tr>
<td>tfQPrepare</td>
<td>Queries preparation.</td>
</tr>
<tr>
<td>tfService</td>
<td>This option is declared for future use.</td>
</tr>
</tbody>
</table>
4.2.3.2 TMonitorOption Enumeration

Used to define where information from SQLMonitor will be displayed.

Unit
DASQLMonitor

Syntax

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

Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>moCustom</td>
<td>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.</td>
</tr>
<tr>
<td>moDBMonitor</td>
<td>Debug information is displayed in A:Using_DBMonitor.</td>
</tr>
<tr>
<td>moDialog</td>
<td>Debug information is displayed in debug window.</td>
</tr>
<tr>
<td>moHandled</td>
<td>Component handle is included into the event description string.</td>
</tr>
<tr>
<td>moSQLMonitor</td>
<td>Debug information is displayed in Borland SQL Monitor.</td>
</tr>
</tbody>
</table>

4.3 DBAccess

4.3.1 Classes

Classes in the DBAccess unit.

Classes

<p>| Name    | Description |
|---------|-------------|-------------|</p>
<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAError</td>
<td>A base class for exceptions that are raised when an error occurs on the server side.</td>
</tr>
<tr>
<td>TCustomConnectDialog</td>
<td>A base class for the connect dialog components.</td>
</tr>
<tr>
<td>TCustomDAConnection</td>
<td>A base class for components used to establish connections.</td>
</tr>
<tr>
<td>TCustomDADataset</td>
<td>Encapsulates general set of properties, events, and methods for working with data accessed through various database engines.</td>
</tr>
<tr>
<td>TCustomDASQL</td>
<td>A base class for components executing SQL statements that do not return result sets.</td>
</tr>
<tr>
<td>TCustomDAUpdateSQL</td>
<td>A base class for components that provide DML statements for more flexible control over data modifications.</td>
</tr>
<tr>
<td>TDACCondition</td>
<td>Represents a condition from the TDAConditions list.</td>
</tr>
<tr>
<td>TDAConditions</td>
<td>Holds a collection of TDACondition objects.</td>
</tr>
<tr>
<td>TDAConectionOptions</td>
<td>This class allows setting up the behaviour of the TDAConnection class.</td>
</tr>
<tr>
<td>TDADatasetOptions</td>
<td>This class allows setting up the behaviour of the TDADataset class.</td>
</tr>
<tr>
<td>TDAMapRule</td>
<td>Class that forms rules for Data Type Mapping.</td>
</tr>
<tr>
<td>TDAMapRules</td>
<td>Used for adding rules for DataSet fields mapping with both identifying by field name and by field type and Delphi field types.</td>
</tr>
<tr>
<td>TDAMetaData</td>
<td>A class for retrieving metainformation of the specified database objects in the form of dataset.</td>
</tr>
<tr>
<td>TDAParam</td>
<td>A class that forms objects to</td>
</tr>
<tr>
<td>Reference 43</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TDAParams</th>
<th>Represent the values of the parameters set.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMacro</td>
<td>Object that represents the value of a macro.</td>
</tr>
<tr>
<td>TMacros</td>
<td>Controls a list of TMacro objects for the TCustomDASQL.Macros or TCustomDADDataSet components.</td>
</tr>
<tr>
<td>TPoolingOptions</td>
<td>This class allows setting up the behaviour of the connection pool.</td>
</tr>
<tr>
<td>TSmartFetchOptions</td>
<td>Smart fetch options are used to set up the behavior of the SmartFetch mode.</td>
</tr>
</tbody>
</table>

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### 4.3.1.1 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

```pascal
type EDatabaseError = ...;

EDAError = class(EDatabaseError);
```

#### Remarks

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

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4.3.1.1.1 Members

**EDAError** class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
<td>Contains the component that caused the error.</td>
</tr>
<tr>
<td>ErrorCode</td>
<td>Determines the error code returned by the server.</td>
</tr>
</tbody>
</table>

Properties of the **EDAError** class.

For a complete list of the **EDAError** class members, see the **EDAError Members** topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
<td>Contains the component that caused the error.</td>
</tr>
<tr>
<td>ErrorCode</td>
<td>Determines the error code returned by the server.</td>
</tr>
</tbody>
</table>

See Also
- **EDAError Class**
- **EDAError Class Members**

4.3.1.2.1 Component Property

Contains the component that caused the error.

Class

**EDAError**
4.3.1.1.2.2 ErrorCode Property

Determines the error code returned by the server.

Class

EDAEError

Syntax

```property
ErrorCode: integer;
```

Remarks

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

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4.3.1.2 TCustomConnectDialog Class

A base class for the connect dialog components.

For a list of all members of this type, see `TCustomConnectDialog` members.

Unit

DBAccess

Syntax

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

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

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CancelButton</td>
<td>Used to specify the label for the Cancel button.</td>
</tr>
<tr>
<td>Caption</td>
<td>Used to set the caption of dialog box.</td>
</tr>
<tr>
<td>ConnectButton</td>
<td>Used to specify the label for the Connect button.</td>
</tr>
<tr>
<td>DialogClass</td>
<td>Used to specify the class of the form that will be displayed to enter login information.</td>
</tr>
<tr>
<td>LabelSet</td>
<td>Used to set the language of buttons and labels captions.</td>
</tr>
<tr>
<td>PasswordLabel</td>
<td>Used to specify a prompt for password edit.</td>
</tr>
<tr>
<td>Retries</td>
<td>Used to indicate the number of retries of failed connections.</td>
</tr>
<tr>
<td>SavePassword</td>
<td>Used for the password to be displayed in ConnectDialog in asterisks.</td>
</tr>
<tr>
<td>ServerLabel</td>
<td>Used to specify a prompt for the server name edit.</td>
</tr>
<tr>
<td>StoreLogInfo</td>
<td>Used to specify whether the login information should be kept in system registry after a connection was established.</td>
</tr>
<tr>
<td>UsernameLabel</td>
<td>Used to specify a prompt for username edit.</td>
</tr>
</tbody>
</table>
Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute</td>
<td>Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.</td>
</tr>
<tr>
<td>GetServerList</td>
<td>Retrieves a list of available server names.</td>
</tr>
</tbody>
</table>

Properties of the **TCustomConnectDialog** class.

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

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CancelButton</td>
<td>Used to specify the label for the Cancel button.</td>
</tr>
<tr>
<td>Caption</td>
<td>Used to set the caption of dialog box.</td>
</tr>
<tr>
<td>ConnectButton</td>
<td>Used to specify the label for the Connect button.</td>
</tr>
<tr>
<td>DialogClass</td>
<td>Used to specify the class of the form that will be displayed to enter login information.</td>
</tr>
<tr>
<td>LabelSet</td>
<td>Used to set the language of buttons and labels captions.</td>
</tr>
<tr>
<td>PasswordLabel</td>
<td>Used to specify a prompt for password edit.</td>
</tr>
<tr>
<td>Retries</td>
<td>Used to indicate the number of retries of failed connections.</td>
</tr>
<tr>
<td>SavePassword</td>
<td>Used for the password to be displayed in ConnectDialog in asterisks.</td>
</tr>
<tr>
<td>ServerLabel</td>
<td>Used to specify a prompt for the server name edit.</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>StoreLogInfo</td>
<td>Used to specify whether the login information should be kept in system registry after a connection was established.</td>
</tr>
<tr>
<td>UsernameLabel</td>
<td>Used to specify a prompt for username edit.</td>
</tr>
</tbody>
</table>

See Also

- TCustomConnectDialog Class
- TCustomConnectDialog Class Members

4.3.1.2.2.1 CancelButton Property

Used to specify the label for the Cancel button.

Class

TCustomConnectDialog

Syntax

```plaintext
property CancelButton: string;
```

Remarks

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

4.3.1.2.2.2 Caption Property

Used to set the caption of dialog box.

Class

TCustomConnectDialog
4.3.1.2.2.3 ConnectButton Property

Used to specify the label for the Connect button.

Class

TCustomConnectDialog

Syntax

\texttt{property ConnectButton: string;}

Remarks

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

4.3.1.2.2.4 DialogClass Property

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

Class

TCustomConnectDialog

Syntax

\texttt{property DialogClass: string;}

Remarks

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

See Also

- GetServerList

4.3.1.2.2.5 LabelSet Property

Used to set the language of buttons and labels captions.

Class

TCustomConnectDialog

Syntax

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

Remarks

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

The default value is lsEnglish.

4.3.1.2.2.6 PasswordLabel Property

Used to specify a prompt for password edit.

Class

TCustomConnectDialog

Syntax

```property PasswordLabel: string;
```
Remarks

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

4.3.1.2.2.7 Retries Property

Used to indicate the number of retries of failed connections.

Class

TCustomConnectDialog

Syntax

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

Remarks

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

4.3.1.2.2.8 SavePassword Property

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

Class

TCustomConnectDialog

Syntax

```pascal
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.
4.3.1.2.2.9 ServerLabel Property

Used to specify a prompt for the server name edit.

Class

TCustomConnectDialog

Syntax

property ServerLabel: string;

Remarks

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

4.3.1.2.2.10 StoreLogInfo Property

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

Class

TCustomConnectDialog

Syntax

property StoreLogInfo: boolean default True;

Remarks

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

Set this property to True to store login information.

The default value is True.
4.3.1.2.11 UsernameLabel Property

Used to specify a prompt for username edit.

Class

**TCustomConnectDialog**

Syntax

```plaintext
property UsernameLabel: string;
```

Remarks

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

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4.3.1.2.3 Methods

Methods of the **TCustomConnectDialog** class.

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

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Execute</strong></td>
<td>Displays the connect dialog and calls the connection's Connect method when user clicks the Connect button.</td>
</tr>
<tr>
<td><strong>GetServerList</strong></td>
<td>Retrieves a list of available server names.</td>
</tr>
</tbody>
</table>

See Also

- **TCustomConnectDialog Class**
- **TCustomConnectDialog Class Members**

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4.3.1.2.3.1 Execute Method

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

Class

TCustomConnectDialog

Syntax

function Execute: boolean; virtual;

Return Value

True, if connected.

Remarks

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

In the case of failed connection Execute offers to connect repeat Retries times.

4.3.1.2.3.2 GetServerList Method

Retrieves a list of available server names.

Class

TCustomConnectDialog

Syntax

procedure GetServerList(List: TStrings); virtual;

Parameters

List

Holds a list of available server names.

Remarks

Call the GetServerList method to retrieve a list of available server names. It is particularly relevant for writing custom login form.
4.3.1.3 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.

Properties

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

### Methods

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

### Events

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>OnConnectionLost</td>
<td>This event occurs when connection was lost.</td>
</tr>
<tr>
<td>OnError</td>
<td>This event occurs when an error has arisen in the connection.</td>
</tr>
</tbody>
</table>

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4.3.1.3.2 Properties

Properties of the **TCustomDACConnection** class.

For a complete list of the **TCustomDACConnection** class members, see the
**TCustomDACConnection Members** topic.

**Public**

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

See Also
- TCustomDACConnection Class
- TCustomDACConnection Class Members

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4.3.1.3.2.1 ConnectDialog Property

Allows to link a TCustomConnectDialog component.

Class

TCustomDAConnection

Syntax

property ConnectDialog: TCustomConnectDialog;

Remarks

Use the ConnectDialog property to assign to connection a TCustomConnectDialog component.

See Also

• TCustomConnectDialog

4.3.1.3.2.2 ConnectString Property

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

Class

TCustomDAConnection

Syntax

property ConnectString: string stored False;

Remarks

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

Server=London1;User ID=nancyd

Connection parameters

The following connection parameters can be used to customize connection:
<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LoginPrompt</td>
<td>Specifies whether a login dialog appears immediately before opening a new connection.</td>
</tr>
<tr>
<td>Pooling</td>
<td>Enables or disables using connection pool.</td>
</tr>
<tr>
<td>ConnectionLifeTime</td>
<td>Used to specify the maximum time during which an opened connection can be used by connection pool.</td>
</tr>
<tr>
<td>MaxPoolSize</td>
<td>Used to specify the maximum number of connections that can be opened in connection pool.</td>
</tr>
<tr>
<td>MinPoolSize</td>
<td>Used to specify the minimum number of connections that can be opened in connection pool.</td>
</tr>
<tr>
<td>Validate Connection</td>
<td>Used for a connection to be validated when it is returned from the pool.</td>
</tr>
</tbody>
</table>

See Also
- Password
- Username
- Server
- Connect

4.3.1.3.2.3 ConvertEOL Property

Allows customizing line breaks in string fields and parameters.

Class
TCustomDAConnection

Syntax

```pascal
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
4.3.1.3.2.4  InTransaction Property

Indicates whether the transaction is active.

**Class**

TCustomDAConnection

**Syntax**

```property
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

4.3.1.3.2.5 LoginPrompt Property

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

**Class**

TCustomDAConnection

**Syntax**

```property
property LoginPrompt default DefValLoginPrompt;
```
Remarks
Specifies whether a login dialog appears immediately before opening a new connection. If ConnectDialog is not specified, the default connect dialog will be shown. The connect dialog will appear only if the VirtualDACVcl unit appears to the uses clause.

Class
TCustomDAConnection

Syntax

```property``` Options: TDAConnectionOptions;

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

Descriptions of all options are in the table below.

<table>
<thead>
<tr>
<th>Option Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AllowImplicitConnect</td>
<td>Specifies whether to allow or not implicit connection opening.</td>
</tr>
<tr>
<td>DefaultSortType</td>
<td>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.</td>
</tr>
<tr>
<td>DisconnectedMode</td>
<td>Used to open a connection only when needed for performing a server call and closes after performing the operation.</td>
</tr>
<tr>
<td>KeepDesignConnected</td>
<td>Used to prevent an application from establishing a connection at the time of startup.</td>
</tr>
<tr>
<td>LocalFailover</td>
<td>If True, the OnConnectionLost event occurs and a failover operation can be performed after connection breaks.</td>
</tr>
</tbody>
</table>
### 4.3.1.3.2.7 Password Property

Serves to supply a password for login.

**Class**

`TCustomDAConnection`

**Syntax**

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

**Remarks**

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

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

**See Also**

- `Username`
- `Server`

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### 4.3.1.3.2.8 Pooling Property

Enables or disables using connection pool.

**Class**

`TCustomDAConnection`

**Syntax**

```pascal
property Pooling: boolean default DefValPooling;
```
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: MnPoolSize, MaxPoolSize, Validate, ConnectionLifeTime

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

See Also

- **Username**
- **Password**
- **PoolingOptions**
- A:work_pooling

4.3.1.3.2.9 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.

<table>
<thead>
<tr>
<th>Option Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConnectionLifetime</td>
<td>Used to specify the maximum time during which an opened connection can be used by connection pool.</td>
</tr>
<tr>
<td>MaxPoolSize</td>
<td>Used to specify the maximum number of connections that can be opened in connection pool.</td>
</tr>
<tr>
<td>MinPoolSize</td>
<td>Used to specify the minimum number of connections that can be opened in the connection pool.</td>
</tr>
<tr>
<td>Validate</td>
<td>Used for a connection to be validated when it is returned from the pool.</td>
</tr>
</tbody>
</table>

See Also
- Pooling

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4.3.1.3.2.10 Server Property

Serves to supply the server name for login.

Class
TCustomDACConnection

Syntax

```property` Server: `string;```

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

See Also
- Username
- Password
4.3.1.3.11 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, VirtualDAC tries to connect with the user name.

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

See Also

- **Password**
- **Server**

4.3.1.3.3 Methods

Methods of the **TCustomDAConnection** class.

For a complete list of the **TCustomDAConnection** class members, see the **TCustomDAConnection Members** topic.

**Public**

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

See Also
- TCustomDAConnection Class
- TCustomDAConnection Class Members
4.3.1.3.3.1 ApplyUpdates Method

Applies changes in datasets.

Class

TCustomDAConnection

Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>Applies changes from all active datasets.</td>
</tr>
<tr>
<td>**ApplyUpdates(<strong>const DataSets; array of TCustomDADataset)</strong></td>
<td>Applies changes from the specified datasets.</td>
</tr>
</tbody>
</table>

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`
Applies changes from the specified datasets.

Class

**TCustomDAConnection**

Syntax

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

**Parameters**

*DataSets*

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

Remarks

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

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

Commits current transaction.

Class

**TCustomDAConnection**

Syntax

```pascal
procedure Commit; virtual;
```
Remarks

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

See Also

- Rollback
- StartTransaction
- P:Devart.VirtualDac.TCustomVirtualDataSet.FetchAll

Connect Method

Establishes a connection to the server.

Class

TCustomDAConnection

Syntax

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

Remarks

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

See Also

- Disconnect
- Username
- Password
- Server
- ConnectDialog
4.3.1.3.3.4 CreateSQL Method

Creates a component for queries execution.

Class
TCustomDAConnection

Syntax

```delphi
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.

4.3.1.3.3.5 Disconnect Method

Performs disconnect.

Class
TCustomDAConnection

Syntax

```delphi
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`

### 4.3.1.3.3.6 ExecProc Method

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

#### Class

`TCustomDAConnection`

#### Syntax

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

#### Parameters

- **Name**
  - Holds the name of the stored procedure or function.

- **Params**
  - Holds the parameters of the stored procedure or function.

#### Return Value

- the result of the stored procedure.

#### Remarks

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

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

"StoredProcName:1" or "StoredProcName:5". The first example executes the first overloaded stored procedure, while the second example executes the fifth overloaded procedure.
Assign parameters' values to the Params array in exactly the same order and number as they appear in the stored procedure declaration. Out parameters of the procedure can be accessed with the ParamByName procedure.

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

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

For further examples of parameter usage see ExecSQL, ExecSQLEx.

### Example

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

Example 1)
```
CREATE procedure MY_SUM (      A INTEGER,      B INTEGER)RETURNS (      RESULT INTEGER)
as begin
   Result = a + b;
end;
```

Example 2)
```
Label2.Caption:= MyVirtualConnection1.ParamByName('Result').AsString;
```

### See Also
- ExecProcEx
- ExecSQL
- ExecSQLEx

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4.3.1.3.3.7 ExecProcEx Method

Allows to execute a stored procedure or function.

Class
TCustomDAConnection

Syntax

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

Parameters

Name  
Holds the stored procedure name.

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

Return Value  
the result of the stored procedure.

Remarks

Allows to execute a stored procedure or function. Provide the stored procedure name and its parameters to the call of ExecProcEx.

Use the following Name value syntax for executing specific overloaded routine: 
"StoredProcName:1" or "StoredProcName:5". The first example executes the first overloaded stored procedure, while the second example executes the fifth overloaded procedure.

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

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

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

For an example of parameters usage see ExecSQLEx.
Example

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

```
Connection.ExecProcEx('Some_Stored_Procedure', ['Param_Name1', 'Param_Value1', 'Param_Name4', 'Param_Value4']);
```

See Also

- ExecSQL
- ExecSQLEx
- ExecProc

4.3.1.3.3.8 ExecSQL Method

Executes a SQL statement with parameters.

Class

TCustomDAConnection

Syntax

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

Parameters

- **Text**
  a SQL statement to be executed.

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

Return Value

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

Remarks

Use the ExecSQL method to execute any SQL statement outside the TCustomDADataset or TCustomDASQL components. Supply the Params array with the values of parameters
Executes any SQL statement outside the TQuery or TSQL components.

Class
TCustomDAConnection

Syntax

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

Parameters

- **Text**
  a SQL statement to be executed.

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

Return Value

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

Remarks

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

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

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

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

Example

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

See Also
- `ExecSQL`

4.3.1.3.3.10 GetDatabaseNames Method

Returns a database list from the server.

Class

`TCustomDAConnection`

Syntax

```vbnet
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`
4.3.1.3.3.11 GetKeyFieldNames Method

Provides a list of available key field names.

Class

TCustomDACConnection

Syntax

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

Parameters

- **TableName**
  - Holds the table name

- **List**
  - The list of available key field names

Return Value

- Key field name

Remarks

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

See Also

- GetTableNames
- GetStoredProcNames

4.3.1.3.3.12 GetStoredProcNames Method

Returns a list of stored procedures from the server.

Class
**TCustomDAConnection**

**Syntax**

```delphi
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](#)

---

**4.3.1.3.13 GetTableNames Method**

Provides a list of available tables names.

**Class**

**TCustomDAConnection**

**Syntax**

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

Send 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

4.3.1.3.3.15 Ping Method

Used to check state of connection to the server.

Class
TCustomDAConnection

Syntax

```plaintext
procedure Ping;
```

Remarks
The method is used for checking server connection state.

4.3.1.3.3.16 RemoveFromPool Method

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

Class
TCustomDAConnection

Syntax

```plaintext
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

### 4.3.1.3.3.17 Rollback Method

Discards all current data changes and ends transaction.

**Class**

**TCustomDAConnection**

**Syntax**

```plaintext
procedure Rollback; virtual;
```

**Remarks**

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

See Also
- Commit
- StartTransaction
- P:Devart.VirtualDac.TCustomVirtualDataSet.FetchAll

### 4.3.1.3.3.18 StartTransaction Method

Begins a new user transaction.

**Class**

**TCustomDAConnection**
Syntax

```pascal
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`

4.3.1.3.4 Events

Events of the `TCustomDACConnection` class.

For a complete list of the `TCustomDACConnection` class members, see the `TCustomDACConnection Members` topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnConnectionLost</td>
<td>This event occurs when connection was lost.</td>
</tr>
<tr>
<td>OnError</td>
<td>This event occurs when an error has arisen in the connection.</td>
</tr>
</tbody>
</table>

See Also

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

4.3.1.3.4.2 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.
4.3.1.4  TCustomDADataSet Class

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

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

**Unit**

DBAccess

**Syntax**

```delphi
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

### Members

TCustomDADataSet class overview.

### Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaseSQL</td>
<td>Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.</td>
</tr>
<tr>
<td><strong>CachedUpdates</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>Conditions</strong></td>
<td>Used to add WHERE conditions to a query</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td><strong>DataTypeMap</strong></td>
<td>Used to set data type mapping rules</td>
</tr>
<tr>
<td><strong>Debug</strong></td>
<td>Used to display executing statement, all its parameters’ values, and the type of parameters.</td>
</tr>
<tr>
<td><strong>DetailFields</strong></td>
<td>Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.</td>
</tr>
<tr>
<td><strong>Disconnected</strong></td>
<td>Used to keep dataset opened after connection is closed.</td>
</tr>
<tr>
<td><strong>FetchRows</strong></td>
<td>Used to define the number of rows to be transferred across the network at the same time.</td>
</tr>
<tr>
<td><strong>FilterSQL</strong></td>
<td>Used to change the WHERE clause of SELECT statement and reopen a query.</td>
</tr>
<tr>
<td><strong>FinalSQL</strong></td>
<td>Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>IsQuery</strong></td>
<td>Used to check whether SQL statement returns rows.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>KeyFields</strong></td>
<td>Used to build SQL</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.</td>
<td></td>
</tr>
<tr>
<td>LocalConstraints (inherited from TMemDataSet)</td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td>LocalUpdate (inherited from TMemDataSet)</td>
<td>Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td>MacroCount</td>
<td>Used to get the number of macros associated with the Macros property.</td>
</tr>
<tr>
<td>Macros</td>
<td>Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td>MasterFields</td>
<td>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.</td>
</tr>
<tr>
<td>MasterSource</td>
<td>Used to specify the data source component which binds current dataset to the master one.</td>
</tr>
<tr>
<td>Options</td>
<td>Used to specify the behaviour of TCustomDAODataSet object.</td>
</tr>
<tr>
<td>ParamCheck</td>
<td>Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.</td>
</tr>
<tr>
<td>ParamCount</td>
<td>Used to indicate how many parameters are there in the Params property.</td>
</tr>
<tr>
<td>Params</td>
<td>Used to view and set parameter names, values, and data types dynamically.</td>
</tr>
<tr>
<td>Prepared (inherited from TMemDataSet)</td>
<td>Determines whether a query is prepared for execution or</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>ReadOnly</strong></td>
<td>Used to prevent users from updating, inserting, or deleting data in the dataset.</td>
</tr>
<tr>
<td><strong>RefreshOptions</strong></td>
<td>Used to indicate when the editing record is refreshed.</td>
</tr>
<tr>
<td><strong>RowsAffected</strong></td>
<td>Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.</td>
</tr>
<tr>
<td><strong>SQL</strong></td>
<td>Used to provide a SQL statement that a query component executes when its Open method is called.</td>
</tr>
<tr>
<td><strong>SQLDelete</strong></td>
<td>Used to specify a SQL statement that will be used when applying a deletion to a record.</td>
</tr>
<tr>
<td><strong>SQLInsert</strong></td>
<td>Used to specify the SQL statement that will be used when applying an insertion to a dataset.</td>
</tr>
<tr>
<td><strong>SQLLock</strong></td>
<td>Used to specify a SQL statement that will be used to perform a record lock.</td>
</tr>
<tr>
<td><strong>SQLRecCount</strong></td>
<td>Used to specify the SQL statement that is used to get the record count when opening a dataset.</td>
</tr>
<tr>
<td><strong>SQLRefresh</strong></td>
<td>Used to specify a SQL statement that will be used to refresh current record by calling the <code>TCustomDADataSet.RefreshRecord</code> procedure.</td>
</tr>
<tr>
<td><strong>SQLUpdate</strong></td>
<td>Used to specify a SQL statement that will be used when applying an update to a dataset.</td>
</tr>
<tr>
<td><strong>UniDirectional</strong></td>
<td>Used if an application does not need bidirectional access to records in the database.</td>
</tr>
</tbody>
</table>
Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddWhere</td>
<td>Adds condition to the WHERE clause of SELECT statement in the SQL property.</td>
</tr>
<tr>
<td>ApplyRange</td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td>ApplyUpdates</td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td>BreakExec</td>
<td>Breaks execution of the SQL statement on the server.</td>
</tr>
<tr>
<td>CancelRange</td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td>CancelUpdates</td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td>CommitUpdates</td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td>CreateBlobStream</td>
<td>Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.</td>
</tr>
<tr>
<td>DeferredPost</td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td>DeleteWhere</td>
<td>Removes WHERE clause from the SQL property and assigns the BaseSQL property.</td>
</tr>
<tr>
<td>EditRangeEnd</td>
<td>Enables changing the ending value for an existing</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>Execute</strong></td>
<td>Overloaded. Executes a SQL statement on the server.</td>
</tr>
<tr>
<td><strong>Executing</strong></td>
<td>Indicates whether SQL statement is still being executed.</td>
</tr>
<tr>
<td><strong>Fetched</strong></td>
<td>Used to learn whether TCustomDADaDataSet has already fetched all rows.</td>
</tr>
<tr>
<td><strong>Fetching</strong></td>
<td>Used to learn whether TCustomDADaDataSet is still fetching rows.</td>
</tr>
<tr>
<td><strong>FetchingAll</strong></td>
<td>Used to learn whether TCustomDADaDataSet is fetching all rows to the end.</td>
</tr>
<tr>
<td><strong>FindKey</strong></td>
<td>Searches for a record which contains specified field values.</td>
</tr>
<tr>
<td><strong>FindMacro</strong></td>
<td>Description is not available at the moment.</td>
</tr>
<tr>
<td><strong>FindNearest</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>FindParam</strong></td>
<td>Determines if a parameter with the specified name exists in a dataset.</td>
</tr>
<tr>
<td><strong>GetBlob</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>GetDataType</strong></td>
<td>Returns internal field types defined in the MemData and accompanying modules.</td>
</tr>
<tr>
<td><strong>GetFieldObject</strong></td>
<td>Returns a multireference shared object from field.</td>
</tr>
<tr>
<td><strong>GetFieldPrecision</strong></td>
<td>Retrieves the precision of a</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>GetFieldScale</td>
<td>Retrieves the scale of a number field.</td>
</tr>
<tr>
<td>GetKeyFieldNames</td>
<td>Provides a list of available key field names.</td>
</tr>
<tr>
<td>GetOrderBy</td>
<td>Retrieves an ORDER BY clause from a SQL statement.</td>
</tr>
<tr>
<td>GotoCurrent</td>
<td>Sets the current record in this dataset similar to the current record in another dataset.</td>
</tr>
<tr>
<td>Locate (inherited from TMemDataSet)</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td>LocateEx (inherited from TMemDataSet)</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td>Lock</td>
<td>Locks the current record.</td>
</tr>
<tr>
<td>MacroByName</td>
<td>Finds a Macro with the name passed in Name.</td>
</tr>
<tr>
<td>ParamByName</td>
<td>Sets or uses parameter information for a specific parameter based on its name.</td>
</tr>
<tr>
<td>Prepare</td>
<td>Allocates, opens, and parses cursor for a query.</td>
</tr>
<tr>
<td>RefreshRecord</td>
<td>Actualizes field values for the current record.</td>
</tr>
<tr>
<td>RestoreSQL</td>
<td>Restores the SQL property modified by AddWhere and SetOrderBy.</td>
</tr>
<tr>
<td>RestoreUpdates (inherited from TMemDataSet)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td>RevertRecord (inherited from TMemDataSet)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>SaveSQL</td>
<td>Saves the SQL property value to BaseSQL.</td>
</tr>
</tbody>
</table>
### SaveToXML (inherited from TMemDataSet)

Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.

### SetOrderBy

Builds an ORDER BY clause of a SELECT statement.

### SetRange (inherited from TMemDataSet)

Sets the starting and ending values of a range, and applies it.

### SetRangeEnd (inherited from TMemDataSet)

Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.

### SetRangeStart (inherited from TMemDataSet)

Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.

### SQLSaved

Determines if the SQL property value was saved to the BaseSQL property.

### UnLock

Releases a record lock.

### UnPrepare (inherited from TMemDataSet)

Frees the resources allocated for a previously prepared query on the server and client sides.

### UpdateResult (inherited from TMemDataSet)

Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.

### UpdateStatus (inherited from TMemDataSet)

Indicates the current update status for the dataset when cached updates are enabled.

### Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AfterExecute</td>
<td>Occurs after a component has executed a query to database.</td>
</tr>
</tbody>
</table>
### 4.3.1.4.2 Properties

Properties of the `TCustomDADataSet` class.

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

#### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaseSQL</td>
<td>Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.</td>
</tr>
<tr>
<td>CachedUpdates (inherited from <code>TMemDataSet</code>)</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td>Conditions</td>
<td>Used to add WHERE conditions to a query</td>
</tr>
<tr>
<td>Connection</td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>DataTypeMap</strong></td>
<td>Used to set data type mapping rules</td>
</tr>
<tr>
<td><strong>Debug</strong></td>
<td>Used to display executing statement, all its parameters' values, and the type of parameters.</td>
</tr>
<tr>
<td><strong>DetailFields</strong></td>
<td>Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.</td>
</tr>
<tr>
<td><strong>Disconnected</strong></td>
<td>Used to keep dataset opened after connection is closed.</td>
</tr>
<tr>
<td><strong>FetchRows</strong></td>
<td>Used to define the number of rows to be transferred across the network at the same time.</td>
</tr>
<tr>
<td><strong>FilterSQL</strong></td>
<td>Used to change the WHERE clause of SELECT statement and reopen a query.</td>
</tr>
<tr>
<td><strong>FinalSQL</strong></td>
<td>Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>IsQuery</strong></td>
<td>Used to check whether SQL statement returns rows.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>KeyFields</strong></td>
<td>Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LocalUpdate</td>
<td>(inherited from TMemDataSet) Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td>MacroCount</td>
<td>Used to get the number of macros associated with the Macros property.</td>
</tr>
<tr>
<td>Macros</td>
<td>Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td>MasterFields</td>
<td>Used to specify the names of one or more fields that are used as foreign keys for a dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.</td>
</tr>
<tr>
<td>MasterSource</td>
<td>Used to specify the data source component which binds current dataset to the master one.</td>
</tr>
<tr>
<td>Options</td>
<td>Used to specify the behaviour of TCustomDADataSet object.</td>
</tr>
<tr>
<td>ParamCheck</td>
<td>Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.</td>
</tr>
<tr>
<td>ParamCount</td>
<td>Used to indicate how many parameters are there in the Params property.</td>
</tr>
<tr>
<td>Params</td>
<td>Used to view and set parameter names, values, and data types dynamically.</td>
</tr>
<tr>
<td>Prepared</td>
<td>(inherited from TMemDataSet) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td>Ranged</td>
<td>(inherited from TMemDataSet) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td>ReadOnly</td>
<td>Used to prevent users from updating, inserting, or deleting data in the dataset.</td>
</tr>
<tr>
<td>RefreshOptions</td>
<td>Used to indicate when the editing record is refreshed.</td>
</tr>
<tr>
<td><strong>RowsAffected</strong></td>
<td>Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>SQL</strong></td>
<td>Used to provide a SQL statement that a query component executes when its Open method is called.</td>
</tr>
<tr>
<td><strong>SQLDelete</strong></td>
<td>Used to specify a SQL statement that will be used when applying a deletion to a record.</td>
</tr>
<tr>
<td><strong>SQLInsert</strong></td>
<td>Used to specify the SQL statement that will be used when applying an insertion to a dataset.</td>
</tr>
<tr>
<td><strong>SQLLock</strong></td>
<td>Used to specify a SQL statement that will be used to perform a record lock.</td>
</tr>
<tr>
<td><strong>SQLRecCount</strong></td>
<td>Used to specify the SQL statement that is used to get the record count when opening a dataset.</td>
</tr>
<tr>
<td><strong>SQLRefresh</strong></td>
<td>Used to specify a SQL statement that will be used to refresh current record by calling the ( TCustomDADataset.RefreshRecord ) procedure.</td>
</tr>
<tr>
<td><strong>SQLUpdate</strong></td>
<td>Used to specify a SQL statement that will be used when applying an update to a dataset.</td>
</tr>
<tr>
<td><strong>UniDirectional</strong></td>
<td>Used if an application does not need bidirectional access to records in the result set.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>
See Also
- TCustomDADataset Class
- TCustomDADataset Class Members

4.3.1.4.2.1 BaseSQL Property

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

Class
TCustomDADataset

Syntax

```plaintext
property BaseSQL: string;
```

Remarks

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

See Also
- FinalSQL
- AddWhere
- SaveSQL
- SQLSaved
- RestoreSQL

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4.3.1.4.2.3  **Connection Property**

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

**Class**

TCustomDADataSet

**Syntax**

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

**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.

4.3.1.4.2.4  **DataTypeMap Property**

Used to set data type mapping rules

**Class**

TCustomDADataSet
4.3.1.4.2.5  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.

See Also
- TCustomDASQL.Debug

4.3.1.4.2.6  DetailFields Property

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

Class
TCustomDADataSet

Syntax
**property** DetailFields: **string**;

**Remarks**

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

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

**See Also**
- MasterFields
- MasterSource

---

4.3.1.4.2.7 Disconnected Property

**Class**

TCustomDADataSet

**Syntax**

```
property Disconnected: boolean;
```

**Remarks**

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

---

4.3.1.4.2.8 FetchRows Property

**Class**

TCustomDADataSet

**Syntax**

```
property FetchRows: integer;
```

**Remarks**

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

Class
**TCustomDADataSet**

Syntax
```plaintext
property FilterSQL: string;
```

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

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

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

See Also
- AddWhere

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4.3.1.4.2.10 FinalSQL Property

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

Class

TCustomDADataSet

Syntax

property FinalSQL: string;

Remarks

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

See Also

- FinalSQL
- AddWhere
- SaveSQL
- SQLSaved
- RestoreSQL
- BaseSQL

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4.3.1.4.2.11 IsQuery Property

Used to check whether SQL statement returns rows.

Class

TCustomDADataSet

Syntax

property IsQuery: boolean;

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

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

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

4.3.1.4.2.12 KeyFields Property

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

Class

TCustomDADataSet

Syntax

```pascal
property KeyFields: string;
```

Remarks

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

See Also

- SQLDelete
- SQLInsert
- SQLRefresh
- SQLUpdate
4.3.1.4.2.13 MacroCount Property

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

Class

TCustomDADataSet

Syntax

property MacroCount: word;

Remarks

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

See Also

• Macros

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

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

See Also
- TMacro
- MacroByName
- Params

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4.3.1.4.2.15 MasterFields Property

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

Class

TCustomDADataset

Syntax

property MasterFields: string;

Remarks

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

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

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

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

See Also
- DetailFields
- MasterSource
4.3.1.4.2.16 MasterSource Property

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

Class

**TCustomDADataset**

Syntax

```plaintext
property MasterSource: TDataSource;
```

Remarks

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

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

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

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

See Also

- **MasterFields**
- **DetailFields**
- A:\Work_MD
4.3.1.4.2.17 Options Property

Used to specify the behaviour of TCustomDADataset object.

Class

TCustomDADataset

Syntax

property Options: TDADataSetOptions;

Remarks

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

Descriptions of all options are in the table below.

<table>
<thead>
<tr>
<th>Option Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoPrepare</td>
<td>Used to execute automatic Prepare on the query execution.</td>
</tr>
<tr>
<td>CacheCalcFields</td>
<td>Used to enable caching of the TField.Calculated and TField.Lookup fields.</td>
</tr>
<tr>
<td>CompressBlobMode</td>
<td>Used to store values of the BLOB fields in compressed form.</td>
</tr>
<tr>
<td>DefaultValues</td>
<td>Used to request default values/expressions from the server and assign them to the DefaultExpression property.</td>
</tr>
<tr>
<td>DetailDelay</td>
<td>Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.</td>
</tr>
<tr>
<td>FieldsOrigin</td>
<td>Used for TCustomDADataset to fill the Origin property of the TField objects by appropriate value when opening a dataset.</td>
</tr>
<tr>
<td>FlatBuffers</td>
<td>Used to control how a dataset treats data of the ftString and ftVarBytes fields.</td>
</tr>
<tr>
<td>InsertAllSetFields</td>
<td>Used to include all set dataset fields in the generated INSERT statement.</td>
</tr>
<tr>
<td>LocalMasterDetail</td>
<td>Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.</td>
</tr>
<tr>
<td>LongStrings</td>
<td>Used to represent string fields with the length that is greater than 255 as TStringField.</td>
</tr>
<tr>
<td><strong>MasterFieldsNullable</strong></td>
<td>Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).</td>
</tr>
<tr>
<td><strong>NumberRange</strong></td>
<td>Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.</td>
</tr>
<tr>
<td><strong>QueryRecCount</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>QuoteNames</strong></td>
<td>Used for TCustomDADataset to quote all database object names in autogenerated SQL statements such as update SQL.</td>
</tr>
<tr>
<td><strong>RemoveOnRefresh</strong></td>
<td>Used for a dataset to locally remove a record that can not be found on the server.</td>
</tr>
<tr>
<td><strong>RequiredFields</strong></td>
<td>Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.</td>
</tr>
<tr>
<td><strong>ReturnParams</strong></td>
<td>Used to return the new value of fields to dataset after insert or update.</td>
</tr>
<tr>
<td><strong>SetFieldsReadOnly</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>StrictUpdate</strong></td>
<td>Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.</td>
</tr>
<tr>
<td><strong>TrimFixedChar</strong></td>
<td>Specifies whether to discard all trailing spaces in the string fields of a dataset.</td>
</tr>
<tr>
<td><strong>UpdateAllFields</strong></td>
<td>Used to include all dataset fields in the generated UPDATE and INSERT statements.</td>
</tr>
<tr>
<td><strong>UpdateBatchSize</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

**See Also**
- A:Work_MD
- TMemDataSet.CachedUpdates

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4.3.1.4.2.18 ParamCheck Property

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

Class

TCustomDADataset

Syntax

property ParamCheck: boolean default True;

Remarks

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

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

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

See Also

- Params

4.3.1.4.2.19 ParamCount Property

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

Class

TCustomDADataset

Syntax

property ParamCount: word;
Remarks
Use the ParamCount property to determine how many parameters are there in the Params property.

See Also
- Params

4.3.1.4.2.20  Params Property

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

Class
TCustomDADataset

Syntax

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

Remarks
Contains the parameters for a query's SQL statement.

Access Params at runtime to view and set parameter names, values, and data types dynamically (at design time use the Parameters editor to set the parameter information). Params is a zero-based array of parameter records. Index specifies the array element to access.

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

See Also
- ParamByName
- Macros

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4.3.1.4.2.21  ReadOnly Property

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

Class

TCustomDADataSet

Syntax

| property | ReadOnly: boolean default False; |

Remarks

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

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

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

4.3.1.4.2.22  RefreshOptions Property

Used to indicate when the editing record is refreshed.

Class

TCustomDADataSet

Syntax

| property | RefreshOptions: TRefreshOptions default []; |

Remarks

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

Refresh is performed by the RefreshRecord method.

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

See Also
• RefreshRecord

4.3.1.4.2.23  RowsAffected Property

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

Class
TCustomDADataSet

Syntax

```pascal
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.

4.3.1.4.2.24  SQL Property

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

Class
TCustomDADataSet

Syntax

```pascal
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

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
4.3.1.4.2.26 SQLInsert Property

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

Class

TCustomDADataSet

Syntax

```
property SQLInsert: TStrings;
```

Remarks

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

Use ReturnParam to return OUT parameters back to dataset.

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

See Also

- SQL
- SQLUpdate
- SQLDelete
- SQLRefresh

4.3.1.4.2.27 SQLLock Property

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

Class

TCustomDADataSet
Syntax

```delphi
property SQLLock: TStrings;
```

Remarks

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

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

See Also

- SQL
- SQLInsert
- SQLUpdate
- SQLDelete
- SQLRefresh

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4.3.1.4.2.28 SQLRecCount Property

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

Class

`TCustomDADataSet`

Syntax

```delphi
property SQLRecCount: TStrings;
```

Remarks

Use the SQLRecCount property to specify the SQL statement that is used to get the record count when opening a dataset. The SQL statement is used if the `TDADatasetOptions.QueryRecCount` property is True, and the `TCustomDADataSet.FetchAll` property is False. Is not used if the FetchAll property is True.
To create a SQLRecCount statement at design-time, use the query statements editor.

See Also
- SQLInsert
- SQLUpdate
- SQLDelete
- SQLRefresh
- TDADatasetOptions
- M:Devart.Dac.TCustomDADataset.FetchingAll

4.3.1.4.2.29 SQLRefresh Property

Used to specify a SQL statement that will be used to refresh current record by calling the RefreshRecord procedure.

Class

TCustomDADataset

Syntax

```pascal
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

```sql
SELECT Shipname FROM Orders
WHERE OrderID = :OrderID
```
4.3.1.4.2.30 SQLUpdate Property

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

Class

TCustomDADataSet

Syntax

property SQLUpdate: TStrings;

Remarks

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

Use ReturnParam to return OUT parameters back to the dataset.

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

Example

UPDATE Orders
  set
    ShipName = :ShipName
WHERE
    OrderID = :Old_OrderID

See Also

- SQL
- SQLInsert
4.3.1.4.2.31 UniDirectional Property

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

Class

TCustomDADataset

Syntax

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

Remarks

Traditionally SQL cursors are unidirectional. They can travel only forward through a dataset. TCustomDADataset, however, permits bidirectional travelling by caching records. If an application does not need bidirectional access to the records in the result set, set UniDirectional to True. When UniDirectional is True, an application requires less memory and performance is improved. However, UniDirectional datasets cannot be modified. In FetchAll=False mode data is fetched on demand. When UniDirectional is set to True, data is fetched on demand as well, but obtained rows are not cached except for the current row. In case if the Unidirectional property is True, the FetchAll property will be automatically set to False. And if the FetchAll property is True, the Unidirectional property will be automatically set to False. The default value of UniDirectional is False, enabling forward and backward navigation.

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

See Also

- TVirtualQuery.FetchAll
Methods of the `TCustomDADataset` class.

For a complete list of the `TCustomDADataset` class members, see the `TCustomDADataset Members` topic.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AddWhere</strong></td>
<td>Adds condition to the WHERE clause of SELECT statement in the SQL property.</td>
</tr>
<tr>
<td><strong>ApplyRange</strong></td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>BreakExec</strong></td>
<td>Breaks execution of the SQL statement on the server.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong></td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong></td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>CreateBlobStream</strong></td>
<td>Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong></td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>DeleteWhere</strong></td>
<td>Removes WHERE clause from the SQL property and assigns the BaseSQL property.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong></td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong></td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>Execute</strong></td>
<td>Overloaded. Executes a SQL statement on the server.</td>
</tr>
<tr>
<td><strong>Executing</strong></td>
<td>Indicates whether SQL statement is still being executed.</td>
</tr>
<tr>
<td><strong>Fetched</strong></td>
<td>Used to learn whether TCustomDADataSet has already fetched all rows.</td>
</tr>
<tr>
<td><strong>Fetching</strong></td>
<td>Used to learn whether TCustomDADataSet is still fetching rows.</td>
</tr>
<tr>
<td><strong>FetchingAll</strong></td>
<td>Used to learn whether TCustomDADataSet is fetching all rows to the end.</td>
</tr>
<tr>
<td><strong>FindKey</strong></td>
<td>Searches for a record which contains specified field values.</td>
</tr>
<tr>
<td><strong>FindMacro</strong></td>
<td>Description is not available at the moment.</td>
</tr>
<tr>
<td><strong>FindNearest</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>FindParam</strong></td>
<td>Determines if a parameter with the specified name exists in a dataset.</td>
</tr>
<tr>
<td><strong>GetBlob</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>GetDataType</strong></td>
<td>Returns internal field types defined in the MemData and accompanying modules.</td>
</tr>
<tr>
<td><strong>GetFieldObject</strong></td>
<td>Returns a multireference shared object from field.</td>
</tr>
<tr>
<td><strong>GetFieldPrecision</strong></td>
<td>Retrieves the precision of a number field.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>GetFieldScale</td>
<td>Retrieves the scale of a number field.</td>
</tr>
<tr>
<td>GetKeyFieldNames</td>
<td>Provides a list of available key field names.</td>
</tr>
<tr>
<td>GetOrderBy</td>
<td>Retrieves an ORDER BY clause from a SQL statement.</td>
</tr>
<tr>
<td>GotoCurrent</td>
<td>Sets the current record in this dataset similar to the current record in another dataset.</td>
</tr>
<tr>
<td>Locate (inherited from TMemDataSet)</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td>LocateEx (inherited from TMemDataSet)</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td>Lock</td>
<td>Locks the current record.</td>
</tr>
<tr>
<td>MacroByName</td>
<td>Finds a Macro with the name passed in Name.</td>
</tr>
<tr>
<td>ParamByName</td>
<td>Sets or uses parameter information for a specific parameter based on its name.</td>
</tr>
<tr>
<td>Prepare</td>
<td>Allocates, opens, and parses cursor for a query.</td>
</tr>
<tr>
<td>RefreshRecord</td>
<td>Actualizes field values for the current record.</td>
</tr>
<tr>
<td>RestoreSQL</td>
<td>Restores the SQL property modified by AddWhere and SetOrderBy.</td>
</tr>
<tr>
<td>RestoreUpdates (inherited from TMemDataSet)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td>RevertRecord (inherited from TMemDataSet)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>SaveSQL</td>
<td>Saves the SQL property value to BaseSQL.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><code>SaveToXML</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td><code>SetOrderBy</code></td>
<td>Builds an ORDER BY clause of a SELECT statement.</td>
</tr>
<tr>
<td><code>SetRange</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td><code>SetRangeEnd</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><code>SetRangeStart</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><code>SQLSaved</code></td>
<td>Determines if the SQL property value was saved to the <code>BaseSQL</code> property.</td>
</tr>
<tr>
<td><code>UnLock</code></td>
<td>Releases a record lock.</td>
</tr>
<tr>
<td><code>UnPrepare</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><code>UpdateResult</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Reads the status of the latest call to the <code>ApplyUpdates</code> method while cached updates are enabled.</td>
</tr>
<tr>
<td><code>UpdateStatus</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

**See Also**
- `TCustomDADataSet Class`
- `TCustomDADataSet Class Members`

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4.3.1.4.3.1 AddWhere Method

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

Class

TCustomDADataset

Syntax

procedure AddWhere(const Condition: string);

Parameters

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

Remarks

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

If SELECT has no WHERE clause, AddWhere creates it.

Note: the AddWhere method is implicitly called by RefreshRecord. The AddWhere method works for the SELECT statements only.

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

See Also

• DeleteWhere

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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.

4.3.1.4.3.3 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.
4.3.1.4.3.4 DeleteWhere Method

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

Class

TCustomDADataset

Syntax

 procedur e DeleteWhere;

Remarks

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

See Also

- AddWhere
- BaseSQL

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4.3.1.4.3.5 Execute Method

Executes a SQL statement on the server.

Class

TCustomDADataset

Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute</td>
<td>Executes a SQL statement on the server.</td>
</tr>
<tr>
<td>Execute(Iter: integer; Offset: integer)</td>
<td>Used to perform the specified SQL query.</td>
</tr>
</tbody>
</table>

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**TCustomDADataSet**

### Syntax

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

### Remarks

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

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

### See Also
- `TCustomDADataSet.AfterExecute`
- `TCustomDADataSet.Executing`
- `TCustomDADataSet.Prepare`

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Used to perform the specified SQL query.

### Class

**TCustomDADataSet**

### Syntax

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

### Parameters

- **Iters**
  - Specifies the number of inserted rows.

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

### Remarks
The Execute method executes the specified SQL query.

4.3.1.4.3.6 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.

4.3.1.4.3.7 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.
4.3.1.4.3.8 Fetching Method

Used to learn whether TCustomDADataSet is still fetching rows.

**Class**

*TCustomDADataSet*

**Syntax**

```plaintext
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**

- *Fetching*

4.3.1.4.3.9 FetchingAll Method

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

**Class**

*TCustomDADataSet*

**Syntax**

```plaintext
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

4.3.1.4.3.10 FindKey Method

Searches for a record which contains specified field values.

Class

TCustomDADataset

Syntax

```pascal
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.
Syntax

```pascal
function FindMacro(const Value: string): TMacro;
```

Parameters

- **Value**

See Also

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

4.3.1.4.3.12 FindNearest Method

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

Class

- **TCustomDADataSet**

Syntax

```pascal
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](#)
4.3.1.4.3.13 FindParam Method

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

Class

TCustomDADataset

Syntax

function FindParam(const Value: string): TDAParam;

Parameters

Value

Holds the name of the param for which to search.

Return Value

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

Remarks

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

See Also

- Params
- ParamByName

4.3.1.4.3.14 GetDataType Method

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

Class
**TCustomDADataSet**

**Syntax**

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

**Parameters**

- `FieldName`  
  Holds the name of the field.

**Return Value**

- internal field types defined in MemData and accompanying modules.

**Remarks**

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

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4.3.1.4.3.15 GetFieldObject Method

Returns a multireference shared object from field.

**Class**

*TCustomDADataSet*

**Syntax**

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

**Parameters**

- `FieldName`  
  Holds the field name.

**Return Value**

- multireference shared object.
Remarks

Call the GetFieldObject method to return a multireference shared object from field. If field does not hold one of the TSharedObject descendants, GetFieldObject raises an exception.

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4.3.1.4.3.16 GetFieldPrecision Method

Retrieves the precision of a number field.

Class

TCustomDADataSet

Syntax

function GetFieldPrecision(const FieldName: string): integer;

Parameters

FieldName
Holds the existing field name.

Return Value
precision of number field.

Remarks

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

See Also
• GetFieldScale

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4.3.1.4.3.17 GetFieldScale Method

Retrieves the scale of a number field.

Class

TCustomDADataSet

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Syntax

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

Parameters

- `FieldName`  
  Holds the existing field name.

Return Value

the scale of the number field.

Remarks

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

See Also

- `GetFieldPrecision`

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4.3.1.4.3.18 GetKeyFieldNames Method

Provides a list of available key field names.

Class

`TCustomDDataset`

Syntax

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

Parameters

- `List`  
  The list of available key field names

Return Value

Key field name

Remarks

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

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*

---

4.3.1.4.3.21 Lock Method

Locks the current record.

**Class**

*TCustomDADataSet*

**Syntax**

**procedure** Lock; **virtual**;

**Remarks**

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

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

**See Also**

- *UnLock*
4.3.1.4.3.22  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

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

See Also

• TMacro
• Macros
• FindMacro
4.3.1.4.3.23  ParamByName Method

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

Class

TCustomDADataSet

Syntax

function ParamByName(const Value: string): TDAParam;

Parameters

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

Return Value
a TDAParam object.

Remarks

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

Example

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

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

See Also

- Params
- FindParam

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4.3.1.4.3.24  Prepare Method

Allocates, opens, and parses cursor for a query.

Class
**TCustomDADataset**

**Syntax**

```pascal
procedure Prepare; override;
```

**Remarks**

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

The UnPrepare method unprepares a query.

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

**See Also**

- `TMemDataSet.Prepared`
- `TMemDataSet.UnPrepare`
- `Options`

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4.3.1.4.3.25 RefreshRecord Method

Actualizes field values for the current record.

**Class**

`TCustomDADataset`

**Syntax**

```pascal
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`
4.3.1.4.3.26 RestoreSQL Method

Restores the SQL property modified by AddWhere and SetOrderBy.

Class

TCustomDADataSet

Syntax

procedure RestoreSQL;

Remarks

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

See Also

- AddWhere
- SetOrderBy
- SaveSQL
- SQLSaved

4.3.1.4.3.27 SaveSQL Method

Saves the SQL property value to BaseSQL.

Class

TCustomDADataSet

Syntax

procedure SaveSQL;

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

See Also
- SQLSaved
- RestoreSQL
- BaseSQL

Builds an ORDER BY clause of a SELECT statement.

Class
TCustomDADataSet

Syntax

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

Parameters

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

Remarks

Call the SetOrderBy method to build an ORDER BY clause of a SELECT statement. The fields are identified by the comma-delimited field names.

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

Example

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

See Also

- GetOrderBy

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### 4.3.1.4.3.29 SQLSaved Method

Determines if the SQL property value was saved to the BaseSQL property.

**Class**

`TCustomDADataSet`

**Syntax**

```pascal
function SQLSaved: boolean;
```

**Return Value**

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

**Remarks**

Call the SQLSaved method to know whether the SQL property value was saved to the BaseSQL property.

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### 4.3.1.4.3.30 UnLock Method

Releases a record lock.

**Class**

`TCustomDADataSet`

**Syntax**

```pascal
procedure UnLock;
```

**Remarks**

Call the Unlock method to release the record lock made by the Lock method before.

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

**See Also**

- Lock

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4.3.1.4.4 Events

Events of the TCustomDADataSet class.

For a complete list of the TCustomDADataSet class members, see the TCustomDADataSet Members topic.

Public

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

See Also
- TCustomDADataSet Class
- TCustomDADataSet Class Members

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4.3.1.4.4.1 AfterExecute Event

Occurs after a component has executed a query to database.

Class

TCustomDADataset

Syntax

property AfterExecute: TAfterExecuteEvent;

Remarks

Occurs after a component has executed a query to database.

See Also

• TCustomDADataset.Execute

4.3.1.4.4.2 AfterFetch Event

Occurs after dataset finishes fetching data from server.

Class

TCustomDADataset

Syntax

property AfterFetch: TAfterFetchEvent;

Remarks

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

See Also

• BeforeFetch
4.3.1.4.3  AfterUpdateExecute Event

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

Class

`TCustomDADataSet`

Syntax

```property
AfterUpdateExecute: TUpdateExecuteEvent;
```

Remarks

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

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4.3.1.4.4  BeforeFetch Event

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

Class

`TCustomDADataSet`

Syntax

```property
BeforeFetch: TBeforeFetchEvent;
```

Remarks

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

See Also

- `AfterFetch`

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4.3.1.4.5 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

4.3.1.5 TCustomDASQL Class

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

For a list of all members of this type, see TCustomDASQL members.

Unit

DBAccess

Syntax

TCustomDASQL = class(TComponent);

Remarks

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

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

#### Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChangeCursor</td>
<td>Enables or disables changing screen cursor when executing commands in the NonBlocking mode.</td>
</tr>
<tr>
<td>Connection</td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td>Debug</td>
<td>Used to display executing statement, all its parameters' values, and the type of parameters.</td>
</tr>
<tr>
<td>FinalSQL</td>
<td>Used to return a SQL statement with expanded macros.</td>
</tr>
<tr>
<td>MacroCount</td>
<td>Used to get the number of macros associated with the Macros property.</td>
</tr>
<tr>
<td>Macros</td>
<td>Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td>ParamCheck</td>
<td>Used to specify whether parameters for the Params property are implicitly generated when the SQL property is being changed.</td>
</tr>
<tr>
<td>ParamCount</td>
<td>Indicates the number of parameters in the Params property.</td>
</tr>
<tr>
<td>Params</td>
<td>Used to contain parameters for a SQL statement.</td>
</tr>
<tr>
<td>ParamValues</td>
<td>Used to get or set the values of individual field parameters that are identified by name.</td>
</tr>
<tr>
<td>Prepared</td>
<td>Used to indicate whether a</td>
</tr>
</tbody>
</table>

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query is prepared for execution.

**RowsAffected**

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

**SQL**

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

### Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Execute</strong></td>
<td>Overloaded. Executes a SQL statement on the server.</td>
</tr>
<tr>
<td><strong>Executing</strong></td>
<td>Checks whether TCustomDASQL still executes a SQL statement.</td>
</tr>
<tr>
<td><strong>FindMacro</strong></td>
<td>Searches for a macro with the specified name.</td>
</tr>
<tr>
<td><strong>FindParam</strong></td>
<td>Finds a parameter with the specified name.</td>
</tr>
<tr>
<td><strong>MacroByName</strong></td>
<td>Finds a Macro with the name passed in Name.</td>
</tr>
<tr>
<td><strong>ParamByName</strong></td>
<td>Finds a parameter with the specified name.</td>
</tr>
<tr>
<td><strong>Prepare</strong></td>
<td>Allocates, opens, and parses cursor for a query.</td>
</tr>
<tr>
<td><strong>UnPrepare</strong></td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><strong>WaitExecuting</strong></td>
<td>Waits until TCustomDASQL executes a SQL statement.</td>
</tr>
</tbody>
</table>

### Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
4.3.1.5.2 Properties

Properties of the TCustomDASQL class.

For a complete list of the TCustomDASQL class members, see the TCustomDASQL Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
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<td>AfterExecute</td>
<td>Occurs after a SQL statement has been executed.</td>
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<td>-----------------</td>
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</tr>
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<td><strong>Prepared</strong></td>
<td>Used to indicate whether a query is prepared for execution.</td>
</tr>
<tr>
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<td>Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.</td>
</tr>
<tr>
<td><strong>SQL</strong></td>
<td>Used to provide a SQL statement that a TCustomDASQL component executes when the Execute method is called.</td>
</tr>
</tbody>
</table>

### See Also
- TCustomDASQL Class
- TCustomDASQL Class Members

---

#### 4.3.1.5.2.1 ChangeCursor Property

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

**Class**

TCustomDASQL

**Syntax**

```property
changeCursor: boolean;
```

**Remarks**

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

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

Class

TCustomDASQL

Syntax

```plaintext
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.

4.3.1.5.2.3 Debug Property

Used to display executing statement, all its parameters' values, and the type of parameters.

Class

TCustomDASQL

Syntax

```plaintext
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.
4.3.1.5.2.4 FinalSQL Property

Used to return a SQL statement with expanded macros.

Class

TCustomDASQL

Syntax

```property FinalSQL: string;```

Remarks

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

4.3.1.5.2.5 MacroCount Property

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

Class

TCustomDASQL

Syntax

```property MacroCount: word;```

Remarks

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

See Also
### 4.3.1.5.2.6 Macros Property

Makes it possible to change SQL queries easily.

**Class**

`TCustomDASQL`

**Syntax**

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

**Remarks**

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

**See Also**

- `TMacro`
- `MacroByName`
- `Params`

---

### 4.3.1.5.2.7 ParamCheck Property

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

**Class**

`TCustomDASQL`

**Syntax**
property ParamCheck: boolean default True;

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

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

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

See Also
- Params

4.3.1.5.2.8 ParamCount Property

Indicates the number of parameters in the Params property.

Class
TCustomDASQL

Syntax
property ParamCount: word;

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

4.3.1.5.2.9 Params Property

Used to contain parameters for a SQL statement.

Class
**TCustomDASQL**

**Syntax**

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

**Remarks**

Access the Params property at runtime to view and set parameter names, values, and data types dynamically (at design-time use the Parameters editor to set parameter properties). Params is a zero-based array of parameter records. Index specifies the array element to access. An easier way to set and retrieve parameter values when the name of each parameter is known is to call ParamByName.

**Example**

Setting parameters at runtime:

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

**See Also**

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

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4.3.1.5.2.10 ParamValues Property(Indexer)

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

**Class**

[TCustomDASQL](#)
Syntax

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

Parameters

- **ParamName**
  - Holds parameter names separated by semicolon.

Remarks

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

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

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

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

---

4.3.1.5.2.11 Prepared Property

Used to indicate whether a query is prepared for execution.

Class

- **TCustomDASQL**

Syntax

```pascal
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.
4.3.1.5.2.12  RowsAffected Property

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

Class

TCustomDASQL

Syntax

```property
RowsAffected: integer;
```

Remarks

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

4.3.1.5.2.13  SQL Property

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

Class

TCustomDASQL

Syntax

```property
SQL: TStrings;
```

Remarks

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

See Also
- `FinalSQL`
- `TCustomDASQL.Execute`

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>Execute</code></td>
<td>Overloaded. Executes a SQL statement on the server.</td>
</tr>
<tr>
<td><code>Executing</code></td>
<td>Checks whether <code>TCustomDASQL</code> still executes a SQL statement.</td>
</tr>
<tr>
<td><code>FindMacro</code></td>
<td>Searches for a macro with the specified name.</td>
</tr>
<tr>
<td><code>FindParam</code></td>
<td>Finds a parameter with the specified name.</td>
</tr>
<tr>
<td><code>MacroByName</code></td>
<td>Finds a Macro with the name passed in <code>Name</code>.</td>
</tr>
<tr>
<td><code>ParamByName</code></td>
<td>Finds a parameter with the specified name.</td>
</tr>
<tr>
<td><code>Prepare</code></td>
<td>Allocates, opens, and parses cursor for a query.</td>
</tr>
<tr>
<td><code>UnPrepare</code></td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><code>WaitExecuting</code></td>
<td>Waits until <code>TCustomDASQL</code> executes a SQL statement.</td>
</tr>
</tbody>
</table>
Execute Method

Executes a SQL statement on the server.

Class

TCustomDASQL

Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute</td>
<td>Executes a SQL statement on the server.</td>
</tr>
<tr>
<td>Execute(Iter: integer; Offset: integer)</td>
<td>Used to perform the specified SQL query.</td>
</tr>
</tbody>
</table>

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. Iter argument specifies the number of times this statement is executed for the DML array operations.
Reserved.

Used to perform the specified SQL query.

Class
TCustomDASQL

Syntax

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

Parameters

- **Iters**
  - Specifies the number of inserted rows.
- **Offset**
  - Points the array element, which the Batch operation starts from. 0 by default.

Remarks

The `Execute` method executes the specified SQL query.

4.3.1.5.3.2 Executing Method

Checks whether TCustomDASQL still executes a SQL statement.

Class
TCustomDASQL

Syntax

```pascal
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.
4.3.1.5.3.3  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

4.3.1.5.3.4  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

To assign the value of macro use the TMacro.Value property.
4.3.1.5.3.6  ParamByName Method

Finds a parameter with the specified name.

Class

TCustomDASQL

Syntax

```delphi
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

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

See Also

• FindParam
4.3.1.5.3.7  Prepare Method

Allocates, opens, and parses cursor for a query.

Class

TCustomDASQL

Syntax

```
procedure Prepare; virtual;
```

Remarks

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

The UnPrepare method unprepares a query.

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

See Also

- Prepared
- UnPrepare

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4.3.1.5.3.8  UnPrepare Method

Frees the resources allocated for a previously prepared query on the server and client sides.

Class

TCustomDASQL

Syntax

```
procedure UnPrepare; virtual;
```

Remarks

Call the UnPrepare method to free resources allocated for a previously prepared query on the server and client sides.
4.3.1.5.3.9 WaitExecuting Method

Waits until TCustomDASQL executes a SQL statement.

Class

TCustomDASQL

Syntax

function WaitExecuting(TimeOut: integer = 0): boolean;

Parameters

TimeOut

Holds the time in seconds to wait while TCustomDASQL executes the SQL statement. Zero means infinite time.

Return Value

True, if the execution of a SQL statement was completed in the preset time.

Remarks

Call the WaitExecuting method to wait until TCustomDASQL executes a SQL statement.

See Also

• Executing
### AfterExecute Event

Occurs after a SQL statement has been executed.

**Class**

*TCustomDASQL*

**Syntax**

```pascal
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*
- *TCustomDASQL Class Members*

### TCustomDAUpdateSQL Class

A base class for components that provide DML statements for more flexible control over data modifications.

For a list of all members of this type, see *TCustomDAUpdateSQL* members.

**Unit**
**DBAccess**

**Syntax**

```
TCustomDAUpdateSQL = class(TComponent);
```

**Remarks**

TCustomDAUpdateSQL is a base class for components that provide DML statements for more flexible control over data modifications. Besides providing BDE compatibility, this component allows to associate a separate component for each update command.

**See Also**

- P:Devart.VirtualDac.TCustomVirtualDataSet.UpdateObject

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### 4.3.1.6.1 Members

**TCustomDAUpdateSQL** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DataSet</td>
<td>Used to hold a reference to the TCustomDADataset object that is being updated.</td>
</tr>
<tr>
<td>DeleteObject</td>
<td>Provides ability to perform advanced adjustment of the delete operations.</td>
</tr>
<tr>
<td>DeleteSQL</td>
<td>Used when deleting a record.</td>
</tr>
<tr>
<td>InsertObject</td>
<td>Provides ability to perform advanced adjustment of insert operations.</td>
</tr>
<tr>
<td>InsertSQL</td>
<td>Used when inserting a record.</td>
</tr>
<tr>
<td>LockObject</td>
<td>Provides ability to perform advanced adjustment of lock operations.</td>
</tr>
<tr>
<td>LockSQL</td>
<td>Used to lock the current record.</td>
</tr>
</tbody>
</table>
ModifyObject
Provides ability to perform advanced adjustment of modify operations.

ModifySQL
Used when updating a record.

RefreshObject
Provides ability to perform advanced adjustment of refresh operations.

RefreshSQL
Used to specify an SQL statement that will be used for refreshing the current record by TCustomDADataset.RefreshRecord procedure.

SQL
Used to return a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties.

Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply</td>
<td>Sets parameters for a SQL statement and executes it to update a record.</td>
</tr>
<tr>
<td>ExecSQL</td>
<td>Executes a SQL statement.</td>
</tr>
</tbody>
</table>

Properties of the TCustomDAUpdateSQL class.

For a complete list of the TCustomDAUpdateSQL class members, see the TCustomDAUpdateSQL Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DataSet</td>
<td>Used to hold a reference to the TCustomDADataset object that is being updated.</td>
</tr>
</tbody>
</table>
SQL

Used to return a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties.

Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeleteObject</td>
<td>Provides ability to perform advanced adjustment of the delete operations.</td>
</tr>
<tr>
<td>DeleteSQL</td>
<td>Used when deleting a record.</td>
</tr>
<tr>
<td>InsertObject</td>
<td>Provides ability to perform advanced adjustment of insert operations.</td>
</tr>
<tr>
<td>InsertSQL</td>
<td>Used when inserting a record.</td>
</tr>
<tr>
<td>LockObject</td>
<td>Provides ability to perform advanced adjustment of lock operations.</td>
</tr>
<tr>
<td>LockSQL</td>
<td>Used to lock the current record.</td>
</tr>
<tr>
<td>ModifyObject</td>
<td>Provides ability to perform advanced adjustment of modify operations.</td>
</tr>
<tr>
<td>ModifySQL</td>
<td>Used when updating a record.</td>
</tr>
<tr>
<td>RefreshObject</td>
<td>Provides ability to perform advanced adjustment of refresh operations.</td>
</tr>
<tr>
<td>RefreshSQL</td>
<td>Used to specify an SQL statement that will be used for refreshing the current record by TCustomDADataset.RefreshRecord procedure.</td>
</tr>
</tbody>
</table>

See Also
- TCustomDAUpdateSQL Class
- TCustomDAUpdateSQL Class Members
4.3.1.6.2.1 Dataset Property

Used to hold a reference to the TCustomDADataSet object that is being updated.

Class

TCustomDAUpdateSQL

Syntax

property DataSet: TCustomDADataSet;

Remarks

The Dataset property holds a reference to the TCustomDADataSet object that is being updated. Generally it is not used directly.

4.3.1.6.2.2 DeleteObject Property

Provides ability to perform advanced adjustment of the delete operations.

Class

TCustomDAUpdateSQL

Syntax

property DeleteObject: TComponent;

Remarks

Assign SQL component or a TCustomVirtualQuery descendant to this property to perform advanced adjustment of the delete operations. In some cases this can give some additional performance. Use the same principle to set the SQL property of an object as for setting the DeleteSQL property.

See Also

- DeleteSQL
4.3.1.6.2.3 DeleteSQL Property

Used when deleting a record.

Class

TCustomDAUpdateSQL

Syntax

```delphi
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.

4.3.1.6.2.4 InsertObject Property

Provides ability to perform advanced adjustment of insert operations.

Class

TCustomDAUpdateSQL

Syntax

```delphi
property InsertObject: TComponent;
```

Remarks

Assign SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of insert operations. In some cases this can give some additional performance. Set the SQL property of the object in the same way as used for the InsertSQL property.

See Also

- InsertSQL
4.3.1.6.2.5 InsertSQL Property

Used when inserting a record.

Class

TCustomDAUpdateSQL

Syntax

```delphi
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.

4.3.1.6.2.6 LockObject Property

Provides ability to perform advanced adjustment of lock operations.

Class

TCustomDAUpdateSQL

Syntax

```delphi
property LockObject: TComponent;
```

Remarks

Assign a SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of lock operations. In some cases that can give some additional performance. Set the SQL property of an object in the same way as used for the LockSQL property.

See Also
• **LockSQL**

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### 4.3.1.6.2.7 LockSQL Property

Used to lock the current record.

**Class**

`TCustomDAUpdateSQL`

**Syntax**

```property
LockSQL: TStrings;
```

**Remarks**

Use the LockSQL property to lock the current record. Statements can be parameterized queries with parameter names corresponding to the dataset field names.

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### 4.3.1.6.2.8 ModifyObject Property

Provides ability to perform advanced adjustment of modify operations.

**Class**

`TCustomDAUpdateSQL`

**Syntax**

```property
ModifyObject: TComponent;
```

**Remarks**

Assign a SQL component or `TCustomVirtualQuery` descendant to this property to perform advanced adjustment of modify operations. In some cases this can give some additional performance. Set the SQL property of the object in the same way as used for the `ModifySQL` property.

**See Also**
• ModifySQL

4.3.1.6.2.9 ModifySQL Property

Used when updating a record.

Class

TCustomDAUpdateSQL

Syntax

property ModifySQL: TStrings;

Remarks

Set ModifySQL to an UPDATE statement to use when updating a record. Statements can be parameterized queries with parameter names corresponding to the dataset field names.

4.3.1.6.2.10 RefreshObject Property

Provides ability to perform advanced adjustment of refresh operations.

Class

TCustomDAUpdateSQL

Syntax

property RefreshObject: TComponent;

Remarks

Assign a SQL component or TCustomVirtualQuery descendant to this property to perform advanced adjustment of refresh operations. In some cases that can give some additional performance. Set the SQL property of the object in the same way as used for the RefreshSQL property.

See Also
4.3.1.6.2.11 RefreshSQL Property

Used to specify an SQL statement that will be used for refreshing the current record by `TCustomDADataSet.RefreshRecord` procedure.

Class

`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`

4.3.1.6.2.12 SQL Property(Indexer)

Used to return a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties.

Class

`TCustomDAUpdateSQL`

Syntax

```
property SQL[UpdateKind: TUpdateKind]: TStrings;
```
Parameters

UpdateKind
   Specifies which of update SQL statements to return.

Remarks

Returns a SQL statement for one of the ModifySQL, InsertSQL, or DeleteSQL properties, depending on the value of the UpdateKind index.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply</td>
<td>Sets parameters for a SQL statement and executes it to update a record.</td>
</tr>
<tr>
<td>ExecSQL</td>
<td>Executes a SQL statement.</td>
</tr>
</tbody>
</table>

See Also

- TCustomDAUpdateSQL Class
- TCustomDAUpdateSQL Class Members

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

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`

**4.3.1.7 TDACCondition Class**

Represents a condition from the `TDACConditions` list.

For a list of all members of this type, see `TDACCondition` members.

**Unit**

`DBAccess`

**Syntax**

```pascal
TDACCondition = class(TCollectionItem);
```

**Remarks**

Manipulate conditions using `TDACConditions`.

See Also

- `TDACConditions`

**4.3.1.7.1 Members**

**TDACCondition** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled</td>
<td>Indicates whether the condition is enabled or not</td>
</tr>
</tbody>
</table>
## Properties

### Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled</td>
<td>Indicates whether the condition is enabled or not</td>
</tr>
<tr>
<td>Name</td>
<td>The name of the condition</td>
</tr>
<tr>
<td>Value</td>
<td>The value of the condition</td>
</tr>
</tbody>
</table>

### See Also

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

## Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable</td>
<td>Disables the condition</td>
</tr>
<tr>
<td>Enable</td>
<td>Enables the condition</td>
</tr>
</tbody>
</table>

## 4.3.1.7.2.1 Enabled Property

Indicates whether the condition is enabled or not

## Class
**TDAClass**

Syntax

```delphi
property Enabled: Boolean default True;
```

The name of the condition

Class

**TDAClass**

Syntax

```delphi
property Name: string;
```

The value of the condition

Class

**TDAClass**

Syntax

```delphi
property value: string;
```

Methods of the **TDAClass** class.

For a complete list of the **TDAClass** class members, see the **TDAClass Members** topic.
Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable</td>
<td>Disables the condition</td>
</tr>
<tr>
<td>Enable</td>
<td>Enables the condition</td>
</tr>
</tbody>
</table>

See Also
- TDACCondition Class
- TDACCondition Class Members

4.3.1.7.3.1 Disable Method

Disables the condition

Class
TDACCondition

Syntax

```plaintext
procedure Disable;
```

4.3.1.7.3.2 Enable Method

Enables the condition

Class
TDACCondition

Syntax

```plaintext
procedure Enable;
```
4.3.1.8  TDAConditions Class

Holds a collection of TDACondition objects.

For a list of all members of this type, see TDAConditions members.

Unit
DBAccess

Syntax

```
TDAConditions = class(TCollection);
```

Remarks

The given example code

```
UniTable1.Conditions.Add('1','JOB="MANAGER"');
UniTable1.Conditions.Add('2','SAL>2500');
UniTable1.Conditions.Enable;
UniTable1.Open;
```

will return the following SQL:

```
SELECT * FROM EMP WHERE (JOB="MANAGER")
and (SAL<2500)
```

4.3.1.8.1 Members

TDAConditions class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>Used to iterate through all the conditions.</td>
</tr>
<tr>
<td>Enabled</td>
<td>Indicates whether the condition is enabled</td>
</tr>
<tr>
<td>Items</td>
<td>Used to iterate through all conditions.</td>
</tr>
<tr>
<td>Text</td>
<td>The property returns condition names and values as</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>WhereSQL</td>
<td>Returns the SQL WHERE condition added in the Conditions property.</td>
</tr>
</tbody>
</table>

### Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Overloaded. Adds a condition to the WHERE clause of the query.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes the condition</td>
</tr>
<tr>
<td>Disable</td>
<td>Disables the condition</td>
</tr>
<tr>
<td>Enable</td>
<td>Enables the condition</td>
</tr>
<tr>
<td>Find</td>
<td>Search for TDACondition (the condition) by its name. If found, the TDACondition object is returned, otherwise - nil.</td>
</tr>
<tr>
<td>Get</td>
<td>Retrieving a TDACondition object by its name. If found, the TDACondition object is returned, otherwise - an exception is raised.</td>
</tr>
<tr>
<td>IndexOf</td>
<td>Retrieving condition index by its name. If found, this condition index is returned, otherwise - the method returns -1.</td>
</tr>
<tr>
<td>Remove</td>
<td>Removes the condition</td>
</tr>
</tbody>
</table>

### Properties

Properties of the TDAConditions class.

For a complete list of the TDAConditions class members, see the TDAConditions Members topic.
Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>Used to iterate through all the conditions.</td>
</tr>
<tr>
<td>Enabled</td>
<td>Indicates whether the condition is enabled.</td>
</tr>
<tr>
<td>Items</td>
<td>Used to iterate through all conditions.</td>
</tr>
<tr>
<td>Text</td>
<td>The property returns condition names and values as CONDITION_NAME=CONDITION</td>
</tr>
<tr>
<td>WhereSQL</td>
<td>Returns the SQL WHERE condition added in the Conditions property.</td>
</tr>
</tbody>
</table>

See Also
- TDAConditions Class
- TDAConditions Class Members

4.3.1.8.2.1 Condition Property(Indexer)

Used to iterate through all the conditions.

Class

TDAConditions

Syntax

```delphi
property Condition[Index: Integer]: TDACondition;
```

Parameters

<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
</table>

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4.3.1.8.2.2 Enabled Property

Indicates whether the condition is enabled.

Class

TDAConditions

Syntax

```
property Enabled: Boolean;
```

4.3.1.8.2.3 Items Property (Indexer)

Used to iterate through all conditions.

Class

TDAConditions

Syntax

```
property Items[Index: Integer]: TDACondition; default;
```

Parameters

`Index`

Holds an index in the range 0..Count - 1.

Remarks

Use the Items property to iterate through all conditions. Index identifies the index in the range 0..Count - 1. Items can reference a particular condition by its index, but the Condition property is preferred in order to avoid depending on the order of the conditions.

4.3.1.8.2.4 Text Property

The property returns condition names and values as CONDITION_NAME=CONDITION

Class
4.3.1.8.2.5 WhereSQL Property

Returns the SQL WHERE condition added in the Conditions property.

Class
TDAConditions

Syntax

property Text: string;

4.3.1.8.3 Methods

Methods of the TDAConditions class.

For a complete list of the TDAConditions class members, see the TDAConditions Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Overloaded. Adds a condition to the WHERE clause of the query.</td>
</tr>
<tr>
<td>Delete</td>
<td>Deletes the condition</td>
</tr>
<tr>
<td>Disable</td>
<td>Disables the condition</td>
</tr>
<tr>
<td>Enable</td>
<td>Enables the condition</td>
</tr>
<tr>
<td>Find</td>
<td>Search for TDACondition (the condition) by its name. If found, the TDACondition object is returned, otherwise</td>
</tr>
</tbody>
</table>
Retrieving a TDACCondition object by its name. If found, the TDACCondition object is returned, otherwise - an exception is raised.

Retrieving condition index by its name. If found, this condition index is returned, otherwise - the method returns -1.

Removes the condition

See Also
- TDACConditions Class
- TDACConditions Class Members

4.3.1.8.3.1 Add Method

Adds a condition to the WHERE clause of the query.

Class
TDACConditions

Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add(const Value: string; Enabled: Boolean)</td>
<td>Adds a condition to the WHERE clause of the query.</td>
</tr>
<tr>
<td>Add(const Name: string; const Value: string; Enabled: Boolean)</td>
<td>Adds a condition to the WHERE clause of the query.</td>
</tr>
</tbody>
</table>

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TDAConditions

Syntax

```cpp
function Add(const Value: string; Enabled: Boolean = True): TDACondition; overload;
```

Parameters

- **Value**
  - The value of the condition

- **Enabled**
  - Indicates that the condition is enabled

Remarks

If you want to access the condition, you should use `Add` and its name in the Name parameter.

The given example code will return the following SQL:

```sql
SELECT * FROM EMP
WHERE (JOB="MANAGER")
and (SAL<2500)
```

Adds a condition to the WHERE clause of the query.

Class

TDAConditions

Syntax

```cpp
function Add(const Name: string; const Value: string; Enabled: Boolean = True): TDACondition; overload;
```

Parameters

- **Name**
  - Sets the name of the condition

- **Value**
  - The value of the condition

- **Enabled**
  - Indicates that the condition is enabled
Remarks

The given example code will return the following SQL:

```
SELECT * FROM EMP
WHERE (JOB="MANAGER")
and
(SAL<2500)
```

4.3.1.8.3.2 Delete Method

Deletes the condition

Class

`TDAConditions`

Syntax

```
procedure Delete(Index: integer);
```

Parameters

- `Index` Index of the condition

4.3.1.8.3.3 Disable Method

Disables the condition

Class

`TDAConditions`

Syntax

```
procedure Disable;
```
4.3.1.8.3.4 Enable Method

Enables the condition

Class
TDAConditions

Syntax

procedure Enable;

4.3.1.8.3.5 Find Method

Search for TDACondition (the condition) by its name. If found, the TDACondition object is returned, otherwise - nil.

Class
TDAConditions

Syntax

function Find(const Name: string): TDACondition;

Parameters
Name

4.3.1.8.3.6 Get Method

Retrieving a TDACondition object by its name. If found, the TDACondition object is returned, otherwise - an exception is raised.

Class
TDAConditions

Syntax

function Get(const Name: string): TDACondition;
4.3.1.8.3.7 IndexOf Method

Retrieving condition index by its name. If found, this condition index is returned, otherwise - the method returns -1.

Class
TDAConditions

Syntax

```pascal
function IndexOf(const Name: string): Integer;
```

Parameters

Name

4.3.1.8.3.8 Remove Method

Removes the condition

Class
TDAConditions

Syntax

```pascal
procedure Remove(const Name: string);
```

Parameters

Name

Specifies the name of the removed condition
4.3.1.9 TDAConnectionOptions Class

This class allows setting up the behaviour of the TDAConnection class.

For a list of all members of this type, see TDAConnectionOptions members.

Unit
DBAccess

Syntax

TDAConnectionOptions = class(TPersistent);

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4.3.1.9.1 Members

TDAConnectionOptions class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AllowImplicitConnect</td>
<td>Specifies whether to allow or not implicit connection opening.</td>
<td></td>
</tr>
<tr>
<td>DefaultSortType</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>DisconnectedMode</td>
<td>Used to open a connection only when needed for performing a server call and closes after performing the operation.</td>
<td></td>
</tr>
<tr>
<td>KeepDesignConnected</td>
<td>Used to prevent an application from establishing a connection at the time of startup.</td>
<td></td>
</tr>
<tr>
<td>LocalFailover</td>
<td>If True, the TCustomDAConnection.On</td>
<td></td>
</tr>
</tbody>
</table>
**4.3.1.9.2 Properties**

Properties of the **TDACollectionOptions** class.

For a complete list of the **TDACollectionOptions** class members, see the **TDACollectionOptions Members** topic.

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DefaultSortType</td>
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</tr>
<tr>
<td>DisconnectedMode</td>
<td>Used to open a connection only when needed for performing a server call and closes after performing the operation.</td>
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<tr>
<td>KeepDesignConnected</td>
<td>Used to prevent an application from establishing a connection at the time of startup.</td>
</tr>
<tr>
<td>LocalFailover</td>
<td>If True, the <strong>TCustomDAConnection.OnConnectionLost</strong> event occurs and a failover operation can be performed after connection breaks.</td>
</tr>
</tbody>
</table>
### AllowImplicitConnect Property

Specifies whether to allow or not implicit connection opening.

**Class**

_TDAConnectionOptions_

**Syntax**

```property
property AllowImplicitConnect: boolean default True;
```

**Remarks**

Use the AllowImplicitConnect property to specify whether allow or not implicit connection opening.

If a closed connection has AllowImplicitConnect set to True and a dataset that uses the connection is opened, the connection is opened implicitly to allow opening the dataset.

If a closed connection has AllowImplicitConnect set to False and a dataset that uses the connection is opened, an exception is raised.

The default value is True.

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4.3.1.9.2.2 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

**TDACConnectionOptions**

Syntax

```
property DefaultSortType: TSortType default stCaseSensitive;
```

Remarks

Use the DefaultSortType property to determine the default type of local sorting for string fields. It is used when a sort type is not specified explicitly after the field name in the `TMemDataSet.IndexFieldNames` property of a dataset.

4.3.1.9.2.3 DisconnectedMode Property

Used to open a connection only when needed for performing a server call and closes after performing the operation.

Class

**TDACConnectionOptions**

Syntax

```
property DisconnectedMode: boolean default False;
```

Remarks

If True, connection opens only when needed for performing a server call and closes after performing the operation. Datasets remain opened when connection closes. May be useful to save server resources and operate in unstable or expensive network. Drawback of using disconnect mode is that each connection establishing requires some time for authorization. If connection is often closed and opened it can slow down the application work. See the A:Work_DisconnectMode topic for more information.
4.3.1.9.2.4 KeepDesignConnected Property

Used to prevent an application from establishing a connection at the time of startup.

Class
TDACConnectionOptions

Syntax

```plaintext
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.

4.3.1.9.2.5 LocalFailover Property

If True, the TCustomDAConnection.OnConnectionLost event occurs and a failover operation can be performed after connection breaks.

Class
TDACConnectionOptions

Syntax

```plaintext
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 A:Unstable_Network topic for more information about using failover.
4.3.1.10  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);

4.3.1.10.1  Members

TDADatasetOptions class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoPrepare</td>
<td>Used to execute automatic TCustomDADataset.Prepare on the query execution.</td>
</tr>
<tr>
<td>CacheCalcFields</td>
<td>Used to enable caching of the TField.Calculated and TField.Lookup fields.</td>
</tr>
<tr>
<td>CompressBlobMode</td>
<td>Used to store values of the BLOB fields in compressed form.</td>
</tr>
<tr>
<td>DefaultValues</td>
<td>Used to request default values/expressions from the server and assign them to the DefaultExpression property.</td>
</tr>
<tr>
<td>DetailDelay</td>
<td>Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.</td>
</tr>
<tr>
<td>FieldsOrigin</td>
<td>Used for TCustomDADataset to fill the Origin property of the</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>TField objects by appropriate value when opening a dataset.</td>
<td></td>
</tr>
<tr>
<td>FlatBuffers</td>
<td>Used to control how a dataset treats data of the ftString and ftVarBytes fields.</td>
</tr>
<tr>
<td>InsertAllSetFields</td>
<td>Used to include all set dataset fields in the generated INSERT statement</td>
</tr>
<tr>
<td>LocalMasterDetail</td>
<td>Used for TCustomDADataSet to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.</td>
</tr>
<tr>
<td>LongStrings</td>
<td>Used to represent string fields with the length that is greater than 255 as TStringField.</td>
</tr>
<tr>
<td>MasterFieldsNullable</td>
<td>Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).</td>
</tr>
<tr>
<td>NumberRange</td>
<td>Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.</td>
</tr>
<tr>
<td>QueryRecCount</td>
<td>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.</td>
</tr>
<tr>
<td>QuoteNames</td>
<td>Used for TCustomDADataSet to quote all database object names in autogenerated</td>
</tr>
<tr>
<td><strong>SQL statements such as update SQL.</strong></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>RemoveOnRefresh</strong></td>
<td></td>
</tr>
<tr>
<td>Used for a dataset to locally remove a record that can not be found on the server.</td>
<td></td>
</tr>
<tr>
<td><strong>RequiredFields</strong></td>
<td></td>
</tr>
<tr>
<td>Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.</td>
<td></td>
</tr>
<tr>
<td><strong>ReturnParams</strong></td>
<td></td>
</tr>
<tr>
<td>Used to return the new value of fields to dataset after insert or update.</td>
<td></td>
</tr>
<tr>
<td><strong>SetFieldsReadOnly</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><strong>StrictUpdate</strong></td>
<td></td>
</tr>
<tr>
<td>Used for TCustomDADataset to raise an exception when the number of updated or deleted records is not equal 1.</td>
<td></td>
</tr>
<tr>
<td><strong>TrimFixedChar</strong></td>
<td></td>
</tr>
<tr>
<td>Specifies whether to discard all trailing spaces in the string fields of a dataset.</td>
<td></td>
</tr>
<tr>
<td><strong>UpdateAllFields</strong></td>
<td></td>
</tr>
<tr>
<td>Used to include all dataset fields in the generated UPDATE and INSERT statements.</td>
<td></td>
</tr>
<tr>
<td><strong>UpdateBatchSize</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>
Properties of the **TDADatasetOptions** class.

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

**Public**

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<thead>
<tr>
<th>Name</th>
<th>Description</th>
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<td>Used to execute automatic <code>TCustomDADataset.Prepare</code> on the query execution.</td>
</tr>
<tr>
<td><code>CacheCalcFields</code></td>
<td>Used to enable caching of the <code>TField.Calculated</code> and <code>TField.Lookup</code> fields.</td>
</tr>
<tr>
<td><code>CompressBlobMode</code></td>
<td>Used to store values of the BLOB fields in compressed form.</td>
</tr>
<tr>
<td><code>DefaultValues</code></td>
<td>Used to request default values/expessions from the server and assign them to the DefaultExpression property.</td>
</tr>
<tr>
<td><code>DetailDelay</code></td>
<td>Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.</td>
</tr>
<tr>
<td><code>FieldsOrigin</code></td>
<td>Used for <code>TCustomDADataset</code> to fill the Origin property of the <code>TField</code> objects by appropriate value when opening a dataset.</td>
</tr>
<tr>
<td><code>FlatBuffers</code></td>
<td>Used to control how a dataset treats data of the <code>ftString</code> and <code>ftVarBytes</code> fields.</td>
</tr>
<tr>
<td><code>InsertAllSetFields</code></td>
<td>Used to include all set dataset fields in the generated INSERT statement.</td>
</tr>
<tr>
<td><code>LocalMasterDetail</code></td>
<td>Used for <code>TCustomDADataset</code> to use</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>local filtering to establish master/detail relationship for detail dataset and does not refer to the server.</td>
<td></td>
</tr>
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<td>LongStrings</td>
<td>Used to represent string fields with the length that is greater than 255 as TStringField.</td>
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<tr>
<td>MasterFieldsNullable</td>
<td>Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).</td>
</tr>
<tr>
<td>NumberRange</td>
<td>Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.</td>
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<tr>
<td>QueryRecCount</td>
<td>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.</td>
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<td>QuoteNames</td>
<td>Used for TCustomDADataSet to quote all database object names in autogenerated SQL statements such as update SQL.</td>
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<tr>
<td>RemoveOnRefresh</td>
<td>Used for a dataset to locally remove a record that can not be found on the server.</td>
</tr>
<tr>
<td>RequiredFields</td>
<td>Used for TCustomDADataSet to set the Required property of the TField objects for the NOT NULL fields.</td>
</tr>
<tr>
<td>ReturnParams</td>
<td>Used to return the new value of fields to dataset after insert or update.</td>
</tr>
</tbody>
</table>
### 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](#)

---

4.3.1.10.2.1 AutoPrepare Property

Used to execute automatic `TCustomDADataSet.Prepare` on the query execution.

**Class**

[TDADatasetOptions](#)

**Syntax**

```property
property AutoPrepare: boolean default False;
```
4.3.1.10.2.2 CacheCalcFields Property

Used to enable caching of the TField.Calculated and TField.Lookup fields.

Class

TDADatasetOptions

Syntax

[property] CacheCalcFields: boolean default False;

Remarks

Use the CacheCalcFields property to enable caching of the TField.Calculated and TField.Lookup fields. It can be useful for reducing CPU usage for calculated fields. Using caching of calculated and lookup fields increases memory usage on the client side.

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4.3.1.10.2.3 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.

4.3.1.10.2.4 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.

4.3.1.10.2.5 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.
4.3.1.10.2.6  FieldsOrigin Property

Used for TCustomDADataSet to fill the Origin property of the TField objects by appropriate value when opening a dataset.

Class

TDADatasetOptions

Syntax

``` pigeon
property FieldsOrigin: boolean;
```

Remarks

If True, TCustomDADataSet fills the Origin property of the TField objects by appropriate value when opening a dataset.

4.3.1.10.2.7  FlatBuffers Property

Used to control how a dataset treats data of the ftString and ftVarBytes fields.

Class

TDADatasetOptions

Syntax

``` pigeon
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.
4.3.1.10.2.8 InsertAllSetFields Property

Used to include all set dataset fields in the generated INSERT statement

Class
TDADatasetOptions

Syntax

```property InsertAllSetFields: boolean default False;```

Remarks

If True, all set dataset fields, including those set to NULL explicitly, will be included in the generated INSERT statements. Otherwise, only set fields containing not NULL values will be included to the generated INSERT statement.

4.3.1.10.2.9 LocalMasterDetail Property

Used for TCustomDADataset to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.

Class
TDADatasetOptions

Syntax

```property LocalMasterDetail: boolean default False;```

Remarks

If True, for detail dataset in master-detail relationship TCustomDADataset uses local filtering for establishing master/detail relationship and does not refer to the server. Otherwise detail dataset performs query each time a record is selected in master dataset. This option is useful for reducing server calls number, server resources economy. It can be useful for slow connection. The `TMemDataSet.CachedUpdates` mode can be used for detail dataset only when this option is set to true. Setting the LocalMasterDetail option to True is not recommended when detail table contains too many rows, because when it is set to False, only records that correspond to the current record in master dataset are fetched.
4.3.1.10.2.10  LongStrings Property

Used to represent string fields with the length that is greater than 255 as TStringField.

Class

TDADatasetOptions

Syntax

property LongStrings: boolean default True;

Remarks

Use the LongStrings property to represent string fields with the length that is greater than 255 as TStringField, not as TMemoField.

4.3.1.10.2.11  MasterFieldsNullable Property

Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).

Class

TDADatasetOptions

Syntax

property MasterFieldsNullable: boolean default False;

4.3.1.10.2.12  NumberRange Property

Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.

Class
**TDADatasetOptions**

**Syntax**

```plaintext
property NumberRange: boolean default False;
```

**Remarks**

Use the NumberRange property to set the MaxValue and MinValue properties of TIntegerField
and TFloatField to appropriate values.

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4.3.1.10.2.13 QueryRecCount Property

Used for TCustomDADataSet to perform additional query to get the record count for this
SELECT, so the RecordCount property reflects the actual number of records.

**Class**

**TDADatasetOptions**

**Syntax**

```plaintext
property QueryRecCount: boolean default False;
```

**Remarks**

If True, and the FetchAll property is False, TCustomDADataSet performs additional query to
get the record count for this SELECT, so the RecordCount property reflects the actual
number of records. Does not have any effect if the FetchAll property is True.

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4.3.1.10.2.14 QuoteNames Property

Used for TCustomDADataSet to quote all database object names in autogenerated SQL
statements such as update SQL.

**Class**

**TDADatasetOptions**
4.3.1.10.2.15  RemoveOnRefresh Property

Used for a dataset to locally remove a record that can not be found on the server.

Class

**TDADatasetOptions**

Syntax

```property
property RemoveOnRefresh: boolean default True;
```

Remarks

When the RefreshRecord procedure can't find necessary record on the server and RemoveOnRefresh is set to True, dataset removes the record locally. Usually RefreshRecord can't find necessary record when someone else dropped the record or changed the key value of it.

This option makes sense only if the StrictUpdate option is set to False. If the StrictUpdate option is True, error will be generated regardless of the RemoveOnRefresh option value.

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4.3.1.10.2.16  RequiredFields Property

Used for TCustomDADataset to set the Required property of the TField objects for the NOT NULL fields.

Class

**TDADatasetOptions**
### RequiredFields Property

**Syntax**

```plaintext
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.

### ReturnParams Property

**Syntax**

```plaintext
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.

### SetFieldsReadOnly Property

**Syntax**

```plaintext
property SetFieldsReadOnly: boolean default False;
```

**Remarks**

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**

`TDataSetOptions`
**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.

4.3.1.10.2.19  StrictUpdate Property

Used for TCustomDADataSet to raise an exception when the number of updated or deleted records is not equal 1.

**Class**

`TDADatasetOptions`

**Syntax**

```
**property** StrictUpdate: boolean `default` True;
```

**Remarks**

If True, TCustomDADataSet raises an exception when the number of updated or deleted records is not equal 1. Setting this option also causes the exception if the RefreshRecord procedure returns more than one record. The exception does not occur when you execute SQL query, that doesn't return resultset.

**Note:** There can be problems if this option is set to True and triggers for UPDATE, DELETE, REFRESH commands that are defined for the table. So it is recommended to disable (set to False) this option with triggers.

TrimFixedChar specifies whether to discard all trailing spaces in the string fields of a dataset.
4.3.1.10.2.20 TrimFixedChar Property

Specifies whether to discard all trailing spaces in the string fields of a dataset.

Class
TDADatasetOptions

Syntax

```property TrimFixedChar: boolean default True;```

Remarks
Specifies whether to discard all trailing spaces in the string fields of a dataset.

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4.3.1.10.2.21 UpdateAllFields Property

Used to include all dataset fields in the generated UPDATE and INSERT statements.

Class
TDADatasetOptions

Syntax

```property UpdateAllFields: boolean default False;```

Remarks
If True, all dataset fields will be included in the generated UPDATE and INSERT statements. Unspecified fields will have NULL value in the INSERT statements. Otherwise, only updated fields will be included to the generated update statements.

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4.3.1.10.2.22 UpdateBatchSize Property

Used to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch.

Class
**TDADatasetOptions**

**Syntax**

```property UpdateBatchSize: Integer default 1;```

**Remarks**

Use the UpdateBatchSize property to get or set a value that enables or disables batch processing support, and specifies the number of commands that can be executed in a batch. Takes effect only when updating dataset in the `TMemDataSet.CachedUpdates` mode. The default value is 1.

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4.3.11 TDAMapRule Class

Class that formes rules for Data Type Mapping.

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

**Unit**

DBAccess

**Syntax**

```TDAMapRule = class(TMapRule);```

**Remarks**

Using properties of this class, it is possible to change parameter values of the specified rules from the TDAMapRules set.

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4.3.11.1 Members

**TDAMapRule** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>

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### Properties

Properties of the **TDAMapRule** class.

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

#### Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DBLengthMax</strong></td>
<td>Maximum DB field length, until which the rule is applied.</td>
</tr>
<tr>
<td><strong>DBLengthMin</strong></td>
<td>Minimum DB field length, starting from which the rule is applied.</td>
</tr>
<tr>
<td><strong>DBScaleMax</strong></td>
<td>Maximum DB field scale, until which the rule is applied to the specified DB field.</td>
</tr>
<tr>
<td><strong>DBScaleMin</strong></td>
<td>Minimum DB field Scale, starting from which the rule is applied to the specified DB field.</td>
</tr>
<tr>
<td><strong>FieldType</strong></td>
<td>DB field type, that the rule is applied to.</td>
</tr>
<tr>
<td><strong>FieldName</strong></td>
<td>DataSet field name, for which the rule is applied.</td>
</tr>
<tr>
<td><strong>FieldScale</strong></td>
<td>The resultant field Scale in Delphi.</td>
</tr>
<tr>
<td><strong>FieldType</strong></td>
<td>Delphi field type, that the specified DB type or DataSet field will be mapped to.</td>
</tr>
<tr>
<td><strong>IgnoreErrors</strong></td>
<td>Ignoring errors when converting data from DB to Delphi type.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>DBLengthMin</strong></td>
<td>Minimum DB field length, starting from which the rule is applied.</td>
</tr>
<tr>
<td><strong>DBScaleMax</strong></td>
<td>Maximum DB field scale, until which the rule is applied to the specified DB field.</td>
</tr>
<tr>
<td><strong>DBScaleMin</strong></td>
<td>Minimum DB field Scale, starting from which the rule is applied to the specified DB field.</td>
</tr>
<tr>
<td><strong>DBType</strong></td>
<td>DB field type, that the rule is applied to.</td>
</tr>
<tr>
<td><strong>FieldLength</strong></td>
<td>The resultant field length in Delphi.</td>
</tr>
<tr>
<td><strong>FieldName</strong></td>
<td>DataSet field name, for which the rule is applied.</td>
</tr>
<tr>
<td><strong>FieldScale</strong></td>
<td>The resultant field Scale in Delphi.</td>
</tr>
<tr>
<td><strong>FieldType</strong></td>
<td>Delphi field type, that the specified DB type or DataSet field will be mapped to.</td>
</tr>
<tr>
<td><strong>IgnoreErrors</strong></td>
<td>Ignoring errors when converting data from DB to Delphi type.</td>
</tr>
</tbody>
</table>

See Also

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

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4.3.1.11.2.1 DBLengthMax Property

Maximum DB field length, until which the rule is applied.

Class

TDAMapRule

Syntax
4.3.1.11.2.2  DBLengthMax Property

Minimum DB field length, starting from which the rule is applied.

Class
TDAMapRule

Syntax

```
property DBLengthMax default rlAny;
```

Remarks
Setting minimum DB field length, starting from which the rule is applied to the specified DB field.

4.3.1.11.2.3  DBScaleMax Property

Maximum DB field scale, until which the rule is applied to the specified DB field.

Class
TDAMapRule

Syntax

```
property DBScaleMax default rlAny;
```

Remarks
Setting maximum DB field scale, until which the rule is applied to the specified DB field.
4.3.1.11.2.4 DBScaleMin Property

Minimum DB field Scale, starting from which the rule is applied to the specified DB field.

Class
TDAMapRule

Syntax

property DBScaleMin default rlAny;

Remarks
Setting minimum DB field Scale, starting from which the rule is applied to the specified DB field.

4.3.1.11.2.5 DBType Property

DB field type, that the rule is applied to.

Class
TDAMapRule

Syntax

property DBType default dtUnknown;

Remarks
Setting DB field type, that the rule is applied to. If the current rule is set for Connection, the rule will be applied to all fields of the specified type in all DataSets related to this Connection.
4.3.11.2.6 FieldLength Property

The resultant field length in Delphi.

Class

TDAMapRule

Syntax

```delphi
property FieldLength default rlAny;
```

Remarks

Setting the Delphi field length after conversion.

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4.3.11.2.7 FieldName Property

DataSet field name, for which the rule is applied.

Class

TDAMapRule

Syntax

```delphi
property FieldName;
```

Remarks

Specifies the DataSet field name, that the rule is applied to. If the current rule is set for Connection, the rule will be applied to all fields with such name in DataSets related to this Connection.

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4.3.11.2.8 FieldScale Property

The resultant field Scale in Delphi.

Class
**TDAMapRule**

### Syntax

```delphi
property FieldScale default rlAny;
```

### Remarks

Setting the Delphi field Scale after conversion.

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4.3.1.11.2.9 FieldType Property

Delphi field type, that the specified DB type or DataSet field will be mapped to.

### Class

**TDAMapRule**

### Syntax

```delphi
property FieldType: TFieldType stored IsFieldTypeStored default ftUnknown;
```

### Remarks

Setting Delphi field type, that the specified DB type or DataSet field will be mapped to.

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4.3.1.11.2.10 IgnoreErrors Property

Ignoring errors when converting data from DB to Delphi type.

### Class

**TDAMapRule**

### Syntax

```delphi
property IgnoreErrors default False;
```

### Remarks
Allows to ignore errors while data conversion in case if data or DB data format cannot be recorded to the specified Delphi field type. The default value is false.

4.3.1.12  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);

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IgnoreInvalidRules</td>
<td>Used to avoid raising exception on mapping rules that can't be applied.</td>
</tr>
</tbody>
</table>

Properties of the TDAMapRules class.

For a complete list of the TDAMapRules class members, see the TDAMapRules Members topic.
IgnoreInvalidRules Property

Used to avoid raising exception on mapping rules that can't be applied.

Class
TDAMapRules

Syntax

```excel
property IgnoreInvalidRules: boolean default False;
```

Remarks

Allows to ignore errors (not to raise exception) during data conversion in case if the data or DB data format cannot be recorded to the specified Delphi field type. The default value is false.

Note: In order to ignore errors occurring during data conversion, use the TDAMapRule.IgnoreErrors property

See Also

- TDAMapRule.IgnoreErrors
### 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

```pascal
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:

```pascal
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 class overview.

#### Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong></td>
<td>(inherited from TMemDataSet) Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>(inherited from TMemDataSet) Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>(inherited from TMemDataSet) Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>(inherited from TMemDataSet) Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>(inherited from TMemDataSet) Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>MetaDataKind</strong></td>
<td>Used to specify which kind of metainformation to show.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>(inherited from TMemDataSet) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from TMemDataSet) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>Restrictions</strong></td>
<td>Used to provide one or more conditions restricting the list of objects to be described.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong></td>
<td>(inherited from TMemDataSet) Used to indicate the update status for the current record when cached updates are</td>
</tr>
</tbody>
</table>
**Methods**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UpdatesPending</strong></td>
<td>enabled. Used to check the status of the cached updates buffer.</td>
</tr>
<tr>
<td><strong>ApplyRange</strong></td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong></td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong></td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong></td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong></td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong></td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>GetBlob</strong></td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>GetMetaDataKinds</strong></td>
<td>Used to get values acceptable in the MetaDataKind property.</td>
</tr>
<tr>
<td><strong>GetRestrictions</strong></td>
<td>Used to find out which restrictions are applicable to a certain MetaDataKind.</td>
</tr>
<tr>
<td><strong>Locate</strong></td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td>Function</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LocateEx (inherited from TMemDataSet)</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td>Prepare (inherited from TMemDataSet)</td>
<td>Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td>RestoreUpdates (inherited from TMemDataSet)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td>RevertRecord (inherited from TMemDataSet)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>SaveToXML (inherited from TMemDataSet)</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td>SetRange (inherited from TMemDataSet)</td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td>SetRangeEnd (inherited from TMemDataSet)</td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>SetRangeStart (inherited from TMemDataSet)</td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>UnPrepare (inherited from TMemDataSet)</td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td>UpdateResult (inherited from TMemDataSet)</td>
<td>Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.</td>
</tr>
<tr>
<td>UpdateStatus (inherited from TMemDataSet)</td>
<td>Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>
Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnUpdateError</td>
<td>Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td>OnUpdateRecord</td>
<td>Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>

Properties of the TDAMetaData class.

For a complete list of the TDAMetaData class members, see the TDAMetaData Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CachedUpdates</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td>Connection</td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td>IndexFieldNames</td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td>KeyExclusive</td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td>LocalConstraints</td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LocalUpdate</td>
<td>Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td>MetaDataKind</td>
<td>Used to specify which kind of metainformation to show.</td>
</tr>
<tr>
<td>Prepared</td>
<td>Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td>Ranged</td>
<td>Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td>Restrictions</td>
<td>Used to provide one or more conditions restricting the list of objects to be described.</td>
</tr>
<tr>
<td>UpdateRecordTypes</td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>UpdatesPending</td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>

See Also
- TDAMetaData Class
- TDAMetaData Class Members

### 4.3.1.13.2.1 Connection Property

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

**Class**

TDAMetaData

**Syntax**

```delphi
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 instanciated TCustomDAConnection object.

4.3.1.13.2.2 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:

<table>
<thead>
<tr>
<th>MetaDataKind</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columns</td>
<td>show metainformation about columns of existing tables</td>
</tr>
<tr>
<td>Constraints</td>
<td>show metainformation about the constraints defined in the database</td>
</tr>
<tr>
<td>IndexColumns</td>
<td>show metainformation about indexed columns</td>
</tr>
<tr>
<td>Indexes</td>
<td>show metainformation about indexes in a database</td>
</tr>
<tr>
<td>MetaDataKinds</td>
<td>show the acceptable values of this property. You will get the same result if the MetaDataKind property is an empty string</td>
</tr>
<tr>
<td>ProcedureParameters</td>
<td>show metainformation about parameters of existing procedures</td>
</tr>
<tr>
<td>Procedures</td>
<td>show metainformation about existing procedures</td>
</tr>
<tr>
<td>Restrictions</td>
<td>generates a dataset that describes which restrictions are applicable to each MetaDataKind</td>
</tr>
<tr>
<td>Tables</td>
<td>show metainformation about existing tables</td>
</tr>
<tr>
<td>Databases</td>
<td>show metainformation about existing databases</td>
</tr>
</tbody>
</table>

If you provide a value that equals neither of the values described in the table, an error will be
4.3.1.13.2.3 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

4.3.1.13.3 Methods

Methods of the TDAMetaData class.

For a complete list of the TDAMetaData class members, see the TDAMetaData Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ApplyRange</strong></td>
<td>(inherited from TMemDataSet)</td>
</tr>
<tr>
<td></td>
<td>Applies a range to the</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong></td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong></td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong></td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong></td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong></td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>GetBlob</strong></td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>GetMetaDataKinds</strong></td>
<td>Used to get values acceptable in the MetaDataKind property.</td>
</tr>
<tr>
<td><strong>GetRestrictions</strong></td>
<td>Used to find out which restrictions are applicable to a certain MetaDataKind.</td>
</tr>
<tr>
<td><strong>Locate</strong></td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td><strong>LocateEx</strong></td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td><strong>Prepare</strong></td>
<td>Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>RestoreUpdates</strong></td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td><strong>RevertRecord</strong></td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>SaveToXML</strong></td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td><strong>SetRange</strong></td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td><strong>SetRangeEnd</strong></td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>SetRangeStart</strong></td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>UnPrepare</strong></td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><strong>UpdateResult</strong></td>
<td>Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdateStatus</strong></td>
<td>Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

**See Also**
- TDAExcelMeta Class
- TDAExcelMeta Class Members
4.3.1.13.3.1 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

4.3.1.13.3.2 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

4.3.1.14 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
**TDAParam** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsBlob</td>
<td>Used to set and read the value of the BLOB parameter as string.</td>
</tr>
<tr>
<td>AsBlobRef</td>
<td>Used to set and read the value of the BLOB parameter as a TBlob object.</td>
</tr>
<tr>
<td>AsFloat</td>
<td>Used to assign the value for a float field to a parameter.</td>
</tr>
<tr>
<td>AsInteger</td>
<td>Used to assign the value for an integer field to the parameter.</td>
</tr>
<tr>
<td>AsLargeInt</td>
<td>Used to assign the value for a LargeInteger field to the parameter.</td>
</tr>
<tr>
<td>AsMemo</td>
<td>Used to assign the value for a memo field to the parameter.</td>
</tr>
<tr>
<td>AsMemoRef</td>
<td>Used to set and read the value of the memo parameter as a TBlob object.</td>
</tr>
<tr>
<td>AsSQLTimeStamp</td>
<td>Used to specify the value of the parameter when it represents a SQL timestamp field.</td>
</tr>
<tr>
<td>AsString</td>
<td>Used to assign the string value to the parameter.</td>
</tr>
<tr>
<td>AsWideString</td>
<td>Used to assign the Unicode string value to the parameter.</td>
</tr>
<tr>
<td>DataType</td>
<td>Indicates the data type of the parameter.</td>
</tr>
</tbody>
</table>
### Properties

Properties of the **TDAParam** class.

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

### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsBlob</td>
<td>Used to set and read the value of the BLOB parameter as string.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AsBlobRef</td>
<td>Used to set and read the value of the BLOB parameter as a TBlob object.</td>
</tr>
<tr>
<td>AsFloat</td>
<td>Used to assign the value for a float field to a parameter.</td>
</tr>
<tr>
<td>AsInteger</td>
<td>Used to assign the value for an integer field to the parameter.</td>
</tr>
<tr>
<td>AsLargeInt</td>
<td>Used to assign the value for a LargeInteger field to the parameter.</td>
</tr>
<tr>
<td>AsMemo</td>
<td>Used to assign the value for a memo field to the parameter.</td>
</tr>
<tr>
<td>AsMemoRef</td>
<td>Used to set and read the value of the memo parameter as a TBlob object.</td>
</tr>
<tr>
<td>AsSQLTimeStamp</td>
<td>Used to specify the value of the parameter when it represents a SQL timestamp field.</td>
</tr>
<tr>
<td>AsString</td>
<td>Used to assign the string value to the parameter.</td>
</tr>
<tr>
<td>AsWideString</td>
<td>Used to assign the Unicode string value to the parameter.</td>
</tr>
<tr>
<td>IsNull</td>
<td>Used to indicate whether the value assigned to a parameter is NULL.</td>
</tr>
</tbody>
</table>

### Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DataType</td>
<td>Indicates the data type of the parameter.</td>
</tr>
<tr>
<td>ParamType</td>
<td>Used to indicate the type of use for a parameter.</td>
</tr>
<tr>
<td>Size</td>
<td>Specifies the size of a string type parameter.</td>
</tr>
<tr>
<td>Value</td>
<td>Used to represent the value of the parameter as Variant.</td>
</tr>
</tbody>
</table>
4.3.1.14.2.1 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.

4.3.1.14.2.2 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.
4.3.1.14.2.3  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.

4.3.1.14.2.4  AsInteger Property

Used to assign the value for an integer field to the parameter.

Class
TDAParam

Syntax

```property
AsInteger: LongInt;
```

Remarks

Use the AsInteger property to assign the value for an integer field to the parameter. Setting AsInteger will set the DataType property to dtInteger.

Read the AsInteger property to determine the value that was assigned to an output parameter, represented as a 32-bit integer. The value of the parameter will be converted to the Integer
4.3.1.14.2.5  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.

4.3.1.14.2.6  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.
4.3.1.14.2.7 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.

4.3.1.14.2.8 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.
4.3.1.14.2.9 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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4.3.1.14.2.10 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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4.3.1.14.2.11  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.

4.3.1.14.2.12  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.
4.3.1.14.2.13 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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4.3.1.14.2.14 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 ft WideString type.

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4.3.1.14.2.15 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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4.3.1.14.3 Methods

Methods of the TDAParam class.

For a complete list of the TDAParam class members, see the TDAParam Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AssignField</td>
<td>Assigns field name and field value to a param.</td>
</tr>
<tr>
<td>AssignFieldValue</td>
<td>Assigns the specified field properties and value to a parameter.</td>
</tr>
<tr>
<td>LoadFromFile</td>
<td>Places the content of a specified file into a TDAParam object.</td>
</tr>
<tr>
<td>LoadFromStream</td>
<td>Places the content from a stream into a TDAParam object.</td>
</tr>
<tr>
<td>SetBlobData</td>
<td>Overloaded. Writes the data from a specified buffer to BLOB.</td>
</tr>
</tbody>
</table>
AssignField Method

Assigns field name and field value to a param.

Class
TDAParam

Syntax

```pascal
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.

AssignFieldValue Method

Assigns the specified field properties and value to a parameter.

Class
TDAParam

Syntax

```pascal
procedure AssignFieldValue(Field: TField; const Value: Variant);
```
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.

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**
4.3.1.14.3.4 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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4.3.1.14.3.5 SetBlobData Method

Writes the data from a specified buffer to BLOB.

Class

TDAParam

Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SetBlobData(Buffer: TValueBuffer)</td>
<td>Writes the data from a specified buffer to BLOB.</td>
</tr>
</tbody>
</table>
**SetBlobData**(*Buffer: IntPtr; Size: Integer*) |  
Writes the data from a specified buffer to BLOB.

Writes the data from a specified buffer to BLOB.

**Class**

**TDAParam**

**Syntax**

```plaintext
procedure SetBlobData(Buffer: TValueBuffer); overload;
```

**Parameters**

**Buffer**

Holds the pointer to the 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.
4.3.1.15 TDAParams Class

This class is used to manage a list of TDAParam objects for an object that uses field parameters.

For a list of all members of this type, see TDAParams members.

Unit

DBAccess

Syntax

TDAParams = class(TParams);

Remarks

Use TDAParams to manage a list of TDAParam objects for an object that uses field parameters. For example, TCustomDADataSet objects and TCustomDASQL objects use TDAParams objects to create and access their parameters.

See Also

- TCustomDADataSet.Params
- TCustomDASQL.Params
- TDAParam

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4.3.1.15.1 Members

TDAParams class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>Used to interate through all parameters.</td>
</tr>
</tbody>
</table>

Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
4.3.1.15.2 Properties

Properties of the **TDAParams** class.

For a complete list of the **TDAParams** class members, see the [TDAParams Members] topic.

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>Used to iterate through all parameters.</td>
</tr>
</tbody>
</table>

**See Also**
- [TDAParams Class]
- [TDAParams Class Members]

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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.

Methods of the TDAParams class.

For a complete list of the TDAParams class members, see the TDAParams Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FindParam</td>
<td>Searches for a parameter with the specified name.</td>
</tr>
<tr>
<td>ParamByName</td>
<td>Searches for a parameter with the specified name.</td>
</tr>
</tbody>
</table>

See Also
- TDAParams Class
- TDAParams Class Members

Searches for a parameter with the specified name.

Class
TDAParams

Syntax

```pascal
function FindParam(const Value: string): TDAParam;
```

Parameters

Value
4.3.1.15.3.2 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.
4.3.1.16  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

4.3.1.16.1  Members

TMacro class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Used to determine if the macro should be expanded.</td>
</tr>
<tr>
<td>AsDateTime</td>
<td>Used to set the TDateTime value to a macro.</td>
</tr>
</tbody>
</table>
### Properties of the `TMacro` class.

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

#### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsDateTime</td>
<td>Used to set the TDateTime value to a macro.</td>
</tr>
<tr>
<td>AsFloat</td>
<td>Used to set the float value to a macro.</td>
</tr>
<tr>
<td>AsInteger</td>
<td>Used to set the integer value to a macro.</td>
</tr>
<tr>
<td>AsString</td>
<td>Used to assign the string value to a macro.</td>
</tr>
</tbody>
</table>

#### Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>Used to determine if the macro should be expanded.</td>
</tr>
<tr>
<td>Name</td>
<td>Used to identify a particular macro.</td>
</tr>
<tr>
<td>Value</td>
<td>Used to set the value to a macro.</td>
</tr>
</tbody>
</table>
### 4.3.1.16.2.1 Active Property

Used to determine if the macro should be expanded.

**Class**

**TMacro**

**Syntax**

```delphi
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**

```delphi
VirtualQuery.SQL.Text := 'SELECT * FROM Dept WHERE DeptNo > 20 &Cond1';
VirtualQuery.Macros[0].Value := 'and DName is NULL';
VirtualQuery.Macros[0].Active := False;
```

### 4.3.1.16.2.2 AsDateTime Property

Used to set the TDateTime value to a macro.

**Class**

**TMacro**

**Syntax**

```delphi

```
**property** AsDateTime: TDateTime;

Remarks

Use the AsDateTime property to set the TDateTime value to a macro.

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4.3.1.16.2.3 AsFloat Property

Used to set the float value to a macro.

Class

**TMacro**

Syntax

**property** AsFloat: double;

Remarks

Use the AsFloat property to set the float value to a macro.

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4.3.1.16.2.4 AsInteger Property

Used to set the integer value to a macro.

Class

**TMacro**

Syntax

**property** AsInteger: integer;

Remarks

Use the AsInteger property to set the integer value to a macro.

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4.3.1.16.2.4 AsInteger Property

Used to set the integer value to a macro.

Class

**TMacro**

Syntax

**property** AsInteger: integer;

Remarks

Use the AsInteger property to set the integer value to a macro.

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4.3.1.16.2.5 AsString Property

Used to assign the string value to a macro.

Class

TMacro

Syntax

```
property AsString: string;
```

Remarks

Use the AsString property to assign the string value to a macro. Read the AsString property to determine the value of macro represented as a string.

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4.3.1.16.2.6 Name Property

Used to identify a particular macro.

Class

TMacro

Syntax

```
property Name: string;
```

Remarks

Use the Name property to identify a particular macro.

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4.3.1.16.2.7 Value Property

Used to set the value to a macro.

Class

TMacro
4.3.1.17 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
**Items**

Used to iterate through all the macros parameters.

### Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AssignValues</td>
<td>Copies the macros values and properties from the specified source.</td>
</tr>
<tr>
<td>Expand</td>
<td>Changes the macros in the passed SQL statement to their values.</td>
</tr>
<tr>
<td>FindMacro</td>
<td>Searches for a TMacro object by its name.</td>
</tr>
<tr>
<td>IsEqual</td>
<td>Compares itself with another TMacro object.</td>
</tr>
<tr>
<td>MacroByName</td>
<td>Used to search for a macro with the specified name.</td>
</tr>
<tr>
<td>Scan</td>
<td>Creates a macros from the passed SQL statement.</td>
</tr>
</tbody>
</table>

### Properties

Properties of the **T Macros** class.

For a complete list of the **T Macros** class members, see the **T Macros Members** topic.

### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
<td>Used to iterate through all the macros parameters.</td>
</tr>
</tbody>
</table>

See Also

- **T Macros Class**
- **T Macros Class Members**
**4.3.1.17.2.1 Items Property (Indexer)**

Used to iterate through all the macros parameters.

**Class**

`TMacros`

**Syntax**

```property` Items[Index: integer]: TMacro; default;```

**Parameters**

`Index`

Holds the index in the range 0..Count - 1.

**Remarks**

Use the `Items` property to iterate through all macros parameters. `Index` identifies the index in the range 0..Count - 1.

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**4.3.1.17.3 Methods**

Methods of the `TMacros` class.

For a complete list of the `TMacros` class members, see the `TMacros Members` topic.

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AssignValues</td>
<td>Copies the macros values and properties from the specified source.</td>
</tr>
<tr>
<td>Expand</td>
<td>Changes the macros in the passed SQL statement to their values.</td>
</tr>
<tr>
<td>FindMacro</td>
<td>Searches for a TMacro object by its name.</td>
</tr>
<tr>
<td>IsEqual</td>
<td>Compares itself with another TMacro object.</td>
</tr>
<tr>
<td>MacroByName</td>
<td>Used to search for a macro with the specified name.</td>
</tr>
</tbody>
</table>
Scan

| Creates a macros from the passed SQL statement. |

See Also
- **TMacros Class**
- **TMacros Class Members**

4.3.1.17.3.1 **AssignValues Method**

Copies the macros values and properties from the specified source.

**Class**

**TMacros**

**Syntax**

```delphi
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.

4.3.1.17.3.2 **Expand Method**

Changes the macros in the passed SQL statement to their values.

**Class**

**TMacros**

**Syntax**
procedure Expand(var SQL: string);

Parameters
SQL
Holds the passed SQL statement.

Remarks
Call the Expand method to change the macros in the passed SQL statement to their values.

4.3.1.17.3.3  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.

4.3.1.17.3.4  IsEqual Method

Compares itself with another TMacro object.

Class
TMacros

Syntax

```delphi
function IsEqual(Value: TMacros): boolean;
```

**Parameters**

*Value*

Holds the values of TMacro objects.

**Return Value**

True, if the number of TMacro objects and the values of all TMacro objects are equal.

**Remarks**

Call the IsEqual method to compare itself with another TMacro object. Returns True if the number of TMacro objects and the values of all TMacro objects are equal.

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4.3.1.17.3.5 MacroByName Method

Used to search for a macro with the specified name.

Class

TMacros

Syntax

```delphi
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.

## 4.3.1.17.3.6 Scan Method

Creates a macros from the passed SQL statement.

### Class

**TMacros**

### Syntax

```delphi
procedure Scan(const SQL: string);
```

### Parameters

- **SQL**
  
  Holds the passed SQL statement.

### Remarks

Call the Scan method to create a macros from the passed SQL statement. On that all existing TMacro objects are cleared.

### 4.3.1.18 TPoolingOptions Class

This class allows setting up the behaviour of the connection pool.

For a list of all members of this type, see **TPoolingOptions** members.

### Unit

**DBAccess**

### Syntax

```delphi
TPoolingOptions = class(TPersistent);
```
4.3.1.18.1 Members

**TPoolingOptions** class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConnectionLifetime</td>
<td>Used to specify the maximum time during which an opened connection can be used by connection pool.</td>
</tr>
<tr>
<td>MaxPoolSize</td>
<td>Used to specify the maximum number of connections that can be opened in connection pool.</td>
</tr>
<tr>
<td>MinPoolSize</td>
<td>Used to specify the minimum number of connections that can be opened in the connection pool.</td>
</tr>
<tr>
<td>Validate</td>
<td>Used for a connection to be validated when it is returned from the pool.</td>
</tr>
</tbody>
</table>

Properties of the **TPoolingOptions** class.

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

Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConnectionLifetime</td>
<td>Used to specify the maximum time during which an opened connection can be used by connection pool.</td>
</tr>
<tr>
<td>MaxPoolSize</td>
<td>Used to specify the maximum number of connections that can be opened in connection pool.</td>
</tr>
</tbody>
</table>
### ConnectionLifetime Property

Used to specify the maximum time during which an opened connection can be used by connection pool.

**Class**

**TPoolingOptions**

**Syntax**

```pascal
property ConnectionLifetime: integer default DefValConnectionLifetime;
```

**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 `TCustomDACConnection` 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.
4.3.1.18.2.2  MaxPoolSize Property

Used to specify the maximum number of connections that can be opened in connection pool.

Class

TPoolingOptions

Syntax

property MaxPoolSize: integer default DefValMaxPoolSize;

Remarks

Specifies the maximum number of connections that can be opened in connection pool. Once this value is reached, no more connections are opened. The valid values are 1 and higher.

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4.3.1.18.2.3  MinPoolSize Property

Used to specify the minimum number of connections that can be opened in the connection pool.

Class

TPoolingOptions

Syntax

property MinPoolSize: integer default DefValMinPoolSize;

Remarks

Use the MinPoolSize property to specify the minimum number of connections that can be opened in the connection pool.

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4.3.1.18.2.4  Validate Property

Used for a connection to be validated when it is returned from the pool.

Class
### TPoolingOptions

**Syntax**

```plaintext
property Validate: boolean default DefValValidate;
```

**Remarks**

If the Validate property is set to True, connection will be validated when it is returned from the pool. By default this option is set to False and pool does not validate connection when it is returned to be used by a TCustomDACConnection component.

### TSmartFetchOptions Class

Smart fetch options are used to set up the behavior of the SmartFetch mode.

For a list of all members of this type, see [TSmartFetchOptions members](index.html).

**Unit**

`DBAccess`

**Syntax**

```plaintext
TSmartFetchOptions = class(TPersistent);
```

### Members

**TSmartFetchOptions** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled</td>
<td>Sets SmartFetch mode enabled or not.</td>
</tr>
<tr>
<td>LiveBlock</td>
<td>Used to minimize memory consumption.</td>
</tr>
<tr>
<td>PrefetchedFields</td>
<td>List of fields additional to key fields that will be read.</td>
</tr>
</tbody>
</table>
Properties of the TSmartFetchOptions class.

For a complete list of the TSmartFetchOptions class members, see the TSmartFetchOptions Members topic.

### Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enabled</strong></td>
<td>Sets SmartFetch mode enabled or not.</td>
</tr>
<tr>
<td><strong>LiveBlock</strong></td>
<td>Used to minimize memory consumption.</td>
</tr>
<tr>
<td><strong>PrefetchedFields</strong></td>
<td>List of fields additional to key fields that will be read from the database on dataset open.</td>
</tr>
<tr>
<td><strong>SQLGetKeyValues</strong></td>
<td>SQL query for the read key and prefetched fields from the database.</td>
</tr>
</tbody>
</table>

See Also

- TSmartFetchOptions Class
- TSmartFetchOptions Class Members

Sets SmartFetch mode enabled or not.

Class
**TSmartFetchOptions**

Syntax

```delphi
property Enabled: Boolean default False;
```

Remarks

If LiveBlock is True, then on navigating through a dataset forward or backward, memory will be allocated for records count defined in the the FetchRows propety, and no additional memory will be allocated. But if you return records that were read from the database before, they will be read from the database again, because when you left block with these records, memory was free. So the LiveBlock mode minimizes memory consumption, but can decrease performance, because it can lead to repeated data reading from the database.

The default value of LiveBlock is False.

```delphi
property LiveBlock: Boolean default True;
```
**property** PrefetchedFields: **string**;

Remarks

If you are going to use locate, filter or sort by some fields, then these fields should be added to the prefetched fields list to avoid excessive reading from the database.

SQL query for the read key and prefetched fields from the database.

Class

**TSmartFetchOptions**

Syntax

**property** SQLGetKeyValues: **TStrings**;

Remarks

SQLGetKeyValues is used when the basic SQL query is complex and the query for reading the key and prefetched fields can't be generated automatically.

4.3.2 Types

Types in the **DBAccess** unit.

Types

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAfterExecuteEvent</td>
<td>This type is used for the <strong>TCustomDADataset.AfterExecute</strong> and <strong>TCustomDASQL.AfterExecute</strong> events.</td>
</tr>
<tr>
<td>TAfterFetchEvent</td>
<td>This type is used for the <strong>TCustomDADataset.AfterFetch</strong> event.</td>
</tr>
</tbody>
</table>
**TBeforeFetchEvent**

This type is used for the `TCustomDADataSet.BeforeFetch` event.

**TConnectionLostEvent**

This type is used for the `TCustomDAConnection.OnConnectionLost` event.

**TDACollectionErrorEvent**

This type is used for the `TCustomDAConnection.OnError` event.

**TDATransactionErrorEvent**

This type is used for the `E:Devart.Dac.TDATransaction.OnError` event.

**TRefreshOptions**

Represents the set of `TRefreshOption`.

**TUpdateExecuteEvent**

This type is used for the `TCustomDADataSet.AfterUpdateExecute` and `TCustomDADataSet.BeforeUpdateExecute` events.

---

### 4.3.2.1 TAfterExecuteEvent Procedure Reference

This type is used for the `TCustomDADataSet.AfterExecute` and `TCustomDASQL.AfterExecute` events.

**Unit**

`DBAccess`

**Syntax**

```delphi
TAfterExecuteEvent = procedure (Sender: TObject; Result: boolean)
```

**Parameters**

- **Sender**
  
  An object that raised the event.

- **Result**
  
  The result is True if SQL statement is executed successfully. False otherwise.
4.3.2.2 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.

4.3.2.3 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.
### 4.3.2.4 TConnectionLostEvent Procedure Reference

This type is used for the `TCustomDACConnection.OnConnectionLost` event.

#### Unit

`DBAccess`

#### Syntax

```
TConnectionLostEvent = procedure (Sender: TObject; Component: TComponent; ConnLostCause: TConnLostCause; var RetryMode: TRetryMode) of object;
```

#### Parameters

- **Sender**: An object that raised the event.
- **Component**: The reason of the connection loss.
- **ConnLostCause**: The application behavior when connection is lost.
- **RetryMode**: The application behavior when connection is lost.

---

### 4.3.2.5 TDACConnectionErrorEvent Procedure Reference

This type is used for the `TCustomDACConnection.OnError` event.

#### Unit

`DBAccess`

#### Syntax

```
TDACConnectionErrorEvent = procedure (Sender: TObject; E: EDAError; var Fail: boolean) of object;
```

#### Parameters

- **Sender**: An object that raised the event.
- **E**: The error information.
- **Fail**: The application behavior when connection is lost.
False, if an error dialog should be prevented from being displayed and EAbort exception should be raised to cancel current operation.

4.3.2.6 TDATransactionErrorEvent Procedure Reference

This type is used for the E:Devart.Dac.TDATransaction.OnError event.

Unit
DBAccess

Syntax

TDATransactionErrorEvent = procedure (Sender: TObject; E: EDAError; var Fail: boolean) of object;

Parameters

Sender
An object that raised the event.

E
The error code.

Fail
False, if an error dialog should be prevented from being displayed and EAbort exception to cancel the current operation should be raised.

4.3.2.7 TRefreshOptions Set

Represents the set of TRefreshOption.

Unit
DBAccess

Syntax

TRefreshOptions = set of TRefreshOption;

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4.3.2.8 **TUpdateExecuteEvent Procedure Reference**

This type is used for the TCustomDADataSet.AfterUpdateExecute and TCustomDADataSet.BeforeUpdateExecute events.

**Unit**

DBAccess

**Syntax**

```
TUpdateExecuteEvent = procedure (Sender: TDataSet; StatementTypes: TStatementTypes; Params: TDAParams) of object;
```

**Parameters**

*Sender*

An object that raised the event.

*StatementTypes*

Holds the type of the SQL statement being executed.

*Params*

Holds the parameters with which the SQL statement will be executed.

---

4.3.3 **Enumerations**

Enumerations in the **DBAccess** unit.

**Enumerations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCheckMode</td>
<td>Specifies the action to take when another user makes modifications to a record.</td>
</tr>
<tr>
<td>TLabelSet</td>
<td>Sets the language of labels in the connect dialog.</td>
</tr>
<tr>
<td>TRefreshOption</td>
<td>Indicates when the editing record will be refreshed.</td>
</tr>
<tr>
<td>TRetryMode</td>
<td>Specifies the application behavior when connection is lost.</td>
</tr>
</tbody>
</table>

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4.3.3.1 TCheckMode Enumeration

Specifies the action to take when another user makes modifications to a record.

Unit
DBAccess

Syntax

```
TCheckMode = (cmNone, cmException, cmRefresh);
```

Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>cmException</td>
<td>If a record was changed, TVirtualDataSet raises an exception.</td>
</tr>
<tr>
<td>cmNone</td>
<td>No check is performed. The default value.</td>
</tr>
<tr>
<td>cmRefresh</td>
<td>If a record was changed, TVirtualDataSet refreshes it.</td>
</tr>
</tbody>
</table>

4.3.3.2 TLabelSet Enumeration

Sets the language of labels in the connect dialog.

Unit
DBAccess

Syntax

```
TLabelSet = (lsCustom, lsEnglish, lsFrench, lsGerman, lsItalian, lsPolish, lsPortuguese, lsRussian, lsSpanish);
```

Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>lsCustom</td>
<td>Set the language of labels in the connect dialog manually.</td>
</tr>
<tr>
<td>lsEnglish</td>
<td>Set English as the language of labels in the connect dialog.</td>
</tr>
<tr>
<td>lsFrench</td>
<td>Set French as the language of labels in the connect dialog.</td>
</tr>
<tr>
<td>lsGerman</td>
<td>Set German as the language of labels in the connect dialog.</td>
</tr>
</tbody>
</table>
Set Italian as the language of labels in the connect dialog.

Set Polish as the language of labels in the connect dialog.

Set Portuguese as the language of labels in the connect dialog.

Set Russian as the language of labels in the connect dialog.

Set Spanish as the language of labels in the connect dialog.

### 4.3.3.3 TRefreshOption Enumeration

Indicates when the editing record will be refreshed.

**Unit**

DBAccess

**Syntax**

```
TRefreshOption = (roAfterInsert, roAfterUpdate, roBeforeEdit);
```

**Values**

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>roAfterInsert</td>
<td>Refresh is performed after inserting.</td>
</tr>
<tr>
<td>roAfterUpdate</td>
<td>Refresh is performed after updating.</td>
</tr>
<tr>
<td>roBeforeEdit</td>
<td>Refresh is performed by Edit method.</td>
</tr>
</tbody>
</table>

### 4.3.3.4 TRetryMode Enumeration

Specifies the application behavior when connection is lost.

**Unit**

DBAccess

**Syntax**

```
TRetryMode = (rmRaise, rmReconnect, rmReconnectExecute);
```
## Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>rmRaise</td>
<td>An exception is raised.</td>
</tr>
<tr>
<td>rmReconnect</td>
<td>Reconnect is performed and then exception is raised.</td>
</tr>
<tr>
<td>rmReconnectExec</td>
<td>Reconnect is performed and abortive operation is reexecuted.  Exception is not raised.</td>
</tr>
</tbody>
</table>

## 4.3.4 Variables

Variables in the DBAccess unit.

### Variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaseSQLOldBehavior</td>
<td>After assigning SQL text and modifying it by AddWhere, DeleteWhere, and SetOrderBy, all subsequent changes of the SQL property will not be reflected in the BaseSQL property.</td>
</tr>
<tr>
<td>ChangeCursor</td>
<td>When set to True allows data access components to change screen cursor for the execution time.</td>
</tr>
<tr>
<td>SQLGeneratorCompatibility</td>
<td>The value of the TCustomDADataset.BaseSQL property is used to complete the refresh SQL statement, if the manually assigned TCustomDAUpdateSQL.RefreshSQL property contains only WHERE clause.</td>
</tr>
</tbody>
</table>
4.3.4.1 BaseSQLOldBehavior Variable

After assigning SQL text and modifying it by AddWhere, DeleteWhere, and SetOrderBy, all subsequent changes of the SQL property will not be reflected in the BaseSQL property.

**Unit**

DBAccess

**Syntax**

BaseSQLOldBehavior: boolean = False;

**Remarks**

The BaseSQL property is similar to the SQL property, but it does not store changes made by the AddWhere, DeleteWhere, and SetOrderBy methods. After assigning 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 VirtualDAC. To restore old behavior, set the BaseSQLOldBehavior variable to True.

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4.3.4.2 ChangeCursor Variable

When set to True allows data access components to change screen cursor for the execution time.

**Unit**

DBAccess

**Syntax**

ChangeCursor: boolean = True;

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4.3.4.3 SQLGeneratorCompatibility Variable

The value of the TCustomDADataSet.BaseSQL property is used to complete the refresh SQL statement, if the manually assigned TCustomDAUpdateSQL.RefreshSQL property contains only WHERE clause.
Unit

DBAccess

Syntax

```plaintext
SQLGeneratorCompatibility: boolean = False;
```

Remarks

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

4.4 MemData

4.4.1 Classes

Classes in the MemData unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAttribute</td>
<td>TAttribute is not used in VirtualDAC.</td>
</tr>
<tr>
<td>TBlob</td>
<td>Holds large object value for field and parameter <code>dtBlob</code>, <code>dtMemo</code> data types.</td>
</tr>
<tr>
<td>TCompressedBlob</td>
<td>Holds large object value for field and parameter <code>dtBlob</code>, <code>dtMemo</code> data types and can compress its data.</td>
</tr>
<tr>
<td>TDBObject</td>
<td>A base class for classes that work with user-defined data types that have attributes.</td>
</tr>
<tr>
<td>TMemData</td>
<td>Implements storing data in memory.</td>
</tr>
</tbody>
</table>
### TObjectType

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>This class is not used.</td>
</tr>
</tbody>
</table>

### TSharedObject

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A base class that allows to simplify memory management for object referenced by several other objects.</td>
</tr>
</tbody>
</table>

4.4.1.1 TAttribute Class

TAttribute is not used in VirtualDAC.

For a list of all members of this type, see TAttribute members.

#### Unit

MemData

#### Syntax

```plaintext
TAttribute = class(System.TObject);
```

### Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttributeNo</td>
<td>Returns an attribute’s ordinal position in object.</td>
</tr>
<tr>
<td>DataType</td>
<td>Returns the type of data that was assigned to the Attribute.</td>
</tr>
<tr>
<td>DataSize</td>
<td>Returns the size of an attribute value in internal representation.</td>
</tr>
<tr>
<td>Length</td>
<td>Returns the length of the string for dtString attribute</td>
</tr>
</tbody>
</table>
### 4.4.1.1.2 Properties

Properties of the `TAttribute` class.

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

#### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>AttributeNo</code></td>
<td>Returns an attribute’s ordinal position in object.</td>
</tr>
<tr>
<td><code>DataSize</code></td>
<td>Returns the size of an attribute value in internal representation.</td>
</tr>
<tr>
<td><code>DataType</code></td>
<td>Returns the type of data that was assigned to the Attribute.</td>
</tr>
<tr>
<td><code>Length</code></td>
<td>Returns the length of the string for <code>dtString</code> attribute and precision for <code>dtInteger</code> and <code>dtFloat</code> attribute.</td>
</tr>
<tr>
<td><code>ObjectType</code></td>
<td>Returns a TObjectType object for an object attribute.</td>
</tr>
</tbody>
</table>
### AttributeNo Property

Returns an attribute's ordinal position in object.

**Class**

**TAttribute**

**Syntax**

```delphi
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**
4.4.1.1.2.2 DataSize Property

Returns the size of an attribute value in internal representation.

Class
TAttribute

Syntax

```pascal
property DataSize: Integer;
```

Remarks
Use the DataSize property to learn the size of an attribute value in internal representation.

4.4.1.1.2.3 DataType Property

Returns the type of data that was assigned to the Attribute.

Class
TAttribute

Syntax

```pascal
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.

4.4.1.1.2.4 Length Property

Returns the length of the string for dtString attribute and precision for dtInteger and dtFloat attribute.

Class

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### TAttribute

**Syntax**

```pascal
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

### ObjectType Property

Returns a TObjectType object for an object attribute.

**Class**

TAttribute

**Syntax**

```pascal
property ObjectType: TObjectType;
```

**Remarks**

Use the ObjectType property to return a TObjectType object for an object attribute.

### Offset Property

Returns an offset of the attribute value in internal representation.

**Class**

TAttribute

**Syntax**
4.4.1.2.7 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.

4.4.1.2.8 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
4.4.1.1.2.9 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:

<table>
<thead>
<tr>
<th>Type</th>
<th>Size (in bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>dtDate</td>
<td>8 (sizeof(TDateTime))</td>
</tr>
<tr>
<td>dtFloat</td>
<td>8 (sizeof(Double))</td>
</tr>
<tr>
<td>dtInteger</td>
<td>4 (sizeof(Integer))</td>
</tr>
</tbody>
</table>

See Also

• DataSize

4.4.1.2 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`

## Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsString</td>
<td>Used to manipulate BLOB value as string.</td>
</tr>
<tr>
<td>AsWideString</td>
<td>Used to manipulate BLOB value as Unicode string.</td>
</tr>
<tr>
<td>IsUnicode</td>
<td>Gives choice of making TBlob store and process data in Unicode format or not.</td>
</tr>
<tr>
<td>RefCount</td>
<td>(inherited from <code>TSharedObject</code>) Used to return the count of reference to a TSharedObject object.</td>
</tr>
<tr>
<td>Size</td>
<td>Used to learn the size of the TBlob value in bytes.</td>
</tr>
</tbody>
</table>

## Methods
### Name | Description
--- | ---
**AddRef** (inherited from **TSharedObject**) | Increments the reference count for the number of references dependent on the TSharedObject object.

**Assign** | Sets BLOB value from another TBlob object.

**Clear** | Deletes the current value in TBlob object.

**LoadFromFile** | Loads the contents of a file into a TBlob object.

**LoadFromStream** | Copies the contents of a stream into the TBlob object.

**Read** | Acquires a raw sequence of bytes from the data stored in TBlob.

**Release** (inherited from **TSharedObject**) | Decrements the reference count.

**SaveToFile** | Saves the contents of the TBlob object to a file.

**SaveToStream** | Copies the contents of a TBlob object to a stream.

**Truncate** | Sets new TBlob size and discards all data over it.

**Write** | Stores a raw sequence of bytes into a TBlob object.

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4.4.1.2.2 Properties

Properties of the **TBlob** class.

For a complete list of the **TBlob** class members, see the **TBlob Members** topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AsString</strong></td>
<td>Used to manipulate BLOB value as string.</td>
</tr>
<tr>
<td><strong>AsWideString</strong></td>
<td>Used to manipulate BLOB value as Unicode string.</td>
</tr>
</tbody>
</table>
### 4.4.1.2.2.1 AsString Property

Used to manipulate BLOB value as string.

**Class**

**TBlob**

**Syntax**

```delphi
property AsString: string;
```

**Remarks**

Use the AsString property to manipulate BLOB value as string.

**See Also**

- Assign
- AsWideString

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4.4.1.2.2.2  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

4.4.1.2.2.3  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.
4.4.1.2.4 Size Property

Used to learn the size of the TBlob value in bytes.

**Class**

TBlob

**Syntax**

```plaintext
property size: Cardinal;
```

**Remarks**

Use the Size property to find out the size of the TBlob value in bytes.

Methods of the TBlob class.

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

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddRef (inherited from TSharedObject)</td>
<td>Increments the reference count for the number of references dependent on the TSharedObject object.</td>
</tr>
<tr>
<td>Assign</td>
<td>Sets BLOB value from another TBlob object.</td>
</tr>
<tr>
<td>Clear</td>
<td>Deletes the current value in TBlob object.</td>
</tr>
<tr>
<td>LoadFromFile</td>
<td>Loads the contents of a file into a TBlob object.</td>
</tr>
<tr>
<td>LoadFromStream</td>
<td>Copies the contents of a stream into the TBlob object.</td>
</tr>
<tr>
<td>Read</td>
<td>Acquires a raw sequence of bytes from the data stored in TBlob.</td>
</tr>
<tr>
<td>Release (inherited from TSharedObject)</td>
<td>Decrements the reference count.</td>
</tr>
</tbody>
</table>
### VirtualDAC

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SaveToFile</td>
<td>Saves the contents of the TBlob object to a file.</td>
</tr>
<tr>
<td>SaveToStream</td>
<td>Copies the contents of a TBlob object to a stream.</td>
</tr>
<tr>
<td>Truncate</td>
<td>Sets new TBlob size and discards all data over it.</td>
</tr>
<tr>
<td>Write</td>
<td>Stores a raw sequence of bytes into a TBlob object.</td>
</tr>
</tbody>
</table>

#### See Also
- TBlob Class
- TBlob Class Members

### Assign Method

Sets BLOB value from another TBlob object.

#### Class

**TBlob**

#### Syntax

```pascal
procedure Assign(Source: TBlob);
```

#### Parameters

**Source**

Holds the BLOB from which the value to the current object will be assigned.

#### Remarks

Call the Assign method to set BLOB value from another TBlob object.

#### See Also
- LoadFromStream
- AsString
- AsWideString

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4.4.1.2.3.2 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.

4.4.1.2.3.3 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
4.4.1.2.3.4 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

4.4.1.2.3.5 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

---

4.4.1.2.3.6 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
4.4.1.2.3.7 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

4.4.1.2.3.8 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.

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
4.4.1.3 TCompressedBlob Class

Holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data.

For a list of all members of this type, see TCompressedBlob members.

Unit
MemData

Syntax

TCompressedBlob = class(TBlob);

Remarks

TCompressedBlob is a descendant of the TBlob class. It holds large object value for field and parameter dtBlob, dtMemo data types and can compress its data. For more information about using BLOB compression see TCustomDADataSet.Options.

Note: Internal compression functions are available in CodeGear Delphi 2007 for Win32, Borland Developer Studio 2006, Borland Delphi 2005, and Borland Delphi 7. To use BLOB compression under Borland Delphi 6 and Borland C++ Builder you should use your own compression functions. To use them set the CompressProc and UncompressProc variables declared in the MemUtils unit.

Example

```
type
  TCompressProc = function(dest: IntPtr; destLen: IntPtr; const source: IntPtr; sourceLen: longint): longint;
  TUncompressProc = function(dest: IntPtr; destlen: IntPtr; source: IntPtr; sourceLen: longint): longint;
var
  CompressProc: TCompressProc;
  UncompressProc: TUncompressProc;
```

Inheritance Hierarchy

TSharedObject
  TBlob
    TCompressedBlob

See Also

- TBlob
- TMemDataSet.GetBlob
4.4.1.3.1 Members

**TCompressedBlob** class overview.

## Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AsString (inherited from <strong>TBlob</strong>)</td>
<td>Used to manipulate BLOB value as string.</td>
</tr>
<tr>
<td>AsWideString (inherited from <strong>TBlob</strong>)</td>
<td>Used to manipulate BLOB value as Unicode string.</td>
</tr>
<tr>
<td>Compressed</td>
<td>Used to indicate if the Blob is compressed.</td>
</tr>
<tr>
<td>CompressedSize</td>
<td>Used to indicate compressed size of the Blob data.</td>
</tr>
<tr>
<td>IsUnicode (inherited from <strong>TBlob</strong>)</td>
<td>Gives choice of making TBlob store and process data in Unicode format or not.</td>
</tr>
<tr>
<td>RefCount (inherited from <strong>TSharedObject</strong>)</td>
<td>Used to return the count of reference to a TSharedObject object.</td>
</tr>
<tr>
<td>Size (inherited from <strong>TBlob</strong>)</td>
<td>Used to learn the size of the TBlob value in bytes.</td>
</tr>
</tbody>
</table>

## Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddRef (inherited from <strong>TSharedObject</strong>)</td>
<td>Increments the reference count for the number of references dependent on the TSharedObject object.</td>
</tr>
<tr>
<td>Assign (inherited from <strong>TBlob</strong>)</td>
<td>Sets BLOB value from another TBlob object.</td>
</tr>
<tr>
<td>Clear (inherited from <strong>TBlob</strong>)</td>
<td>Deletes the current value in TBlob object.</td>
</tr>
<tr>
<td>LoadFromFile (inherited from <strong>TBlob</strong>)</td>
<td>Loads the contents of a file into a TBlob object.</td>
</tr>
</tbody>
</table>
### Properties

Properties of the `TCompressedBlob` class.

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

### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>AsString</code> (inherited from <code>TBlob</code>)</td>
<td>Used to manipulate BLOB value as string.</td>
</tr>
<tr>
<td><code>AsWideString</code> (inherited from <code>TBlob</code>)</td>
<td>Used to manipulate BLOB value as Unicode string.</td>
</tr>
<tr>
<td><code>Compressed</code></td>
<td>Used to indicate if the Blob is compressed.</td>
</tr>
<tr>
<td><code>CompressedSize</code></td>
<td>Used to indicate compressed size of the Blob data.</td>
</tr>
<tr>
<td><code>IsUnicode</code> (inherited from <code>TBlob</code>)</td>
<td>Gives choice of making TBlob store and process data in Unicode format or not.</td>
</tr>
<tr>
<td><code>RefCount</code> (inherited from <code>TSharedObject</code>)</td>
<td>Used to return the count of reference to a</td>
</tr>
</tbody>
</table>
### Compressed Property

Used to indicate if the Blob is compressed.

#### Class

**TCompressedBlob**

#### Syntax

```delphi
property Compressed: boolean;
```

#### Remarks

Indicates whether the Blob is compressed. Set this property to True or False to compress or decompress the Blob.

### CompressedSize Property

Used to indicate compressed size of the Blob data.

#### Class

**TCompressedBlob**

#### Syntax

```delphi
property CompressedSize: Cardinal;
```

#### Remarks


Indicates compressed size of the Blob data.

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### 4.4.1.4 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

```delphi
TDBObject = class(TSharedObject);
```

#### Remarks

TDBObject is a base class for classes that work with user-defined data types that have attributes.

#### Inheritance Hierarchy

- **TSharedObject**
- **TDBObject**

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### 4.4.1.4.1 Members

**TDBObject** class overview.

#### Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RefCount</strong></td>
<td>(inherited from <strong>TSharedObject</strong> Used to return the count of reference to a TSharedObject object.</td>
</tr>
</tbody>
</table>

#### Methods
### 4.4.1.5 TMemData Class

Implements storing data in memory.

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

#### Unit

MemData

#### Syntax

```Delphi
TMemData = class(TData);
```

#### Inheritance Hierarchy

TData  
   TMemData

### 4.4.1.6 TObjectType Class

This class is not used.

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

---

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AddRef</strong> (inherited from <strong>TSharedObject</strong>)</td>
<td>Increments the reference count for the number of references dependent on the TSharedObject object.</td>
</tr>
<tr>
<td><strong>Release</strong> (inherited from <strong>TSharedObject</strong>)</td>
<td>Decrements the reference count.</td>
</tr>
</tbody>
</table>
Unit

MemData

Syntax

TObjectType = class(TSharedObject);

Inheritance Hierarchy

TSharedObject
TObjectType

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4.4.1.6.1 Members

**TObjectType** class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttributeCount</td>
<td>Used to indicate the number of attributes of type.</td>
</tr>
<tr>
<td>Attributes</td>
<td>Used to access separate attributes.</td>
</tr>
<tr>
<td>DataType</td>
<td>Used to indicate the type of object dtObject, dtArray or dtTable.</td>
</tr>
<tr>
<td>RefCount</td>
<td>(inherited from <strong>TSharedObject</strong>) Used to return the count of reference to a <strong>TSharedObject</strong> object.</td>
</tr>
<tr>
<td>Size</td>
<td>Used to learn the size of an object instance.</td>
</tr>
</tbody>
</table>

Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddRef</td>
<td>(inherited from <strong>TSharedObject</strong>) Increments the reference count for the number of references dependent on the <strong>TSharedObject</strong> object.</td>
</tr>
</tbody>
</table>
4.4.1.6.2 Properties

Properties of the TObjectType class.

For a complete list of the TObjectType class members, see the TObjectType Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttributeCount</td>
<td>Used to indicate the number of attributes of type.</td>
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<tr>
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<td>Used to indicate the type of object dtObject, dtArray or dtTable.</td>
</tr>
<tr>
<td>RefCount</td>
<td>Used to return the count of reference to a TSharedObject object.</td>
</tr>
<tr>
<td>Size</td>
<td>Used to learn the size of an object instance.</td>
</tr>
</tbody>
</table>

See Also
- TObjectType Class
- TObjectType Class Members
4.4.1.6.2.1 AttributeCount Property

Used to indicate the number of attributes of type.

Class

TObjectType

Syntax

property AttributeCount: Integer;

Remarks

Use the AttributeCount property to determine the number of attributes of type.

4.4.1.6.2.2 Attributes Property(Indexer)

Used to access separate attributes.

Class

TObjectType

Syntax

property Attributes[Index: integer]: TAttribute;

Parameters

Index

Holds the attribute’s ordinal position.

Remarks

Use the Attributes property to access individual attributes. The value of the Index parameter corresponds to the AttributeNo property of TAttribute.

See Also

- TAttribute
- FindAttribute
4.4.1.6.3  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

• T:Devart.Dac.Units.MemData

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4.4.1.6.4  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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Reserved.

4.4.1.6.3 Methods

Methods of the TObjectType class.

For a complete list of the TObjectType class members, see the TObjectType Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddRef (inherited from TSharedObject)</td>
<td>Increments the reference count for the number of references dependent on the TSharedObject object.</td>
</tr>
<tr>
<td>FindAttribute</td>
<td>Indicates whether a specified Attribute component is referenced in the TAttributes object.</td>
</tr>
<tr>
<td>Release (inherited from TSharedObject)</td>
<td>Decrements the reference count.</td>
</tr>
</tbody>
</table>

See Also

- TObjectType Class
- TObjectType Class Members

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4.4.1.6.3.1 FindAttribute Method

Indicates whether a specified Attribute component is referenced in the TAttributes object.

Class

TObject

Syntax

```delphi
function FindAttribute(const Name: string): TAttribute; virtual;
```

Parameters

- **Name**
  
  Holds the name of the attribute to search for.
Return Value

TAttribute, if an attribute with a matching name was found. Nil Otherwise.

Remarks

Call FindAttribute to determine if a specified Attribute component is referenced in the
TAttributes object. Name is the name of the Attribute for which to search. If FindAttribute finds
an Attribute with a matching name, it returns the TAttribute. Otherwise it returns nil.

See Also

• TAttribute
• MDevart.Dac.TObjectType.AttributeByName(System.String)
• Attributes

4.4.1.7 TSharedObject Class

A base class that allows to simplify memory management for object referenced by several
other objects.

For a list of all members of this type, see TSharedObject members.

Unit

MemData

Syntax

TSharedObject = class(System.TObject);

Remarks

TSharedObject allows to simplify memory management for object referenced by several
other objects. TSharedObject holds a count of references to itself. When any object (referer
object) is going to use TSharedObject, it calls the TSharedObject.AddRef method. Referer
object has to call the TSharedObject.Release method after using TSharedObject.

See Also

• TBlob
• TObjectType
4.4.1.7.1 Members

**TSharedObject** class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RefCount</td>
<td>Used to return the count of reference to a TSharedObject object.</td>
</tr>
</tbody>
</table>

Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddRef</td>
<td>Increments the reference count for the number of references dependent on the TSharedObject object.</td>
</tr>
<tr>
<td>Release</td>
<td>Decrements the reference count.</td>
</tr>
</tbody>
</table>

See Also

- **TSharedObject Class**
4.4.1.7.2.1 RefCount Property

Used to return the count of reference to a TSharedObject object.

Class
TSharedObject

Syntax

```pascal
property RefCount: Integer;
```

Remarks

Returns the count of reference to a TSharedObject object.

4.4.1.7.3 Methods

Methods of the TSharedObject class.

For a complete list of the TSharedObject class members, see the TSharedObject Members topic.

Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddRef</td>
<td>Increments the reference count for the number of references dependent on the TSharedObject object.</td>
</tr>
<tr>
<td>Release</td>
<td>Decrements the reference count.</td>
</tr>
</tbody>
</table>

See Also
- TSharedObject Class
- TSharedObject Class Members
4.4.1.7.3.1 AddRef Method

Increments the reference count for the number of references dependent on the TSharedObject object.

Class

TSharedObject

Syntax

```plaintext
procedure AddRef;
```

Remarks

Increments the reference count for the number of references dependent on the TSharedObject object.

See Also

- Release

4.4.1.7.3.2 Release Method

Decrements the reference count.

Class

TSharedObject

Syntax

```plaintext
procedure Release;
```

Remarks

Call the Release method to decrement the reference count. When RefCount is 1, TSharedObject is deleted from memory.
### 4.4.2 Types

Types in the `MemData` unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>TLocateExOptions</code></td>
<td>Represents the set of <code>TLocateExOption</code>.</td>
</tr>
<tr>
<td><code>TUpdateRecKinds</code></td>
<td>Represents the set of <code>TUpdateRecKind</code>.</td>
</tr>
</tbody>
</table>

### 4.4.2.1 `TLocateExOptions` Set

Represents the set of `TLocateExOption`.

**Unit**

`MemData`

**Syntax**

```
TLocateExOptions = set of TLocateExOption;
```

### 4.4.2.2 `TUpdateRecKinds` Set

Represents the set of `TUpdateRecKind`.

**Unit**

`MemData`
4.4.3 Enumerations

Enumerations in the MemData unit.

Enumerations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCompressBlobMode</td>
<td>Specifies when the values should be compressed and the way they should be stored.</td>
</tr>
<tr>
<td>TConnLostCause</td>
<td>Specifies the cause of the connection loss.</td>
</tr>
<tr>
<td>TDANumericType</td>
<td>Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.</td>
</tr>
<tr>
<td>TLocateExOption</td>
<td>Allows to set additional search parameters which will be used by the LocateEx method.</td>
</tr>
<tr>
<td>TSortType</td>
<td>Specifies a sort type for string fields.</td>
</tr>
<tr>
<td>TUpdateRecKind</td>
<td>Indicates records for which the ApplyUpdates method will be performed.</td>
</tr>
</tbody>
</table>

4.4.3.1 TCompressBlobMode Enumeration

Specifies when the values should be compressed and the way they should be stored.
## Syntax

```delphi
TCompressBlobMode = (cbNone, cbClient, cbServer, cbClientServer);
```

## Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>cbClient</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>cbClientServer</strong></td>
<td>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. <strong>Note:</strong> 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.</td>
</tr>
<tr>
<td><strong>cbNone</strong></td>
<td>Values not compressed. The default value.</td>
</tr>
<tr>
<td><strong>cbServer</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>clApply</td>
<td>Connection loss detected during DataSet.ApplyUpdates (Reconnect/Reexecute possible).</td>
</tr>
<tr>
<td>clConnect</td>
<td>Connection loss detected during connection establishing (Reconnect possible).</td>
</tr>
<tr>
<td>clConnectionApply</td>
<td>Connection loss detected during Connection.ApplyUpdates (Reconnect/Reexecute possible).</td>
</tr>
<tr>
<td>clExecute</td>
<td>Connection loss detected during SQL execution (Reconnect with exception is possible).</td>
</tr>
<tr>
<td>clOpen</td>
<td>Connection loss detected during execution of a SELECT statement (Reconnect with exception possible).</td>
</tr>
<tr>
<td>clRefresh</td>
<td>Connection loss detected during query opening (Reconnect/Reexecute possible).</td>
</tr>
<tr>
<td>clServiceQuery</td>
<td>Connection loss detected during service information request (Reconnect/Reexecute possible).</td>
</tr>
<tr>
<td>clTransStart</td>
<td>Connection loss detected during transaction start (Reconnect/Reexecute possible). clTransStart has less priority then clConnectionApply.</td>
</tr>
<tr>
<td>clUnknown</td>
<td>The connection loss reason is unknown.</td>
</tr>
</tbody>
</table>

4.4.3.3 TDANumericType Enumeration

Specifies the format of storing and representing of the NUMERIC (DECIMAL) fields.

Syntax

```
TDANumericType = (ntFloat, ntBCD, ntFmtBCD);
```

Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ntBCD</td>
<td>Data is stored on the client side as currency and represented as</td>
</tr>
</tbody>
</table>
4.4.3.4 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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>lxCaseInsensitive</td>
<td>Similar to loCaseInsensitive. Key fields and key values are matched without regard to the case.</td>
</tr>
<tr>
<td>lxNearest</td>
<td>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.</td>
</tr>
<tr>
<td>lxNext</td>
<td>LocateEx searches from the current record.</td>
</tr>
<tr>
<td>lxPartialCompare</td>
<td>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'.</td>
</tr>
<tr>
<td>lxPartialKey</td>
<td>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'.</td>
</tr>
<tr>
<td>lxUp</td>
<td>LocateEx searches from the current record to the first record.</td>
</tr>
</tbody>
</table>
### 4.4.3.5 TSortType Enumeration

Specifies a sort type for string fields.

**Unit**

MemData

**Syntax**

```
TSortType = (stCaseSensitive, stCaseInsensitive, stBinary);
```

**Values**

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>stBinary</td>
<td>Sorting by character ordinal values (this comparison is also case sensitive).</td>
</tr>
<tr>
<td>stCaseInsensitive</td>
<td>Sorting without case sensitivity.</td>
</tr>
<tr>
<td>stCaseSensitive</td>
<td>Sorting with case sensitivity.</td>
</tr>
</tbody>
</table>

### 4.4.3.6 TUpdateRecKind Enumeration

Indicates records for which the ApplyUpdates method will be performed.

**Unit**

MemData

**Syntax**

```
TUpdateRecKind = (ukUpdate, ukInsert, ukDelete);
```

**Values**

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ukDelete</td>
<td>ApplyUpdates will be performed for deleted records.</td>
</tr>
<tr>
<td>ukInsert</td>
<td>ApplyUpdates will be performed for inserted records.</td>
</tr>
<tr>
<td>ukUpdate</td>
<td>ApplyUpdates will be performed for updated records.</td>
</tr>
</tbody>
</table>
4.5 MemDS

4.5.1 Classes

Classes in the MemDS unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMemDataSet</td>
<td>A base class for working with data and manipulating data in memory.</td>
</tr>
</tbody>
</table>

4.5.1.1 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.
## Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong></td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong></td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong></td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>

## Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ApplyRange</strong></td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CancelUpdates</td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td>CommitUpdates</td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td>DeferredPost</td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td>EditRangeEnd</td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td>EditRangeStart</td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td>GetBlob</td>
<td>Overloaded. Retrives TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td>Locate</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td>LocateEx</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td>Prepare</td>
<td>Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td>RestoreUpdates</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td>RevertRecord</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>SaveToXML</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td>SetRange</td>
<td>Sets the starting and ending</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SetRangeEnd</td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>SetRangeStart</td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>UnPrepare</td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td>UpdateResult</td>
<td>Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.</td>
</tr>
<tr>
<td>UpdateStatus</td>
<td>Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

### Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnUpdateError</td>
<td>Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td>OnUpdateRecord</td>
<td>Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>
Properties of the **TMemDataSet** class.

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

### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong></td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong></td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong></td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>

**See Also**

- [TMemDataSet Class](#)
- [TMemDataSet Class Members](#)
4.5.1.2.1 CachedUpdates Property

Used to enable or disable the use of cached updates for a dataset.

Class

TMemDataSet

Syntax

property CachedUpdates: boolean default False;

Remarks

Use the CachedUpdates property to enable or disable the use of cached updates for a dataset. Setting CachedUpdates to True enables updates to a dataset (such as posting changes, inserting new records, or deleting records) to be stored in an internal cache on the client side instead of being written directly to the dataset's underlying database tables. When changes are completed, an application writes all cached changes to the database in the context of a single transaction.

Cached updates are especially useful for client applications working with remote database servers. Enabling cached updates brings up the following benefits:

- Fewer transactions and shorter transaction times.
- Minimized network traffic.

The potential drawbacks of enabling cached updates are:

- Other applications can access and change the actual data on the server while users are editing local copies of data, resulting in an update conflict when cached updates are applied to the database.
- Other applications cannot access data changes made by an application until its cached updates are applied to the database.

The default value is False.

**Note:** When establishing master/detail relationship the CachedUpdates property of detail dataset works properly only when TDADataSetOptions.LocalMasterDetail is set to True.

See Also

- UpdatesPending
- TMemDataSet.ApplyUpdates
4.5.1.2.2 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:

```pascal
DataSet1.IndexFieldNames := 'LastName ASC CIS; DateDue DESC';
```

**4.5.1.2.3 KeyExclusive Property**

Specifies the upper and lower boundaries for a range.

**Class**

`TMemDataSet`

**Syntax**

```pascal
property KeyExclusive: Boolean;
```

**Remarks**

Use `KeyExclusive` to specify whether a range includes or excludes the records that match its specified starting and ending values.

By default, `KeyExclusive` is `False`, meaning that matching values are included.

To restrict a range to those records that are greater than the specified starting value and less than the specified ending value, set `KeyExclusive` to `True`.

**See Also**

- `SetRange`
- `SetRangeEnd`
- `SetRangeStart`
4.5.1.1.2.4 LocalConstraints Property

Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.

Class

TMemDataSet

Syntax

```objectivec
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 LocalConstrains is True, TMemDataSet ignores NOT NULL server constraints. It is useful for tables that have fields updated by triggers.

LocalConstraints is obsolete, and is only included for backward compatibility.

The default value is True.

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4.5.1.1.2.5 LocalUpdate Property

Used to prevent implicit update of rows on database server.

Class

TMemDataSet

Syntax

```objectivec
property LocalUpdate: boolean default False;
```

Remarks

Set the LocalUpdate property to True to prevent implicit update of rows on database server. Data changes are cached locally in client memory.

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4.5.1.2.6 Prepared Property

Determines whether a query is prepared for execution or not.

Class

```plaintext
TMemDataSet
```

Syntax

```plaintext
property Prepared: boolean;
```

Remarks

Determines whether a query is prepared for execution or not.

See Also

- Prepare

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4.5.1.2.7 Ranged Property

Indicates whether a range is applied to a dataset.

Class

```plaintext
TMemDataSet
```

Syntax

```plaintext
property Ranged: Boolean;
```

Remarks

Use the Ranged property to detect whether a range is applied to a dataset.

See Also

- SetRange
- SetRangeEnd
- SetRangeStart

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4.5.1.1.2.8  **UpdateRecordTypes Property**

Used to indicate the update status for the current record when cached updates are enabled.

**Class**

TMemDataSet

**Syntax**

```delphi
property UpdateRecordTypes: TUpdateRecordTypes default [rtModified, rtInserted, rtUnmodified];
```

**Remarks**

Use the UpdateRecordTypes property to determine the update status for the current record when cached updates are enabled. Update status can change frequently as records are edited, inserted, or deleted. UpdateRecordTypes offers a convenient method for applications to assess the current status before undertaking or completing operations that depend on the update status of records.

See Also

- CachedUpdates

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4.5.1.1.2.9  **UpdatesPending Property**

Used to check the status of the cached updates buffer.

**Class**

TMemDataSet

**Syntax**

```delphi
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.
Methods of the `TMemDataSet` class.

For a complete list of the `TMemDataSet` class members, see the `TMemDataSet Members` topic.

### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>ApplyRange</code></td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td><code>ApplyUpdates</code></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><code>CancelRange</code></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><code>CancelUpdates</code></td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><code>CommitUpdates</code></td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><code>DeferredPost</code></td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><code>EditRangeEnd</code></td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><code>EditRangeStart</code></td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><code>GetBlob</code></td>
<td>Overloaded. Retrieves <code>TBlob</code> object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Locate</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td>LocateEx</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td>Prepare</td>
<td>Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td>RestoreUpdates</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td>RevertRecord</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>SaveToXML</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td>SetRange</td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td>SetRangeEnd</td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>SetRangeStart</td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>UnPrepare</td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td>UpdateResult</td>
<td>Reads the status of the latest call to the ApplyUpdates method while cached updates are</td>
</tr>
</tbody>
</table>
### ApplyRange Method

Applies a range to the dataset.

**Class**

**TMemDataSet**

**Syntax**

```delphi
procedure ApplyRange;
```

**Remarks**

Call `ApplyRange` to cause a range established with `SetRangeStart` and `SetRangeEnd`, or `EditRangeStart` and `EditRangeEnd`, to take effect.

When a range is in effect, only those records that fall within the range are available to the application for viewing and editing.

After a call to `ApplyRange`, the cursor is left on the first record in the range.

**See Also**

- `CancelRange`
- `EditRangeEnd`
- `EditRangeStart`
- `IndexFieldNames`
- `SetRange`
- `SetRangeEnd`
4.5.1.1.3.2 ApplyUpdates Method

Writes dataset's pending cached updates to a database.

Class

TMemDataSet

Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ApplyUpdates</td>
<td>Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td>ApplyUpdates(const UpdateRecKinds: TUpdateRecKinds)</td>
<td>Writes dataset's pending cached updates of specified records to a database.</td>
</tr>
</tbody>
</table>

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:

```pascal
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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4.5.1.1.3.3 CancelRange Method

Removes any ranges currently in effect for a dataset.

Class

TMemDataSet

Syntax

procedure CancelRange;

Remarks

Call CancelRange to remove a range currently applied to a dataset. Canceling a range reenables access to all records in the dataset.
See Also
- `ApplyRange`
- `EditRangeEnd`
- `EditRangeStart`
- `IndexFieldNames`
- `SetRange`
- `SetRangeEnd`
- `SetRangeStart`

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4.5.1.3.4 CancelUpdates Method

Clears all pending cached updates from cache and restores dataset in its prior state.

Class
`TMemDataSet`

Syntax

```pascal
procedure CancelUpdates;
```

Remarks

Call the CancelUpdates method to clear all pending cached updates from cache and restore dataset in its prior state.

It restores the dataset to the state it was in when the table was opened, cached updates were last enabled, or updates were last successfully applied to the database.

When a dataset is closed, or the CachedUpdates property is set to False, CancelUpdates is called automatically.

See Also
- `CachedUpdates`
- `TMemDataSet.ApplyUpdates`
- `UpdateStatus`

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4.5.1.1.3.5 CommitUpdates Method

Clears the cached updates buffer.

Class

TMemDataSet

Syntax

procedure CommitUpdates;

Remarks

Call the CommitUpdates method to clear the cached updates buffer after both a successful call to ApplyUpdates and a database component's Commit method. Clearing the cache after applying updates ensures that the cache is empty except for records that could not be processed and were skipped by the OnUpdateRecord or OnUpdateError event handlers. An application can attempt to modify the records still in cache.

CommitUpdates also checks whether there are pending updates in dataset. And if there are, it calls ApplyUpdates.

Record modifications made after a call to CommitUpdates repopulate the cached update buffer and require a subsequent call to ApplyUpdates to move them to the database.

See Also

- CachedUpdates
- TMemDataSet.ApplyUpdates
- UpdateStatus

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4.5.1.1.3.6 DeferredPost Method

Makes permanent changes to the database server.

Class

TMemDataSet

Syntax

procedure DeferredPost;
Remarks

Call DeferredPost to make permanent changes to the database server while retaining dataset in its state whether it is dsEdit or dsInsert.

Explicit call to the Cancel method after DeferredPost has been applied does not abandon modifications to a dataset already fixed in database.

4.5.1.3.7 EditRangeEnd Method

Enables changing the ending value for an existing range.

Class

TMemDataSet

Syntax

procedure EditRangeEnd;

Remarks

Call EditRangeEnd to change the ending value for an existing range.

To specify an end range value, call FieldByName after calling EditRangeEnd.

After assigning a new ending value, call ApplyRange to activate the modified range.

See Also

- ApplyRange
- CancelRange
- EditRangeStart
- IndexFieldNames
- SetRange
- SetRangeEnd
- SetRangeStart

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4.5.1.1.3.8 EditRangeStart Method

Enables changing the starting value for an existing range.

Class

**TMemDataSet**

Syntax

```pascal
procedure EditRangeStart;
```

Remarks

Call `EditRangeStart` to change the starting value for an existing range.

To specify a start range value, call `FieldByName` after calling `EditRangeStart`.

After assigning a new ending value, call `ApplyRange` to activate the modified range.

See Also

- `ApplyRange`
- `CancelRange`
- `EditRangeEnd`
- `IndexFieldNames`
- `SetRange`
- `SetRangeEnd`
- `SetRangeStart`

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**GetBlob(Field: TField)**  
Retrieves TBlob object for a field or current record when the field itself is known.

**GetBlob(const FieldName: string)**  
Retrieves TBlob object for a field or current record when its name is known.

Retrieves TBlob object for a field or current record when the field itself is known.

**Class**

**TMemDataSet**

**Syntax**

```pascal
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.

Retrieves TBlob object for a field or current record when its name is known.

**Class**

**TMemDataSet**

**Syntax**

```pascal
function GetBlob(const FieldName: string): TBlob; overload;
```

**Parameters**
**FieldName**

Holds the name of an existing field.

**Return Value**

TBlob object that was retrieved.

**Example**

```
VirtualQuery1.GetBlob('Comment').SaveToFile('Comment.txt');
```

**See Also**

- TBlob

4.5.1.3.10 Locate Method

Searches a dataset for a specific record and positions the cursor on it.

**Class**

**TMemDataSet**

**Overload List**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locate(const KeyFields: array of TField; const KeyValues: variant; Options: TLocateOptions)</td>
<td>Searches a dataset by the specified fields for a specific record and positions cursor on it.</td>
</tr>
<tr>
<td>Locate(const KeyFields: string; const KeyValues: variant; Options: TLocateOptions)</td>
<td>Searches a dataset by the fields specified by name for a specific record and positions the cursor on it.</td>
</tr>
</tbody>
</table>

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;

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.

Remarks

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;
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:

```pascal
with CustTable do
  Locate('Company;Contact;Phone', VarArrayOf(['Sight Diver', 'P', '408-431-1000']), [loPartialKey]);
```

See Also

- TMemDataSet.IndexFieldNames
- TMemDataSet.LocateEx

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4.5.1.1.3.11 LocateEx Method

Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.

Class

TMemDataSet
Overload List

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LocateEx(const KeyFields: array of TField; const KeyValues: variant; Options: TLocateExOptions)</td>
<td>Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet by the specified fields.</td>
</tr>
<tr>
<td>LocateEx(const KeyFields: string; const KeyValues: variant; Options: TLocateExOptions)</td>
<td>Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet by the specified field names.</td>
</tr>
</tbody>
</table>

Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet by the specified fields.

Class

TMemDataSet

Syntax

```pascal
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.
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
4.5.1.3.12 Prepare Method

Allocates resources and creates field components for a dataset.

Class

**TMemDataSet**

Syntax

```pascal
procedure Prepare; virtual;
```

Remarks

Call the Prepare method to allocate resources and create field components for a dataset. To learn whether dataset is prepared or not use the Prepared property.

The UnPrepare method unprepares a query.

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

See Also

- **Prepared**
- **UnPrepare**

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4.5.1.3.13 RestoreUpdates Method

Marks all records in the cache of updates as unapplied.

Class

**TMemDataSet**

Syntax

```pascal
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

4.5.1.1.3.14 RevertRecord Method

Cancels changes made to the current record when cached updates are enabled.

Class
TMemDataSet

Syntax

```plaintext
procedure RevertRecord;
```

Remarks
Call the RevertRecord method to undo changes made to the current record when cached updates are enabled.

See Also
- CachedUpdates
- CancelUpdates

4.5.1.1.3.15 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>SaveToXML(Destination: TStream)</code></td>
<td>Saves the current dataset data to a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td><code>SaveToXML(const FileName: string)</code></td>
<td>Saves the current dataset data to a file in the XML format compatible with ADO format.</td>
</tr>
</tbody>
</table>

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

- `M:Devart.Dac.TVirtualTable.LoadFromFile(System.String,System.Boolean)`
- `M:Devart.Dac.TVirtualTable.LoadFromStream(Borland.Vcl.TStream,System.Boolean)`
Saves the current dataset data to a file in the XML format compatible with ADO format.

Class

TMemDataSet

Syntax

```pascal
procedure SaveToXML(const FileName: string); overload;
```

Parameters

*FileName*

Holds the name of a destination file.

Sets the starting and ending values of a range, and applies it.

Class

TMemDataSet

Syntax

```pascal
procedure SetRange(const StartValues: array of System.TVarRec;
const EndValues: array of System.TVarRec; StartExlusive: Boolean = False;
EndExclusive: Boolean = False);
```

Parameters

*StartValues*

Indicates the field values that designate the first record in the range. In C++, StartValues_Size is the index of the last value in the StartValues array.

*EndValues*

Indicates the field values that designate the last record in the range. In C++, EndValues_Size is the index of the last value in the EndValues array.

*StartExlusive*

Indicates the upper and lower boundaries of the start range.

*EndExclusive*

Indicates the upper and lower boundaries of the end range.
Remarks

Call SetRange to specify a range and apply it to the dataset. The new range replaces the currently specified range, if any.

SetRange combines the functionality of SetRangeStart, SetRangeEnd, and ApplyRange in a single procedure call. SetRange performs the following functions:

1. Puts the dataset into dsSetKey state.
2. Erases any previously specified starting range values and ending range values.
3. Sets the start and end range values.
4. Applies the range to the dataset.

After a call to SetRange, the cursor is left on the first record in the range.

If either StartValues or EndValues has fewer elements than the number of fields in the current index, then the remaining entries are ignored when performing a search.

See Also

- ApplyRange
- CancelRange
- EditRangeEnd
- EditRangeStart
- IndexFieldNames
- KeyExclusive
- SetRangeEnd
- SetRangeStart

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4.5.1.1.3.17 SetRangeEnd Method

Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.

Class

TMemDataSet

Syntax
**procedure** SetRangeEnd;

**Remarks**

Call SetRangeEnd to put the dataset into dsSetKey state, erase any previous end range values, and set them to NULL.

Subsequent field assignments made with FieldByName specify the actual set of ending values for a range.

After assigning end-range values, call `ApplyRange` to activate the modified range.

**See Also**

- `ApplyRange`
- `CancelRange`
- `EditRangeStart`
- `IndexFieldNames`
- `SetRange`
- `SetRangeStart`

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4.5.1.3.18 SetRangeStart Method

Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.

**Class**

`TMemDataSet`

**Syntax**

```plaintext
procedure SetRangeStart;
```

**Remarks**

Call SetRangeStart to put the dataset into dsSetKey state, erase any previous start range values, and set them to NULL.

Subsequent field assignments to FieldByName specify the actual set of starting values for a range.
After assigning start-range values, call **ApplyRange** to activate the modified range.

**See Also**
- **ApplyRange**
- **CancelRange**
- **EditRangeStart**
- **IndexFieldNames**
- **SetRange**
- **SetRangeEnd**

**UnPrepare Method**

Frees the resources allocated for a previously prepared query on the server and client sides.

**Class**

**TMemDataSet**

**Syntax**

```pascal
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**

**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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4.5.1.1.3.21  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

See Also

- TMemDataSet Class
- TMemDataSet Class Members

### Events

Events of the TMemDataSet class.

For a complete list of the TMemDataSet class members, see the TMemDataSet Members topic.

#### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnUpdateError</td>
<td>Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td>OnUpdateRecord</td>
<td>Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>

See Also

- TMemDataSet Class
- TMemDataSet Class Members

#### OnUpdateError Event

Occurs when an exception is generated while cached updates are applied to a database.

Class

TMemDataSet
Syntax

```pascal
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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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

4.5.2 Variables

Variables in the MemDS unit.

Variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoNotRaiseExcetionOnUaFail</td>
<td>An exception will be raised if the value of the UpdateAction parameter is uaFail.</td>
</tr>
<tr>
<td>SendDataSetChangeEventAfterOpen</td>
<td>The DataSetChange event is sent after a dataset gets open. It was necessary to fix a problem with disappeared vertical scrollbar in some types of DB-aware grids.</td>
</tr>
</tbody>
</table>
4.5.2.1 DoNotRaiseExceptionOnUaFail Variable

An exception will be raised if the value of the UpdateAction parameter is uaFail.

Unit
MemDS

Syntax

DoNotRaiseExceptionOnUaFail: boolean = False;

Remarks
Starting with VirtualDAC, 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 DoNotRaiseExceptionOnUaFail to True.

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4.5.2.2 SendDataSetChangeEventAfterOpen Variable

The DataSetChange event is sent after a dataset gets open. It was necessary to fix a problem with disappeared vertical scrollbar in some types of DB-aware grids.

Unit
MemDS

Syntax

SendDataSetChangeEventAfterOpen: boolean = True;

Remarks
Starting with VirtualDAC, the DataSetChange event is sent after a 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.

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## 4.6 VirtualDataSet

### 4.6.1 Classes

Classes in the VirtualDataSet unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCustomVirtualDataSet</td>
<td>A base class for representation of arbitrary data in tabular form.</td>
</tr>
<tr>
<td>TVirtualDataSet</td>
<td>Dataset that processes arbitrary non-tabular data.</td>
</tr>
</tbody>
</table>

### 4.6.1.1 TCustomVirtualDataSet Class

A base class for representation of arbitrary data in tabular form.

For a list of all members of this type, see TCustomVirtualDataSet members.

**Unit**

virtualDataSet

**Syntax**

```plaintext
TCustomVirtualDataSet = class(TMemDataSet);
```

**Inheritance Hierarchy**

```
TMemDataSet
  TCustomVirtualDataSet
```

### 4.6.1.1.1 Members

TCustomVirtualDataSet class overview.

**Properties**
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>

**Methods**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ApplyRange</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Applies a range to the dataset.</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>GetBlob</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>Locate</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td><strong>LocateEx</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Excludes features that don't need to be included to the <strong>TMemDataSet.Locate</strong> method of TDataSet.</td>
</tr>
<tr>
<td><strong>Prepare</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td><strong>RestoreUpdates</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td><strong>RevertRecord</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>SaveToXML</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td><strong>SetRange</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
</tbody>
</table>
| **SetRangeEnd** (inherited from **TMemDataSet**)    | Indicates that subsequent
assignments to field values specify the end of the range of rows to include in the dataset.

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SetRangeStart</strong> (inherited from TMemDataSet)</td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>UnPrepare</strong> (inherited from TMemDataSet)</td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><strong>UpdateResult</strong> (inherited from TMemDataSet)</td>
<td>Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdateStatus</strong> (inherited from TMemDataSet)</td>
<td>Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OnUpdateError</strong> (inherited from TMemDataSet)</td>
<td>Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td><strong>OnUpdateRecord</strong> (inherited from TMemDataSet)</td>
<td>Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>

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4.6.1.2 TVirtualDataSet Class

Dataset that processes arbitrary non-tabular data.

For a list of all members of this type, see TVirtualDataSet members.

Unit
**virtualDataset**

**Syntax**

```pascal
TVirtualDataSet = class(TCustomVirtualDataSet);
```

**Inheritance Hierarchy**

- `TMemDataSet`
- `TCustomVirtualDataSet`
- `TVirtualDataSet`

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4.6.1.2.1 Members

- **TVirtualDataSet** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from <code>TMemDataSet</code>) Indicates whether a range is applied to a dataset.</td>
</tr>
</tbody>
</table>
**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

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ApplyRange</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Applies a range to the dataset.</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>GetBlob</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>Locate</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
</tbody>
</table>
| **LocateEx**          | (inherited from **TMemDataSet**) Overloaded. Excludes features that don't need to be included to the
<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prepare</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td><strong>RestoreUpdates</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td><strong>RevertRecord</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>SaveToXML</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td><strong>SetRange</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td><strong>SetRangeEnd</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>SetRangeStart</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>UnPrepare</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><strong>UpdateResult</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdateStatus</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

**TMemDataSet.Locate** method of **TDataSet**.
## Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnDeleteRecord</td>
<td>Occurs when a record is deleted from the virtual data set.</td>
</tr>
<tr>
<td>OnGetFieldValue</td>
<td>Occurs when a virtual dataset asks for the value of a field.</td>
</tr>
<tr>
<td>OnGetRecordCount</td>
<td>Occurs when a virtual dataset queries the number of records.</td>
</tr>
<tr>
<td>OnInsertRecord</td>
<td>Occurs when a new record is added to the virtual data set.</td>
</tr>
<tr>
<td>OnModifyRecord</td>
<td>Occurs when a record is modified in the virtual data set.</td>
</tr>
<tr>
<td>OnUpdateError</td>
<td>Inherited from TMemDataSet. Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td>OnUpdateRecord</td>
<td>Inherited from TMemDataSet. Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>

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4.6.1.2.2 Events

Events of the TVirtualDataSet class.

For a complete list of the TVirtualDataSet class members, see the TVirtualDataSet Members topic.

## Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnUpdateError</td>
<td>Inherited from TMemDataSet. Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
</tbody>
</table>
**OnUpdateRecord** (inherited from **TMemDataSet**)  
Occurs when a single update component can not handle the updates.

**Published**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OnDeleteRecord</strong></td>
<td>Occurs when a record is deleted from the virtual data set.</td>
</tr>
<tr>
<td><strong>OnGetField Value</strong></td>
<td>Occurs when a virtual dataset asks for the value of a field.</td>
</tr>
<tr>
<td><strong>OnGetRecord Count</strong></td>
<td>Occurs when a virtual dataset queries the number of records.</td>
</tr>
<tr>
<td><strong>OnInsertRecord</strong></td>
<td>Occurs when a new record is added to the virtual data set.</td>
</tr>
<tr>
<td><strong>OnModifyRecord</strong></td>
<td>Occurs when a record is modified in the virtual data set.</td>
</tr>
</tbody>
</table>

**See Also**
- **TVirtualDataSet Class**
- **TVirtualDataSet Class Members**

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4.6.1.2.2.1 **OnDeleteRecord Event**

Occurs when a record is deleted from the virtual data set.

**Class**

**TVirtualDataSet**

**Syntax**

```property```
```
OnDeleteRecord: TOnDeleteRecordEvent;
```

**Remarks**
Write the OnDeleteRecord event handler to process deletion of a record from the virtual dataset. When firing the event, the virtual dataset sends the record number of the record being deleted into the event handler.

See Also
- OnInsertRecord
- OnModifyRecord

4.6.1.2.2.2 OnGetFieldValue Event

Occurs when a virtual dataset asks for the value of a field.

Class
TVirtualDataSet

Syntax

```pascal
property OnGetFieldValue: TOnGetFieldValueEvent;
```

Remarks

Write the OnGetFieldValue event handler to return field data to the virtual dataset. Since virtual dataset does not store a data, when opening it fires the event to obtain the value of each field.

See Also
- OnGetRecordCount

4.6.1.2.2.3 OnGetRecordCount Event

Occurs when a virtual dataset queries the number of records.

Class
TVirtualDataSet

Syntax
property OnGetRecordCount: TOnGetRecordCountEvent;

Remarks
Write the OnGetRecordCount event handler to let the virtual dataset know, how many records it contains. Since virtual dataset does not store a data, when opening it fires the event to determine how many records will be kept in it. Then the virtual dataset will ask for the value of each field, using a OnGetFieldValue event handler.

See Also
- OnGetFieldValue

4.6.1.2.2.4 OnInsertRecord Event

Occurs when a new record is added to the virtual data set.

Class
TVirtualDataSet

Syntax
property OnInsertRecord: TOnModifyRecordEvent;

Remarks
Write the OnInsertRecord event handler to process insertion of new record in the virtual dataset. When firing the event, the virtual dataset is positioned on the record being inserted.

See Also
- OnModifyRecord
- OnDeleteRecord
4.6.1.2.2.5 OnModifyRecord Event

Occurs when a record is modified in the virtual data set.

Class

**TVirtualDataSet**

Syntax

```plaintext
property OnModifyRecord: TOnModifyRecordEvent;
```

Remarks

Write the OnModifyRecord event handler to process modification of a record in the virtual dataset. When firing the event, the virtual dataset is positioned on the record being modified.

See Also

- **OnInsertRecord**
- **OnDeleteRecord**

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4.6.2 Types

Types in the **VirtualDataSet** unit.

Types

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOnDeleteRecordEvent</strong></td>
<td>This type is used for the TVirtualDataSet.OnDeleteRecord event.</td>
</tr>
<tr>
<td><strong>TOnGetFieldValueEvent</strong></td>
<td>This type is used for the TVirtualDataSet.OnGetFieldValue event.</td>
</tr>
<tr>
<td><strong>TOnGetRecordCountEvent</strong></td>
<td>This type is used for the TVirtualDataSet.OnGetRecordCount event.</td>
</tr>
<tr>
<td><strong>TOnModifyRecordEvent</strong></td>
<td>This type is used for the TVirtualDataSet.OnInsertRecord and TVirtualDataSet.OnModifyRecord events.</td>
</tr>
</tbody>
</table>
4.6.2.1 **TOnDeleteRecordEvent Procedure Reference**

This type is used for the `TVirtualDataSet.OnDeleteRecord` event.

**Unit**

`VirtualDataSet`

**Syntax**

```typescript
TOnDeleteRecordEvent = procedure (Sender: TObject; RecNo: Integer) of object;
```

**Parameters**

- **Sender**
  - An object that raised the event.
- **RecNo**
  - Number of the record being deleted.

4.6.2.2 **TOnGetFieldValueEvent Procedure Reference**

This type is used for the `TVirtualDataSet.OnGetFieldValue` event.

**Unit**

`VirtualDataSet`

**Syntax**

```typescript
TOnGetFieldValueEvent = procedure (Sender: TObject; Field: TField; RecNo: Integer; out Value: Variant) of object;
```

**Parameters**

- **Sender**
  - An object that raised the event.
- **Field**
  - The field, which data has to be returned.
RecNo
The number of the record, which data has to be returned.

Value
Requested field value.

4.6.2.3 TOnGetRecordCountEvent Procedure Reference

This type is used for the TVirtualDataSet.OnGetRecordCount event.

Unit
VirtualDataSet

Syntax

TOnGetRecordCountEvent = procedure (Sender: TObject; out Count: Integer) of object;

Parameters

Sender
An object that raised the event.

Count
The number of records that the virtual dataset will contain.

4.6.2.4 TOnModifyRecordEvent Procedure Reference

This type is used for TVirtualDataSet.OnInsertRecord and TVirtualDataSet.OnModifyRecord events.

Unit
VirtualDataSet

Syntax

TOnModifyRecordEvent = procedure (Sender: TObject; var RecNo: Integer) of object;

Parameters
Sender
An object that raised the event.

RecNo
Number of the record being inserted or modified.

4.7 VirtualQuery

4.7.1 Classes

Classes in the VirtualQuery unit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCustomVirtualQuery</td>
<td>A base class that implements TVirtualQuery functionality.</td>
</tr>
<tr>
<td>TDataSetLink</td>
<td>Used to link a TDataSet descendant as a data source for querying data in TVirtualQuery.</td>
</tr>
<tr>
<td>TDataSetLinks</td>
<td>This type is used for the TCustomVirtualQuery.SourceDataSets property.</td>
</tr>
<tr>
<td>TVirtualCollationManager</td>
<td>Used to enable user-defined collations.</td>
</tr>
<tr>
<td>TVirtualFunctionManager</td>
<td>Used to enable user-defined functions.</td>
</tr>
<tr>
<td>TVirtualQuery</td>
<td>A class used to retrieve data simultaneously from several different RDBMS'es.</td>
</tr>
<tr>
<td>TVirtualQueryOptions</td>
<td>This class allows setting up the behaviour of the TVirtualQuery class.</td>
</tr>
</tbody>
</table>
4.7.1.1 **TCustomVirtualQuery Class**

A base class that implements `TVirtualQuery` functionality.

For a list of all members of this type, see `TCustomVirtualQuery` members.

**Unit**

`VirtualQuery`

**Syntax**

```delphi
TCustomVirtualQuery = class(TCustomDADataSet);
```

**Inheritance Hierarchy**

```
TMemDataSet
  TCustomDADataSet
  TCustomVirtualQuery
```

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4.7.1.1.1 Members

**TCustomVirtualQuery** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>BaseSQL</code></td>
<td>(inherited from <code>TCustomDADataSet</code>) Used to return SQL text without any changes performed by <code>AddWhere</code>, <code>SetOrderBy</code>, and <code>FilterSQL</code>.</td>
</tr>
<tr>
<td><code>CachedUpdates</code></td>
<td>(inherited from <code>TMemDataSet</code>) Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><code>Conditions</code></td>
<td>(inherited from <code>TCustomDADataSet</code>) Used to add WHERE conditions to a query</td>
</tr>
<tr>
<td><code>Connection</code></td>
<td>(inherited from <code>TCustomDADataSet</code>) Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td><code>DataTypeMap</code></td>
<td>(inherited from <code>TCustomDADataSet</code>) Used to set data type mapping rules</td>
</tr>
<tr>
<td><code>Debug</code></td>
<td>(inherited from <code>TCustomDADataSet</code>) Used to display executing executing...</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DetailFields</td>
<td>Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.</td>
</tr>
<tr>
<td>Disconnected</td>
<td>Used to keep dataset opened after connection is closed.</td>
</tr>
<tr>
<td>FetchRows</td>
<td>Used to define the number of rows to be transferred across the network at the same time.</td>
</tr>
<tr>
<td>FilterSQL</td>
<td>Used to change the WHERE clause of SELECT statement and reopen a query.</td>
</tr>
<tr>
<td>FinalSQL</td>
<td>Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.</td>
</tr>
<tr>
<td>IndexFieldNames</td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td>IsQuery</td>
<td>Used to check whether SQL statement returns rows.</td>
</tr>
<tr>
<td>KeyExclusive</td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td>KeyFields</td>
<td>Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.</td>
</tr>
<tr>
<td>LocalConstraints</td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td>LocalUpdate</td>
<td>Used to prevent implicit update of rows on database.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>MacroCount</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to get the number of macros associated with the Macros property.</td>
</tr>
<tr>
<td><strong>Macros</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td><strong>MasterFields</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) 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.</td>
</tr>
<tr>
<td><strong>MasterSource</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify the data source component which binds current dataset to the master one.</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>Used to specify the behaviour of TVirtualQuery object.</td>
</tr>
<tr>
<td><strong>ParamCheck</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.</td>
</tr>
<tr>
<td><strong>ParamCount</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to indicate how many parameters are there in the Params property.</td>
</tr>
<tr>
<td><strong>Params</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to view and set parameter names, values, and data types dynamically.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>ReadOnly</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to prevent users from updating, inserting, or deleting data in the dataset.</td>
</tr>
<tr>
<td><strong>RefreshOptions</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to indicate when the editing record is refreshed.</td>
</tr>
<tr>
<td><strong>RowsAffected</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to indicate the number of rows which were inserted, updated, or deleted during server.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>SourceDataSets</strong></td>
<td>Contains a collection of source datasets for querying data.</td>
</tr>
<tr>
<td><strong>SQL</strong> (inherited from TCustomDADataset)</td>
<td>Used to provide a SQL statement that a query component executes when its Open method is called.</td>
</tr>
<tr>
<td><strong>SQLDelete</strong> (inherited from TCustomDADataset)</td>
<td>Used to specify a SQL statement that will be used when applying a deletion to a record.</td>
</tr>
<tr>
<td><strong>SQLInsert</strong> (inherited from TCustomDADataset)</td>
<td>Used to specify the SQL statement that will be used when applying an insertion to a dataset.</td>
</tr>
<tr>
<td><strong>SQLLock</strong> (inherited from TCustomDADataset)</td>
<td>Used to specify a SQL statement that will be used to perform a record lock.</td>
</tr>
<tr>
<td><strong>SQLRecCount</strong> (inherited from TCustomDADataset)</td>
<td>Used to specify the SQL statement that is used to get the record count when opening a dataset.</td>
</tr>
<tr>
<td><strong>SQLRefresh</strong> (inherited from TCustomDADataset)</td>
<td>Used to specify a SQL statement that will be used to refresh current record by calling the TCustomDADataset.RefreshRecord procedure.</td>
</tr>
<tr>
<td><strong>SQLUpdate</strong> (inherited from TCustomDADataset)</td>
<td>Used to specify a SQL statement that will be used when applying an update to a dataset.</td>
</tr>
<tr>
<td><strong>UniDirectional</strong> (inherited from TCustomDADataset)</td>
<td>Used if an application does not need bidirectional access to records in the result set.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong> (inherited from TMemDataSet)</td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong> (inherited from TMemDataSet)</td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>
## Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AddWhere</strong> <em>(inherited from TCustomDADataset)</em></td>
<td>Adds condition to the WHERE clause of SELECT statement in the SQL property.</td>
</tr>
<tr>
<td><strong>ApplyRange</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>BreakExec</strong> <em>(inherited from TCustomDADataset)</em></td>
<td>Breaks execution of the SQL statement on the server.</td>
</tr>
<tr>
<td><strong>CancelRange</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>CreateBlobStream</strong> <em>(inherited from TCustomDADataset)</em></td>
<td>Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>DeleteWhere</strong> <em>(inherited from TCustomDADataset)</em></td>
<td>Removes WHERE clause from the SQL property and assigns the BaseSQL property.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong> <em>(inherited from TMemDataSet)</em></td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>Execute</strong> <em>(inherited from TCustomDADataset)</em></td>
<td>Overloaded. Executes a SQL statement on the server.</td>
</tr>
<tr>
<td><strong>Execute</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Indicates whether SQL statement is still being executed.</td>
</tr>
<tr>
<td><strong>Fetch</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to learn whether TCustomDADataset has already fetched all rows.</td>
</tr>
<tr>
<td><strong>Fetch</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to learn whether TCustomDADataset is still fetching rows.</td>
</tr>
<tr>
<td><strong>FetchAll</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to learn whether TCustomDADataset is fetching all rows to the end.</td>
</tr>
<tr>
<td><strong>FindKey</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Searches for a record which contains specified field values.</td>
</tr>
<tr>
<td><strong>FindMacro</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Description is not available at the moment.</td>
</tr>
<tr>
<td><strong>FindNearest</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>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.</td>
</tr>
<tr>
<td><strong>FindParam</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Determines if a parameter with the specified name exists in a dataset.</td>
</tr>
<tr>
<td><strong>GetBlob</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>GetDataType</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Returns internal field types defined in the MemData and accompanying modules.</td>
</tr>
<tr>
<td><strong>GetFieldObject</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Returns a multireference shared object from field.</td>
</tr>
<tr>
<td><strong>GetFieldPrecision</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Retrieves the precision of a number field.</td>
</tr>
<tr>
<td><strong>GetFieldScale</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Retrieves the scale of a number field.</td>
</tr>
<tr>
<td><strong>GetKeyFieldNames</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Provides a list of available key field names.</td>
</tr>
</tbody>
</table>
| **GetOrderBy** (inherited from **TCustomDADataset**) | Retrieves an ORDER BY
<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GotoCurrent</strong> (inherited from TCustomDADataSet)</td>
<td>Sets the current record in this dataset similar to the current record in another dataset.</td>
</tr>
<tr>
<td><strong>Locate</strong> (inherited from TMemDataSet)</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td><strong>LocateEx</strong> (inherited from TMemDataSet)</td>
<td>Overloaded. Excludes features that don’t need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td><strong>Lock</strong> (inherited from TCustomDADataSet)</td>
<td>Locks the current record.</td>
</tr>
<tr>
<td><strong>MacroByName</strong> (inherited from TCustomDADataSet)</td>
<td>Finds a Macro with the name passed in Name.</td>
</tr>
<tr>
<td><strong>ParamByName</strong> (inherited from TCustomDADataSet)</td>
<td>Sets or uses parameter information for a specific parameter based on its name.</td>
</tr>
<tr>
<td><strong>Prepare</strong> (inherited from TCustomDADataSet)</td>
<td>Allocates, opens, and parses cursor for a query.</td>
</tr>
<tr>
<td><strong>RefreshRecord</strong> (inherited from TCustomDADataSet)</td>
<td>Actualizes field values for the current record.</td>
</tr>
<tr>
<td><strong>RestoreSQL</strong> (inherited from TCustomDADataSet)</td>
<td>Restores the SQL property modified by AddWhere and SetOrderBy.</td>
</tr>
<tr>
<td><strong>RestoreUpdates</strong> (inherited from TMemDataSet)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td><strong>RevertRecord</strong> (inherited from TMemDataSet)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>SaveSQL</strong> (inherited from TCustomDADataSet)</td>
<td>Saves the SQL property value to BaseSQL.</td>
</tr>
<tr>
<td><strong>SaveToXML</strong> (inherited from TMemDataSet)</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>SetOrderBy</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Builds an ORDER BY clause of a SELECT statement.</td>
</tr>
<tr>
<td><strong>SetRange</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td><strong>SetRangeEnd</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>SetRangeStart</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>SQLSaved</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Determines if the SQL property value was saved to the BaseSQL property.</td>
</tr>
<tr>
<td><strong>UnLock</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Releases a record lock.</td>
</tr>
<tr>
<td><strong>UnPrepare</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><strong>UpdateResult</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdateStatus</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

#### Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AfterExecute</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Occurs after a component has executed a query to database.</td>
</tr>
<tr>
<td><strong>AfterFetch</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Occurs after dataset finishes fetching data from server.</td>
</tr>
<tr>
<td><strong>AfterUpdateExecute</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Occurs after executing insert, delete, update, lock.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>BeforeFetch</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Occurs before dataset is going to fetch block of records from the server.</td>
</tr>
<tr>
<td><strong>BeforeUpdateExecute</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Occurs before executing insert, delete, update, lock, and refresh operations.</td>
</tr>
<tr>
<td><strong>OnRegisterCollations</strong></td>
<td>Occurs when the connection is opened to register the user-defined collation used in the query text.</td>
</tr>
<tr>
<td><strong>OnRegisterFunctions</strong></td>
<td>Occurs when the connection is opened to register the user-defined function used in the query text.</td>
</tr>
<tr>
<td><strong>OnUpdateError</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td><strong>OnUpdateRecord</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>

**4.7.1.2 Properties**

Properties of the **TCustomVirtualQuery** class.

For a complete list of the **TCustomVirtualQuery** class members, see the **TCustomVirtualQuery Members** topic.

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BaseSQL</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.</td>
</tr>
<tr>
<td><strong>CachedUpdates</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td>Property</td>
<td>Inherited From</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td><strong>Conditions</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>DataTypeMap</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>Debug</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>DetailFields</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>Disconnected</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>FetchRows</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>FilterSQL</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>FinalSQL</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td><strong>TMemDataSet</strong></td>
</tr>
<tr>
<td><strong>IsQuery</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td><strong>TMemDataSet</strong></td>
</tr>
<tr>
<td><strong>KeyFields</strong></td>
<td><strong>TCustomDADataset</strong></td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LocalConstraints</td>
<td>(inherited from TMemDataSet) They were empty before updating the database.</td>
</tr>
<tr>
<td>LocalUpdate</td>
<td>(inherited from TMemDataSet) Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td>MacroCount</td>
<td>(inherited from TCustomDADataset) Used to get the number of macros associated with the Macros property.</td>
</tr>
<tr>
<td>Macros</td>
<td>(inherited from TCustomDADataset) Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td>MasterFields</td>
<td>(inherited from TCustomDADataset) Used to specify the names of one or more fields that are used as foreign keys for dataset when establishing detail/master relationship between it and the dataset specified in MasterSource.</td>
</tr>
<tr>
<td>MasterSource</td>
<td>(inherited from TCustomDADataset) Used to specify the data source component which binds current dataset to the master one.</td>
</tr>
<tr>
<td>Options</td>
<td>Used to specify the behaviour of TVirtualQuery object.</td>
</tr>
<tr>
<td>ParamCheck</td>
<td>(inherited from TCustomDADataset) Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.</td>
</tr>
<tr>
<td>ParamCount</td>
<td>(inherited from TCustomDADataset) Used to indicate how many parameters are there in the Params property.</td>
</tr>
<tr>
<td>Params</td>
<td>(inherited from TCustomDADataset) Used to view and set parameter names, values, and data types dynamically.</td>
</tr>
<tr>
<td>Prepared</td>
<td>(inherited from TMemDataSet) Determines whether a query is prepared for execution or not.</td>
</tr>
</tbody>
</table>
| Ranged        | (inherited from TMemDataSet) Indicates whether a range is
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ReadOnly</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to prevent users from updating, inserting, or deleting data in the dataset.</td>
</tr>
<tr>
<td><strong>RefreshOptions</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to indicate when the editing record is refreshed.</td>
</tr>
<tr>
<td><strong>RowsAffected</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.</td>
</tr>
<tr>
<td><strong>SourceDataSets</strong></td>
<td>Contains a collection of source datasets for querying data.</td>
</tr>
<tr>
<td><strong>SQL</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to provide a SQL statement that a query component executes when its Open method is called.</td>
</tr>
<tr>
<td><strong>SQLDelete</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify a SQL statement that will be used when applying a deletion to a record.</td>
</tr>
<tr>
<td><strong>SQLInsert</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify the SQL statement that will be used when applying an insertion to a dataset.</td>
</tr>
<tr>
<td><strong>SQLLock</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify a SQL statement that will be used to perform a record lock.</td>
</tr>
<tr>
<td><strong>SQLRecCount</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify the SQL statement that is used to get the record count when opening a dataset.</td>
</tr>
<tr>
<td><strong>SQLRefresh</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify a SQL statement that will be used to refresh current record by calling the <strong>TCustomDADataset.RefreshRecord</strong> procedure.</td>
</tr>
<tr>
<td><strong>SQLUpdate</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify a SQL statement that will be used when applying an update to a dataset.</td>
</tr>
<tr>
<td><strong>UniDirectional</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used if an application does not need bidirectional</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong> (inherited from <code>TMemDataSet</code>)</td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong> (inherited from <code>TMemDataSet</code>)</td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>

See Also

- `TCustomVirtualQuery Class`
- `TCustomVirtualQuery Class Members`

**4.7.1.2.1 Options Property**

Used to specify the behaviour of `TVirtualQuery` object.

**Class**

`TCustomVirtualQuery`

**Syntax**

```delphi
property Options: TVirtualQueryOptions;
```

**Remarks**

Set the properties of Options to specify the behaviour of a `TVirtualQuery` object.

See Also

- `TVirtualQuery`

**4.7.1.2.2 SourceDataSets Property**

Contains a collection of source datasets for querying data.

**Class**
**TCustomVirtualQuery**

**Syntax**

```
property SourceDataSets: TDataSetLinks;
```

**Remarks**

Use the property to create a list of the data sources to which the SQL statement will be executed. Each data source has to be a TDataSet descendant, connected to a database and opened prior to SQL statement execution in the TVirtualQuery (if TVirtualQueryOptions.AutoOpenSources option is set to False). Each data source gets its own "schema name" and "table name" which are used to identify the data source in the SQL statement. Each data source must have a unique combination of schema name and table name.

**See Also**

- TVirtualQueryOptions.AutoOpenSources

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**4.7.1.3 Events**

Events of the TCustomVirtualQuery class.

For a complete list of the TCustomVirtualQuery class members, see the TCustomVirtualQuery Members topic.

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AfterExecute</td>
<td>(inherited from TCustomDADataset) Occurs after a component has executed a query to database.</td>
</tr>
<tr>
<td>AfterFetch</td>
<td>(inherited from TCustomDADataset) Occurs after dataset finishes fetching data from server.</td>
</tr>
<tr>
<td>AfterUpdateExecute</td>
<td>(inherited from TCustomDADataset) Occurs after executing insert, delete, update, lock and refresh operations.</td>
</tr>
<tr>
<td>BeforeFetch</td>
<td>(inherited from TCustomDADataset) Occurs before dataset is going to fetch block of records from the server.</td>
</tr>
</tbody>
</table>
### BeforeUpdateExecute (inherited from TCustomDADataset)
Occurs before executing insert, delete, update, lock, and refresh operations.

### OnRegisterCollations
Occurs when the connection is opened to register the user-defined collation used in the query text.

### OnRegisterFunctions
Occurs when the connection is opened to register the user-defined function used in the query text.

### OnUpdateError (inherited from TMemDataSet)
Occurs when an exception is generated while cached updates are applied to a database.

### OnUpdateRecord (inherited from TMemDataSet)
Occurs when a single update component can not handle the updates.

#### See Also
- TCustomVirtualQuery Class
- TCustomVirtualQuery Class Members

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4.7.1.3.1 OnRegisterCollations Event

Occurs when the connection is opened to register the user-defined collation used in the query text.

#### Class
TCustomVirtualQuery

#### Syntax

```
property OnRegisterCollations: TRegisterCollationsEvent;
```

#### Remarks
Occurs after a component has executed a query to a database.

#### See Also
4.7.1.3.2 OnRegisterFunctions Event

Occurs when the connection is opened to register the user-defined function used in the query text.

Class

TCustomVirtualQuery

Syntax

property OnRegisterFunctions: TRegisterFunctionsEvent;

Remarks

Occurs after a component has executed a query to a database.

See Also

• TCustomDADataSet.Execute

4.7.1.2 TDataSetLink Class

Used to link a TDataSet descendant as a data source for querying data in TVirtualQuery.

For a list of all members of this type, see TDataSetLink members.

Unit

VirtualQuery

Syntax

TDataSetLink = class(TCollectionItem);

Remarks

Add a TDataSetLink instance to the TCustomVirtualQuery.SourceDataSets collection using the TDataSetLinks.Add method to link a TDataSet descendant as a data source for querying
data in **TVirtualQuery**.

See Also
- **TVirtualQuery**
- **TCustomVirtualQuery.SourceDataSets**
- **TDataSetLinks**
- **TDataSetLinks.Add**

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4.7.1.2.1 Members

**TDataSetLink** class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DataSet</td>
<td>Defines a TDataSet descendant to be linked as a data source for querying data in <strong>TVirtualQuery</strong>.</td>
</tr>
<tr>
<td>SchemaName</td>
<td>Defines the schema name which will be used to identify the linked source dataset in a SQL statement.</td>
</tr>
<tr>
<td>TableName</td>
<td>Defines the table name which will be used to identify the linked source dataset in a SQL statement.</td>
</tr>
</tbody>
</table>

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4.7.1.2.2 Properties

Properties of the **TDataSetLink** class.

For a complete list of the **TDataSetLink** class members, see the **TDataSetLink Members** topic.

Published
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DataSet</strong></td>
<td>Defines a TDataSet descendant to be linked as a data source for querying data in <strong>TVirtualQuery</strong>.</td>
</tr>
<tr>
<td><strong>SchemaName</strong></td>
<td>Defines the schema name which will be used to identify the linked source dataset in a SQL statement.</td>
</tr>
<tr>
<td><strong>TableName</strong></td>
<td>Defines the table name which will be used to identify the linked source dataset in a SQL statement.</td>
</tr>
</tbody>
</table>

See Also

- **TDataSetLink Class**
- **TDataSetLink Class Members**

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4.7.1.2.2.1  DataSet Property

Defines a TDataSet descendant to be linked as a data source for querying data in **TVirtualQuery**.

Class

**TDataSetLink**

Syntax

```delphi
property DataSet: TDataSet;```

See Also

- **TVirtualQuery**
- **SchemaName**
- **TableName**

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4.7.1.2.2  SchemaName Property

Defines the schema name which will be used to identify the linked source dataset in a SQL statement.

Class

TDataSetLink

Syntax

property SchemaName: string;

Remarks

Can be left empty. In this case either no schema name or the "main" schema name can be used when referring to the linked source dataset in a SQL statement.

Combination of schema name and table name must be unique for each linked dataset.

See Also

• DataSet
• TableName

4.7.1.2.3  TableName Property

Defines the table name which will be used to identify the linked source dataset in a SQL statement.

Class

TDataSetLink

Syntax

property TableName: string stored GetTableNameStored;

Remarks

Must be filled.

Combination of schema name and table name must be unique for each linked dataset.
4.7.1.3  TDataSetLinks Class

This type is used for the TCustomVirtualQuery.SourceDataSets property.
For a list of all members of this type, see TDataSetLinks members.

Unit

virtualQuery

Syntax

TDataSetLinks = class(TCollection);

Remarks

TDataSetLinks is the TCollection descendant which contains a collection of the TDataSetLink instances, each of which links a TDataSet descendant as a data source for querying data in TVirtualQuery.

See Also

- TVirtualQuery
- TDataSetLink

4.7.1.3.1  Members

TDataSetLinks class overview.

Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td>Overloaded. Adds a new TDataSetLink instance to</td>
</tr>
</tbody>
</table>
4.7.1.3.2 Methods

Methods of the **TDataSetLinks** class.

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

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add</strong></td>
<td>Overloaded. Adds a new <strong>TDataSetLink</strong> instance to the collection.</td>
</tr>
</tbody>
</table>

**See Also**

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

---

4.7.1.3.2.1 Add Method

Adds a new **TDataSetLink** instance to the collection.

**Class**

**TDataSetLinks**

**Overload List**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add</strong></td>
<td>Adds a new <strong>TDataSetLink</strong> instance to the collection.</td>
</tr>
<tr>
<td><strong>Add(DataSet: TDataSet; const SchemaName: string; const TableName: string)</strong></td>
<td>Adds a new <strong>TDataSetLink</strong> instance to the collection and fills its properties.</td>
</tr>
</tbody>
</table>
Adds a new `TDataSetLink` instance to the collection.

**Class**

`TDataSetLinks`

**Syntax**

```delphi
function Add: TDataSetLink; overload;
```

**Return Value**

A instance which has been added.

**Remarks**

Fill the `TDataSetLink.DataSet` property of the returned `TDataSetLink` instance to link a `TDataSet` descendant as a data source for querying data in `TVirtualQuery`. Fill `TDataSetLink.SchemaName` and `TDataSetLink.TableName` properties to identify the source dataset in a SQL statement. Combination of schema name and table name must be unique for each linked dataset. Also, a source dataset can be linked using the `Add` method.

**See Also**

- `TVirtualQuery`
- `TDataSetLink`
- `TDataSetLink.DataSet`
- `TDataSetLink.SchemaName`
- `TDataSetLink.TableName`
- `Add`
function Add(DataSet: TDataSet; const SchemaName: string; const TableName: string): TDataSetLink; overload;

**Parameters**

*DataSet*
- Defines a TDataSet descendant to be linked as a data source for querying data in TVirtualQuery.

*SchemaName*
- Defines the schema name which will be used to identify the linked source dataset in a SQL statement. Can be left empty. In this case either no schema name or the "main" schema name can be used when referring to the dataset in a SQL statement.

*TableName*
- Defines the table name which will be used to identify the linked source dataset in a SQL statement. Must be filled.

**Return Value**
- A instance which has been added.

**Remarks**

Combination of schema name and table name must be unique for each linked dataset. Also, a source dataset can be linked using the TDataSetLinks.Add method.

**See Also**
- TVirtualQuery
- TDataSetLink
- TDataSetLink.DataSet
- TDataSetLink.SchemaName
- TDataSetLink.TableName
- TDataSetLinks.Add

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4.7.1.4 **TVirtualCollationManager Class**

- Used to enable user-defined collations.

- For a list of all members of this type, see TVirtualCollationManager members.

  Unit
  virtualQuery

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4.7.1.4.1 Members

**TVirtualCollationManager** class overview.

4.7.1.5 **TVirtualFunctionManager Class**

Used to enable user-defined functions.

For a list of all members of this type, see **TVirtualFunctionManager** members.

Unit

**virtualQuery**

Syntax

```delphi
TVirtualFunctionManager = class(System.TObject);
```

4.7.1.5.1 Members

**TVirtualFunctionManager** class overview.

4.7.1.6 **TVirtualQuery Class**

A class used to retrieve data simultaneously from several different RDBMS'es.

For a list of all members of this type, see **TVirtualQuery** members.

Unit
VirtualQuery

Syntax

```
TVirtualQuery = class(TCustomVirtualQuery);
```

Remarks

TVirtualQuery component is used to retrieve data simultaneously from several different RDBMS'es. Instead of a database connection, it use a collection of TDataSet descendants defined in the TCustomVirtualQuery.SourceDataSets property as the data source, for which a SQL statement can be build. The SQLite is used as an internal SQL-engine, so the SQLite syntax has to be used for SQL statements.

Use TVirtualQuery to perform fetching, insertion, deletion and update of record by dynamically generated SQL statements. Set SQL, SQLInsert, SQLDelete, SQLRefresh, and SQLUpdate properties to define SQL statements for subsequent accesses to the database server. There is no restriction to their syntax, so any SQL statement is allowed. Usually you need to use INSERT, DELETE, and UPDATE statements but you also may use stored procedures in more diverse cases.

To modify records, you can specify KeyFields. If they are not specified, TVirtualQuery will retrieve primary keys for UpdatingTable from metadata. TVirtualQuery can automatically update only one table. Updating table is defined by the UpdatingTable property if this property is set. Otherwise, the table a field of which is the first field in the field list in the SELECT clause is used as an updating table.

The SQLInsert, SQLDelete, SQLUpdate, SQLRefresh properties support automatic binding of parameters which have identical names to fields captions. To retrieve the value of a field as it was before the operation use the field name with the 'OLD_' prefix. This is especially useful when doing field comparisons in the WHERE clause of the statement. Use the TCustomDADataset.BeforeUpdateExecute event to assign the value to additional parameters and the TCustomDADataset.AfterUpdateExecute event to read them.

Inheritance Hierarchy

```
TMemDataSet
  TCustomDADataset
    TCustomVirtualQuery
  TVirtualQuery
```

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**4.7.1.6.1 Members**

**TVirtualQuery class overview.**

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaseSQL (inherited from TCustomDADataset)</td>
<td>Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.</td>
</tr>
<tr>
<td>CachedUpdates (inherited from TMemDataSet)</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td>Conditions (inherited from TCustomDADataset)</td>
<td>Used to add WHERE conditions to a query.</td>
</tr>
<tr>
<td>Connection (inherited from TCustomDADataset)</td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td>DataTypeMap (inherited from TCustomDADataset)</td>
<td>Used to set data type mapping rules.</td>
</tr>
<tr>
<td>Debug (inherited from TCustomDADataset)</td>
<td>Used to display executing statement, all its parameters' values, and the type of parameters.</td>
</tr>
<tr>
<td>DetailFields (inherited from TCustomDADataset)</td>
<td>Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.</td>
</tr>
<tr>
<td>Disconnected (inherited from TCustomDADataset)</td>
<td>Used to keep dataset opened after connection is closed.</td>
</tr>
<tr>
<td>FetchAll</td>
<td>Defines whether to request all records of the query from database server when the dataset is being opened.</td>
</tr>
<tr>
<td>FetchRows (inherited from TCustomDADataset)</td>
<td>Used to define the number of rows to be transferred across the network at the same time.</td>
</tr>
<tr>
<td>FilterSQL (inherited from TCustomDADataset)</td>
<td>Used to change the WHERE clause of SELECT</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FinalSQL (inherited from TCustomDADataSet)</td>
<td>Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.</td>
</tr>
<tr>
<td>IndexFieldNames (inherited from TMemDataSet)</td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td>IsQuery (inherited from TCustomDADataSet)</td>
<td>Used to check whether SQL statement returns rows.</td>
</tr>
<tr>
<td>KeyExclusive (inherited from TMemDataSet)</td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td>KeyFields (inherited from TCustomDADataSet)</td>
<td>Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.</td>
</tr>
<tr>
<td>LocalConstraints (inherited from TMemDataSet)</td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td>LocalUpdate (inherited from TMemDataSet)</td>
<td>Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td>MacroCount (inherited from TCustomDADataSet)</td>
<td>Used to get the number of macros associated with the Macros property.</td>
</tr>
<tr>
<td>Macros (inherited from TCustomDADataSet)</td>
<td>Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td>MasterFields (inherited from TCustomDADataSet)</td>
<td>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.</td>
</tr>
<tr>
<td>MasterSource (inherited from TCustomDADataSet)</td>
<td>Used to specify the data source component which binds current dataset to the master one.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>(inherited from TCustomVirtualQuery) Used to specify the behaviour of TVirtualQuery object.</td>
</tr>
<tr>
<td><strong>ParamCheck</strong></td>
<td>(inherited from TCustomDataDataSet) Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.</td>
</tr>
<tr>
<td><strong>ParamCount</strong></td>
<td>(inherited from TCustomDataDataSet) Used to indicate how many parameters are there in the Params property.</td>
</tr>
<tr>
<td><strong>Params</strong></td>
<td>(inherited from TCustomDataDataSet) Used to view and set parameter names, values, and data types dynamically.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>(inherited from TMemDataSet) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from TMemDataSet) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>ReadOnly</strong></td>
<td>(inherited from TCustomDataDataSet) Used to prevent users from updating, inserting, or deleting data in the dataset.</td>
</tr>
<tr>
<td><strong>RefreshOptions</strong></td>
<td>(inherited from TCustomDataDataSet) Used to indicate when the editing record is refreshed.</td>
</tr>
<tr>
<td><strong>RowsAffected</strong></td>
<td>(inherited from TCustomDataDataSet) Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.</td>
</tr>
<tr>
<td><strong>SourceDataSets</strong></td>
<td>(inherited from TCustomVirtualQuery) Contains a collection of source datasets for querying data.</td>
</tr>
<tr>
<td><strong>SQL</strong></td>
<td>(inherited from TCustomDataDataSet) Used to provide a SQL statement that a query component executes when its Open method is called.</td>
</tr>
<tr>
<td><strong>SQLDelete</strong></td>
<td>(inherited from TCustomDataDataSet) Used to specify a SQL statement that will be used when applying a deletion to a record.</td>
</tr>
<tr>
<td><strong>SQLInsert</strong></td>
<td>(inherited from TCustomDataDataSet) Used to specify the SQL statement that will be used when applying an insertion to a dataset.</td>
</tr>
<tr>
<td><strong>SQLLock</strong></td>
<td>(inherited from TCustomDataDataSet) Used to specify a SQL statement.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>SQLRecCount</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>statement that will be used to perform a record lock.</td>
</tr>
<tr>
<td><strong>SQLRefresh</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Used to specify a SQL statement that will be used to refresh current record by calling the <strong>TCustomDADataSet.RefreshRecord</strong> procedure.</td>
</tr>
<tr>
<td><strong>SQLUpdate</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Used to specify a SQL statement that will be used when applying an update to a dataset.</td>
</tr>
<tr>
<td><strong>UniDirectional</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Used if an application does not need bidirectional access to records in the result set.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
<tr>
<td><strong>UpdatingTable</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

**Methods**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AddWhere</strong> (inherited from <strong>TCustomDADataSet</strong>)</td>
<td>Adds condition to the WHERE clause of SELECT statement in the SQL property.</td>
</tr>
<tr>
<td><strong>ApplyRange</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>ApplyUpdates</strong></td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td><strong>BreakExec</strong></td>
<td>Breaks execution of the SQL statement on the server.</td>
</tr>
<tr>
<td><strong>CancelRange</strong></td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td><strong>CancelUpdates</strong></td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td><strong>CommitUpdates</strong></td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td><strong>CreateBlobStream</strong></td>
<td>Used to obtain a stream for reading data from or writing data to a BLOB field, specified by the Field parameter.</td>
</tr>
<tr>
<td><strong>DeferredPost</strong></td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td><strong>DeleteWhere</strong></td>
<td>Removes WHERE clause from the SQL property and assigns the BaseSQL property.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong></td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong></td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>Execute</strong></td>
<td>Overloaded. Executes a SQL statement on the server.</td>
</tr>
<tr>
<td><strong>Executing</strong></td>
<td>Indicates whether SQL statement is still being executed.</td>
</tr>
<tr>
<td><strong>Fetched</strong></td>
<td>Used to learn whether TCustomDADataset has already fetched all rows.</td>
</tr>
<tr>
<td><strong>Fetching</strong></td>
<td>Used to learn whether TCustomDADataset is still fetching rows.</td>
</tr>
<tr>
<td><strong>FetchingAll</strong></td>
<td>Used to learn whether TCustomDADataset has fetched all rows.</td>
</tr>
<tr>
<td>Method</td>
<td>Inherited From</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>FindKey</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>FindMacro</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>FindNearest</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>FindParam</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GetBlob</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>GetDataType</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GetFieldObject</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GetFieldPrecision</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GetFieldScale</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GetKeyFieldNames</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GetOrderBy</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>GotoCurrent</td>
<td>TCustomDADataSet</td>
</tr>
<tr>
<td>Locate</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LocateEx (inherited from TMemDataSet)</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td>Lock (inherited from TCustomDADataset)</td>
<td>Locks the current record.</td>
</tr>
<tr>
<td>MacroByName (inherited from TCustomDADataset)</td>
<td>Finds a Macro with the name passed in Name.</td>
</tr>
<tr>
<td>ParamByName (inherited from TCustomDADataset)</td>
<td>Sets or uses parameter information for a specific parameter based on its name.</td>
</tr>
<tr>
<td>Prepare (inherited from TCustomDADataset)</td>
<td>Allocates, opens, and parses cursor for a query.</td>
</tr>
<tr>
<td>RefreshRecord (inherited from TCustomDADataset)</td>
<td>Actualizes field values for the current record.</td>
</tr>
<tr>
<td>RestoreSQL (inherited from TCustomDADataset)</td>
<td>Restores the SQL property modified by AddWhere and SetOrderBy.</td>
</tr>
<tr>
<td>RestoreUpdates (inherited from TMemDataSet)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td>RevertRecord (inherited from TMemDataSet)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td>SaveSQL (inherited from TCustomDADataset)</td>
<td>Saves the SQL property value to BaseSQL.</td>
</tr>
<tr>
<td>SaveToXML (inherited from TMemDataSet)</td>
<td>Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO format.</td>
</tr>
<tr>
<td>SetOrderBy (inherited from TCustomDADataset)</td>
<td>Builds an ORDER BY clause of a SELECT statement.</td>
</tr>
<tr>
<td>SetRange (inherited from TMemDataSet)</td>
<td>Sets the starting and ending values of a range, and applies it.</td>
</tr>
<tr>
<td>SetRangeEnd (inherited from TMemDataSet)</td>
<td>Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>SetRangeStart</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.</td>
</tr>
<tr>
<td><strong>SQLSaved</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Determines if the <strong>SQL</strong> property value was saved to the <strong>BaseSQL</strong> property.</td>
</tr>
<tr>
<td><strong>UnLock</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Releases a record lock.</td>
</tr>
<tr>
<td><strong>UnPrepare</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Frees the resources allocated for a previously prepared query on the server and client sides.</td>
</tr>
<tr>
<td><strong>UpdateResult</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Reads the status of the latest call to the <strong>ApplyUpdates</strong> method while cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdateStatus</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Indicates the current update status for the dataset when cached updates are enabled.</td>
</tr>
</tbody>
</table>

**Events**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AfterExecute</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Occurs after a component has executed a query to database.</td>
</tr>
<tr>
<td><strong>AfterFetch</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Occurs after dataset finishes fetching data from server.</td>
</tr>
<tr>
<td><strong>AfterUpdateExecute</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Occurs after executing insert, delete, update, lock and refresh operations.</td>
</tr>
<tr>
<td><strong>BeforeFetch</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Occurs before dataset is going to fetch block of records from the server.</td>
</tr>
<tr>
<td><strong>BeforeUpdateExecute</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Occurs before executing insert, delete, update, lock, and refresh operations.</td>
</tr>
<tr>
<td><strong>OnRegisterCollations</strong></td>
<td>(inherited from <strong>TCustomVirtualQuery</strong>) Occurs when the connection is opened to register the user-defined collation used</td>
</tr>
</tbody>
</table>
### 4.7.1.6.2 Properties

Properties of the `TVirtualQuery` class.

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

#### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>BaseSQL</code> (inherited from <code>TCustomDADataset</code>)</td>
<td>Used to return SQL text without any changes performed by AddWhere, SetOrderBy, and FilterSQL.</td>
</tr>
<tr>
<td><code>CachedUpdates</code> (inherited from <code>TMemDataSet</code>)</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><code>Conditions</code> (inherited from <code>TCustomDADataset</code>)</td>
<td>Used to add WHERE conditions to a query.</td>
</tr>
<tr>
<td><code>Connection</code> (inherited from <code>TCustomDADataset</code>)</td>
<td>Used to specify a connection object to use to connect to a data store.</td>
</tr>
<tr>
<td><code>DataTypeMap</code> (inherited from <code>TCustomDADataset</code>)</td>
<td>Used to set data type mapping rules.</td>
</tr>
<tr>
<td><code>Debug</code> (inherited from <code>TCustomDADataset</code>)</td>
<td>Used to display executing statement, all its parameters' values, and the type of parameters.</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>DetailFields</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to specify the fields that correspond to the foreign key fields from MasterFields when building master/detail relationship.</td>
</tr>
<tr>
<td><strong>Disconnected</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to keep dataset opened after connection is closed.</td>
</tr>
<tr>
<td><strong>FetchRows</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to define the number of rows to be transferred across the network at the same time.</td>
</tr>
<tr>
<td><strong>FilterSQL</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to change the WHERE clause of SELECT statement and reopen a query.</td>
</tr>
<tr>
<td><strong>FinalSQL</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to return SQL text with all changes performed by AddWhere, SetOrderBy, and FilterSQL, and with expanded macros.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>IsQuery</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to check whether SQL statement returns rows.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>KeyFields</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to build SQL statements for the SQLDelete, SQLInsert, and SQLUpdate properties if they were empty before updating the database.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>(inherited from <strong>TMemDataSet</strong>) Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>MacroCount</strong></td>
<td>(inherited from <strong>TCustomDADataset</strong>) Used to get the number of macros associated with the</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Macros</td>
<td>Macros property. Makes it possible to change SQL queries easily.</td>
</tr>
<tr>
<td>MasterFields</td>
<td>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.</td>
</tr>
<tr>
<td>MasterSource</td>
<td>Used to specify the data source component which binds current dataset to the master one.</td>
</tr>
<tr>
<td>Options</td>
<td>Used to specify the behaviour of TVirtualQuery object.</td>
</tr>
<tr>
<td>ParamCheck</td>
<td>Used to specify whether parameters for the Params property are generated automatically after the SQL property was changed.</td>
</tr>
<tr>
<td>ParamCount</td>
<td>Used to indicate how many parameters are there in the Params property.</td>
</tr>
<tr>
<td>Params</td>
<td>Used to view and set parameter names, values, and data types dynamically.</td>
</tr>
<tr>
<td>Prepared</td>
<td>Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td>Ranged</td>
<td>Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td>ReadOnly</td>
<td>Used to prevent users from updating, inserting, or deleting data in the dataset.</td>
</tr>
<tr>
<td>RefreshOptions</td>
<td>Used to indicate when the editing record is refreshed.</td>
</tr>
<tr>
<td>RowsAffected</td>
<td>Used to indicate the number of rows which were inserted, updated, or deleted during the last query operation.</td>
</tr>
<tr>
<td>SourceDataSets</td>
<td>Contains a collection of source datasets for querying.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SQL</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to provide a SQL statement that a query component executes when its Open method is called.</td>
</tr>
<tr>
<td><strong>SQLDelete</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to specify a SQL statement that will be used when applying a deletion to a record.</td>
</tr>
<tr>
<td><strong>SQLInsert</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to specify the SQL statement that will be used when applying an insertion to a dataset.</td>
</tr>
<tr>
<td><strong>SQLLock</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to specify a SQL statement that will be used to perform a record lock.</td>
</tr>
<tr>
<td><strong>SQLRecCount</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to specify the SQL statement that is used to get the record count when opening a dataset.</td>
</tr>
<tr>
<td><strong>SQLRefresh</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to specify a SQL statement that will be used to refresh current record by calling the <strong>TCustomDADataset.RefreshRecord</strong> procedure.</td>
</tr>
<tr>
<td><strong>SQLUpdate</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used to specify a SQL statement that will be used when applying an update to a dataset.</td>
</tr>
<tr>
<td><strong>UniDirectional</strong> (inherited from <strong>TCustomDADataset</strong>)</td>
<td>Used if an application does not need bidirectional access to records in the result set.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>
### FetchAll Property

Defines whether to request all records of the query from database server when the dataset is being opened.

<table>
<thead>
<tr>
<th><strong>UpdatingTable</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

### See Also
- [TVirtualQuery Class](#)
- [TVirtualQuery Class Members](#)

---

#### 4.7.1.6.2.1 FetchAll Property

Defines whether to request all records of the query from database server when the dataset is being opened.

**Class**

[TVirtualQuery](#)

**Syntax**

```pascal
property FetchAll: boolean;
```

**Remarks**

When set to True, all records of the query are requested from database server when the dataset is being opened. When set to False, records are retrieved when a data-aware component or a program requests it. If a query can return a lot of records, set this property to False if initial response time is important.

When the FetchAll property is False, the first call to `TMemDataSet Locate` and `TMemDataSet LocateEx` methods may take a lot of time to retrieve additional records to the client side.
4.7.1.6.2.2 UpdatingTable Property

Used to specify which table in a query is assumed to be the target for subsequent data-modification queries as a result of user incentive to insert, update or delete records.

Class

TVirtualQuery

Syntax

```
property UpdatingTable: string;
```

Remarks

Use the UpdatingTable property to specify which table in a query is assumed to be the target for the subsequent data-modification queries as a result of user incentive to insert, update or delete records.

This property is used on Insert, Update, Delete or RefreshRecord (see also TCustomVirtualQuery.Options) if appropriate SQL (SQLInsert, SQLUpdate or SQLDelete) is not provided.

If UpdatingTable is not set then the first table used in a query is assumed to be the target.

Example

Below are two examples for the query, where:
1. the only allowed value for UpdatingTable property is 'Dept';
2. allowed values for UpdatingTable are 'Dept' and 'Emp'.

In the first case (or by default) editable field is ShipName, in the second

4.7.1.7 TVirtualQueryOptions Class

This class allows setting up the behaviour of the TVirtualQuery class.

For a list of all members of this type, see TVirtualQueryOptions members.

Unit

virtualQuery
Syntax

```pascal
TVirtualQueryOptions = class(TDADataSetOptions);
```

Inheritance Hierarchy

- TDADataSetOptions
- TVirtualQueryOptions

See Also
- TVirtualQuery

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoOpenSources</td>
<td>Used to automatically open data sources when SQL statement executed</td>
</tr>
<tr>
<td>AutoPrepare</td>
<td>(inherited from TDADataSetOptions) Used to execute automatic TCustomDADataSet.Prepare on the query execution.</td>
</tr>
<tr>
<td>CacheCalcFields</td>
<td>(inherited from TDADataSetOptions) Used to enable caching of the TField.Calculated and TField.Lookup fields.</td>
</tr>
<tr>
<td>CompressBlobMode</td>
<td>(inherited from TDADataSetOptions) Used to store values of the BLOB fields in compressed form.</td>
</tr>
<tr>
<td>DefaultValues</td>
<td>(inherited from TDADataSetOptions) Used to request default values/expressions from the server and assign them to the DefaultExpression property.</td>
</tr>
<tr>
<td>DetailDelay</td>
<td>(inherited from TDADataSetOptions) Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.</td>
</tr>
<tr>
<td>Field Name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>FieldsOrigin</strong></td>
<td>Used for TCustomDADataSet to fill the Origin property of the TField objects by appropriate value when opening a dataset.</td>
</tr>
<tr>
<td><strong>FlatBuffers</strong></td>
<td>Used to control how a dataset treats data of the ftString and ftVarBytes fields.</td>
</tr>
<tr>
<td><strong>FullRefresh</strong></td>
<td>Used to specify the fields to include in the automatically generated SQL statement when calling the method.</td>
</tr>
<tr>
<td><strong>InsertAllSetFields</strong></td>
<td>Used to include all set dataset fields in the generated INSERT statement</td>
</tr>
<tr>
<td><strong>LocalMasterDetail</strong></td>
<td>Used for TCustomDADataSet to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.</td>
</tr>
<tr>
<td><strong>LongStrings</strong></td>
<td>Used to represent string fields with the length that is greater than 255 as TStringField.</td>
</tr>
<tr>
<td><strong>MasterFieldsNullable</strong></td>
<td>Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).</td>
</tr>
<tr>
<td><strong>NumberRange</strong></td>
<td>Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.</td>
</tr>
<tr>
<td><strong>QueryRecCount</strong></td>
<td>Used for TCustomDADataSet to perform additional query to get the record count for this SELECT, so the</td>
</tr>
<tr>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>RecordCount</strong></td>
<td>Reflects the actual number of records.</td>
</tr>
<tr>
<td><strong>QuoteNames</strong></td>
<td>Used for TCustomDACDataSet to quote all database object names in autogenerated SQL statements such as update SQL.</td>
</tr>
<tr>
<td><strong>RemoveOnRefresh</strong></td>
<td>Used for a dataset to locally remove a record that can not be found on the server.</td>
</tr>
<tr>
<td><strong>RequiredFields</strong></td>
<td>Used for TCustomDACDataSet to set the Required property of the TField objects for the NOT NULL fields.</td>
</tr>
<tr>
<td><strong>ReturnParams</strong></td>
<td>Used to return the new value of fields to dataset after insert or update.</td>
</tr>
<tr>
<td><strong>SetEmptyStrToNull</strong></td>
<td>Force replace of empty strings with NULL values in data. Default value is False.</td>
</tr>
<tr>
<td><strong>SetFieldsReadOnly</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>StrictUpdate</strong></td>
<td>Used for TCustomDACDataSet to raise an exception when the number of updated or deleted records is not equal 1.</td>
</tr>
<tr>
<td><strong>TrimFixedChar</strong></td>
<td>Specifies whether to discard all trailing spaces in the string fields of a dataset.</td>
</tr>
<tr>
<td><strong>TrimVarChar</strong></td>
<td>Used to specify whether to discard all trailing spaces in the variable-length string fields of a dataset.</td>
</tr>
<tr>
<td><strong>UpdateAllFields</strong></td>
<td>Used to include all dataset fields in the generated UPDATE and INSERT statements.</td>
</tr>
</tbody>
</table>
4.7.1.7.2 Properties

Properties of the `TVirtualQueryOptions` class.

For a complete list of the `TVirtualQueryOptions` class members, see the `TVirtualQueryOptions Members` topic.

**Public**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>AutoPrepare</code> (inherited</td>
<td>Used to execute automatic <code>TCustomDADataset.Prepare</code> on the query execution.</td>
</tr>
<tr>
<td>(from <code>TDADatasetOptions</code>)</td>
<td></td>
</tr>
<tr>
<td><code>CacheCalcFields</code> (inherited</td>
<td>Used to enable caching of the <code>TField.Calculated</code> and <code>TField.Lookup</code> fields.</td>
</tr>
<tr>
<td>(from <code>TDADatasetOptions</code>)</td>
<td></td>
</tr>
<tr>
<td><code>CompressBlobMode</code> (inherited</td>
<td>Used to store values of the BLOB fields in compressed form.</td>
</tr>
<tr>
<td>(from <code>TDADatasetOptions</code>)</td>
<td></td>
</tr>
<tr>
<td><code>DefaultValues</code> (inherited</td>
<td>Used to request default values/expressions from the server and assign them to the <code>DefaultExpression</code> property.</td>
</tr>
<tr>
<td>(from <code>TDADatasetOptions</code>)</td>
<td></td>
</tr>
<tr>
<td><code>DetailDelay</code> (inherited</td>
<td>Used to get or set a delay in milliseconds before refreshing detail dataset while navigating master dataset.</td>
</tr>
<tr>
<td>(from <code>TDADatasetOptions</code>)</td>
<td></td>
</tr>
<tr>
<td><code>FieldsOrigin</code> (inherited</td>
<td>Used for <code>TCustomDADataset</code> to fill the <code>Origin</code> property of the <code>TField</code> objects by appropriate value when</td>
</tr>
<tr>
<td>(from <code>TDADatasetOptions</code>)</td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FlatBuffers (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>opening a dataset. Used to control how a dataset treats data of the ftString and ftVarBytes fields.</td>
</tr>
<tr>
<td>InsertAllSetFields (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>Used to include all set dataset fields in the generated INSERT statement.</td>
</tr>
<tr>
<td>LocalMasterDetail (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>Used for TCustomDADataSet to use local filtering to establish master/detail relationship for detail dataset and does not refer to the server.</td>
</tr>
<tr>
<td>LongStrings (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>Used to represent string fields with the length that is greater than 255 as TStringField.</td>
</tr>
<tr>
<td>MasterFieldsNullable (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>Allows to use NULL values in the fields by which the relation is built, when generating the query for the Detail tables (when this option is enabled, the performance can get worse).</td>
</tr>
<tr>
<td>NumberRange (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>Used to set the MaxValue and MinValue properties of TIntegerField and TFloatField to appropriate values.</td>
</tr>
<tr>
<td>QueryRecCount (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>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.</td>
</tr>
<tr>
<td>QuoteNames (inherited from <strong>TDADatasetOptions</strong>)</td>
<td>Used for TCustomDADataSet to quote all database object names in autogenerated SQL statements such as update SQL.</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RemoveOnRefresh (inherited from TDataSetOptions)</td>
<td>Used for a dataset to locally remove a record that can not be found on the server.</td>
</tr>
<tr>
<td>RequiredFields (inherited from TDataSetOptions)</td>
<td>Used for TCustomDAODataSet to set the Required property of the TField objects for the NOT NULL fields.</td>
</tr>
<tr>
<td>ReturnParams (inherited from TDataSetOptions)</td>
<td>Used to return the new value of fields to dataset after insert or update.</td>
</tr>
<tr>
<td>SetFieldsReadOnly (inherited from TDataSetOptions)</td>
<td>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.</td>
</tr>
<tr>
<td>StrictUpdate (inherited from TDataSetOptions)</td>
<td>Used for TCustomDAODataSet to raise an exception when the number of updated or deleted records is not equal 1.</td>
</tr>
<tr>
<td>TrimFixedChar (inherited from TDataSetOptions)</td>
<td>Specifies whether to discard all trailing spaces in the string fields of a dataset.</td>
</tr>
<tr>
<td>UpdateAllFields (inherited from TDataSetOptions)</td>
<td>Used to include all dataset fields in the generated UPDATE and INSERT statements.</td>
</tr>
<tr>
<td>UpdateBatchSize (inherited from TDataSetOptions)</td>
<td>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.</td>
</tr>
</tbody>
</table>

Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoOpenSources</td>
<td>Used to automatically open data sources when SQL statement executed</td>
</tr>
<tr>
<td>FullRefresh</td>
<td>Used to specify the fields to include in the automatically</td>
</tr>
</tbody>
</table>
### 4.7.1.7.2.1 AutoOpenSources Property

Used to automatically open data sources when SQL statement executed

**Class**

TVirtualQueryOptions

**Syntax**

```plaintext
property AutoOpenSources: boolean default False;
```

**Remarks**

Use the property to automatically open data sources specified in the TCustomVirtualQuery.DataSource list when SQL statement executed. If `AutoOpenSources` is False, each data source has to be opened prior to SQL statement execution in the TVirtualQuery. If `AutoOpenSources` is True, data sources will be opened automatically. The default value is False;

**See Also**

- TVirtualQuery
- TCustomVirtualQuery.DataSource

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4.7.1.7.2.2 FullRefresh Property

Used to specify the fields to include in the automatically generated SQL statement when calling the method.

Class

TVirtualQueryOptions

Syntax

property FullRefresh: boolean;

Remarks

Use the FullRefresh property to specify what fields to include in the automatically generated SQL statement when calling the TCustomDADataset.RefreshRecord method. If the FullRefresh property is True, all fields from a query are included into SQL statement to refresh a single record. If FullRefresh is False, only fields from TVirtualQuery.UpdatingTable are included.

Note: If FullRefresh is True, the refresh of SQL statement for complex queries and views may be generated with errors. The default value is False.

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4.7.1.7.2.3 SetEmptyStrToNull Property

Force replace of empty strings with NULL values in data. Default value is False.

Class

TVirtualQueryOptions

Syntax

property SetEmptyStrToNull: boolean;

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4.7.1.7.2.4 TrimVarChar Property

Used to specify whether to discard all trailing spaces in the variable-length string fields of a dataset.

Class

TVirtualQueryOptions

Syntax

property TrimVarChar: boolean;

Remarks

Use the TrimVarChar property to specify whether to discard all trailing spaces in the variable-length string fields of a dataset. The default value is False.

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4.7.2 Types

Types in the VirtualQuery unit.

Types

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRegisterFunctionsEvent</td>
<td>This type is used for the TCustomVirtualQuery.RegisterFunctions events.</td>
</tr>
</tbody>
</table>

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TRegisterFunctionsEvent = procedure (Sender: TObject; const FunctionManager: TVirtualFunctionManager) of object;

Parameters
Sender
An object that raised the event.
FunctionManager
Used to enable user-defined functions.

Remarks
The result is True if SQL statement is executed successfully. False otherwise.

4.8 VirtualTable

4.8.1 Classes

Classes in the VirtualTable unit.

Classes

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualAutoIncField</td>
<td>A field class for generating auto-increment field values.</td>
</tr>
<tr>
<td>TVirtualTable</td>
<td>A base class for storing data in memory.</td>
</tr>
</tbody>
</table>

4.8.1.1 TVirtualAutoIncField Class

A field class for generating auto-increment field values.

For a list of all members of this type, see TVirtualAutoIncField members.

Unit
VirtualTable

Syntax
TVirtualAutoIncField = class(TAutoIncField);

Remarks

TVirtualAutoIncField is a TAutoIncField descendant. It is created in cases when TFieldDef of the ftAutoInc type is created either at design time using the TVirtualTable.FieldDefs property, or at run time using the TVirtualTable.AddField method.

An initial field value is specified by the TVirtualAutoIncField.InitialValue property, and its increment is specified by the TVirtualAutoIncField property. Auto-generation can be enabled or disabled using the TVirtualAutoIncField.AutoGenerateValue property.

See Also

- TVirtualAutoIncField.InitialValue
- TVirtualAutoIncField.Increment
- TVirtualAutoIncField.AutoGenerateValue

4.8.1.1.1 Members

TVirtualAutoIncField class overview.

Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoGenerateValue</td>
<td>Indicates whether the field values can be automatically generated.</td>
</tr>
<tr>
<td>Increment</td>
<td>Specifies the increment of the auto-incrementing field.</td>
</tr>
<tr>
<td>InitialValue</td>
<td>Specifies the initial value of the auto-incrementing field.</td>
</tr>
</tbody>
</table>

4.8.1.1.2 Properties

Properties of the TVirtualAutoIncField class.

For a complete list of the TVirtualAutoIncField class members, see the TVirtualAutoIncField
Members topic.

Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoGenerateValue</td>
<td>Indicates whether the field values can be automatically generated.</td>
</tr>
<tr>
<td>Increment</td>
<td>Specifies the increment of the auto-incrementing field.</td>
</tr>
<tr>
<td>InitialValue</td>
<td>Specifies the initial value of the auto-incrementing field.</td>
</tr>
</tbody>
</table>

See Also
- TVirtualAutoIncField Class
- TVirtualAutoIncField Class Members

4.8.1.2.1.2.1 AutoGenerateValue Property

Indicates whether the field values can be automatically generated.

Class
- TVirtualAutoIncField

Syntax

```pascal
property AutoGenerateValue default arAutoInc;
```

Remarks

Use the AutoGenerateValue property to indicate whether the field values can be automatically generated.

When the property value is arAutoInc, a new incrementing value for the field will be generated automatically when inserting a new record. Otherwise (arNone and arDefault values), the field will be empty. The default value is arAutoInc.

Note: An attempt to change the AutoGenerateValue property when the field dataset is open generates an exception. Thus, AutoGenerateValue only works with persistent field
components, which remain when the dataset is closed.

See Also
- `InitialValue`
- `Increment`

### 4.8.1.1.2.2 Increment Property

Specifies the increment of the auto-incrementing field.

**Class**

`TVirtualAutoIncField`

**Syntax**

```delphi
property Increment: integer default 1;
```

**Remarks**

Use the Increment property to specify the increment of the auto-incrementing field.

The increment can be negative. The default value is 1.

See Also
- `InitialValue`
- `AutoGenerateValue`

### 4.8.1.1.2.3 InitialValue Property

Specifies the initial value of the auto-incrementing field.

**Class**

`TVirtualAutoIncField`

**Syntax**

```delphi
property InitialValue: integer default -1;
```
Remarks

Use the InitialValue property to specify the initial value of the auto-incrementing field.

The initial value can be negative. The default value is 1.

See Also

- Increment
- AutoGenerateValue

4.8.1.2 TVirtualTable Class

A base class for storing data in memory.

For a list of all members of this type, see TVirtualTable members.

Unit

VirtualTable

Syntax

```
TVirtualTable = class(TMemDataSet);
```

Remarks

TVirtualTable is inherited from the TMemDataSet component. TVirtualTable stores data in memory and does not have linked data files. To add fields to virtual table at design time use Fields Editor. Call the TVirtualTable.AddField method to add fields at run time.

Immediately after creating, virtual table will be empty. Then you define new fields or load existing table files so that the virtual table object becomes initialized and ready to be opened.

When you close virtual table it will discard its record set. To keep the data you entered at design-time for later use you may wish to include the voStored option in the TVirtualTable.Options property. At run time you will need to call the TVirtualTable.SaveToFile method explicitly to store modifications to the file that may be retrieved back into the virtual table by calling the TVirtualTable.LoadFromFile method later.

Note: TVirtualTable component is added to the Data Access page of the component palette, not to the VirtualDAC page.
TVirtualTable supports auto-incrementing fields using a special TVirtualAutoIncField field class.

Inheritance Hierarchy

TMemDataSet
    TVirtualTable

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4.8.1.2.1 Members

**TVirtualTable** class overview.

**Properties**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong> (inherited from TMemDataSet)</td>
<td>Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>DefaultSortType</strong></td>
<td>Used to determine the default type of local sorting for string fields.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong> (inherited from TMemDataSet)</td>
<td>Used to get or set the list of fields on which the recordset is sorted.</td>
</tr>
<tr>
<td><strong>KeyExclusive</strong> (inherited from TMemDataSet)</td>
<td>Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
<td><strong>LocalConstraints</strong> (inherited from TMemDataSet)</td>
<td>Used to avoid setting the Required property of a TField component for NOT NULL fields at the time of opening TMemDataSet.</td>
</tr>
<tr>
<td><strong>LocalUpdate</strong> (inherited from TMemDataSet)</td>
<td>Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>Used to specify actions to take on the fields data at the time of opening or closing TVirtualTable dataset.</td>
</tr>
<tr>
<td><strong>Prepared</strong> (inherited from TMemDataSet)</td>
<td>Determines whether a query is prepared for execution or</td>
</tr>
</tbody>
</table>
### Ranged (inherited from TMemDataSet)
Indicates whether a range is applied to a dataset.

### UpdateRecordTypes (inherited from TMemDataSet)
Used to indicate the update status for the current record when cached updates are enabled.

### UpdatesPending (inherited from TMemDataSet)
Used to check the status of the cached updates buffer.

### Methods

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddField</td>
<td>Adds a new TFieldDef object with the name determined by Name.</td>
</tr>
<tr>
<td>ApplyRange (inherited from TMemDataSet)</td>
<td>Applies a range to the dataset.</td>
</tr>
<tr>
<td>ApplyUpdates (inherited from TMemDataSet)</td>
<td>Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td>Assign</td>
<td>Copies fields and data from another TDataSet component.</td>
</tr>
<tr>
<td>CancelRange (inherited from TMemDataSet)</td>
<td>Removes any ranges currently in effect for a dataset.</td>
</tr>
<tr>
<td>CancelUpdates (inherited from TMemDataSet)</td>
<td>Clears all pending cached updates from cache and restores dataset in its prior state.</td>
</tr>
<tr>
<td>Clear</td>
<td>Removes all records from TVirtualTable.</td>
</tr>
<tr>
<td>CommitUpdates (inherited from TMemDataSet)</td>
<td>Clears the cached updates buffer.</td>
</tr>
<tr>
<td>DeferredPost (inherited from TMemDataSet)</td>
<td>Makes permanent changes to the database server.</td>
</tr>
<tr>
<td>DeleteField</td>
<td>Deletes a field specified by name.</td>
</tr>
<tr>
<td>DeleteFields</td>
<td>Deletes all fields.</td>
</tr>
<tr>
<td>EditRangeEnd (inherited from TMemDataSet)</td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td>Function</td>
<td>Inherited From</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>EditRangeStart</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>GetBlob</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>LoadFromFile</td>
<td></td>
</tr>
<tr>
<td>LoadFromStream</td>
<td></td>
</tr>
<tr>
<td>Locate</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>LocateEx</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>Prepare</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>RestoreUpdates</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>RevertRecord</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>SaveToFile</td>
<td></td>
</tr>
<tr>
<td>SaveToStream</td>
<td></td>
</tr>
<tr>
<td>SaveToXML</td>
<td>TMemDataSet</td>
</tr>
<tr>
<td>SetRange</td>
<td>TMemDataSet</td>
</tr>
</tbody>
</table>
SetRangeEnd (inherited from TMemDataSet)  
Indicates that subsequent assignments to field values specify the end of the range of rows to include in the dataset.

SetRangeStart (inherited from TMemDataSet)  
Indicates that subsequent assignments to field values specify the start of the range of rows to include in the dataset.

UnPrepare (inherited from TMemDataSet)  
Frees the resources allocated for a previously prepared query on the server and client sides.

UpdateResult (inherited from TMemDataSet)  
Reads the status of the latest call to the ApplyUpdates method while cached updates are enabled.

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

Events

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnUpdateError</td>
<td>Occurs when an exception is generated while cached updates are applied to a database.</td>
</tr>
<tr>
<td>OnUpdateRecord</td>
<td>Occurs when a single update component can not handle the updates.</td>
</tr>
</tbody>
</table>

Properties of the TVirtualTable class.

For a complete list of the TVirtualTable class members, see the TVirtualTable Members
Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CachedUpdates</strong></td>
<td>(inherited from TMemDataSet) Used to enable or disable the use of cached updates for a dataset.</td>
</tr>
<tr>
<td><strong>IndexFieldNames</strong></td>
<td>(inherited from TMemDataSet) Used to get or set the list of fields on which the recordset is sorted.</td>
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<tr>
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<td>(inherited from TMemDataSet) Specifies the upper and lower boundaries for a range.</td>
</tr>
<tr>
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</tr>
<tr>
<td><strong>LocalUpdate</strong></td>
<td>(inherited from TMemDataSet) Used to prevent implicit update of rows on database server.</td>
</tr>
<tr>
<td><strong>Prepared</strong></td>
<td>(inherited from TMemDataSet) Determines whether a query is prepared for execution or not.</td>
</tr>
<tr>
<td><strong>Ranged</strong></td>
<td>(inherited from TMemDataSet) Indicates whether a range is applied to a dataset.</td>
</tr>
<tr>
<td><strong>UpdateRecordTypes</strong></td>
<td>(inherited from TMemDataSet) Used to indicate the update status for the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>UpdatesPending</strong></td>
<td>(inherited from TMemDataSet) Used to check the status of the cached updates buffer.</td>
</tr>
</tbody>
</table>

Published

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DefaultSortType</strong></td>
<td>Used to determine the default type of local sorting for string fields.</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>Used to specify actions to take on the fields data at the time of opening or closing</td>
</tr>
</tbody>
</table>
4.8.1.2.1 DefaultSortType Property

Used to determine the default type of local sorting for string fields.

Class

TVirtualTable

Syntax

```property
DefaultSortType: TSortType default stCaseSensitive;
```  

Remarks

The DefaultSortType property is used when a sort type is not specified explicitly after the field name in the `TMemDataSet.IndexFieldNames` property of a dataset.

4.8.1.2.2 Options Property

Used to specify actions to take on the fields data at the time of opening or closing TVirtualTable dataset.

Class

TVirtualTable

Syntax

```property
Options: TVirtualTableOptions default [voPersistentData, voStored, voSkipUnSupportedFieldTypes];
```  

Remarks
The Options property specifies what actions to take on the fields data at the time of opening or closing TVirtualTable dataset.

### 4.8.1.2.3 Methods

Methods of the `TVirtualTable` class.

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

#### Public

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AddField</td>
<td>Adds a new TFieldDef object with the name determined by Name.</td>
</tr>
<tr>
<td>ApplyRange</td>
<td>(inherited from <code>TMemDataSet</code>) Applies a range to the dataset.</td>
</tr>
<tr>
<td>ApplyUpdates</td>
<td>(inherited from <code>TMemDataSet</code>) Overloaded. Writes dataset's pending cached updates to a database.</td>
</tr>
<tr>
<td>Assign</td>
<td>Copies fields and data from another TDataSet component.</td>
</tr>
<tr>
<td>CancelRange</td>
<td>(inherited from <code>TMemDataSet</code>) Removes any ranges currently in effect for a dataset.</td>
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</tr>
<tr>
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</tr>
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<td>(inherited from <code>TMemDataSet</code>) Clears the cached updates buffer.</td>
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<td>Deletes a field specified by name.</td>
</tr>
<tr>
<td>DeleteFields</td>
<td>Deletes all fields.</td>
</tr>
<tr>
<td><strong>EditRangeEnd</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Enables changing the ending value for an existing range.</td>
</tr>
<tr>
<td><strong>EditRangeStart</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Enables changing the starting value for an existing range.</td>
</tr>
<tr>
<td><strong>GetBlob</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Retrieves TBlob object for a field or current record when only its name or the field itself is known.</td>
</tr>
<tr>
<td><strong>LoadFromFile</strong></td>
<td>Loads data from file into a TVirtualTable component.</td>
</tr>
<tr>
<td><strong>LoadFromStream</strong></td>
<td>Copies data of a stream into a TVirtualTable component.</td>
</tr>
<tr>
<td><strong>Locate</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Searches a dataset for a specific record and positions the cursor on it.</td>
</tr>
<tr>
<td><strong>LocateEx</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Overloaded. Excludes features that don't need to be included to the TMemDataSet.Locate method of TDataSet.</td>
</tr>
<tr>
<td><strong>Prepare</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Allocates resources and creates field components for a dataset.</td>
</tr>
<tr>
<td><strong>RestoreUpdates</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Marks all records in the cache of updates as unapplied.</td>
</tr>
<tr>
<td><strong>RevertRecord</strong> (inherited from <strong>TMemDataSet</strong>)</td>
<td>Cancels changes made to the current record when cached updates are enabled.</td>
</tr>
<tr>
<td><strong>SaveToFile</strong></td>
<td>Saves data of a TVirtualTable component to a file.</td>
</tr>
<tr>
<td><strong>SaveToStream</strong></td>
<td>Copies data from a TVirtualTable component to a stream.</td>
</tr>
</tbody>
</table>
| **SaveToXML** (inherited from **TMemDataSet**) | Overloaded. Saves the current dataset data to a file or a stream in the XML format compatible with ADO.
### See Also
- **TVirtualTable Class**
- **TVirtualTable Class Members**

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procedure AddField(const Name: string; FieldType: TFieldType; Size: integer = 0; Required: boolean = False);

Parameters

Name  
Holds the name of the TFieldDef object to add.

FieldType  
Holds the type of the TFieldDef object to add.

Size  
Holds the size of the string (if the type of TFieldDef object was 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. When the ftAutoInc field type is set, a field of the special TVirtualAutoIncField type will be created in the virtual table, which can generate auto-increment field values.

Example

VirtualTable1.AddField('CODE', ftInteger, 0);
VirtualTable1.AddField('NAME', ftString, 30);

See Also

- DeleteField
- DeleteFields

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4.8.1.2.3.2 Assign Method

Copies fields and data from another TDataSet component.

Class

TVirtualTable
**Syntax**

```pascal
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**

```pascal
VirtualQuery1.SQL.Text := 'SELECT * FROM DEPT';
VirtualQuery1.Active := True;
VirtualTable1.Assign(VirtualQuery1);
VirtualTable1.Active := True;
```

**See Also**

- TVirtualTable

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4.8.1.2.3.3 Clear Method

Removes all records from TVirtualTable.

**Class**

TVirtualTable

**Syntax**

```pascal
procedure clear;
```

**Remarks**

Call the Clear method to remove all records from TVirtualTable.
4.8.1.2.3.4 DeleteField Method

Deletes a field specified by name.

Class
TVirtualTable

Syntax

```pascal
procedure DeleteField(const Name: string);
```

Parameters
Name
Holds the name of the field to delete.

Remarks
Call the DeleteField method to delete a field specified by Name.

See Also
- `AddField`
- `DeleteFields`

---

4.8.1.2.3.5 DeleteFields Method

Deletes all fields.

Class
TVirtualTable

Syntax

```pascal
procedure DeleteFields;
```

Remarks
Call the DeleteFields method to delete all fields.

See Also
4.8.1.2.3.6  LoadFromFile Method

Loads data from file into a TVirtualTable component.

Class
TVirtualTable

Syntax

procedure LoadFromFile(const FileName: string; LoadFields: boolean = True; DecodeHTMLEntities: boolean = True);

Parameters

FileName
Holds the name of the file to load data from.

LoadFields
Indicates whether to load fields from the file.

DecodeHTMLEntities

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.

4.8.1.2.3.7  LoadFromStream Method

Copies data of a stream into a TVirtualTable component.

Class
TVirtualTable

Syntax
procedure LoadFromStream(Stream: TStream; LoadFields: boolean = True; DecodeHTMLEntities: boolean = True);

Parameters
Stream
Holds the stream from which the field's value is copied.

LoadFields
Indicates whether to load fields from the stream.

DecodeHTMLEntities

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.

procedure SaveToFile(const FileName: string; StoreFields: boolean = True; StoreAllData: boolean = false);

Parameters
FileName
Holds the name of the file to save data to.

StoreFields
Indicates whether to save fields to a file.

StoreAllData

Remarks
Call the SaveToFile method to save data of a TVirtualTable component to a file. Specify the name of the file as the value of the FileName parameter.
4.8.2.3.9  SaveToStream Method

Copies data from a TVirtualTable component to a stream.

Class

TVirtualTable

Syntax

procedure SaveToStream(Stream: TStream; StoreFields: boolean = True; StoreAllData: boolean = false);

Parameters

Stream
Holds the name of the stream to which the field's value is saved.
StoreFields
Indicates whether to save the fields names to a file.
StoreAllData

Remarks

Call the SaveToStream method to copy data from a TVirtualTable component to a stream.
Specify the name of the stream to which the field's value is saved as the value of the Stream parameter.

Types

Types in the VirtualTable unit.

Types

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualTableOptions</td>
<td>Represents the set of TVirtualTableOption.</td>
</tr>
</tbody>
</table>
Reserved.

4.8.2.1 TVirtualTableOptions Set

Represents the set of TVirtualTableOption.

Unit

VirtualTable

Syntax

TVirtualTableOptions = set of TVirtualTableOption;

4.8.3 Enumerations

Enumerations in the VirtualTable unit.

Enumerations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TVirtualTableOption</td>
<td>Specifies the actions to take on fields data at the time of opening or closing TVirtualTable dataset.</td>
</tr>
</tbody>
</table>

4.8.3.1 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

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>voPersistentData</td>
<td>Dataset will not dispose of its data at the time of dataset closing.</td>
</tr>
<tr>
<td>voStored</td>
<td>Dataset will keep its data set at design-time in DFM file along with other form's stored properties.</td>
</tr>
</tbody>
</table>