



# Tech Info Library

## Pascal: Speeding up Pascal text file reading (1 of 3)

Revised: 11/30/84  
Security: Everyone

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Although the READLN statement reads Pascal text files--for example:

```
READLN (FILEID, STRINGVARIABLE);
```

--this operation can be made much faster by using the routines contained in the following program. Three procedures do the work. Their operation is explained, line-by-line, below:

```
PROCEDURE FILLBUFFER;
    (* Fills the working buffer with data
       from the .TEXT file. *)
BEGIN
    EMPTY := BLOCKREAD (INFILE,BUFFER,2) = 0;
    (* Reads 2 blocks of the file into
       BUFFER and leaves the variable EMPTY
       equal to zero if the end of file
       marker is not yet reached.*)
    IF NOT EMPTY THEN BEGIN
        (* If there is still unprocessed data
           in the buffer, do this:*)
        NOTNULLS := BUFSIZE +
            SCAN (- BUFSIZE, <> CHR(0), BUFFER [1023]);
        (* The length of a Pascal .TEXT file
           should always be in multiples of 2
           blocks. Since strings (lines) do not
           span blocks, each block is likely to
           contain nulls (ASCII ZERO) at the end.
           This line returns the number of real
           characters in the file, and discards
           the null ones. *)
        BUFINDEX := 0;
        (* The working index into the buffer is
           reset to zero after refilling the
           buffer. *)
    END;
END;
```

```

PROCEDURE OPENFILE (FNAME:  STRING);
    (* Opens the file using the name passed
    by calling procedure.*)
BEGIN
    IF ((POS('.text',FNAME) = 0) AND
        (POS('.TEXT',FNAME) = 0)) THEN
        FNAME := CONCAT (FNAME, '.TEXT');
    (* Adds the .TEXT suffix if it's not
    already there.  *)

    RESET (INFILE, FNAME);
    (* Actually opens the referenced file.  *)

    FILLBUFFER; FILLBUFFER;
    (* The first call to FILLBUFFER skips
    over the 2 blocks of header
    information on .TEXT files.  The
    second call actually fills the buffer
    with information which will be used.*)
END;

PROCEDURE READFILE (VAR LINE:  STRING);

(* Reads from the file and returns a string at a time in the variable LINE. A
word about the Pascal .TEXT file format: Lines are stored as ASCII
characters terminated with carriage returns.  If a line contains any leading
spaces, and most Pascal source files contain some, these spaces are "packed"
into two bytes.  The first byte is an ASCII DLE (decimal 16) signifying that
the line is packed.  The second byte is a count of spaces to be expanded.
The Editor unpacks these lines automatically, as does a READLN from a file.
We do that operation ourselves in this procedure.  The increase in speed is
because we are using highly specialized routine, whereas the READLN
intrinsic is very general in nature, accepting strings, integers and reals
from the keyboard as well as from files.  Note that this format is optimized
for Pascal source files and it wastes two bytes for each and every line that
does not contain leading spaces.  *)

VAR INDENT, LINELEN:  INTEGER;  (* INDENT is the number of
                                space characters to add.
                                LINELEN is the length of the
                                new string to be formed.  *)

```

Apple Tech Notes

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