

Checking Access File Security MDB / MDE vs ACCDB / ACCDE

This article describes a simple way of comparing the security of the **MDB & ACCDB** file formats together with the compiled versions **MDE & ACCDE**.

First of all, I created three very simple test **MDB** files in **Access 2003** format.

1. A backend file **BE.mdb** with one table **Table1**.
The table had 4 fields (ID, Surname, FirstName, YearGroup) and 2 records Ann Jones / Ben Smith
The BE file was encrypted with password **dinsdale**.
2. A frontend file **FE.mdb**. I then linked this to **Table1** in the **BE** file
3. The frontend was copied, encrypted with the password **MDS** and saved as **FE - PWD.mdb**

Both versions of the frontend were then saved as **MDE** files: **FE.mde & FE - PWD.mde**

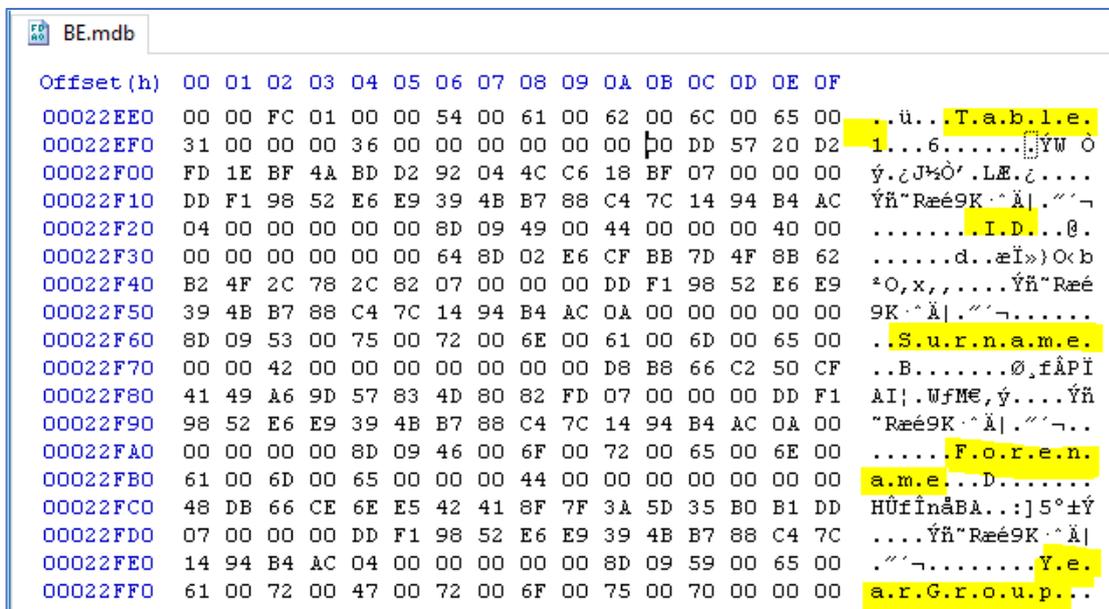
In early versions such as **Access 97**, **password strings** could be directly read using a text or hex editor. This appalling security lapse was fixed in later versions.

I checked both the frontend and backend files using a **hex editor** and searched for the two password strings. Although password data is stored in the file, the password information **CANNOT** be directly read using a hex editor in **Access 2003 MDB** files.

However, when I viewed the **BE** file using the hex editor, the details of **Table1** were found unencrypted in several locations. Both field names and the actual data were visible even though the file is password protected.

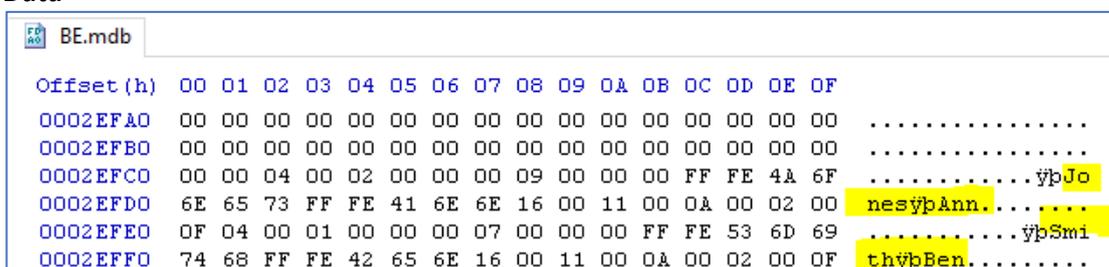
Password protected MDB BE file

Field names



```
BE.mdb
Offset(h) 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00022EE0 00 00 FC 01 00 00 54 00 61 00 62 00 6C 00 65 00 . . . . . T.a.b.l.e.
00022EF0 31 00 00 00 36 00 00 00 00 00 00 00 00 00 00 00 1 . . . . .
00022F00 FD 1E BF 4A BD D2 92 04 4C C6 18 BF 07 00 00 00 00 ý.çJ%Ò' .L.E.ç....
00022F10 DD F1 98 52 E6 E9 39 4B B7 88 C4 7C 14 94 B4 AC Ýñ"Ræé9K. ^Ä|."'^-
00022F20 04 00 00 00 00 00 8D 09 49 00 44 00 00 00 40 00 . . . . . I.D...@.
00022F30 00 00 00 00 00 00 64 8D 02 E6 CF BB 7D 4F 8B 62 . . . . . d.æI»}O<b
00022F40 B2 4F 2C 78 2C 82 07 00 00 00 DD F1 98 52 E6 E9 *O,x,,...Ýñ"Ræé
00022F50 39 4B B7 88 C4 7C 14 94 B4 AC 0A 00 00 00 00 00 9K. ^Ä|."'^-.....
00022F60 8D 09 53 00 75 00 72 00 6E 00 61 00 6D 00 65 00 . . S.u.r.n.a.m.e.
00022F70 00 00 42 00 00 00 00 00 00 00 00 00 00 00 00 00 ..B.....@,fÂPI
00022F80 41 49 A6 9D 57 83 4D 80 82 FD 07 00 00 00 DD F1 AI|.WfME,ý....Ýñ
00022F90 98 52 E6 E9 39 4B B7 88 C4 7C 14 94 B4 AC 0A 00 "Ræé9K. ^Ä|."'^-..
00022FA0 00 00 00 00 8D 09 46 00 6F 00 72 00 65 00 6E 00 . . . . . F.o.r.e.n.
00022FB0 61 00 6D 00 65 00 00 00 44 00 00 00 00 00 00 00 a.m.e...D.....
00022FC0 48 DB 66 CE 6E E5 42 41 8F 7F 3A 5D 35 B0 B1 DD HÛfînáBA...:]5°±Ý
00022FD0 07 00 00 00 DD F1 98 52 E6 E9 39 4B B7 88 C4 7C . . . . . Ýñ"Ræé9K. ^Ä|
00022FE0 14 94 B4 AC 04 00 00 00 00 00 8D 09 59 00 65 00 ."'^-.....Y.e.
00022FF0 61 00 72 00 47 00 72 00 6F 00 75 00 70 00 00 00 a.r.G.r.o.u.p...
```

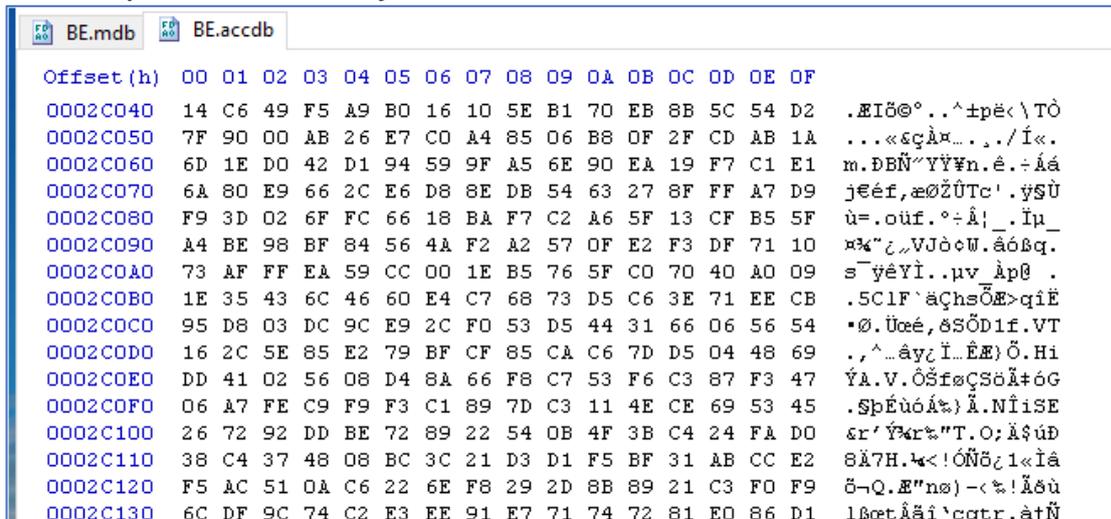
Data



```
BE.mdb
Offset(h) 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
0002EFA0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
0002EFB0 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 . . . . .
0002EFC0 00 00 04 00 02 00 00 00 09 00 00 00 FF FE 4A 6F . . . . . ýþJo
0002EFD0 6E 65 73 FF FE 41 6E 6E 16 00 11 00 0A 00 02 00 nesýþAnn. ....
0002EFE0 0F 04 00 01 00 00 00 07 00 00 00 FF FE 53 6D 69 . . . . . ýþSmi
0002EFF0 74 68 FF FE 42 65 6E 16 00 11 00 0A 00 02 00 0F thýþBen.....
```

For comparison, the entire file is encrypted in a password protected ACCDB file

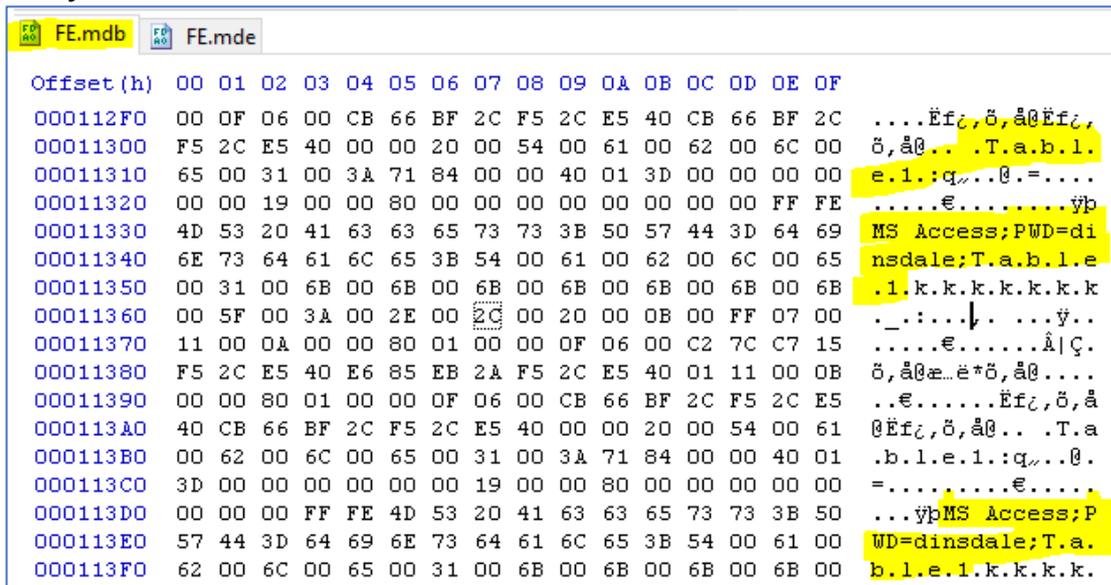
Password protected ACCDB BE file



```
Offset(h) 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
0002C040 14 C6 49 F5 A9 B0 16 10 5E B1 7D EB 8B 5C 54 D2 .EIo@°. .^+pè<\Tò
0002C050 7F 90 00 AB 26 E7 C0 A4 85 06 B8 OF 2F CD AB 1A ...«çà«.../Í«.
0002C060 6D 1E D0 42 D1 94 59 9F A5 6E 90 EA 19 F7 C1 E1 m.DBÑ"Yÿ#n.é.÷Áá
0002C070 6A 80 E9 66 2C E6 D8 8E DB 54 63 27 8F FF A7 D9 jééf,æøŽÚTc'.ýSÙ
0002C080 F9 3D 02 6F FC 66 18 BA F7 C2 A6 5F 13 CF B5 5F ù=.ouf.°÷Á!_ .İp_
0002C090 A4 BE 98 BF 84 56 4A F2 A2 57 OF E2 F3 DF 71 10 *%”ç„VJò«W.áoBsq.
0002C0A0 73 AF FF EA 59 CC 00 1E B5 76 5F C0 70 40 A0 09 s`yéYİ..pv àp@ .
0002C0B0 1E 35 43 6C 46 60 E4 C7 68 73 D5 C6 3E 71 EE CB .5C1F`àçhsÖE>qiÈ
0002C0C0 95 D8 03 DC 9C E9 2C FO 53 D5 44 31 66 06 56 54 *ø.Ücé,šSÓD1f.VT
0002C0D0 16 2C 5E 85 E2 79 BF CF 85 CA C6 7D D5 04 48 69 .,^_âyçİ..ÈE)Ö.Hi
0002C0E0 DD 41 02 56 08 D4 8A 66 F8 C7 53 F6 C3 87 F3 47 ÝA.V.ÖŠfæçSóÁ+óG
0002C0F0 06 A7 FE C9 F9 F3 C1 89 7D C3 11 4E CE 69 53 45 .SpÉúóÁ%);.NîiSE
0002C100 26 72 92 DD BE 72 89 22 54 0B 4F 3B C4 24 FA D0 ær'Ýære"”T.O;Àšúð
0002C110 38 C4 37 48 08 BC 3C 21 D3 D1 F5 BF 31 AB CC E2 8Å7H.¼<!ÖÑç1«İá
0002C120 F5 AC 51 0A C6 22 6E F8 29 2D 8B 89 21 C3 FO F9 ö-Q.E"nø)-<%!Äšù
0002C130 6C DF 9C 74 C2 E3 EE 91 E7 71 74 72 81 E0 86 D1 lBøtÄäi`cçtr.àtÑ
```

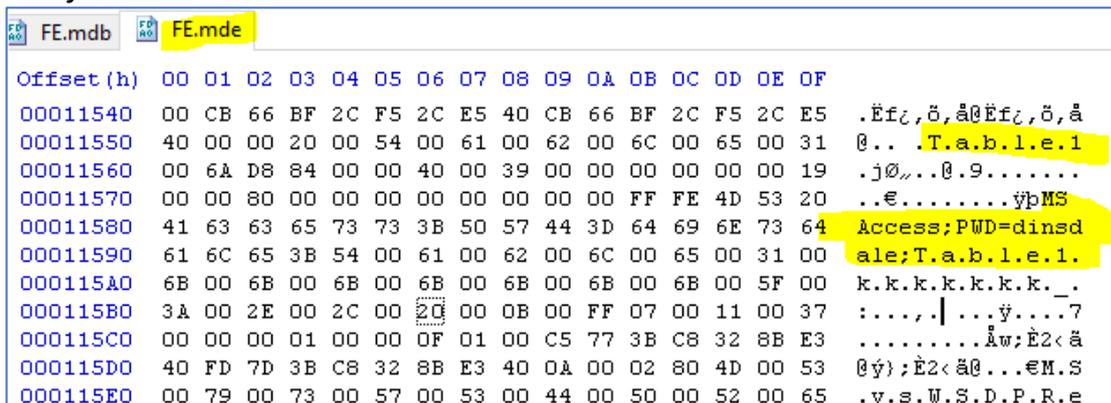
Next, I wanted to see how secure the **backend** data would be from someone who didn't know the **BE** password. To do so, each **frontend** file was then checked using a **hex editor** looking specifically for the **BE** password text strings **PWD** and **dinsdale**. These were found in several locations:

MDB file



```
Offset(h) 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
000112F0 00 0F 06 00 CB 66 BF 2C F5 2C E5 40 CB 66 BF 2C ...Ëfç,ø,å@Ëfç,
00011300 F5 2C E5 40 00 00 20 00 54 00 61 00 62 00 6C 00 ö,å@...T.a.b.l.
00011310 65 00 31 00 3A 71 84 00 00 40 01 3D 00 00 00 00 e.1.:q...ø.=...
00011320 00 00 19 00 00 80 00 00 00 00 00 00 00 00 FF FE .....€.....ÿþ
00011330 4D 53 20 41 63 63 65 73 73 3B 50 57 44 3D 64 69 MS Access;PWD=di
00011340 6E 73 64 61 6C 65 3B 54 00 61 00 62 00 6C 00 65 nsdale;T.a.b.l.e
00011350 00 31 00 6B 00 6B 00 6B 00 6B 00 6B 00 6B 00 6B .1.k.k.k.k.k.k.k
00011360 00 5F 00 3A 00 2E 00 2C 00 20 00 0B 00 FF 07 00 ._:...|...ÿ..
00011370 11 00 0A 00 00 80 01 00 00 0F 06 00 C2 7C C7 15 .....€.....À|ç.
00011380 F5 2C E5 40 E6 85 EB 2A F5 2C E5 40 01 11 00 0B ö,å@æ...è*ø,å@...
00011390 00 00 80 01 00 00 0F 06 00 CB 66 BF 2C F5 2C E5 ..€.....Ëfç,ø,å
000113A0 40 CB 66 BF 2C F5 2C E5 40 00 00 20 00 54 00 61 @Ëfç,ø,å@...T.a
000113B0 00 62 00 6C 00 65 00 31 00 3A 71 84 00 00 40 01 .b.l.e.1.:q...ø.
000113C0 3D 00 00 00 00 00 19 00 00 80 00 00 00 00 00 00 =.....€.....
000113D0 00 00 00 FF FE 4D 53 20 41 63 63 65 73 73 3B 50 ...ÿþMS Access;P
000113E0 57 44 3D 64 69 6E 73 64 61 6C 65 3B 54 00 61 00 WD=dinsdale;T.a
000113F0 62 00 6C 00 65 00 31 00 6B 00 6B 00 6B 00 6B 00 b.l.e.1.k.k.k.k.k
```

MDE file



```
Offset(h) 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00011540 00 CB 66 BF 2C F5 2C E5 40 CB 66 BF 2C F5 2C E5 .Ëfç,ø,å@Ëfç,ø,å
00011550 40 00 00 20 00 54 00 61 00 62 00 6C 00 65 00 31 @...T.a.b.l.e.1
00011560 00 6A D8 84 00 00 40 00 39 00 00 00 00 00 19 .j@...ø.9.....
00011570 00 00 80 00 00 00 00 00 00 00 00 FF FE 4D 53 20 ..€.....ÿþMS
00011580 41 63 63 65 73 73 3B 50 57 44 3D 64 69 6E 73 64 Access;PWD=dinsd
00011590 61 6C 65 3B 54 00 61 00 62 00 6C 00 65 00 31 00 ale;T.a.b.l.e.1.
000115A0 6B 00 6B 00 6B 00 6B 00 6B 00 6B 00 6B 00 6B 00 k.k.k.k.k.k.k.k.
000115B0 3A 00 2E 00 2C 00 2C 00 0B 00 FF 07 00 11 00 37 :...|...ÿ.....7
000115C0 00 00 00 01 00 00 0F 01 00 C5 77 3B C8 32 8B E3 .....Àw;È2<ã
000115D0 40 FD 7D 3B C8 32 8B E3 40 0A 00 02 80 4D 00 53 @ÿ);È2<ã@...€M.S
000115E0 00 79 00 73 00 57 00 53 00 44 00 50 00 52 00 65 .v.s.W.S.D.P.R.e
```


ACCDB file

FE	FE.accdb
Offset (h)	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
00011070	2C E5 40 31 04 76 29 F5 2C E5 40 00 00 00 54 ,ä01.v)ö,ä0...T
00011080	00 61 00 62 00 6C 00 65 00 31 00 88 00 00 40 00 .a.b.l.e.l.^...@.
00011090	68 00 00 00 00 00 00 19 00 00 11 00 09 00 80 h.....€.....
000110A0	01 00 00 0F 06 00 A8 E8 21 28 F5 2C E5 40 E9 69è!(ö,ä0éi
000110B0	23 28 F5 2C E5 40 00 00 20 00 54 00 61 00 62 00 # (ö,ä0...T.a.b.
000110C0	6C 00 65 00 31 00 5D 1A 88 00 00 40 00 68 00 00 l.e.l.]^...@.h..
000110D0	00 00 00 00 19 00 00 80 00 00 00 00 00 00 00€.....
000110E0	FF FE 4D 53 20 41 63 63 65 73 73 3B 50 57 44 3D ybMS Access;PWD=
000110F0	64 69 6E 73 64 61 6C 65 3B 54 00 61 00 62 00 6C dinsdale;T.a.b.l
00011100	00 65 00 31 00 31 07 00 40 00 6E 00 00 00 00 00 .e.l.i..@.n.....

ACCDE file

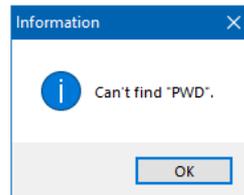
FE	FE.accdb	FE.accde
Offset (h)	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F	
000110B0	23 28 F5 2C E5 40 00 00 20 00 54 00 61 00 62 00	# (ö,ä0...T.a.b.
000110C0	6C 00 65 00 31 00 00 A6 88 00 00 40 00 63 00 00	l.e.l.]^...@.c..
000110D0	00 00 00 00 19 00 00 80 00 00 00 00 00 00 00 00€.....
000110E0	FF FE 4D 53 20 41 63 63 65 73 73 3B 50 57 44 3D	ybMS Access;PWD=
000110F0	64 69 6E 73 64 61 6C 65 3B 54 00 61 00 62 00 6C	dinsdale;T.a.b.l
00011100	00 65 00 31 00 31 07 00 40 00 69 00 00 00 00 00	.e.l.i..@.i.....
00011110	00 77 00 77 00 77 00 6B 00 6B 00 6B 00 6B 00 5F	.w.w.w.k.k.k.k._
00011120	00 3A 00 2F 00 2C 00 20 00 0B 00 FF 47 00 11 00 #G

Neither ACCDB nor ACCDE files offer any additional security in terms of the BE file. As a result, this remains insecure

For comparison, here are the results using password protected (encrypted) ACCDB / ACCDE files

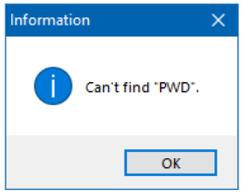
Password protected ACCDB file

FE	FE - PWD.accdb	FE - PWD.accde	FE - PWD.mdb	FE - PWD.mde	FE.accdb
Offset (h)	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F				
00011050	8F 1C 91 D9 CC 35 2E A5 42 C6 E0 OC 23 AE 5E B8				..`ùis.¥B&a.#@^,
00011060	DC AA ED 07 A3 F4 70 2B F3 20 EB 8B 24 ED FB 0B				Û*1.é0p+ó é<\$iú.
00011070	10 0A E5 2E B7 F4 8B 77 DC 28 9C 24 DB F1 D8 6F				..ä. ó<wÜ(œ\$Ûñ0o
00011080	BC 5A 7D 51 C2 B4 CC BA 8A F0 F4 1E 45 3C BD 5C				4Z)QÁ'Í°Š&ö.E<4)
00011090	53 40 C5 F8 51 80 D3 23 70 91 E2 88 A7 0C EB 1D				S0Ä@QeÓ#p`á`\$..é.
000110A0	62 58 EB 2D DB 61 40 1B D5 AB 2E CE 78 49 4A 3A				bXé-Üa0.Ö<.íxIJ:
000110B0	8E 9F 1C D0 D1 84 EF 86 B4 75 38 C8 5C 8B B8 67				ŽY.ĐN,ít`u8E)\<,g
000110C0	2A ED 13 F0 6A E8 1C D6 47 49 80 EF 02 07 39 C5				*i.ôjè.ÓGIEi..9Ä
000110D0	B1 FA E9 8B 71 08 95 22 CC B2 0B 93 D2 21 01 59				±úé<q.·"j`"ò!.Y
000110E0	34 4C 56 BD E9 4E 74 51 66 B6 73 63 73 70 B1 A8				4LV*éNtQfscsp±"
000110F0	0C 40 8C 11 7E 22 C7 24 E0 52 F7 78 C9 99 61 93				0@.~"Ç\$àR:xÉ"á"
00011100	4F 08 FD D0 7D 82 17 F2 95 BB 2A 2C B1 52 F5 22				O,yð),.ó»*,±R0"
00011110	ED 6C 92 BD 22 CF 8A 22 C0 94 CE 50 14 56 37 CE				il`*`IŠ"Ä`IP.V7Í



Password protected ACCDE file

FE	FE - PWD.accdb	FE - PWD.accde	FE - PWD.mdb	FE - PWD.mde	FE.accdb	FE.accde
Offset (h)	00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F					
000110A0	95 8C D7 59 BA 14 B6 1C B7 46 FB 83 CC D8 6C 17					*@xY°.q.·Fúfi@1.
000110B0	CC 0F 8E B6 7B B4 86 10 38 46 20 C8 AB 8A CE 30					í.žg(´+.8F È<ŠÍ0
000110C0	7A 0A 7B E4 1D 33 98 D5 F0 2D 15 D8 FD E4 AF 98					z.(.3"Ö&-..øýá~
000110D0	B0 9A 29 1B 24 1F 60 AD 4D 27 36 C2 D6 30 8B C0					°š).\$.´.M'6Ä00<Ä
000110E0	1E 18 17 D4 85 EA CE 9E 56 34 7D A0 B9 E3 B8 C3					...ö.ëížV4) `ä,Ä
000110F0	8D B9 3D 24 89 50 11 ED 0D A8 47 39 B0 C6 F9 0A					.`=\$%P.i."G9°žù.
00011100	25 0D C4 68 FC 4C 4E 71 18 84 31 25 E3 0C 25 77					%.ÄhüLNq.,,1&ä.*w
00011110	43 B7 21 18 3C 4D BB 68 C2 C8 68 E5 53 14 0F 5A					C`!<M>hÄÈhÄS..Z
00011120	83 B0 21 8F F0 E6 0D 5F F9 19 1A 6F 78 68 32 4C					f°!.8æ.ù..oxh2L
00011130	D0 18 03 26 85 06 16 B5 43 31 57 F6 09 AA D3 9F					D..é...µC1W0.*ÓÝ
00011140	3E 3E EC 5B 7E 5A A6 A5 DE D2 9B DF 6E AD D8 DC					>>[~Z!¥Pó>Än.0Ü



The password protected ACCDB & ACCDE files encrypt the entire file including BOTH the linked table name and password information

Therefore, to keep the data in a BE file secure, the FE file needs to be in ACCDB/ACCDE format and encrypted using password protection.

Password Recovery utilities

Password recovery utilities can be useful if you forget the password to your own applications but can just as easily be used for other applications that are not your own work.

Running a quick online check will soon find several utilities (mostly free) that will crack passwords on MDB files. This is usually very quick as the level of encryption is relatively weak

By comparison, I am only aware of one commercial utility that will crack ACCDB passwords.

This is done by 'brute force' trying every possible combination of characters until one is successful.

If a strong password is used, the process can take MANY hours and is therefore unlikely to be worth the effort in most cases.

Obviously, there are many other factors involved in making databases as secure as possible including:

- a) The use of workgroup security for MDB/MDE files
- b) Protecting the location of the BE file by saving on a secure network and limiting user permissions to the folder
- c) Using strong passwords that cannot easily be hacked

However, an Access database can NEVER be made 100% secure. A capable and determined hacker can break any Access database given sufficient time and determination

I would welcome feedback on the information provided in this article