Table File Structure (.dbc, .dbf, .frx, .lbx, .mnx, .pjx, .scx, .vcx)

Visual Studio .NET 2003

Visual FoxPro uses tables to store data that defines different file types. The following list includes the file types that are saved as tables:

- Table (.dbf)
- Database (.dbc)
- Form (.scx)
- Label (.lbx)
- Menu (.mnx)
- Project (.pjx)
- Report (.frx)
- Visual Class Library (.vcx)

You can use and browse these files in the same way that you browse any table file because these files are actually tables.

A table file consists of a header record and data records. The header record defines the structure of the table and contains any other information related to the table. The header record starts at file position zero. Data records follow the header, in consecutive bytes, and contain the actual text of the fields.

> **Note**   The data in the data file starts at the position indicated in bytes 8 to 9 of the header record. Data records begin with a delete flag byte. If this byte is an ASCII space (0x20), the record is not deleted. If the first byte is an asterisk (0x2A), the record is deleted. The data from the fields named in the field subrecords follows the delete flag.

The length of a record, in bytes, is determined by summing the defined lengths of all fields. Integers in table files are stored with the least significant byte first.

For information about the table structures of the different file types, see Table Structures of Table Files.

Table Header Record Structure

Byte offset	Description
0	File type: 0x02 FoxBASE

	0x03 FoxBASE+/Dbase III plus, no memo
	0x30 Visual FoxPro
	0x31 Visual FoxPro, autoincrement enabled
	0x43 dBASE IV SQL table files, no memo
	0x63 dBASE IV SQL system files, no memo
	0x83 FoxBASE+/dBASE III PLUS, with memo
	0x8B dBASE IV with memo
	0xCB dBASE IV SQL table files, with memo
	0xF5 FoxPro 2.x (or earlier) with memo
	0xFB FoxBASE
1 - 3	Last update (YYMMDD)
4 – 7	Number of records in file
8 – 9	Position of first data record
10 – 11	Length of one data record, including delete flag
12 – 27	Reserved
28	Table flags:
	0x01 file has a structural .cdx
	0x02 file has a Memo field
	0x04 file is a database (.dbc)
	This byte can contain the sum of any of the above values. For example, the value 0x03 indicates the table has a structural .cdx and a Memo field.
29	Code page mark
30 – 31	Reserved, contains 0x00
32 – n	Field subrecords
	The number of fields determines the number of field subrecords. One field subrecord exists for each field in the table.
n+1	Header record terminator (0x0D)
n+2 to n+264	A 263-byte range that contains the backlink, which is the relative path of an associated database (.dbc) file, information. If the first byte is 0x00, the file is not associated with a database. Therefore, database files always contain 0x00.

Field Subrecords Structure

Byte offset	Description
0 – 10	Field name with a maximum of 10 characters. If less than 10, it is padded with null characters (0x00).
11	Field type: C – Character Y – Currency N – Numeric F – Float D – Date T – DateTime B – Double I – Integer L – Logical M – Memo G – General C – Character (binary) M – Memo (binary) P – Picture
12 – 15	Displacement of field in record
16	Length of field (in bytes)
17	Number of decimal places
18	Field flags: 0x01 System Column (not visible to user) 0x02 Column can store null values 0x04 Binary column (for CHAR and MEMO only) 0x06 (0x02+0x04) When a field is NULL and binary (Integer, Currency, and Character/Memo fields) 0x0C Column is autoincrementing
19 - 22	Value of autoincrement Next value
23	Value of autoincrement Step value
24 – 31	Reserved

For information about limitations on characters per record, maximum fields, and so on, see Visual FoxPro System Capacities.

Remarks

Visual FoxPro modifies the table header when you turn on or add autoincrementing for field values.

Visual FoxPro does not modify the header of a file that has been saved to a FoxPro 2.*x* file format unless one of the following features has been added to the file:

- Null value support
- DateTime, Currency, and Double data types
- CHAR or MEMO field is marked as Binary
- A table is added to a database (.dbc) file

> **Tip**   You can use the following formula to return the number of fields in a table file: $(x - 296/32)$. In the formula, x is the position of the first record (bytes 8 to 9 in the table header record), 296 is 263 (backlink info) + 1 (header record terminator) + 32 (first field subrecord), and 32 is the length of a field subrecord.

See Also

Code Pages Supported by Visual FoxPro | Data and Field Types | Table Structures of Table Files (.dbc, .frx, .lbx, .mnx, .pjx, .scx, .vcx) | Visual FoxPro System Capacities | Checking for Differences in Forms, Reports, and Other Table Files | File Extensions and File Types