

Laser-Scan Ltd.

LITES2

TEK_ARGS Workstation Guide

Issue 1.4 - 16-August-1989

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Document	"LITES2 - TEK_ARGS Workstation"	Category	"USER"
Document Issue 1.0	R.W. Russell	29-Jun-1987	
Document Issue 1.1	R.W. Russell	13-Jul-1987	
Document Issue 1.2	R.W. Russell	30-Sep-1987	
Document Issue 1.3	Clarke Brunt	28-Oct-1988	
Document Issue 1.4	Ron Russell	16-Aug-1989	

1 Introduction

This document describes the workstation dependent facilities available in the version of LITES2 for TEK_ARGS type displays (image LITES2TEK_ARGS.EXE). It is to be read as a supplement to the LITES2 Reference Manual and the LITES2 User's Guide.

2 Display

This version of the LITES2 program drives two displays.

1. The PRIMARY workstation is usually a Tektronix 4014 or 4016 DVST with enhanced graphics, controlled by a LSL MUART microprocessor for refresh generation.
To use this MUART the Laser-Scan WOSP workstation control microprocessor program must previously have been loaded.

This MUART multiplexes the Tektronix display with one or more of:

- * DEC-compatible alphanumeric terminal
- * Optional Summagraphics BITPAD 1 with 4-button cursor.
- * Optional ALTEK DATATAB digitising table with 16 button cursor

onto a single serial line.

NOTE

If the user is logged on to the terminal on the MUART serial line, it will not be possible to use the SPAWN command from LITES2, unless in INITIAL state. This is a restriction caused by the manner in which DEC VMS handles unsolicited terminal input.

The primary display is made available by the ENABLE GRAPHICS and ENABLE PRIMARY commands. The table and bitpad on the serial line can be accessed by the ENABLE BITPAD and ENABLE TABLE commands. The primary display is accessed on logical name LSL\$TK. If this is not the user's login terminal, then the line's protection must be set to allow access to it.

The command WORKSTATION TYPE 1 4014 allows the use of a Tektronix 4014 display (or an emulator) without a LSL MUART, as the primary display. In this case there is no possibility of multiplexing any other devices on the serial line, and any interactive devices must be on separate serial lines. More significantly, there is no support in LITES2 for refresh on 4014 displays without a MUART. Subsequently this mode of operation is intended for a "quick look" at IFF files rather than as a serious editing station.

2. The SECONDARY workstation is a Sigmex Args 7000 colour raster display with 8 bit planes. Laser-Scan supply the VMS driver for this device (except on a MicroVAX, for which a DEC driver is used).

When using the Sigmex display it is possible to use the Sigmex tracker ball to control the LITES2 cursor.

The secondary display is made available by the ENABLE GRAPHICS and ENABLE SECONDARY commands. The tracker ball is made available with the ENABLE BALL command.

The display is accessed on logical name LSL\$VS. This will be assigned to e.g. IDA0: (or XAA0: on a MicroVAX). Note that LSL\$VS is not a serial line; the keyboard and the alphanumeric planes of the ARGS are on separate serial line.

LITES2 (LITES2TEK_ARGS) can be run on a variety of combinations of hardware; in particular, it is not necessary for both workstations to be present. For example to run on an ARGS display alone give the commands:

```
ENABLE GRAPHICS
DISABLE PRIMARY
ENABLE SECONDARY
```

followed by commands to set up the interactive input devices.

It is possible, but not advisable to log in on the Tektronix keyboard, but normally a second terminal or (less satisfactorily) the ARGS keyboard is used, in order to avoid having alphanumerics and graphics on the same screen.

As neither of the displays have local memory, all drawing is done from the host computer. If the first operation after read in is to zoom or window into an area smaller than the whole map, time may be saved during read in by suppressing the primary and/or secondary displays.

* PRIMARY

On the primary display the MUART controls the LITES2 cursor, and all highlighting of found features etc.. This is achieved by drawing part of the feature in "write through" mode. As the display is a storage tube, it is not possible to delete features individually and when features are deleted they can be "scrubbed" by drawing over them with a zig-zag line. This feature can be disabled (DISABLE SCRUB) if desired. Only features capable of being RECOVERed are scrubbed. The cursor may be small or large, blinking or steady (DISABLE/ENABLE BIG and ENABLE/DISABLE BLINK).

If the primary display is not using the MUART, then there is no refresh capability, so the alpha cursor (usually a square block) is used as the LITES2 cursor.

* SECONDARY

On the secondary display there are 16 colours available (0 - 15, where 0 is the background colour and 1 - 15 are foreground colours). Features drawn in these foreground colours are refreshed by drawing into the refresh plane in their corresponding refresh colour. These refresh colours are numbered 16 - 31, and are generally arranged to be the same colour as the foreground, but drawn flashing with black. Transient parts of the refresh picture (i.e. rubber band lines) are drawn in colour 32, and other parts are drawn in colour 16. The colours used for the picture are defined using a text file on logical name LSL\$IDSY02. See Appendix for the format and an example of

this file.

Colours may be changed subsequently using the WORKSTATION COLOUR command which sets the colour which will be used for a particular colour index. This command has the format:-

```
WORKSTATION COLOUR index red green blue
```

```
eg WORKSTATION COLOUR 1 0.0 0.5 0.7
```

Colour index 0 is the background colour, while 1 up to a maximum of 15 are foreground colours. When these are changed the corresponding refresh colour is also set to its flashing equivalent. The red, green, and blue values should be in the range 0.0 to 1.0 and control the fraction of the primary colours in the mixture. Negative colour indices may be used to set the colour of (eg) highlighted features in certain implementations.

Colour index -1 sets the colour used for the transient parts of refresh
Colour index -2 sets the colour used for other parts of the refresh picture (e.g. the current construction)

The cursor on the secondary display is fixed as a full screen cross; neither ENABLE BLINK nor DISABLE BIG have any effect on this display.

Display overlays (created by the WORKSTATION OVERLAY command) are supported on the ARGS display. 4 planes are available for use as overlays, though provision to use up to all 8 planes may be provided at some stage.

3 Hardware dependant commands

Display overlays (OVERLAY command) are currently supported in this version of LITES2 on the ARGS (secondary) display as is raster backdrop (IMAGE command).

Neither multiple displays (DISPLAY command) nor perspective viewing (VIEW command) are supported in this version of LITES2.

The only FOLLOW subcommand that is available is FOLLOW TABLE, and then only when the table is connected by a separate serial line (see below).

4 Interactive devices

In addition to the login keyboard, this version of LITES2 is capable of interpreting commands from the Tektronix keyboard (if this is different), a digitising table, a bitpad attached to the MUART, and a tracker ball attached to the Sigma Args.

4.1 Digitising Table

If MONITOR is enabled, in addition to TABLE, then the digitising table input is

interpreted either using the Table Monitor system, or by reading the table directly. The former allows the table to be set in stream mode, giving smooth cursor tracking. If MONITOR is not enabled, then it is assumed that the digitising table is connected via a Laser-Scan MUART controller.

To use the Table Monitor, a table monitor process must be started, using program STARTMON. If the 'named monitor' option is used, then logical name LSL\$MONITOR_TABLE must point to the serial line. In addition, if the table is anything other than a standard ALTEK, then logical table LSL\$TABMON_ROUTINE (or LSL\$TABMON_ROUTINE_<terminal> for named monitor) must point to a suitable decoding shareable image. This logical name must be available to the table monitor process, and so should be in the group or system logical name table. If stream mode is used, to allow smooth tracking using the lowest numbered button, then the lowest acceptable stream rate above 4 points per second should be used. If set too high, then the table monitor will use large quantities of system resources, if too low, then buttons other than the 'tracking button' will repeat if held down.

If logical name LSL\$MONITOR_TABLE is set up, but LITES2 determines that no table monitor process exists, the table will be accessed directly. This does not allow stream mode or smooth tracking.

4.2 *Bitpad*

If a MUART bitpad is available, then the command ENABLE BITPAD may be used. When the bitpad is used the cursor may be moved around by moving the bitpad puck while button 1 is held down. The other buttons on the puck may be programmed using a PUCK command. The bitpad is device 2.

If a menu is used on the bitpad, then attention should be drawn to the PRIORITY PUCK command. The lowest numbered button is always used for cursor tracking, so for the 4 button puck, 2 other buttons may be given priority so that their puck function is obeyed even if they are pressed over the menu. At least one button must not be given priority, otherwise it will be impossible to access the menu.

4.3 *Tracker ball and buttons*

If the secondary workstation has been enabled, and there is a SIGMEX tracker ball and function button box available, then the command ENABLE BALL may be used; this allows the user to move the cursor about the picture using the tracker ball, and to input commands from the function buttons. Note that the function buttons must first have been defined as a PUCK on device 4.

NOTE

Unlike other ENABLE commands that set up interactive devices, ENABLE BALL can be given at any stage of the editing process; not only in INITIAL STATE.

4.4 *Using the Primary workstation without a MUART*

If the WORKSTATION TYPE 1 4014 command has been given, then TEKTRONIX GIN input can be initialised using the ENABLE BITPAD command.

To use the GIN input, hit the "return" key, with no input; the GIN cursor (a full screen cursor) will appear, and this can be moved about using the appropriate tracking device. When the appropriate GIN trigger is pressed, the GIN cursor will disappear, and the LITES2 cursor will move to its position.

In this case it is not possible to program the input device buttons, nor to set up a menu on a bitpad (if that is the method of GIN input)

APPENDIX A

Colour Table

The following is an example of a file describing the colours to be used. It should be set up on logical name LSL\$IDSY02 if the colours are to be set. The character ';' introduces a comment. The colours are specified as proportions of red, green, and blue, in hexadecimal in the range 0-FF. An example file is in LSL\$LITES2CMD:COLOUR8.DAT

```
; system constants file for Sigma ARGS
; version for an 8 plane ARGS
; Colours 16-31 are flashing versions of 0-15
; Colours 32-63 are flashing green
; COLOUR DEFINITIONS
;      Red      Green   Blue    Blink   Comment
64      0         0       0        0      ; Colour number
        0         0       FF        0      ; 0
      FF        0       0        0
      FF        0       FF        0
        0        68      0        0
        0        80      FF        0
      FF        97      0        0
      FF        86      FF        0
        0        AF      0        0
        0        BE      FF        0
      FF        C0      0        0
      FF        B3      FF        0
        0        FF      0        0
        0        FF      FF        0
      FF        FF      0        0
      FF        FF      FF        0
      FF        FF      FF        1      ; 16
        0         0       FF        1
      FF        0       0        1
      FF        0       FF        1
        0        68      0        1
        0        80      FF        1
      FF        97      0        1
      FF        86      FF        1
        0        AF      0        1
        0        BE      FF        1
      FF        C0      0        1
      FF        B3      FF        1
        0        FF      0        1
```

0	FF	FF	1	
FF	FF	0	1	
FF	FF	FF	1	
0	FF	0	1	; 32
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	; 48
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	
0	FF	0	1	; 63
; BLINK DEFINITIONS				
; Blink	On	Off	Comment	
1	6	6	; generator 1	
2	6	6	; generator 2	
3	6	6	; generator 3	
4	6	6	; generator 4	