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# ZeosDBO SQL Specific Parameters

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## 1. Project options

### 1.1. Conditional Defines

It is possible to avoid database drivers are compiled into your program executable if you're not planning to support the use of them. You can do this by commenting out the `ENABLE_XXXX` `DEFINES` in `zeos.inc` before compiling and installing zeoslib.

A more flexible way is to install zeoslib using the standard `zeos.inc` file and add some conditional `DEFINE`'s to your project options. Supported values are:

- `ZEOS_DISABLE_MYSQL`
- `ZEOS_DISABLE_ORACLE`
- `ZEOS_DISABLE_SQLITE`
- `ZEOS_DISABLE_ASA`
- `ZEOS_DISABLE_INTERBASE`
- `ZEOS_DISABLE_DBLIB`
- `ZEOS_DISABLE_POSTGRES`
- `ZEOS_DISABLE_ADO`

To use this feature you must add the zeoslib source dir's to the search path of your project. So only the required features will be compiled in your project executable. (Make sure the zeoslib units are recompiled as well)

## 2. Generic Parameters

### 2.1. Connection parameters

- `defaults=[yes,no]` - Calculate default values for NULL fields.

## 2.2. ZQuery parameters

- defaults=[yes,no] - Calculate default values for NULL fields.
- ValidateUpdateCount=[true,false] - Check if automatically generated updates of ZUpdateSQL updates only affect 1 record.

## 3. MySQL Driver Parameters

### 3.1. Connection parameters

- compress=[yes,no] - Turn on/off compression protocol
- dbless=[yes,no] - Connect to the real database or not (dbless mode)
- userresult=[yes,no] - Fetching rows using UseResult instead StoreResult.
- timeout=<seconds> - Connection timeout in seconds.
- codepage=<client codepage> - Sets a client codepage. It executes a SET CHARACTER SET <client codepage> statement right after connect. Refer your MySQL server manual for details.
- all mysql\_real\_connect clientflags are now supported using the names from the enum type below. (Eg. CLIENT\_MULTI\_STATEMENTS=TRUE):

```
TMYSQL_CLIENT_OPTIONS =
( CLIENT_LONG_PASSWORD, { = 1;    { new more secure passwords }
  CLIENT_FOUND_ROWS , { = 2;    { Found instead of affected rows }
  CLIENT_LONG_FLAG , { = 4;    { Get all column flags }
  CLIENT_CONNECT_WITH_DB , { = 8;    { One can specify db on connect }
  CLIENT_NO_SCHEMA , { = 16;   { Don't allow database.table.column }
  CLIENT_COMPRESS , { = 32;   { Can use compression protocol }
  CLIENT_ODBC , { = 64;    { Odbc client }
  CLIENT_LOCAL_FILES , { = 128;  { Can use LOAD DATA LOCAL }
  CLIENT_IGNORE_SPACE , { = 256; { Ignore spaces before '(' }
  CLIENT_CHANGE_USER , { = 512;  { Support the mysql_change_user() }
  CLIENT_INTERACTIVE , { = 1024; { This is an interactive client }
  CLIENT_SSL , { = 2048; { Switch to SSL after handshake }
  CLIENT_IGNORE_SIGPIPE , { = 4096; { IGNORE sigpipes }
  CLIENT_TRANSACTIONS , { = 8196; { Client knows about transactions }
  CLIENT_RESERVED , { = 16384; { Old flag for 4.1 protocol }
  CLIENT_SECURE_CONNECTION , { = 32768; { New 4.1 authentication }
  CLIENT_MULTI_STATEMENTS , { = 65536; { Enable/disable multi-stmt support }
  CLIENT_MULTI_RESULTS , { = 131072; { Enable/disable multi-results }
  CLIENT_OPT_18, { 2^18 = 262144 }
  CLIENT_OPT_19, { 2^19 = 524288 }
  CLIENT_OPT_20, { 2^20 = 1048576 }
  CLIENT_OPT_21, { 2^21 = 2097152 }
  CLIENT_OPT_22, { 2^22 = 4194304 }
  CLIENT_OPT_23, { 2^23 = 8388608 }
  CLIENT_OPT_24, { 2^24 = 16777216 }
  CLIENT_OPT_25, { 2^25 = 33554432 }
  CLIENT_OPT_26, { 2^26 = 67108864 }
  CLIENT_OPT_27, { 2^27 = 134217728 }
  CLIENT_OPT_28, { 2^28 = 268435456 }
  CLIENT_OPT_29, { 2^29 = 536870912 }
  CLIENT_OPT_30, { 2^30 = 1073741824 }
  CLIENT_REMEMBER_OPTIONS { = 2147483648; { Enable/disable multi-results } } );
```

- all `mysql_options` are now supported using the names from the enum type below. (Eg. `MYSQL_READ_DEFAULT_FILE=<filename>`):

```
TMySqlOption = (  
    MYSQL_OPT_CONNECT_TIMEOUT,  
    MYSQL_OPT_COMPRESS,  
    MYSQL_OPT_NAMED_PIPE,  
    MYSQL_INIT_COMMAND,  
    MYSQL_READ_DEFAULT_FILE,  
    MYSQL_READ_DEFAULT_GROUP,  
    MYSQL_SET_CHARSET_DIR,  
    MYSQL_SET_CHARSET_NAME,  
    MYSQL_OPT_LOCAL_INFILE,  
    MYSQL_OPT_PROTOCOL,  
    MYSQL_SHARED_MEMORY_BASE_NAME,  
    MYSQL_OPT_READ_TIMEOUT,  
    MYSQL_OPT_WRITE_TIMEOUT,  
    MYSQL_OPT_USE_RESULT,  
    MYSQL_OPT_USE_REMOTE_CONNECTION,  
    MYSQL_OPT_USE_EMBEDDED_CONNECTION,  
    MYSQL_OPT_GUESS_CONNECTION,  
    MYSQL_SET_CLIENT_IP,  
    MYSQL_SECURE_AUTH  
);
```

- SSL connections are supported using this connection properties (using `mysql_ssl_set` library call):

```
Properties.Strings = (  
    'MYSQL_SSL=TRUE'  
    'MYSQL_SSL_CA=D:/mysql/certs/ca-cert.pem'  
    'MYSQL_SSL_CERT=D:/mysql/certs/client-cert.pem'  
    'MYSQL_SSL_KEY=D:/mysql/certs/client-key.pem')
```

## 3.2. Statement parameters

- `userresult=[yes,no]` - Fetching rows using `UseResult` instead `StoreResult`.

# 4. PostgreSQL Driver Parameters

## 4.1. Connection parameters

- `beginreq=[yes,no]` - Is `BEGIN` required at the transaction start or not.
- `oidasblob=[yes,no]` - Is `Oid` type treated as Large Object handle (blob) or as a regular integer.
- `timeout=<seconds>` - Connection timeout in seconds.
- `codepage=<client codepage>` - Sets a client codepage. It executes a `SET CLIENT_ENCODING '<client codepage>'` statement right after connect.
- `sslmode=[disable, allow, prefer, require]` - (From PostgreSQL docs:) This option determines whether or with what priority an SSL connection will be negotiated with the server. There are four modes: `disable` will attempt only an unencrypted SSL connection; `allow` will negotiate, trying first a non-SSL connection, then if that fails, trying an SSL connection; `prefer` (the default) will negotiate, trying first an SSL connection, then if

that fails, trying a regular non-SSL connection; require will try only an SSL connection. If PostgreSQL is compiled without SSL support, using option require will cause an error, while options allow and prefer will be accepted but libpq will not in fact attempt an SSL connection.

- `requiressl=[0,1]` - This option is deprecated in favor of the `sslmode` setting.
- `application_name=<application name>` - (From PostgreSQL docs:) This option is typically set by an application upon connection to the server. The name will be displayed in the `pg_stat_activity` view and included in CSV log entries.

## 4.2. Statement parameters

- `oidasblob=[yes,no]` - Is Oid type treated as Large Object handle (blob) or as a regular integer.

# 5. MS SQL Driver Parameters

## 5.1. Connection parameters

- `appname=<application name>` - The given application name is sent to sqlserver.
- `workstation=<workstation name>` - The given workstation name is sent to sqlserver
- `secure=[yes,no]` - This means that SQL Server will use Windows Authentication security.
- `trusted=[yes,no]` - This means that SQL Server will use Windows Authentication security.
- `language=<national language name>` - The given language is sent to sqlserver. If language support is installed in the server, error messages are returned in the designated national language.
- `fallback=[yes,no]` - Enables or disables failover support
- `timeout=<seconds>` - Is the time-out value, or the number of seconds that DB-Library waits for a login response before timing out. A time-out value of 0 represents an infinite time-out period. The default time-out value is 60 seconds.

# 6. Interbase Driver Parameters

## 6.1. Connection parameters

- `codepage=<national language name>` - The given language is sent to sqlserver. If language support is installed in the server, error messages are returned in the designated national language.
- `createNewDatabase=<sql command database creation>` - Created new database before open database defined in `TZConnection`.
- `dialect=it` is parameter of Interbase/Firebird sql dialect. dialect parameter is sinonim of `isc_dpb_sql_dialect` parameter.
- `RoleName=it` is sinonim for `isc_dpb_sql_role_name` parameter Interbase/Firebird. It allow set user role name to work with database and to gain the privileges of that role.
- `hard_commit=[yes,no]` - Use hard commits instead of soft commits.

## 6.2. Statement parameters

- `cursor=<cursor name>` - The given cursor name is sent to sql server.
- `cachedblob=[yes,no]` - This means that blob data fetch immediate if [yes] or used interbase blob if [no].

## 7. Oracle Driver Parameters

### 7.1. Connection parameters

- `codepage=[utf8,UTF8,0..max word value]` - The codepage used by the oracle OCI to interpret strings sent to the server. For Lazarus this should be set to UTF8.

## 8. SQLite Driver Parameters

### 8.1. Connection parameters

- `busytimeout=<milliseconds>` - Timeout before throwing an error because the database to be opened is locked