

## 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 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. However, it is very useful to be able to save pages of text and files of telesoftware without having to re-start the normal filing system. To enable this, the software is written to preserve the workspace used by the other filing systems, and to save the filing system vectors when it is initialised. This enables the \*EXIT command to restore the previous operating system without closing all the files which had previously been opened. In fact, when the Telesoftware filing system is activated, it does not replace the previous filing system, but the two co-exist with all commands going to whichever filing system has been selected by the \*EXIT and \*TELECOM commands.

### Command level interface

\*TELETEXT (XT)

\*PRESTEL (X)

\*LOCAL (L)

\*TELECOM <command>

*Ends the TERMINAL MODE.*

*a service program*  
Starts up terminal program, selecting Teletext/Prestel and appropriate TV channel. <service> can be BBC1, BBC2, ITV1, ITV2, TV0...TV7, PRESTEL, or LOCAL, where TV0 is equivalent to BBC1 etc. It is provided for markets where BBC1 may not be relevant. 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.

Enters telecommunications mode. If <command> is present, it is executed, and an assumed \*EXIT is performed. Otherwise, telecom mode is selected as the current filing system until the next \*EXIT.



# 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; ~~ctrl~~ is more memorable as <page> than <F4>, but if the user places labels on his function keys the position is reversed.

New Command	<i>also Soft key</i>	Prestel	Teletext	Meaning
<copy> or ctrlC <del>(ctrl)P</del> <number>ret		*00 *<number>#	(automatic) <page>number	Repeat page  Select given page. Note that with Teletext number shorter than number of digits load first page to arrive with those digits and continue to load subsequent matching pages - this system for rolling pages.
(ctrl)R & C (ctrl)L	•	???	<reveal>	Reveal concealed text. & re-appear. Load a page from previous filing system. Machine prompt for filename, enter with return.
(ctrl)S (ctrl)X	X			Save a page as for ctrlC. Exit to telecom mode for commands, in particular loading telesoftware.
(ctrl)Q	Q			Quit terminal mode, log Prestel & return to previous filing system, as *EXIT.
<digit> return <delete>		<digit> # **	not specified "	proceed to linked page. Proceed to next page. Cancel current command.
television channel tune hold current reference page previous page initial page ident or status normal / high upper / lower text.	K T Space M P I S { N H U L			<i>see BBC User Interface document</i>



## Telecom mode commands

\*TELETEXT

Selects teletext as current service and defaults to default magazine & initial page.

\*PRESTEL

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

\*BYE

Logs off Prestel (if logged on), releases all data areas reserved by \*TELECOM, clears soft keys if set by \*KEYS command, and performs \*EXIT

\*BBC1...\*TVO  
K0-----K9

Selects appropriate channel on tuner.

\*TIME

\* TIME Reset internal clock and display time for 3 secs.

\* DATE Reset internal date register and display date for 3 secs.

~~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

*Automatic allocation  
of these required*

Defines the soft keys to contain most of the useful telecom 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 ~~time~~ packet.

\*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.

\*RUN <filename>

Load and run telesoftware file. 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 common fields are displayed. The parameter controls how many fields are displayed: the default is 3. Recommended field contents (ref: "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, 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).

Select page store size  
Enter two digits to define the store size in Kbytes. The default condition is 12 Kbytes.



For example, News stories may have one header page of which the 6 linked pages are brief 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

Time zone select - the parameter (in centi-seconds) is added to all time references being returned to the user. this allows the correct time to be displayed with teletext received from a transmitter in a different time zone.

5. Inhibit the resetting of time and date within the machine when requesting a STATUS.
6. Start-up in TELETEXT mode.  
Access COMPUTE mode via \*BASIC
7. Display a free-format data page as a conventional teletext page. This allows for example, a page of telesoftware sent in compacted form to be displayed, such.

\* MEH

Gives an indication of the remaining memory capacity within the machine and which is capable of being used for storing teletext pages.

\*EXIT

Return to previous filing system with all vectors restored - open files are retained. Telecom data areas are retained and reserved against BASIC etc.

\* HOLD

Hold the current page until a new page is requested

\* CURREF

Go to current reference page

\* PREV

Go to previous page

\* REVEAL

\* CANCEL

} reveal / cancel commands

\* INITIAL

Go to initial page of current magazine

\* HIGH

Change to displaying double height characters

\* UPPER

\* LOWER

} Choice of upper or lower halves of screen

↑ \*

↓ \*

→ \*

← \*



## Byte level interface

Control of all functions is provided through the GETBYTE and PUTBYTE calls to 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 position  
3 Return to marked position  
4 Move back one position.  
5 Get absolute page specified on channel FB  
6 Get linked page specified on channel FB  
7 Get last page

Note that any request to Prestel when logged off causes a manual log. When the end of the page is passed, the next page is loaded. If there is no more data available from the source, it returns with A=0, C=1.

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

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 supplementary 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 \*\*

be directed to.

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