CET Council for Educational Technology

PRESTEL TELESOFTWARE FORMAT RECOMMENDATIONS

Preface

In September 1980 the Council for Educational Technology invited computer manufacturers, software agencies and representatives of PRESTEL to discuss the formulation of a set of recommendations for the format of telesoftware on PRESTEL. This document is the result of these discussions.

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1 SOURCE FILES

This section defines the nature of the unit of software (a FILE) which may be distributed via PRESTEL. The definition is deliberately general so as to include any type of sequential file and size. The declaration of a set of allowable character codes is necessary although the realisation of these characters is irrelevant. The FILE may, if the provider wishes, consist of a number of LINES, where a LINE is terminated by some suitable delimiter which does not need to be specified here.

1.1 A SOURCE FILE is a quantity of data intended for transmission.

1.2 A FILE consists of one or more LINES.

1.3 A LINE consists of one or more CHARACTERS.

1.4 A CHARACTER is any symbol whose ASCII value lies between 32 and 126 inclusive.

3 BLOCK STRUCTURE & ERROR CHECKING

Data on PRESTEL may only exist in the form of frames so programs which are larger than one frame must be fragmented. This fragmentation allows a block structure which can be used for error detection.

Each block is parenthesised by start and stop markers and followed by a BLOCK CHECK of up to three decimal digits. These digits form a number which is the result of bitwise exclusive-OR operations on the characters of the preceding block.

3.1 Converted SOURCE FILES are partitioned into contiguous BLOCKS.

3.2 BLOCKS may contain a minimum of one and a maximum of 859 CHARACTERS.

3.3 Only one BLOCK may appear on a PRESTEL frame.

3.4 A BLOCK on a PRESTEL frame is preceded by the ESCAPE SEQUENCE ▌▌A and followed by the ESCAPE SEQUENCE ▌▌Z and a BLOCK CHECK.

3.5 A BLOCK CHECK is a sequence of up to three CHARACTERS being the decimal result CH(n) of exclusive-OR operations on the ASCII values of all n CHARACTERS in the preceding BLOCK.

$$CH(n) = CH(n-1).XOR.\ ASC(n)$$

where CH(0) = 0 and ASC(i) is the ASCII value of the ith CHARACTER.

5 RETRIEVAL OF FILES

Parity checking is a simple and effective method of detecting single-bit transmission errors. The exclusive-OR block check is able to detect errors which the parity check fails to detect. A user terminal should not perpetually request retransmissions of any frame in response to parity or block check errors; there must be a finite number of requests before the retrieval is abandoned to ask advice of the user on how to proceed. This number has been left to the programmer to decide.

5.1 The terminal will check the parity of every PRESTEL character.

5.2 The terminal will operate a TIME-OUT facility whereby should an interval of two seconds elapse after the receipt of the last PRESTEL character the terminal will assume that a complete frame or message has been received.

5.3 Upon detecting the completion of the transmission of a telesoftware frame the terminal will compare its calculated BLOCK CHECK with that transmitted on the frame.

5.4 The terminal will request a finite number of retransmissions of any telesoftware frame found to have either a parity or BLOCK CHECK error.