

Laser-Scan Ltd

LSL LAMPS Software Installation Guide

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Document "LSL LAMPS Software Installation Guide"

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## 1 Introduction

Laser-Scan LAMPS is a combination of hardware and software components which together allow use of modern high performance minicomputers and workstations (DEC VAX series) for digital cartography, automated map production, and GIS (Geographical Information System) queries.

This guide is intended to be of use to personnel carrying out an initial LAMPS installation on a new customer system. Note that this will usually be LSL staff with knowledge of LAMPS software, and hence this manual makes considerable assumptions about prerequisite knowledge. In particular, the installer is expected to be familiar with the "LAMPS Software Environment Guide". It is also assumed that the installer is already familiar with general use of a DEC VAX series computer and of the VMS operating system, with some background in VMS system management.

LSL software is divided into packages, and the main ones involved in a basic LAMPS system will be:

LSLSYSTEM	LSL software support package
MAPPING	Mapping kernel support package
IMP	IFF Map Processing package
LITES2	Cartographic editor package
PLOTTING	Map plotting package

Other optional facilities might include:

VTRAK	Vector automatic digitising
METROPOLIS	Land Information System
HORIZON	Environmental GIS
STRUCTURE	Topological vector structuring
POLYGONS	Polygon formation and manipulation
MATRIX	Matrix (raster) data manipulation
DTMCREATE	Terrain model creation
TVES	Terrain Visualisation and exploitation

This manual has a section describing prerequisites for installation, and then a section describing in some detail how to carry out an installation.

Appendix A covers points to consider if installing LAMPS on a VAXcluster or LAVc, where several nodes share a common filestore.

Note that an automated procedure called LSLINSTALL.COM is available to carry out the majority of the steps involved in a LAMPS installation. An example of use of LSLINSTALL on a standalone VAXstation 3100 is supplied as Appendix B to this document.

## 2 Installation Prerequisites

To start installation of LAMPS software on an existing VAX or MicroVAX which already has a functioning VMS operating system, the installer needs access to certain resources. The installation procedure in section 3 guides the installer in ensuring the availability of these resources, but they are listed here as an overview.

### 2.1 Prerequisite Usernames

All LAMPS users must be in the same UIC group, both to allow file sharing and for process synchronisation using shared global sections and common event flags. The UIC group is normally 100, but can be changed if 100 is already in use. The following usernames are always needed. See the automated LSLINSTALL procedure below for details.

[100,2]	LSLSOFT	is the owner of all LAMPS programs.
[100,100]	LSLUSER	is a template LAMPS user with ordinary resource quotas
[100,101]	LSLBIG	is a template user with enlarged quotas for eg DTMCREATE

The following usernames are created as needed.

[100,1]	VTRAK	is the captive VTRAK user.
[100,3]	LSLENG	is the owner of all LSL hardware diagnostics.
[100,5]	METROPOLIS	is the captive METROPOLIS user.
[100,6]	HORIZON	is the captive HORIZON user.

### 2.2 Prerequisite Directories

Five root level directories will be created, owned by [LSLSOFT] with corresponding rooted logical names vis:

LSL\$PUBLIC_ROOT: ->	[LSLPUBLIC...]	! LSL published software (read-only)
LSL\$SITE_ROOT: ->	[LSLSITE...]	! LSL site-specific software
LSL\$USER_ROOT: ->	[LSLUSER...]	! LSL users home directories
LSL\$DATA_ROOT: ->	[LSLDATA...]	! LSL data directories
LSL\$LOCAL_ROOT: ->	[LSLLOCAL...]	! LSL workspace directories

Conventionally, [LSLPUBLIC], [LSLSITE] and [LSLUSER] which contain mainly static data are often held on the system disk, while [LSLDATA] which contains volatile data files is often on a different disk to equalise disk accesses. [LSLLOCAL] contains temporary workspace files and care should be taken on a VAXcluster satellite that this logical name is redirected to point to a disk which is local to that node. Other than this, the environment is uniform across a cluster.

The LSLINSTALL installation procedure will automatically create these directories and their requisite subdirectories, and set up logical names and search lists to allow LAMPS software to access directories without knowing their exact location.

### 2.3 Prerequisite Resources

The basic LAMPS software packages need no elevated quotas or privileges beyond what is normally found on most VAXes. It is however important for efficient operation of LITES2, that per-process working sets are not overly constrained. LSL recommend a working set per process (WSQUOTA) of at least 1000 pages, with 2000 pages preferred if large or complex maps are being edited. This can be reduced slightly if there will be multiple simultaneous users of LITES2 on one node, and the image is installed shared. WSEXTENT should be set (eg 3 times) larger than WSQUOTA to allow working set expansion on lightly loaded systems. The SYSGEN parameter WSMAX must be larger than the largest WSEXTENT in the UAF (limited of course by physical memory size).

Note that some LAMPS packages require extended virtual address space to allow them to handle matrix or structured data. These include the terrain matrix manipulation packages MATRIX, DTMCREATE, and TVES, and also the STRUCTURE and POLYGONS packages. All these packages require that the SYSGEN parameter VIRTUALPAGECNT be set to at least 36000 pages (18MB), and corresponding value of PGFLQUOTA be set for each user in the UAF. Working sets should therefore be correspondingly bigger (eg 3000 pages WSQUOTA).

The VTRAK package has considerably larger requirements for virtual and physical address space in which to hold its large raster datasets. Refer to the VTRAK documentation for more information.

The METROPOLIS and HORIZON packages use relational databases and raster backdrop datasets, and hence also have requirements for enhanced resources. Refer to their documentation for more information.

### 3 Installation Procedure

A command procedure LSLINSTALL.COM is provided as part of the basic LSL system support package LSLSYSTEM to carry out the main steps in LAMPS software installation. The procedure has built in help. As however it is part of the software it is intended to install, some degree of manual bootstrapping is of course required.

The suggested procedure for installation is as follows, in four parts, three as the system manager, and one as the LSLSOFT user.

#### 3.1 First Phase Installation

This phase is reading of the LSLINSTALL procedure from the LSL distribution media (usually TK50 or ½" magtape). In the following examples, this is assumed to be a TK50 tape to be read from device MUA0:. If you are using other media, use the appropriate device name (eg MTA1:) and appropriate media load instructions.

1. Log on as system manager (SYSTEM).
2. Ensure that your default directory is SYS\$MANAGER, by giving the command:

```
$ SET DEFAULT SYS$MANAGER
```

3. Insert the TK50 tape into the drive, and ensure that it is online.
4. Determine the device name of the TK50 drive (usually MUA0:, or MKA500 if a SCSI device). All known devices beginning with M (other than MB for MailBox devices) are magtape drives of some type. Show available devices starting with "M", by giving the command:

```
$ SHOW DEVICE M
```

Choose the appropriate device name from the list. This is taken as MUA0: in the following examples.

5. Mount the tape using the command:
6. Read the LSLINSTALL procedure from the first BACKUP saveset on the tape using the command:

```
$ BACKUP/LOG MUA0:/REWIND/SELECT=LSLINSTALL.COM SYS$MANAGER:
```

7. Dismount the tape using the command:

```
$ DISMOUNT MUA0:/NOUNLOAD
```

### 3.2 Second Phase Installation

The next phase involves invoking the LSLINSTALL procedure, which carries out the following stages:

PREPARE	- give introduction, and check resources.
USERNAMES	- create standard usernames.
ROOTS	- create root directories and set up rooted logical names.
LOAD	- load and install software issue BACKUP savesets.
DIRECTORIES	- create standard site-dependent directories.
FILES	- copy standard startup files to destinations.
SEARCHLISTS	- setup search lists LSL\$EXE:, LSL\$COM: etc.
OPTIONS	- set up environment for optional software.
TUNE	- recommend sensible SYSGEN VMS tuning parameters.

1. Remain logged on as user SYSTEM in the same directory.
2. Execute the LSLINSTALL procedure by:

```
$ @LSLINSTALL
```

3. Give command HELP to get the help instructions for the procedure.

```
LSLINSTALL> HELP
```

4. Give command INSTALL to start the installation.

```
LSLINSTALL> INSTALL
```

5. The first stage is the PREPARE stage which gives information about the installation and checks for adequate resources. This will require you to press RETURN to continue after each screen of information, and will request a Y/N confirmation that it should go ahead with the installation.
6. The next stage is the USERNAMES stage which asks for confirmation, then creates the standard usernames.
7. The next stage is the ROOTS stage which asks for confirmation before creating the root level directories. It will list available disks, and offer the system disk (SYS\$SYSDEVICE:) as a default when it inquires on which disk(s) the five root level directories are to be created. It will then write a startup definitions file (LSDEFNS\_ROOTS.COM) to set up rooted logical names to point to these directories.
8. The next stage is the LOAD stage which asks for confirmation before reading the distribution savesets from tape. It will list available tape drives, and offer one as a default when inquiring the device to be used. It also asks for BACKUP read options (eg /VERIFY, /LOG).

It will ask if you want to select only part of the kit (answer N). It will then read each save set from the tape to its correct place on the public tree (LSL\$PUBLIC\_ROOT:).

9. The next stage is the DIRECTORIES stage which asks for confirmation before creating the required site-specific, data, and user directories.

10. The next stage is the FILES stage which asks for confirmation before copying the template LSL system startup files to SYS\$MANAGER:.

It will also suggest and ask for an LSL-supplied customer name to be used for software licence purposes, and write a startup definitions file (LSDEFNS\_SITE.COM) to set up a logical name to this.

11. The next stage is the SEARCHLIST stage which asks for confirmation before generating a command file containing logical name definitions to set up the LSL search lists for programs, command files, help files, libraries, lookup files, etc.

This option will scan the newly created public tree, and it creates a file called LSDEFNS\_SEARCHLISTS.COM in SYS\$MANAGER. This will then be called from LSDEFNS.COM, which is called from LSSTARTUP.COM, which will be called from the main SYSTARTUP\_V5.COM startup procedure.

12. The next stage is the OPTIONS stage which asks for confirmation before creating any usernames and directories needed by various optional packages. It also asks if you want a privileged captive operator user to carry out VMS operations functions.
13. The final stage is the TUNE stage which asks for confirmation before checking VMS SYSGEN parameters, and suggests any changes needed. This will write a file SYS\$SYSTEM:LSLINSTALL\_MODPARAMS.DAT with the suggested lines to add to the MODPARAMS.DAT files.
14. LSLINSTALL will exit automatically. If there were no errors to correct, proceed to the next phase.

### 3.3 Third Phase Installation

This phase requires manual intervention to adapt the supplied template startup procedures to suit the site requirements, and to carry out VMS system tuning.

1. As noted above, some LAMPS packages require extended virtual address space. If the TUNE stage of LSLINSTALL recommended changes to SYSGEN parameters, you should do that now.

You should note the values recommended above and consider whether they are indeed suitable for your hardware and software configuration. When satisfied, edit the values into the MODPARAMS.DAT file in SYS\$SYSTEM: using the file LSLINSTALL\_MODPARAMS.DAT as guidelines, then run the DEC-supplied AUTOGEN procedure, then reboot the system.

Look up AUTOGEN in the VMS System Management manuals if you are not familiar with changing SYSGEN parameters using AUTOGEN and the MODPARAMS.DAT file.

A typical AUTOGEN command line might be:

```
$ @SYS$UPDATE:AUTOGEN SAVPARAMS SETPARAMS
```

Read the messages from AUTOGEN carefully for warnings of parameters being too high. If these occur, then adjust MODPARAMS.DAT and try again.

Then reboot the system to get the new parameter values in use.

2. Next, if this is a new VMS installation, adapt the DEC-supplied template VMS startup file SYSTARTUP\_V5.COM to suit your site requirements if this has not already been done. Refer to the VMS Installation Guide in the DEC VMS documentation for more information on SYSTARTUP\_V5. This file contains command which start various optional facilities in VMS such as DECNET, batch and print queues. In particular, you should ensure:
  - (a) that the queue manager is started.
  - (b) that a SYS\$BATCH batch queue is started.
  - (c) if suitable hardware is available, that a SYS\$PRINT printer queue is started.
  - (d) if the node is on a network, that DECNET is started (preferably directly, rather than using the batch queue as that may cause synchronisation problems)
  - (e) if there are Ethernet terminal servers in the configuration, that the file SYS\$MANAGER:LTLOAD.COM is invoked to start the LAT protocol and load the LT device driver. Note that unlike the previous items which just involve uncommenting existing lines, this requires adding a line just before the final EXIT command:

```
$ @SYS$MANAGER:LTLOAD    ! Set up LAT for terminal servers
```

Then reboot the system to try the new startup sequence.



3. If you did reboot the system to get SYSGEN parameters correct, then you need to login again as SYSTEM, SET DEFAULT to SYS\$MANAGER:, and invoke the LSL logical name definitions file by giving the command:

```
$ @LSDEFNS
```

4. The next few steps involve adapting the supplied template startup procedures to suit the site requirements, by editing them. For some of the files you will just uncomment some lines. In others, you may have to modify values or insert lines. There are usually not many changes needed, as the templates are ready configured for a typical standalone LAMPS system.
5. Edit the terminal characteristics setup file LSTERMS.COM to define logical names and terminal characteristics for any serial line devices to be used by LAMPS software. This will include VDUs, graphics terminals, digitising tables, and plotters which are on direct TTcu: or TXcu: devices.

See the comments in the LSTERMS.COM file for more information on the logical names required. Note however, that it is logical name definitions set up at this stage which are read by the LITES2 login-time definitions file LITES2INI.COM, to associated digitising tables with screens, and to set up special decode routines for non-standard tables.

6. Edit the port characteristics setup file LSPTS.COM to define ports, logical names and terminal characteristics for any serial line devices on ethernet terminal server lines to be used by LAMPS software. This will include slave VDUs, graphics terminals, digitising tables, and plotters which are on LTAn: devices. The comments in the previous entry about logical names in LSTERMS.COM also apply here for any tables and GDUS on LTAn: devices.
7. If any LAMPS software is to be installed shared or with elevated privilege, edit the file LSIMAGES.COM appropriately. Note that it is only worth installing programs such as LITES2 if they are going to be activated simultaneously by more than one user on the same node.
8. If any LAMPS detached processes are needed on the system (eg a "table monitor" for smooth tracking from a streaming digitising table), then edit LSPPROCESSES.COM appropriately. Note that a table monitor process is not needed for the common case of point-mode digitising using LITES2 via direct reads from the digitising table. It is needed however for the optional TVES utilities.
9. If this is a turnkey system where Laser-Scan are setting up batch and print queues, then files called LSQUEUES.COM and LSPRINTERS.COM can be edited which contains commented out example queues. Note however, that before editing these files you should check that the queue facilities in SYSTARTUP\_V5 have been uncommented so as to start the queue manager and the default print and batch queues, and that they alone are not adequate for your requirements.
10. Edit the LAMPS central login command definitions file LSLOGIN.COM to ensure that it calls the required package initialisation files, taking care because some such initialisation command files currently take

optional arguments. Note that there is a particular section of LSLOGIN.COM marked by comments for such changes.

11. Execute the LSSTARTUP procedure by giving the command

```
$ @LSSTARTUP
```

which will carry out the environment initialisation, such as defining the LSL standard logical names for this site.

12. Check that the startup executed normally and that the messages from LSSTARTUP were printed showing execution of the LAMPS startup procedures. If there were any errors, then re-edit the appropriate file and repeat.
13. If this is a turnkey LAMPS system being set up by LSL, then inspect the optional LSL VMS startup file called LSSYSTARTUP.COM, to see if it is useful for your installation. This file sets up system announcements and VMS logical names, which are not strictly necessary but may be of benefit as templates for your system.
14. Insert the LSL startup procedure(s) into the system startup procedure by editing SYSTARTUP\_V5.COM, and adding one or two lines just before the end or final EXIT command, either:

```
$ @SYS$MANAGER:LSSTARTUP          ! Set up LSL LAMPS environment
```

or if you choose to implement the LSSYSTARTUP procedure, then:

```
$ @SYS$MANAGER:LSSYSTARTUP        ! Set up LSL VMS environment
$ @SYS$MANAGER:LSSTARTUP          ! Set up LSL LAMPS environment
```

15. At this point a decision should be taken as to the method of invoking the LAMPS central login command definitions file SYS\$MANAGER:LSLOGIN.COM. If LAMPS software is only to be used by some of the users of the system, then a mechanism of explicitly invoking LSLOGIN.COM from each user's LOGIN.COM file is preferred, and no further steps need be taken here. If the LAMPS software is to be used by all the users of the system, then it is preferable to ensure that LSLOGIN.COM is invoked automatically at login time for all users via the DEC-supplied central SYS\$SYLOGIN mechanism. In this case the existing file pointed at by the logical name SYS\$SYLOGIN (usually SYS\$MANAGER:SYLOGIN.COM) should be edited to include the line:

```
$ @SYS$MANAGER:LSLOGIN ! invoke LAMPS login definitions
```

Note that the LSLOGIN.COM file is kept in SYS\$MANAGER, rather than on LSL\$COM to avoid security loopholes caused by this file being in a writable directory but executed by privileged users such as SYSTEM.

16. Carry out any special package-specific installation tasks as detailed in the documentation for the particular software package. This particularly applies to package VTRAK at present.
17. Unless it is very inconvenient to other users of the system (if any), now shutdown the VMS system normally and reboot to cause the new startup code to be executed. Otherwise logoff as SYSTEM.

18. Make a note for the System Manager to remember to run the AUTOGEN procedure with FEEDBACK after a couple of days of work, and afterwards at monthly intervals, to tune the SYSGEN system parameters in the light of actual usage. On a VAXcluster, this should be done regularly on all nodes. See the VMS system management documentation for more information on AUTOGEN.
19. Make a note for the System Manager to do an archive as soon as possible of the disk(s) which now have the LSL environment, and to set up a system of regular security archives to protect the installation in case of hardware failure.

### 3.4 Fourth Phase Installation

This phase requires no special privileges, and consists largely of tailoring the LAMPS environment to customer requirements, and verification of correct installation.

1. Log on as the LSL software administrator (LSLSOFT), with password LSLSOFT. This will then prompt you to set a new password, as the current one is pre-expired. You should note that you should in due course login as the other LSL usernames (LSLUSER and LSLBIG) with password same as initial username, and set new passwords for these accounts.
2. Now check the correct execution of the LAMPS startup and login procedures by checking a program symbol, and listing the available programs eg:

```
$ SHOW SYMBOL ISTART
$ DIR LSL$EXE:
```

This should show that ISTART=="\$LSL\$EXE:ISTART" and should list the contents a series of directories of the form LSL\$PUBLIC\_ROOT:[IMP.EXE], [LITES2.EXE], [MAPPING.EXE] etc. Note that LSL\$EXE has as its first translation LSL\$SITE\_ROOT:[LSL.EXE], followed by all the LSL\$PUBLIC\_ROOT .EXE directories. However, as the LSL\$SITE\_ROOT directory is usually empty at this point it will not show up on a DIRECTORY command.

3. Copy appropriate Laser-Scan supplied example FRT, SRI and TRI files from LSL\$PUBLIC\_ROOT:[MAPPING.EXAMPLES.FRT] into LSL\$FRT:, bearing in mind the requirements of any tests to be performed. In particular, the Ordnance Survey example files OS.FRT, OS.SRI, and OS.TRI are useful.
4. Copy appropriate Laser-Scan supplied example IFF map data files from LSL\$PUBLIC\_ROOT:[MAPPING.EXAMPLES.IFF] into LSL\$IF:, bearing in mind the requirements of any tests to be performed. In particular, the Ordnance Survey example file LITESDEMO.IFF (a 1:1250 plan) is a good simple example.
5. Copy appropriate LITES2 example initialisation, menu, and puck definitions files from LSL\$LITES2CMD: to LSL\$LITES2CMD:, which will put them in LSL\$SITE\_ROOT:[LITES2.CMD] where they can be edited to suit local requirements.

Typical files to set up might include:

- (a) a terminal-independent initialisation file SITEINIT.LCM, (copied from LSL\$LITES2CMD:SITEINIT.LCM) containing any definitions common to all workstations at this site (such as whether text heights are in 1/10 mm, or in 'points').
- (b) a terminal-dependent initialisation file for each workstation, containing definitions particular to this workstation such as whether it has a mouse, bitpad, table, etc. These files must be named according to the conventions implemented in LITES2INI.COM, and match the names set up as LSL\$WSn\_\* logical names in LSTERMS.COM and LSPORTS.COM eg:

TTA3.LCM (copied from TTXX.LCM) for a serial line workstation eg Sigmex 6000 which is attached to serial port 3 of controller A of a standalone MicroVAX or VAXstation.

LSLM3A\_TXA1.LCM (copied from TTXX.LCM) for a serial line workstation eg Sigmex 6000 which is attached to serial port 1 of controller A of a clustered MicroVAX or VAXstation with node name LSLM3A.

LSLV3A\_WTXX.LCM (copied from WTXX.LCM) for a clustered VWS workstation with node name LSLV3A.

LSLV3A\_TWXX.LCM (copied from TWXX.LCM) for a clustered DECwindows/Motif workstation with node name LSLV3A.

LSLDSA\_PORT\_7.LCM (copied from LTXX.LCM) for a serial line workstation eg Sigmex 6000 connected to port 7 of the terminal server called LSLDSA.

Note also that there are further example .LCM files in the directory LSL\$PUBLIC\_ROOT:[LITES2.EXAMPLES] which may be of interest.

6. If necessary, copy package initialisation command files from LSL\$COM: to LSL\$COM: which will put them in LSL\$SITE\_ROOT:[LSL.COM] where they can be edited to suit local requirements. An example might be PLOTTINGINI.COM, to set up the FPP DCL symbols to the correct plotter type.
7. If necessary copy customer-specific files from the distribution directories to appropriate site directories. Eg there may be pre-prepared FRT files distributed as LSL\$PUBLIC\_ROOT:[\_custname.FRT] which should be copied into LSL\$FRT:
8. Logon as LSLUSER and exercise the installed software to show correct functioning.

Installation of LAMPS is then complete.

## APPENDIX A

### LAVc Considerations

On a Local Area VAXcluster (LAVC), there are multiple VAX, MicroVAX, and VAXstation processors sharing a common filestore. Hence the LAMPS environment needs consideration in such matters as which files are common and which are CPU specific.

The following hints have been found useful, and are based on an example LAVC of a MicroVAX boot node (MVA), a VAXstation 3100 (V3A), and a diskless VAXstation 2000 (VSA).

1. As a general rule, all files should be on disks attached directly to the boot node which acts as a fileserver. The exceptions are workspace files specific to a particular node, which should be on a local disk of that node.
2. There is always just one public tree (LSL\$PUBLIC\_ROOT:) of LAMPS software, usually on the system disk of the boot node (MVA).
3. There is always just one site tree (LSL\$SITE\_ROOT) of modified standard files, usually on the system disk of the boot node (MVA).
4. There is always just one user tree (LSL\$USER\_ROOT) of user home directories usually on the system disk of the boot node (MVA).
5. There is always a single primary data tree (LSL\$DATA\_ROOT:) of data files, usually on a disk of the boot node. Other trees of data files may exist, but are accessed eg by a user altering the LSL\$IF logical name by using SI.
6. It is advantageous for LITES2 workspace and journal files to be written to the local disk of a VAXstation workstation (eg V3A). If so there should be a file LSDEFNS\_LOCAL.COM in SYS\$SPECIFIC:[SYSMGR] which defines logical name LSL\$LOCAL\_ROOT to point to directory [LSLLOCAL.] on a local disk. A template LSDEFNS\_LOCAL.COM is provided with the LSL startup files, which will have been copied to SYS\$COMMON:[SYSMGR] by the LSLINSTALL procedure. This can be copied to SYS\$SPECIFIC:[SYSMGR] and edited.
7. For a diskless node (VSA), the standard default assignment of LSL\$LOCAL\_ROOT is sufficient, and will put the satellite's workspace files on the boot node (MVA).

8. If two VAXstation satellites exist, one with a local disk and one diskless, then a possible alternative is for the diskless node (VSA) to have workspace files on the other node (V3A). This will work, but is *not recommended* as it requires that V3A's disk be mounted cluster wide, and means that VSA will not function if V3A is out of service.
9. On a LAMPS system with graphics terminals (eg Sigmex6000) on direct serial lines to the host, the terminal dependent LITES2 initialisation files are accessed using the terminal line device name, eg TXA2.LCM, TTB3.LCM. For terminals on terminal servers, and particularly for any VAXstation screens, this mechanism cannot work, and instead, the logical name LSL\$LITES2TERMINAL is set up by LITES2INI.COM to translate to the filename part of an appropriate initialisation file, eg VSA\_WTXX. For workstations, this name is conventionally made up from the nodename followed by WTXX (VWS VAXstation screens have device name WT:).

## APPENDIX B

### Example Installation

Welcome to VAX/VMS V5.3

Username: SYSTEM

Password:

Welcome to VAX/VMS version V5.3 on node LSLV30  
Last interactive login on Friday, 13-JUL-1990 09:32  
Last non-interactive login on Friday, 13-JUL-1990 09:32

\$!  
\$! first find the name of our magtape drive  
\$!  
\$ SHOW DEVICE M <CR>

Device Name	Device Status	Error Count	Volume Label	Free Blocks	Trans Count	Mnt Cnt
MKA500:	Online	0				

Device Name	Device Status	Error Count	Volume Label	Free Blocks	Trans Count	Mnt Cnt
MBA1:	Online	0				

\$!  
\$! now get the LSLINSTALL procedure off the issue tape  
\$!  
\$ MOUNT MKA500:/FOREIGN/NOASSIST <CR>  
%MOUNT-I-WRITELOCK, volume is write locked  
%MOUNT-I-MOUNTED, LSLSYS mounted on \_MKA500:  
\$!  
\$ BACKUP/LOG MKA500:/REWIND/SELECT=LSLINSTALL.COM SYS\$MANAGER: <CR>  
%BACKUP-S-CREATED, created SYS\$SYSROOT:[SYSMGR]LSLINSTALL.COM;1  
\$!  
\$ DISMOUNT MKA500:/NOUNLOAD <CR>  
\$!  
\$! now invoke it to carry out the installation  
\$!  
\$ @LSLINSTALL <CR>

LSL LAMPS software installation procedure V2.0 Try HELP for assistance.

LSLINSTALL> HELP <CR>

Commands available are:



HELP	- type this message.
INSTALL	- do complete installation (P,U,R,L,D,F,S,O,T)
PREPARE	- give introduction, and check resources.
USERNAMES	- create standard usernames.
ROOTS	- create root directories and set up rooted logical names.
LOAD	- load and install software issue BACKUP savesets.
DIRECTORIES	- create standard site_dependent directories.
FILES	- copy standard startup files to destinations.
SEARCHLISTS	- setup search lists LSL\$EXE:, LSL\$COM: etc.
OPTIONS	- set up environment for optional software.
TUNE	- recommend sensible SYSGEN VMS tuning parameters.

Suggested sequence which is done by INSTALL command is:

PREPARE, USERNAMES, ROOTS, LOAD, DIRECTORIES, FILES, SEARCHLISTS,  
OPTIONS, TUNE

LSLINSTALL> INSTALL <CR>

-----  
PREPARE - give introduction, and check resources  
-----

This procedure is used for the installation of LSL LAMPS (Laser-Scan Automated Map Processing) Mapping and GIS software packages. It is documented in the "LAMPS Installation Guide" which is part of the package documentation for the LSL MAPPING package.

To run this procedure, you must be logged on as user SYSTEM, as it carries out the primary system management functions associated with installation of LAMPS software, vis:

- Set up standard usernames for a LAMPS system
- Load a distribution tape containing the LSL software
- Create standard site\_dependent directories and files
- Evaluate changes in SYSGEN parameters needed.

The procedure is general enough to cope with installation on most standalone and turnkey LAMPS systems. It should be noted however, that on complex pre-existing sites, it may be necessary for the system manager to edit this procedure to avoid conflicts with assumptions made by previously installed software packages.

OK to proceed [Y] ? <CR>

-----  
USERNAMES - Setting up standard LSL usernames.  
-----

The procedure will create the following standard usernames:

[100,2]	= [LSLSOFT]	! owner of LSL software
[100,100]	= [LSLUSER]	! template LSL user
[100,101]	= [LSLBIG]	! template large quota user

Proceed with this stage [Y] ? <CR>

Creating user [LSLSOFT]

```
%UAF-I-RDBADDMMSGU, identifier LSL value: [000100,177777] added to rights data
base
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMMSGU, identifier LSLSOFT value: [000100,000002] added to rights
data base
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-NAFNOMODS, no modifications made to network proxy data base
%UAF-I-RDBDONEMSG, rights data base modified
```

Press RETURN to continue <CR>

Creating user [LSLUSER]

```
%UAF-I-COPMSG, user record copied
%UAF-I-RDBADDMMSGU, identifier LSLUSER value: [000100,000100] added to rights
data base
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-NAFNOMODS, no modifications made to network proxy data base
%UAF-I-RDBDONEMSG, rights data base modified
```

Press RETURN to continue <CR>

Creating user [LSLBIG]

```
%UAF-I-COPMSG, user record copied
%UAF-I-RDBADDMMSGU, identifier LSLBIG value: [000100,000101] added to rights
data base
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-NAFNOMODS, no modifications made to network proxy data base
%UAF-I-RDBDONEMSG, rights data base modified
```

Press RETURN to continue <CR>

Owner	Username	UIC	Account	Privs	Pri	Directory
LSL Software ROOT:[LSLSOFT]	LSLSOFT	[100,2]	LSL	Group	4	LSL\$SITE_
LSL LAMPS user ROOT:[LSLUSER]	LSLUSER	[100,100]	LSL	Group	4	LSL\$USER_
LSL LAMPS big user _ROOT:[LSLUSER]	LSLBIG	[100,101]	LSL	Group	4	LSL\$USER

```
%UAF-I-NOMODS, no modifications made to system authorization file
%UAF-I-NAFNOMODS, no modifications made to network proxy data base
%UAF-I-RDBNOMODS, no modifications made to rights data base
```

Press RETURN to continue <CR>

-----  
 ROOTS - Setting up root level directory trees.  
 -----

The procedure will create the following root level directories:

```
LSL$PUBLIC_ROOT: -> [LSLPUBLIC...]      ! LSL published software (read-only)
LSL$SITE_ROOT:   ->  [LSLSITE...]       ! LSL site-specific software
LSL$USER_ROOT:   ->  [LSLUSER...]       ! LSL users home directories
LSL$DATA_ROOT:   ->  [LSLDATA...]       ! LSL data directories
LSL$LOCAL_ROOT:  ->  [LSLLOCAL...]      ! LSL workspace directories
```

Proceed with this stage [Y] ? <CR>

Disk devices available are:

Device Name	Device Status	Error Count	Volume Label	Free Blocks	Trans Count	Mnt Cnt
DKA300:	Online	0				
DKA100:	Mounted	0	SYS_DISK	1157787	131	1
DUA2:	Online	0				

Firstly select a disk for the LSL standard software files.

This will have the following directories:

```
LSL$PUBLIC_ROOT: -> [LSLPUBLIC...]      ! LSL published software (read-only)
```

What device for public tree [default is DKA100:] ? <CR>

```
"LSL$PUBLIC_ROOT" = "DKA100:[LSLPUBLIC.]" (LNM$SYSTEM_TABLE)
```

Now select a disk for the LSL site-specific files.

This will have the following directories:

```
LSL$SITE_ROOT: ->  [LSLSITE...]       ! site-specific software
```

What device for site tree [default is DKA100:] ? <CR>

```
"LSL$SITE_ROOT" = "DKA100:[LSLSITE.]" (LNM$SYSTEM_TABLE)
```

Now select a disk for the LSL users home directories.

This will have the following directories:

```
LSL$USER_ROOT: -> [LSLUSER...]      ! LSL users home directories
```

What device for user tree [default is DKA100:] ? <CR>

```
"LSL$USER_ROOT" = "DKA100:[LSLUSER.]" (LNM$SYSTEM_TABLE)
```

Now select a disk for the LSL data directories.

This will have the following directories:

```
LSL$DATA_ROOT: -> [LSLDATA...]      ! LSL data directories
```

What device for data tree [default is DKA100:] ? <CR>

```
"LSL$DATA_ROOT" = "DKA100:[LSLDATA.]" (LNM$SYSTEM_TABLE)
```

Now select a disk for the LSL local workspace directories.

This will have the following directories:

```
LSL$LOCAL_ROOT: -> [LSLLOCAL...]     ! LSL workspace directories
```

What device for local tree [default is DKA100:] ? <CR>

```
"LSL$LOCAL_ROOT" = "DKA100:[LSLLOCAL.]" (LNM$SYSTEM_TABLE)
```

Now creating site-specific definitions file LSDEFNS\_ROOTS

```
$! LSDEFNS_ROOTS.COM - define LSL root logical names.
$!
$! This file was generated by LSLINSTALL.COM, but can now be edited
$!
$      DEFINE/SYSTEM/TRANS=(CONCEALED,TERMINAL) LSL$PUBLIC_ROOT -
      DKA100:[LSLPUBLIC.]
$      DEFINE/SYSTEM/TRANS=(CONCEALED,TERMINAL) LSL$SITE_ROOT   -
      DKA100:[LSLSITE.]
$      DEFINE/SYSTEM/TRANS=(CONCEALED,TERMINAL) LSL$DATA_ROOT   -
      DKA100:[LSLDATA.]
$      DEFINE/SYSTEM/TRANS=(CONCEALED,TERMINAL) LSL$USER_ROOT   -
      DKA100:[LSLUSER.]
$      DEFINE/SYSTEM/TRANS=(CONCEALED,TERMINAL) LSL$LOCAL_ROOT  -
      DKA100:[LSLLOCAL.]
$!
$      EXIT
```

Press RETURN to continue <CR>

```
-----
LOAD - Load savesets from distribution medium
-----
```

Proceed with this stage [Y] ? <CR>

The following magtape devices are available on this CPU ()

Device MKA500: is a TK50 drive (Cartridge tape)

Where should issue savesets be read from [default is MKA500:] ? <CR>

Tape device MKA500: will now be mounted

Hit RETURN when ready <CR>

%MOUNT-I-WRITELOCK, volume is write locked

%MOUNT-I-MOUNTED, LSLSYS mounted on \_MKA500:

Laser-Scan strongly recommend that the whole of any installation kit is applied.  
Do you want to select only part of this kit [default N] ? <CR>

Now select any special options for the loading:

/VERIFY will carry out an extra BACKUP verification pass for each saveset.

/LIST will produce a BACKUP listing for each saveset and file loaded.

/LOG will produce a BACKUP log line for each file loaded.

The defaults are usually adequate for a normal installation.

/VERIFY [default N] ? <CR>

/LIST [default N] ? <CR>

/LOG [default N] ? <CR>

Starting load now - this may take several minutes.

Load complete

Now setting protections on all files on LSL\$PUBLIC\_ROOT:

Press RETURN to continue <CR>

-----  
DIRECTORIES - Set up standard site\_dependent directories  
-----

Proceed with this stage [Y] ? y<CR>

%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.COM] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.EXE] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.LIB] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.HELP] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.LOOKUP] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.FRT] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.UIL] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.UID] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.CDL] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.FPP] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSL.MGMT] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LSLSOFT] created  
%CREATE-I-CREATED, LSL\$SITE\_ROOT:[LITES2.CMD] created  
%CREATE-I-CREATED, LSL\$USER\_ROOT:[LSLUSER] created  
%CREATE-I-CREATED, LSL\$DATA\_ROOT:[LSL.IFF] created  
%CREATE-I-CREATED, LSL\$DATA\_ROOT:[LSL.DTI] created  
%CREATE-I-CREATED, LSL\$LOCAL\_ROOT:[LITES2.WORK] created  
%CREATE-I-CREATED, LSL\$LOCAL\_ROOT:[LITES2.JNL] created  
%SET-I-MODIFIED, LSL\$LOCAL\_ROOT:[LITES2.JNL] modified

Press RETURN to continue <CR>

-----  
FILES - Copy the startup files to SYS\$MANAGER:  
-----

This will copy the template LS\*.com startup files from the newly loaded public tree, and also any package-specific startup files.

Proceed with this stage [Y] ? <CR>

Copying the following startup template files to SYS\$COMMON:[SYSMGR]:

LSDEFNS.COM  
LSDEFNS\_DEVICES.COM  
LSDEFNS\_LOCAL.COM  
LSDEFNS\_SEARCHLISTS.COM  
LSDISKS.COM  
LSDISKS\_DISMOUNT.COM  
LSDISKS\_LOGICALS.COM  
LSDISKS\_MOUNT.COM  
LSIMAGES.COM  
LSLOGIN.COM  
LSPORTS.COM  
LSPRINTERS.COM  
LSPROCESSES.COM  
LSQUEUES.COM  
LSSTARTUP.COM  
LSSYSTARTUP.COM  
LSTERMS.COM

Copying the following package-specific startup files to SYS\$COMMON:[SYSMGR]:  
No package-specific startup procedures found

Press RETURN to continue <CR>

Creating the login definitions files for LSLUSER and LSLSOFT

Creating login.com for [LSLSOFT]

Creating login.com for [LSLUSER]

Press RETURN to continue <CR>

Now you need to specify the Laser-Scan short name for your site, which will be used for software licensing purposes.

It will usually be an acronym of the name of the organisation, eg LSLCAM. If you do not know the name that LSL have given your site, either deduce it from the following list of available licences, or telephone the Customer Services department at LSL Cambridge.

If you are not able to specify a valid name, then give a value of "UNKNOWN", and edit the correct value later into the file which will now be created called SYS\$MANAGER:LSDEFNS\_SITE.COM. If you do this, then you will not be able to run full LAMPS software until the correct name and/or licence files are supplied.

Press RETURN to continue <CR>

Licences are available for the following customers:

LSLCAM

What is your customer name [default is LSLCAM] ? <CR>

Now creating site-specific definitions file LSDEFNS\_SITE

```
$! LSDEFNS_SITE.COM - define LSL site-specific logical names.
$!
$! This file was generated by LSLINSTALL.COM, but can now be edited
$!
$! Firstly a customer name, to be used for software licences
$!
$      DEFINE/SYSTEM    LSL$CUSTOMER_NAME                LSLCAM
$!
$      EXIT
```

Press RETURN to continue <CR>

-----  
SEARCHLISTS - Set up search lists for LSL\$EXE etc  
-----

Proceed with this stage [Y] ? <CR>

LSL\$SEARCHLISTS\_GENERATE.COM (V2.0) - generate file of searchlist definitions

Creating LSDEFNS\_SEARCHLISTS.COM in SYS\$COMMON:[SYSMGR]

```
$! LSDEFNS_SEARCHLISTS.COM - define LSL searchlists.
$!
$! WARNING - This file is automatically generated by a command procedure
$! Do not edit it. Instead go @LSL$COM:LSLSEARCHLISTS_GENERATE.COM.
$!
$!
$! Set up search list for public tree .COM directories
$!
$      Define/System    LSL$COM -
          LSL$SITE_ROOT:[LSL.COM],-
          LSL$COM_PUBLIC

$!
$      Define/System    LSL$COM_PUBLIC -
          LSL$PUBLIC_ROOT:[$XGIS_BYPS.COM],-
          LSL$PUBLIC_ROOT:[IMP.COM],-
          LSL$PUBLIC_ROOT:[LITES2.COM],-
          LSL$PUBLIC_ROOT:[LSLSYSTEM.COM],-
          LSL$PUBLIC_ROOT:[MAPPING.COM],-
          LSL$PUBLIC_ROOT:[MAPSTATION.COM],-
          LSL$PUBLIC_ROOT:[MATRIX.COM],-
          LSL$PUBLIC_ROOT:[METROPOLIS.COM],-
          LSL$PUBLIC_ROOT:[POSTPROCESS.COM],-
          LSL$PUBLIC_ROOT:[SCANCONVERT.COM],-
          LSL$PUBLIC_ROOT:[VTRAK.COM],-
          LSL$PUBLIC_ROOT:[XGIS.COM]

$!
$! Set up search list for public tree .EXE directories
$!
$      Define/System    LSL$EXE -
          LSL$SITE_ROOT:[LSL.EXE],-
          LSL$EXE_PUBLIC

$!
$      Define/System    LSL$EXE_PUBLIC -
          LSL$PUBLIC_ROOT:[$XGIS_BYPS.EXE],-
          LSL$PUBLIC_ROOT:[IMP.EXE],-
          LSL$PUBLIC_ROOT:[LITES2.EXE],-
          LSL$PUBLIC_ROOT:[LSLSYSTEM.EXE],-
          LSL$PUBLIC_ROOT:[MAPPING.EXE],-
          LSL$PUBLIC_ROOT:[MATRIX.EXE],-
          LSL$PUBLIC_ROOT:[METROPOLIS.EXE],-
          LSL$PUBLIC_ROOT:[POSTPROCESS.EXE],-
          LSL$PUBLIC_ROOT:[SCANCONVERT.EXE],-
          LSL$PUBLIC_ROOT:[VTRAK.EXE],-
          LSL$PUBLIC_ROOT:[XGIS.EXE]

$!
$! Set up search list for public tree .LIB directories
$!
$      Define/System    LSL$LIBRARY -
          LSL$SITE_ROOT:[LSL.LIB],-
          LSL$LIBRARY_PUBLIC

$!
$      Define/System    LSL$LIBRARY_PUBLIC -
          LSL$PUBLIC_ROOT:[LSLSYSTEM.LIB],-
          LSL$PUBLIC_ROOT:[MAPPING.LIB],-
          LSL$PUBLIC_ROOT:[MATRIX.LIB]

$!
$! Set up search list for public tree .HELP directories
```





```
$! Set up search list for public tree .CMD directories
```

```
$!
```

```
$      Define/System      LSL$LITES2CMD      -
                                LSL$SITE_ROOT:[LITES2.CMD],-
                                LSL$LITES2CMD_PUBLIC
```

```
$!
```

```
$      Define/System      LSL$LITES2CMD_PUBLIC      -
                                LSL$PUBLIC_ROOT:[$XGIS_BYPS.CMD],-
                                LSL$PUBLIC_ROOT:[METROPOLIS.CMD],-
                                LSL$PUBLIC_ROOT:[XGIS.CMD]
```

```
$!
```

```
$      EXIT
```

Press RETURN to continue <CR>

```
-----
OPTIONS - set up environment for optional software
-----
```

Proceed with this stage [Y] ? y<CR>

The procedure will create the following captive usernames:

[100,1] = [VTRAK] ! VTRAK captive user

Creating user [VTRAK]

%UAF-I-COPMSG, user record copied

%UAF-I-RDBADDMMSGU, identifier VTRAK value: [000100,000001] added to rights data base

%UAF-I-MDFYMSG, user record(s) updated

%UAF-I-MDFYMSG, user record(s) updated

%UAF-I-MDFYMSG, user record(s) updated

Owner	Username	UIC	Account	Privs	Pri	Directory
LSL VTRAK user	VTRAK	[100,1]	LSL	Group	4	LSL\$USER_ ROOT:[VTRAK]

%UAF-I-DONEMSG, system authorization file modified

%UAF-I-NAFNOMODS, no modifications made to network proxy data base

%UAF-I-RDBDONEMSG, rights data base modified

Press RETURN to continue <CR>

The LAMPS environment contains an optional privileged user called [OPER], which is supplied with a template captive command procedure for carrying out useful VMS operator functions such as disk archiving, queue management, system shutdown, etc.

This functionality is particularly useful for small LAMPS turnkey systems, which are not run as general-purpose timesharing systems, and hence do not have full-time system management and systems operations personnel.

Larger systems with many layered products installed will usually already have operator accounts, and so will not want to include the LSL offering.

Do you want to create a privileged operator [OPER] user [Y] ? y<CR>

Creating user [OPER]

```
%UAF-I-COPMSG, user record copied
%UAF-I-RDBADMSGU, identifier OPER value: [000001,000377] added to rights data
base
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
%UAF-I-MDFYMSG, user record(s) updated
      Owner      Username      UIC      Account  Privs Pri Directory
SYSTEM OPERATOR      OPER      [1,377]  OPERATOR All      4 SYS$SYSDEV
ICE:[OPER]
%UAF-I-DONEMSG, system authorization file modified
%UAF-I-NAFNOMODS, no modifications made to network proxy data base
%UAF-I-RDBDONEMSG, rights data base modified
```

Press RETURN to continue <CR>

No package-specific installation procedures found

Press RETURN to continue <CR>

```
-----
TUNE - Evaluate SYSGEN parameters.
-----
```

Proceed with this stage [Y] ? <CR>

```
Current value of VIRTUALPAGECNT is 24384
  LSL recommend at least 300000
  You should edit MODPARAMS.DAT and insert the line:
  MIN_VIRTUALPAGECNT=300000      ! Increase for LSL LAMPS
```

```
Current value of WSMAX is 4100
  LSL recommend at least 16384
  You should edit MODPARAMS.DAT and insert the line:
  MIN_WSMAX=16384      ! Increase for LSL LAMPS
```

Press RETURN to continue <CR>

WARNING - Your current SYSGEN parameters are probably low.

You should note the values which were recommended above and which have been stored for you in the file SYS\$SYSTEM:LSLINSTALL\_MODPARAMS.DAT. Consider whether they are indeed suitable for your hardware and software configuration. When satisfied, edit the values into the MODPARAMS.DAT file in SYS\$SYSTEM:, then run the DEC-supplied AUTOGEN procedure, then reboot the system.

Look up AUTOGEN in the VMS System Management manuals if you are not familiar with changing SYSGEN parameters using AUTOGEN and the MODPARAMS.DAT file.

You should do this as soon as this LSLINSTALL procedure finishes, before logging off as SYSTEM.

Press RETURN to continue <CR>

The LSLINSTALL stage of LSL LAMPS software installation is now complete.

If the TUNE stage above suggested changes to MODPARAMS.DAT, do that now.

LSLINSTALL terminating sucessfully

\$

\$!

\$! Now try it out !!!

\$!

\$ @LSSTARTUP <CR>

Entering LSSTARTUP.COM - Laser-Scan startup procedure

LSDISKS\_LOGICALS.COM - Defining LSL disk logical names

LSDEFNS.COM - Defining LSL logical names

%DCL-I-SUPERSEDE, previous value of LSL\$PUBLIC\_ROOT has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$SITE\_ROOT has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$DATA\_ROOT has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$USER\_ROOT has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LOCAL\_ROOT has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$COM has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$COM\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$EXE has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$EXE\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LIBRARY has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LIBRARY\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$HELP has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$HELP\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LOOKUP has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LOOKUP\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$UIL has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$UIL\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$UID has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$UID\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$CDL has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$CDL\_PUBLIC has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LITES2CMD has been superseded

%DCL-I-SUPERSEDE, previous value of LSL\$LITES2CMD\_PUBLIC has been superseded

LSTERMS.COM - Setting up serial lines

LSPORTS.COM - Setting up terminal server ports

LSIMAGES.COM - Installing images

LSQUEUES.COM - starting queues

LSPRINTERS.COM - setting up printers

Finished LSSTARTUP.COM

\$

\$!

\$! seems OK, would carry on now with editing template files etc.

\$!

\$ LOGOFF <CR>

SYSTEM logged out at 13-JUL-1990 10:32:48.54