# The BBC Microcomputer Teletext & Videotex User Interface (1st Draft)

## Introduction

The user interface operates at three levels : as a conventional terminal, at a command level for the reception of individual pages of text or files of telesoftware, or at a byte stream level for special purpose programs which the user may wish to write. The system is designed such that the differences between Teletext and Prestel are minimised. The user simply selects which service is to be used, and the device drivers translate the generalised user commands into the specific commands required by the selected system.

On the BBC Microcomputer, this interface is configured as a filing system - all functions are controlled by the operating system vectors, ensuring compatability with the TUBE and second processor option.

## Command level interface

*TERMINAL <service>

Starts up terminal program, selecting Teletext/Prestel and appropriate TV channel. <service> can be BBC1, BBC2, ITV1, ITV2, TV0...TV3, PRESTEL, or LOCAL, where TV0 is equivalent to BBC1 etc. It is provided for markets where BBC1 may not be relavent. PRESTEL performs a log on to Prestel, as for *TERMINAL PRESTEL, but then returns to command mode. Note that to log off either *PAGE 90 or *BYE can be used. LOCAL is a pseudo-service for loading pages offline. If <service> is null, this command warm starts the previously selected service, or prompts for the service if none had previously been selected.

*TELESOFT

Telesoftware mode is selected as the current filing system until the next *DISC etc.

## Telesoft mode commands

*PRESTEL

Selects Prestel as current service, and logs on if not already logged on.

*BYE

Logs off Prestel (if logged on) and clears soft keys if set by *KEYS command.

*BBC1...*TV0

Selects Teletext rather than Prestel, and selects appropriate channel on tuner.

*TIME

Writes the time and date on the screen (through the normal output routines). This is designed to be used as a direct command, and while it may be used from programs, its usefulness is likely to be limited. Programs can read the time from the buffered getbyte channel, which does not disturb the display.

*KEYS

Defines the soft keys to contain most of the useful telesoft mode commands. These are cleared by *EXIT

*TUNE

Enters the fine tuning utility.

*PAGE <number> <addr>

Load page <number> to memory at location <addr>. If <addr> is not given, the page is selected as the current page, and will be loaded into the page buffer. When no page has been selected, the default page is Prestel page 0 or the

Teletext page given in the service line.

*LOAD <filename> <addr>

Load telesoftware as memory image from currently selected page. If <addr> is not supplied, the load address from the file is used. If the file name is not supplied, the first file found is loaded. Note that BASIC's "LOAD" & "CHAIN" are implied *LOAD's.

*RUN <filename>

Load and run telesoftware file (as machine code). If <filename> is not supplied then the first file is loaded.

*EXEC <filename>

Execute telesoftware as a stream of ASCII commands. <filename> defaults as before.

*CAT

Examine incoming telesoftware on the currently selected page, and print all program names found by the telesoftware decoder.

*OPT <option>,<parameter>

Select system options - various details which do not require a dedicated command.

OPTIONS

0 Reset all options to their default settings.

1 Messages - When the decoder is loading telesoftware, the comment fields are displayed. The parameter controls how many fields are displayed : the default is 3. Possible field contents (ref: "A Redefinable Telesoftware Format, version 0.01", C.J.Oswald) are :

1 Title
2 Language
3 Type of computer used
4 Date of publication
5 Source of program
6+ (other)

2 Error recovery - 0 ignores errors, 1 retries up to 3 times to get an error-free page, 2 retries up to 3 times using a voting system on each character to remove erroneous characters from the page (the disadvantage with this system over system 1 is that it requires two extra page stores), and 3 repeats voting continuously until no error is found.

3 Select page store mode. <parameter> is 0 for store current page only, 1

for Branch mode teletext, and 2 for chain mode teletext (Branch mode stores all 6 sub-pages of the current page, while chain mode stores the 1st linked page of the current page, then the 1st linked page of that page, repeating six times. The difference simply affects the speed of response to the user. For example, News stories may have one header page of which the 6 linked pages are breif headlines, the 1st linked page of each linking to a chain of pages giving the details. A user reading the headlines would use branch mode, while a user reading in depth would use chain mode.). Note that Telesoftware pages should have their page-pointers configured such that the pages stored are the same for either branch or chain mode, so that this option does not have to be set manually.

4 Disable Telesoftware Reset - The telesoftware decoder is usually reset at the start of each load. *OPT 4,1 disables this reset such that, for example, a format may be 'learnt' from one file and retained for the loading of another. *OPT 4,0 resets the default.

## Terminal Mode

In this mode, the commands are configured to accept the conventional sequences for Teletext or Prestel, but in addition to provide a standard interface for both services which is easy for the new user to accept - RETURN is used as in Basic to terminate input, for example. Control keys are specified for the commands, but some of these could be assigned to function keys if this is thought desirable; ctlP is more memorable as <page> than <f4>. If the user places labels on his function keys the position is reversed.

If the user passes on to a page of telesoftware which is recognised as being for the BBC micro, it is automatically loaded (and executed if in a sutable format). Other telesoftware will be de-formatted as far as possible, and listed on the screen.

| New Command | Prestel | Teletext | Meaning |
|---|---|---|---|
| <copy> or ctlC | *00 | (automtic) | Repeat page |
| ctlP<number>ret | *<number># | <page>number | Select given page. Note that with Teletext, a number shorter than the max number of digits loads the first page to arrive startin with those digits and will continue to load subsequent matching pages - this is the system for rolling pages. |
| ctlR | ??? | <reveal> | Reveal concealed text. |
| ctlL | | | Load a page from previous filing system. Machine will prompt for filename, ended with return. |
| ctlS | | | Save a page as for ctlL |
| ctlX | | | Exit to telesoft mode for commands, in particular for loading special telesoftware |
| ctlQ | | | Quit terminal mode, log off Prestel & return to previous program. |
| <digit> | <digit> | not specified | proceed to linked page. |
| return | # | " | Proceed to next page. |
| <delete> | ** | | Cancel current command. |

## Byte level interface

Control of all functions is provided through the GETBYTE,PUTBYTE,OSFILE,OSARGS,OSBYTE & OSWORD calls in the MOS. This allows the user to write programs which control the format in which the data is displayed, and gives easy access to the date and time, etc.

## Handle allocations

Put FF Select TV channel number (0-3) or Prestel (FF)
Get FF Read latest value put to FF

P FE Raw data to Prestel/Teletext. Teletext simulates Prestel commands
G FE Raw data from Prestel/Teletext. Note that Teletext includes flags, date, etc.

P FD Purge output buffer
G FD Purge input character buffer

P FC Control page buffer :
- 0 Load next page
- 1 Re-load same page
- 2 Mark start of block at position following current character (i.e. a return to start of block then read character will read the same character as is about to be read.)
- 3 Return to start of block
- 4 Move back one position.
- 5 Get absoloute page specified on channel FB
- 6 Get linked page specified on channel FB
- 7 Get last page
- 8 Set end of block marker at start of command position
- 9 Set start of command marker after character just read

G FC Get data from current position in page buffer and advance pointer

Note that any request to Prestel when logged off causes a manual log-on. When the end of the page is passed, the next page is loaded. If there is no more data available from the source, G FC returns with A=0, C=1 If the end of block marker is passed, G FC returns with A=2, C=1, but the pointer is advanced to the point at which the end of block set with P FC 8.

G FB Returns FF if page ready, 0 if not.
P FB Select page number - ASCII terminated by 0

G F8 Get next byte of telesoftware data from file named in last open file call. N.B. this is the handle returned by any open file call and is the mechanism for *EXEC.
P F8 ** UNDEFINED **

G F9 Get suplementary information on the last byte from channel 01 - whether it is stream data, memory image data, or relocatable memory image data plus the memory and relocation addresses to suit. The format is :
1 byte - bit 7=memory, bit 6=relocatable, bit 0=stream.
4 bytes - memory address

4 bytes - relocation address.
If these bytes are not read, they are lost on the next read of channel 01.

P F9 ** UNDEFINED **

G FA Get string of characters which Telesoftware thinks should be sent to the source in order to go on to the next page or re-transmit same page. String is terminated by code 0. Null string indicates use default
The string contains the exact bytes to be sent to the source.
This is called by G FC to determine the next page code on Prestel, which uses hash or a number depending on context.

P FA ** UNDEFINED **

NOTE

These get/put channels are not in any way final, and in particular many of th functions will be transferred to OSBYTE,OSWORD,OSFILE & OSARGS where this i more appropriate to the format of the data. The functions provided will remai much the same, however.

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