

Database development with FireDAC

Course Outline

Connecting to various databases

With the TFDConnection and other components, we will see how to connect to a database. The connection can be made during design time or runtime. We'll see how to do this and see which components are necessary.

Retrieving and using data, with parameterized queries

We will see how we can retrieve data from a given database with various components like TFDTable and TFDQuery. We will explore the TDataset and the methods and properties to navigate and search data in a given dataset. We will write parameterised queries and see how they work

Displaying data

There are several ways of displaying data to the user. Traditional (VCL) approach with the TDataSource hooked up to a DBAware control, Visual Live Bindings and by code. In this section we will see how to do it the different ways and the pros and cons of each.

Disconnected databases and ORM

In some situations the best approach is to connect to a database, retrieve data and disconnect again. This goes especially for applications running on a mobile device, but also for other applications. We will go through how to accomplish this. We will in this case be using an Object Relational Model, but other approaches would work equally as well.

Transactions

Databases always use transactions and using FireDAC components handles this for us. We don't need to think about transactions at all... or do we?

Cached updates

Cached updates is a very effective way of keeping all and any updates local until the user (well, the developer) decides to apply the updates to the underlying database. Caching updates is much more than that, I will go through how to get datasets in a cache, and what we can do with that data.

Local SQL

If you have an application that retrieves data from various datasources, like two databases or a database and an xml file. With local SQL you can write SQL to join on the data from the different datasources. This does require that the data is loaded from their respective datasources. We will go through an example of performing a SQL JOIN on data from different datasources.

ArrayDML

ArrayDML is a technique to speed up data manipulation by adding the data to an array, and posting the entire array to the underlying database. Importing data from a CSV file (or xml, or xls or....) is a perfect example of this.

Local databases on Mobile platform

It is possible to store data locally on a mobile device. There are a few good hints on where and how to do this in this session. The course is not a dedicated mobile course, but as we can use FireDAC to access the local data storage on mobile devices, let us do exactly that.

Data from a REST server

In this session we will cover how we can connect and retrieve data from a REST server. We will probably build a REST server first.

Pushing datachanges

A lot of database applications in the world rely on some form of polling. This could be autopolling with a timer or a refresh button or any combination. Depending on the situation we might want an instant update on the clients. We will go through an example of how to build such a system.