filePro® 4.5 and higher Automatic Index Information
Automatic Index Header

The first 140 bytes of the index are as follows:

Offset	Length	Contents
0	2	"0xC139" - filePro 4.5 index magic number
2	2	Depth of index tree
4	2	"1" if root node is in block zero, else "0"
6	2	Maximum number of keys per node
8	4	Size of each node, in bytes
12	4	Block number of root node
16	4	Number of records in index
20	2	Length of sort key, in bytes
22	2	Length of record number portion of key in bytes
24	64	Sort information -- see below
88	4	Block number of freechain head
92	48	Index comment (NUL-terminated ASCII)

Notes:

The length of the sort key is the combined length of each sort item.

The length of the record number portion is 4, plus 1 byte for each associated field within the sort key.

When fPTransfer sends an index, it is truncated to the first block only, and the magic number is set of "0xC138".

The root node may be combined with the index header within block zero. In that case, the root node block number is stored as a negative number, the absolute value of which is its offset within block zero. Currently, that is always "-140".

Sort Information

The sort information is the following 8 bytes repeated 8 times - once for each possible sort key.

Offset	Length	Contents
0	2	The field number
2	1	Associated field instance
3	1	"0" - Used for output formats only
4	2	Field length
6	1	"0" for ascending, "1" for descending
7	1	Field type

Non-leaf node

Each non-leaf node has the following format:

Offset	Length	Meaning
0	2	The number of node pointers within this node
2	4	Left node pointer
6	n*m	n entries consisting of: Lowest key of node (n bytes), Node pointer (4 bytes). The node count does not include the left node pointer.

Leaf node

Each leaf node has the following format:

Offset	Length	Meaning
0	4	Backward node pointer link
4	4	Forward node pointer link
8	2	Extended block flag: " 0" - A normal block " 1" - This block contains a list of duplicate keys, and continues into the next block " 2" - This block is the end of a chain of duplicate-key blocks.
10	2	Number of key values in this node
12	2*n	Offset within block of start of each key value

Each key value is stored as:

Offset	Length	Meaning
0	n	The key value
n	m*o	A list of the records for this key

Each entry consists of 1 byte for each associated field instance, followed by a 4-byte record number. The length of each of these portions is stored in the header. If there are multiple copies of an index key, its value is stored only once. This is followed by a list of the associated field instances and record numbers. If the number of duplicates prevents all record numbers from fitting into one block, the key is spread across multiple blocks, and the "extended block flag" is set appropriately. The leaf nodes are stored in a doubly-linked list.

Freechain

Each node on the freechain is stored in a singly-linked list as:

Offset	Length	Meaning
0	4	Forward link pointer

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