

# Sample setup of a Front End and Back End database with auto FE update.

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## Aim

This sample is to demonstrate the setup, and offer a template for, customisation/development and deployment of a Front End / Back End (FE/BE) database aimed at beginners.

## Features

- Automatic FE update via a separate and small “Loader” database file
- Automatic opening of access files using MS-Access-version-independent code
- Automatic BE linking (depending on FE location)
- Shortcut file creation to the Loader file on the server (and removal of that shortcut file)
- Login page for database users

## What this setup does **NOT** demonstrate/include

- Back End updating (automated or otherwise)
- Connecting to more than one Back End
- Database Security / Varying user access levels / Auditing
- Database design beyond start-up procedures

## Table of Contents

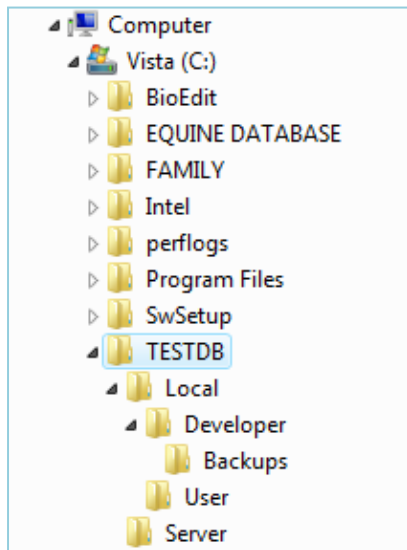
Using these files .....	2
Description of Folders/Files .....	2
Sequence of events .....	3
Version checking .....	3
Backend linking .....	3
Logging in .....	3
Customising and deploying the database as a developer .....	4
Project name and file version .....	4
Loader.mdb .....	4
FE.mdb .....	5
zfrmSettings   cmdShortcutCreate_Click .....	5
zfrmWait   Form_Open .....	5
basStartupRoutines   fncStartUpRoutine .....	5
autoexec_form .....	5

Note on User table..... 5

## Using these files

In the zip file along with these instructions, you should have a few folders (top level folder is called “TESTDB”) with files in them.

These folders represent a “Local” location and a “Server” location, (for demonstration purposes these are all located within “TESTDB”), as shown below, and must be located directly on the “C:” drive (i.e., “C:\TESTDB\”) for the demonstration to work without further input from you.



**Figure 1: TESTDB Folders**

To test and demonstrate: how a FE/BE system is setup; how to automatically update client FE from server; and how to automatically re-link BE to FE.

You will notice text files in each folder, which indicate which files need to be there and why. See in-text for more detail.

## Description of Folders/Files

“Local” – represents a local drive: holds the ‘local’ files for the “Developer” and the “User” (normally expected to be on different computers).

“Developer” – this is where all the files are kept for development and testing. Loader.mdb is copied to the server once; FE is copied to the server for deployment and for updates.

“Backups” – iterates that you, as a developer, should always keep backups of any changes or updates to any of the files for the database (but not normally on the same computer! Use a portable USB stick, online server, or other secure backup system).

“User” – this is the folder that the user will have on their local computer, and where their local FE will be located. A shortcut file to the server-located “Loader” file is what they ‘run’ to open the application. This shortcut would normally be on the User’s desktop, and the user would normally be unaware that there is a “local front end” on the machine they are using.

“Server” – represents the server, where the final DB is deployed. This is the location of ‘master’ FE and ‘live’ BE/Loader files. The FE on the server is not used by the user; it is there to update the user’s local FE and to make it easy for the developer to deploy updates to the FE from their own local environment.

## Sequence of events

When the user wishes to use the database, they will double-click on the shortcut file on their machine. This shortcut file opens “Loader.mdb” and starts a checkpoint cascade as described below.

## Version checking

On opening Loader.mdb, a macro, “autoexec”, automatically invokes version checking code (“fncVersionControlStartup”), in the module “basVersionControl”, and first checks whether a local FE exists on the users’ machine:

If a local FE does not exist, Loader.mdb creates the folder structure and copies the FE file from the server to the local machine. The folder structure created is ‘hardcoded’ and therefore identical (standardised) in all user machines. (You can test this by deleting the ‘User’ folder.)

If a local FE file exists, Loader.mdb checks the version of the local FE against the current version on the server. If they do not match, Loader.mdb updates the user file by copying the master FE from the server to the user machine.

Loader.mdb errors and closes if it cannot find the master FE on the server.

Loader.mdb then opens the local FE and closes itself (except when server FE is not found). The code, to open the local FE, uses MS Access version-independent code without full path to *MSAccess.exe*.

In the process, Loader.mdb passes a ‘token’ to the local FE. If the FE is opened directly (i.e., not via the Loader file) the token is not passed and the FE file closes automatically, giving an error to the user with instructions to open the application from the shortcut provided. This ensures that the user will receive FE updates via the version checking in the Loader file.

## Backend linking

Once the local FE is open, “autoexec” macro automatically opens a form “zfrmWait” (user sees this as a dialog with a progress bar), which has BE location code behind it to determine whether the FE is in the development or live environment – the checking occurs in the following order:

If the local FE finds the local BE file (located in same folder), it re-links the BE tables to the FE.

If the local FE does not find the local BE, it attempts to find and link to the server BE.

If neither BE can be found, the code generates an error for the user and closes the FE.

## Logging in

Once the appropriate BE is linked to the FE, the “zfrmWait” form opens the login form “zfrmLogin” and closes itself.

The login form has a dropdown for current users, one of which must be select to be able to enter the database. When a user is selected and the user clicks on the “login” command button, the form renders itself invisible (allows other forms to ‘read’ the data on the login form (helps auditing)), and opens the switchboard form “zfrmSwitch”.

The database is now accessible by the user.

## Customising and deploying the database as a developer

There are some values that require changing if you are using this database as a template for your own database, or copying the code into a database you have already developed elsewhere. These values are described here. These are **once-only** changes for each application that uses this code.

When the setup is complete, and you are ready to deploy a new FE version, change the version number in the development FE, then upload that FE to the server. That's it!

*When opening any of the sample files (except BE) for adjustments, you must bypass the start-up procedures (as described on p3) by holding down the SHIFT key on your keyboard as the file loads.*

## Project name and file version

You don't want the User to see "Simple FE BE" when they use your database, so change it to suit your own project. To change FE version, use "zfrmVersion" in FE (field is Text data type).



**Figure 2: Change VBA Project name**

In the VBA Editor, go to the Project Explorer, right-click and select "Simple FE BE Properties...", then change the text in the Project Name textbox to the name of your own project. This must be done in each of the .mdb files.

The name given will be used in the FE file as the Database name.

## Loader.mdb

The Loader.mdb has some hardcoded paths. This is to ensure uniformity on all User local machines. You will need to change the following text (shown here in red) to suit your setup.

Open the Module: "basVersionControl", find this code and change the red values:

```
'Configure these =====
'Front end file name
Const cstrFEFile = "FE.mdb"

'Location of Master FE file server/developmental
'-----
Const cstrMasterFEPATH = "C:\TESTDB\Server\" 'server 'live' path
Const cstrMasterFEPATH = "C:\TESTDB\Local\Developer\" 'developer path
'-----
' use UNC path when referring to server locations
' i.e.: use "\\Server\Data2\" instead of "F:\Data2\"
' these two are currently toggled manually by
' removing the single quote from the beginning of the commented line,
' and adding a single quote to the beginning of the current active line
' can be avoided by simply not using the Loader.mdb file in dev environ
' NB: the server line MUST be the active line when deploying
```

```
'Location of Client FE on local machine
Const cstrClientFEPATH = "C:\TESTDB\Local\User"

'This is the token value passed from the loader to the FE
'to make sure you can't open the FE without using the loader
'** It must be identical in the FE file **
Const cstrFEToken = "MyTokenValue"
'=====
```

## FE.mdb

Find the code below in the modules indicated and change the text (shown here in red) to match your setup (if you are changing Loader.mdb file name or changing/removing tblUsers).

### [zfrmSettings | cmdShortcutCreate Click](#)

```
'Configure these =====
strTargetPath = fHTC_GetBEFolder("tblUsers")
strTargetFile = strTargetPath & "\Loader.mdb"
'=====
```

### [zfrmWait | Form Open](#)

```
'check if the developer BE exists
tblDB = myFolder & "\BE.mdb"

If Dir(tblDB) = "" Then ' developer BE not found, use live server BE
    tblDB = "C:\TESTDB\Server\BE.mdb"
End If
```

### [basStartupRoutines | fncStartUpRoutine](#)

```
'If opened without token close the .mdb
'This value must match the cstrFEToken value in the loader file
If IsNull(Command) Or Command <> "MyTokenValue" Then
```

### [autoexec form](#)

Opens the form “zfrmWait” when double-clicked (by-passes Token check). Used when entering the database for development purposes using the SHIFT key to reconnect FE/BE.

## Note on User table

The table “tblUser” is used in this sample DB suite as the linking reference between the FE and BE. Also, form “frmUser”, combobox “cmbUser” in the form “zfrmLogin”, “cmdOpenForm\_Users\_Click” in the form “zfrmSwitch”, and module “modFunctions” is integrated into much of the code of the sample DB to generate data which is used throughout the application. These can be altered for your own purposes, but If you want to change or remove tblUser, please remember to change the appropriate references to it in the code.