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FireDAC

Secret Weapons

More than Delphi Data Access

Slides and samples
github.com/jimmckeeth/FireDAC-Secret-Weapons

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GDK Software

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GDK software

INTERFACE

- In-Memory Tables
- Local SQL
- Batch Move
- NoSQL & MongoDB
- New Security & Safety Features
- More resources

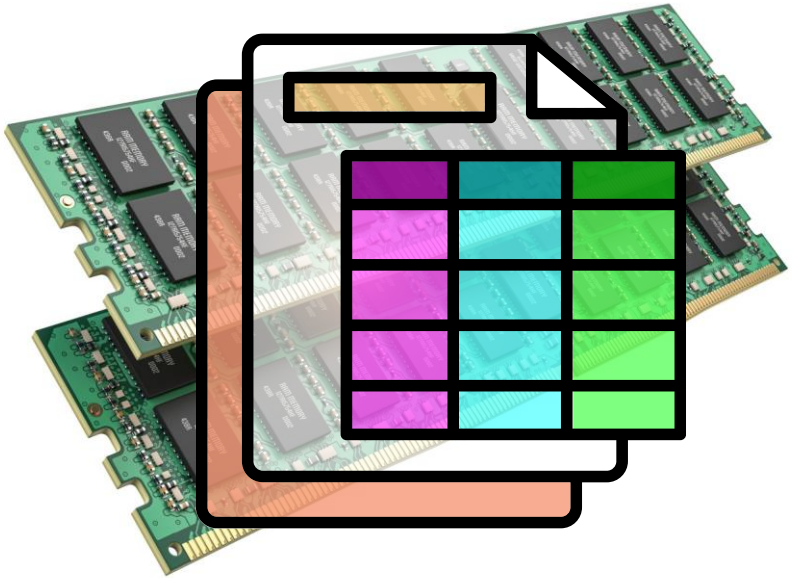
Slides and samples for this session
github.com/jimmckeeth/FireDAC-Secret-Weapons

Review the fundamentals
github.com/jimmckeeth/FireDAC-Fundamentals

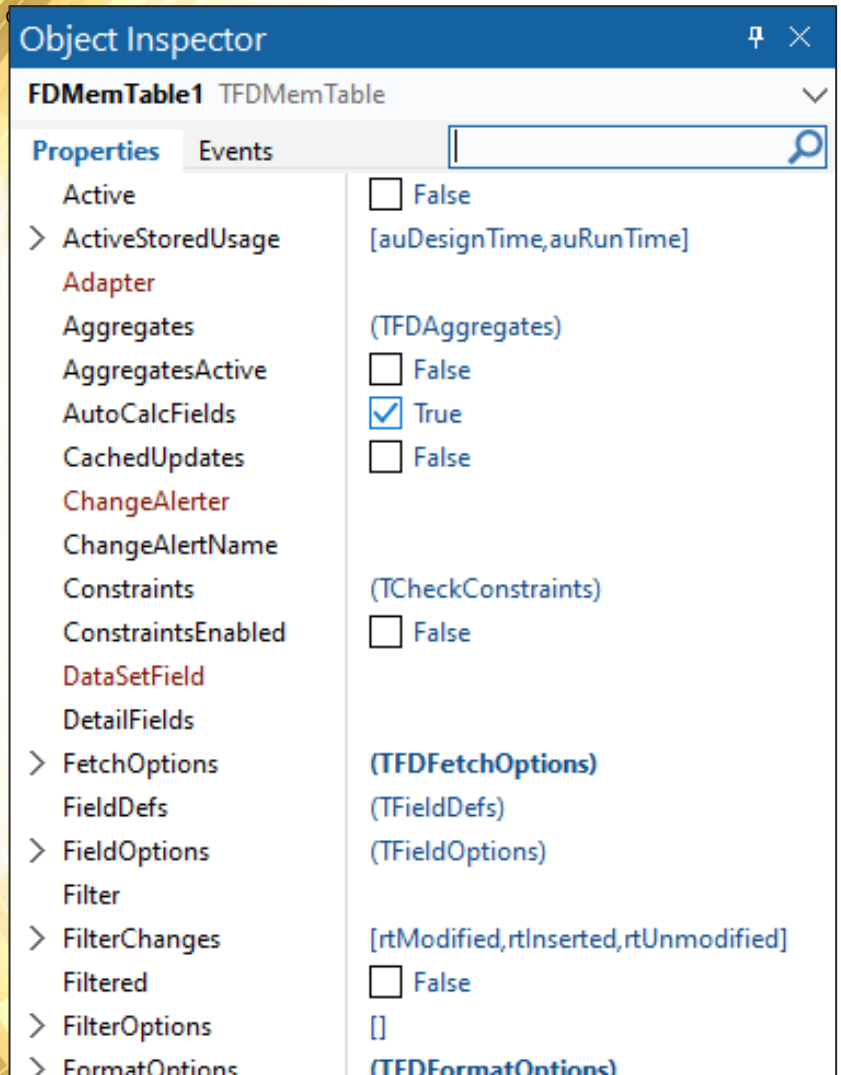
IMPLEMENTATION

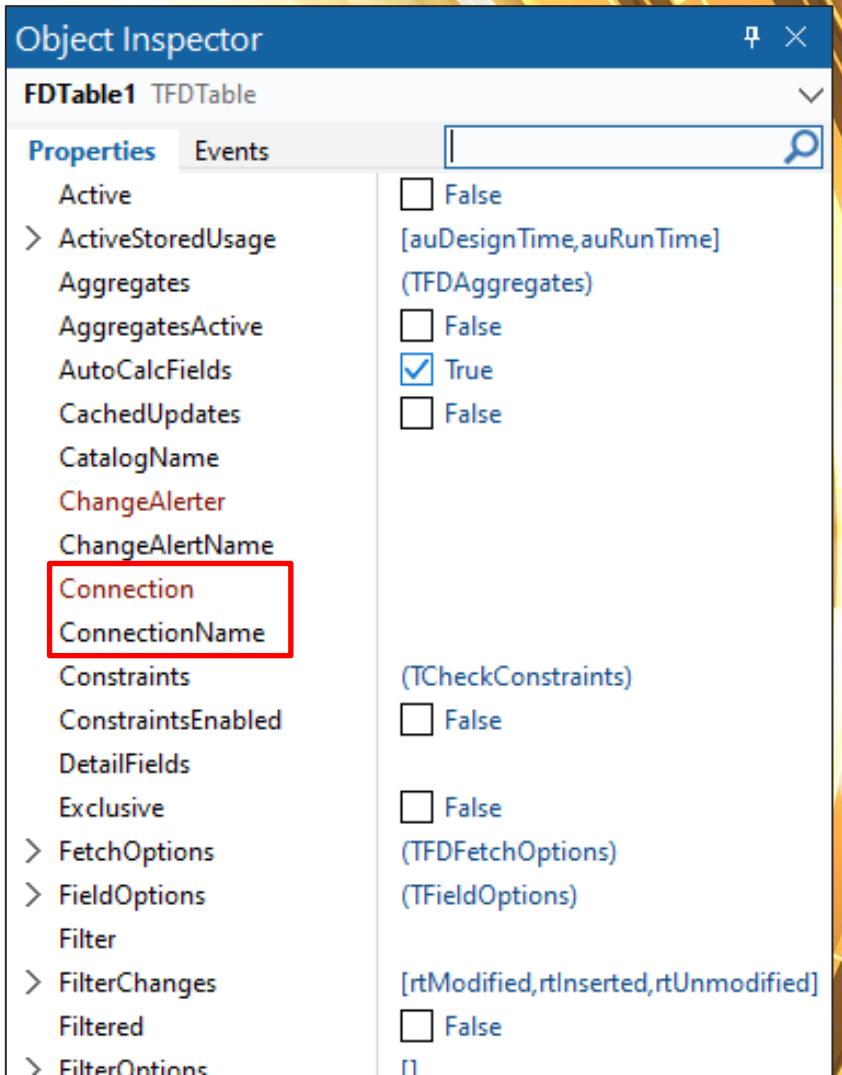
TFDMemTable

- Similar to the TClientDataset
- Less about keeping it in RAM
- More NO DBMS Required
- AKA “Disconnected Dataset”



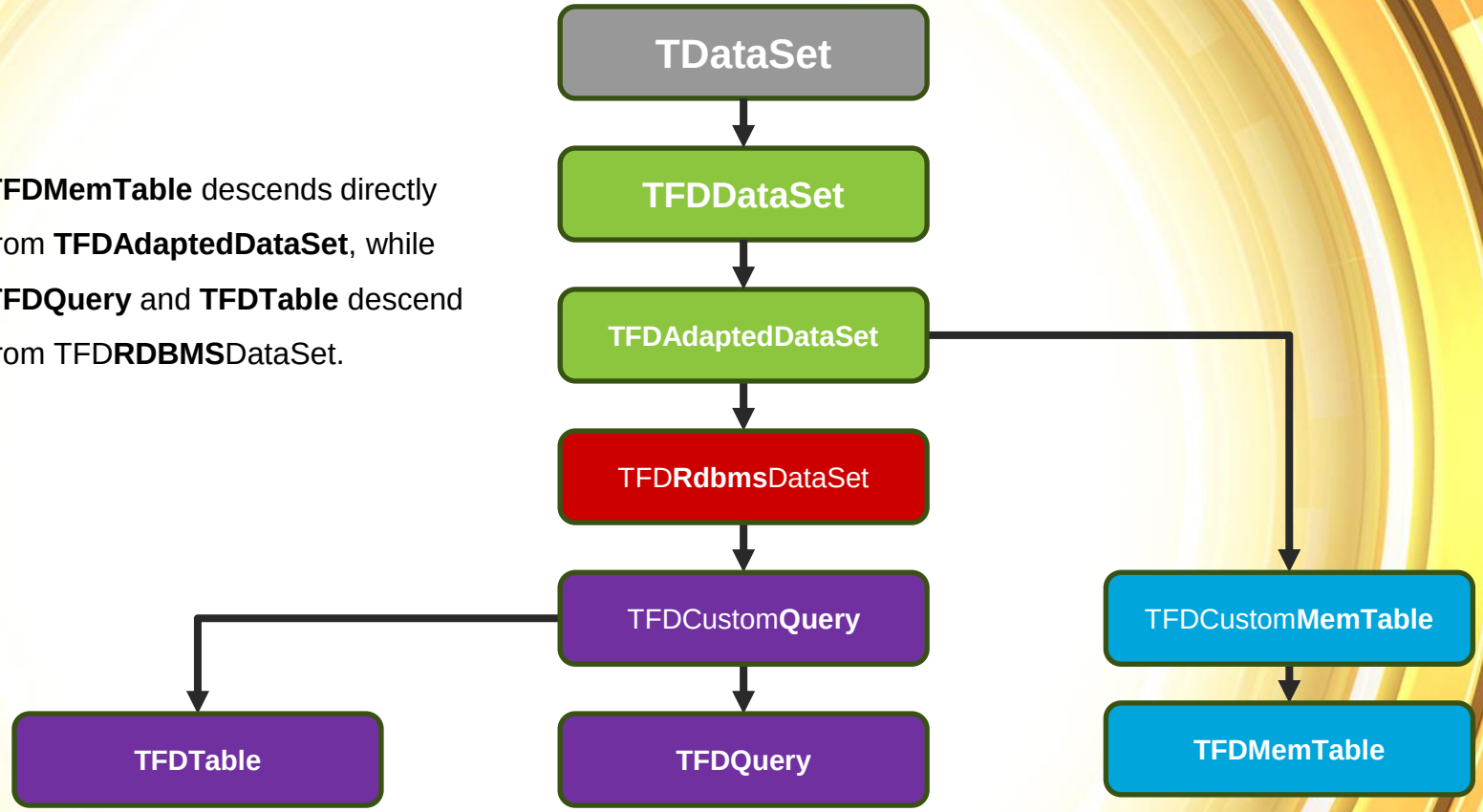
TFDMemTable





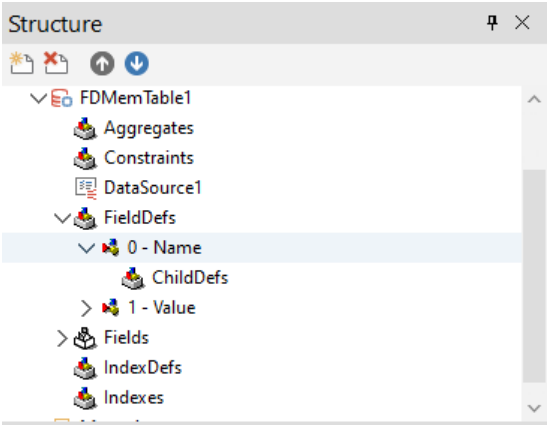
TFDTable

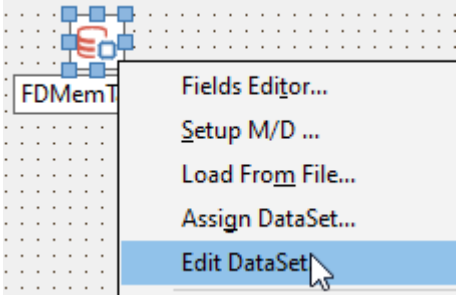
TFDMemTable descends directly from **TFDAdaptedDataSet**, while **TFDQuery** and **TFDTable** descend from TFD**RDBMS**DataSet.



Creating TFDMemTable Dataset

- One of the following
  - Define the fields via FieldDefs property
  - Load From File
  - Assign DataSet from another in project
- Then optionally use Edit DataSet



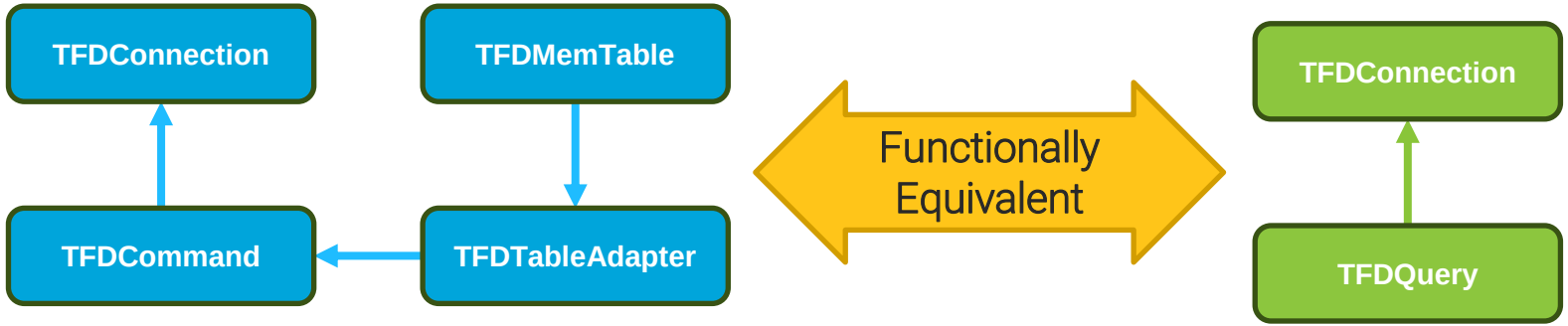


TFDMemTable Storage Components

- For loading or saving, need a Storage Link based on the storage format used
  - sfBinary = TFDStanStorageBinLink → FireDAC.Stan.StorageBin.pas
  - sfXML = TFDStanStorageXMLLink → FireDAC.Stan.StorageXML.pas
  - sfJSON = TFDStanStorageJSONLink → FireDAC.Stan.StorageJSON.pas
  - sfAuto = based on file extension
- The component does nothing besides add a unit to the uses (alternatively just add the unit).

TFDTableAdapter – Connecting the TFDMemTable

- Connects the TFDMemTable to an DBMS via TFDCommand
- Used to execute SQL queries, table updates, and transactions
- Then transfers data from TFDCommand into TFDMemTable

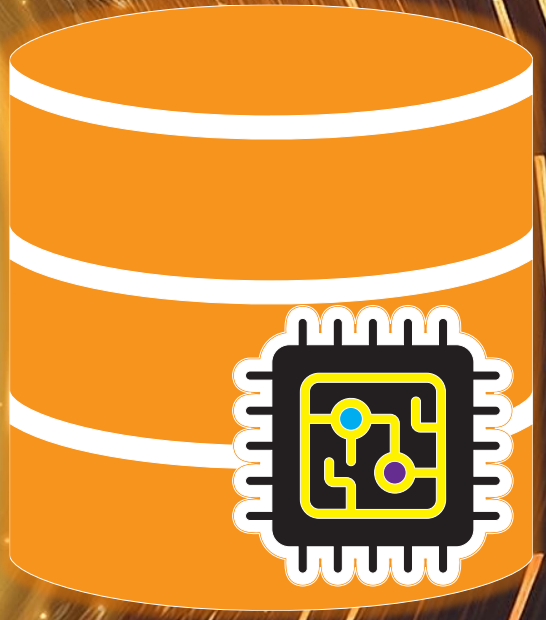


TFDMemTable Links

- DocWiki links
  - docwiki/Libraries/en/FireDAC.Comp.Client.TFDMemTable
  - docwiki/RADStudio/en/TFDMemTable_Questions
  - docwiki/Libraries/en/FireDAC.Comp.Client.TFDTableAdapter
  - docwiki/CodeExamples/en/FireDAC.TFDMemTable.Main_Sample
  - docwiki/CodeExamples/en/FireDAC.TFDMemTable.CachedUpdates_Sample

TFDMemTable

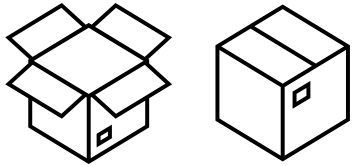
Demonstrations



TFDLocalSQL

- Uses local SQLite-based engine
- Works with any TDataset descendent
- Allows for heterogenous joins
- No DBMS required (besides SQLite)
- DocWiki
  - docwiki/RADStudio/en/Local_SQL_(FireDAC)
  - docwiki/CodeExamples/en/FireDAC.TFDLocalSQL.xDBMS_Sample
  - docwiki/CodeExamples/en/FireDAC.TFDLocalSQL_InMemDB_Sample
  - docwiki/CodeExamples/en/FireDAC.TFDLocalSQL_MegaFMX_Sample

TFDBatchMove



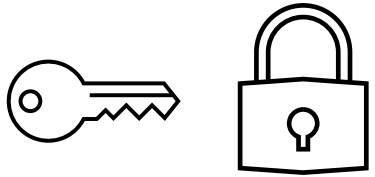
- Your own personal data pump
- Combine with a reader and a writer (mix and match types)
  - Text - TFDBatchMoveTextReader, TFDBatchMoveTextWriter
  - DataSet - TFDBatchMoveDataSetReader, TFDBatchMoveDataSetWriter
  - SQL - TFDBatchMoveSQLReader, TFDBatchMoveSQLWriter
- Even use it from the IDE without compiling

docwiki/Libraries/en/FireDAC.Comp.BatchMove.TFDBatchMove

NoSQL and MongoDB

- One of the most popular document oriented, NoSQL databases
- Uses JSON-like documents (BSON) with optional schemas
- RAD Studio includes the client libraries as redistributables
  - **libbson-1.0.dll**: a BSON library
  - **libmongoc-1.0.dll**: a MongoDB C driver.
- docwiki/RADStudio/en/Connect_to_MongoDB_Database_(FireDAC)
- mongodb.com | hub.docker.com/_/mongo

New FireDAC Security & Safety



- AllowedCommandKinds - Limits the execution of SQL commands vs queries
- AllowMultiCommands - Enables or disables the execution of multiple SQL commands. On by default: SQLite, PostgreSQL, and MySQL.
- AllowSQLChange - Avoid changes to the text of a FireDAC SQL query at runtime. A method like DoSQLChanging would invoke CheckCanChangeSQL, now checking for the specific setting (among other conditions).
- ExactUpdatedRecsNum - It is an Integer with a default value of -1. When it is set to > 0 then SQL Updates include extra checks when

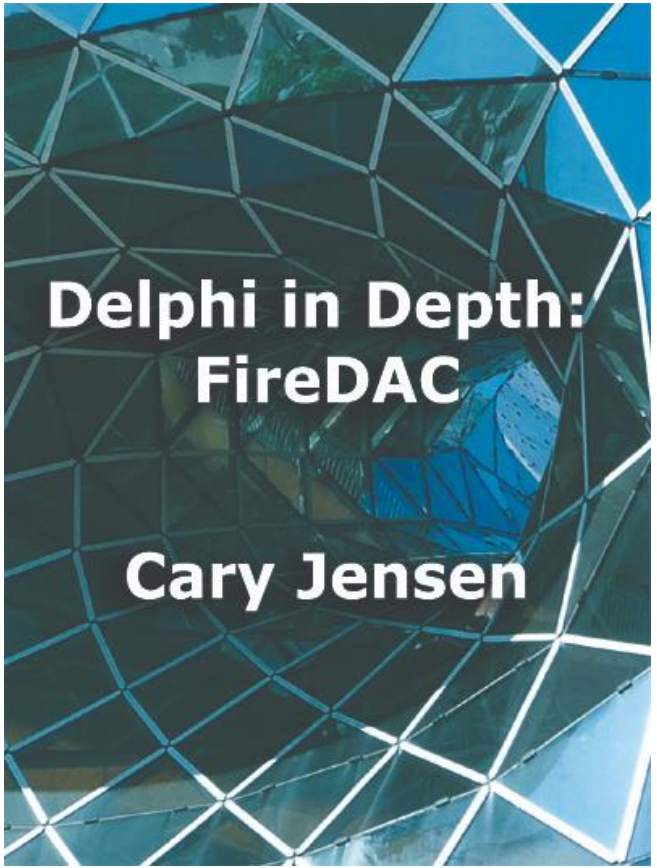
```
FDQuery.FetchOptions.Mode := fmExactRecsMax;
FDQuery.FetchOptions.RecsMax := 1;
```

FINALIZATION

Slides and samples
github.com/jimmckeeth/FireDAC-Secret-Weapons

Delphi in Depth: FireDAC

- Definitive book about FireDAC
- Spirit of Delphi winner Cary Jensen, PH.D.
- jensendatasystems.com/firedacbook
  - Learn how to connect to a wide variety of databases
  - Optimize your connection configurations
  - Explore the world of indexes, searches, and filters
  - Discover the power of persisted datasets
  - Create flexible queries using macros and FireDAC scalar functions
  - Achieve blazing performance with Array DML
  - Master the art of cached updates
  - Add sophisticated features using Local SQL



END.

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Thanks for Watching
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