

ESV Workstation

1.3 Release Notes

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Part Number: 517970-104 AA

October, 1990

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1. Overview

This document describes the Version 1.3 release of the ESV Workstation software.

- Chapter 1, “Overview,” (this chapter) describes hardware and functionality added in the 1.3 Release.
- Chapter 2, “Helpful Hints,” contains operating and programming tips.
- Chapter 3, “Known Bugs in the System,” describes the System, ES/os, ES/PSX, ES/PEX, X Window System, and OSF/Motif bugs that are known to be in the 1.3 Release.
- Chapter 4, “Documentation Corrections,” describes additions and corrections to the ESV Workstation documentation.
- Chapter 5, “Installation Instructions,” describes the installation procedure for the tapes included in the 1.3 Release.
- Appendix A, “Application Status Report,” describes any impact that the 1.3 Release may have on third-party applications.
- Appendix B, “Change Pages,” contains change pages for the ESV Workstation documentation.

Hardware

RS-232 Ports

The RS-232 ports on the back of the ESV are available for use if the system includes an RDC. If the system does not include an RDC, these ports should be used by the data tablet and the dials.

In ESV software releases 1.3 and above, if the tablet or dials is not needed, one or both of these ports may be made available for other use by modifying device files in the **/dev** directory. This must be done while logged in as **root**. These files can be named back if a device is to be attached later.

- To disable the use of the RS-232 ports for the tablet, rename the file **/dev/tablet** to **/dev/no_tablet**.
- To disable the use of the RS-232 ports for the dials, rename the file **/dev/dials** to **/dev/no_dials**.

After renaming these files, the ESV Workstation must be powered down and rebooted before use.

External SCSI Device

If you attach an external SCSI device to the ESV Workstation, you cannot use that device to drive the 5 V terminator (pin 26) of the SCSI interface cable.

Video Timing Formats

The 1.3 Release adds the capability of switching between nine different video timing formats on the ESV Workstation. This is documented in the revised “5. Video Output Guide” which is included with the change pages.

ES/PEX Functionality

pex_config.dat

The format for **pex_config.dat** has been changed in the 1.3 Release. This change is documented in the revised “Customizing the System” chapter, which is included with the 1.3 Release change pages.

pescape

pescape has been added in the 1.3 Release. **pescape** is documented in the revised “ES/PEX” chapter, which is included with the 1.3 Release change pages.

gdp3s and gses

Eight **gdp3s** and four **gses** have been added in the 1.3 Release. The **gdp3s** and **gses** are documented in the revised “ES/PEX” chapter, which is included with the 1.3 Release change pages.

ES/PSX Functionality

ES/PSX 1.3 and 1.2 Compatibility

The 1.3 ES/PSX release has been compiled with the 1.3 version of the Pascal compiler. This compiler differs from previous versions in the way it stores certain types of internal data. For this reason, it is imperative that all user-written functions be recompiled with the 1.3 compiler so that they can run with 1.3 ES/PSX.

In addition, the format of the data coming from the GSRs into ES/PSX differs in the 1.3 Release from that of the 1.2 Release. In order to allow applications built prior to the 1.3 Release to continue to work, ES/PSX has been modified to accept both 1.2 and 1.3 GSR data. However, the

best performance occurs when 1.3 GSRs have been linked with the application.

All code linked with the 1.3 GSRs has to be compiled with the 1.3 compilers and *vice versa*. 1.3 GSRs also use a faster connection mechanism than previous versions. This improvement may be significant in applications which contain many calls to **PAttach**.

The differences in the 1.2 and 1.3 Pascal compilers may require minor modifications in Pascal code. See the on-line release notes found in **/usr/pkg/rn/pascal** for more information.

PAttach

There is a new and faster **PAttach** connection mechanism. If two or more ES/PSX processes are running concurrently, they must have different names in order for the application to be able to connect to them. This is now true for applications running from the Terminal Emulator in ES/PSX. The environment variable **PSX_DEVICE** specifies the ES/PSX name. The ES/PSX name that is used in the **PAttach** call should not contain any commas (“,”).

PSXConnect

PSXConnect is a new feature that has been added with the 1.3 Release. PSXConnect is a mechanism which allows applications written for PS 300 terminals running on various hosts to communicate with an ESV Workstation running ES/PSX.

PSXConnect is documented in the *PSXConnect User's Manual*, which is included with the 1.3 Release change pages.

CPK

CPK is a new feature that has been added with the 1.3 Release. It allows molecular modelers to render specifically-defined spheres on the ESV Workstation. An ES/PSX feature that was not available on the PS 390 is dynamic CPK, which allows solid CPK images to be manipulated in real-time.

CPK is documented in the *CPK User's Manual*, which is included with the 1.3 Release change pages.

VIEWPORT COLOR

The **VIEWPORT COLOR** command and GSR have been added in the 1.3 Release. Change pages for the command and GSR are included with the 1.3 Release change pages.



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2. Helpful Hints

Widget Sets

You cannot mix different widget sets (*e.g.*, Xm and Xaw) under the 1.3 Release.

WAIT and ASAP Workstation Deferral Modes

There are two different workstation deferral modes supported by ES/PEX:

- **WAIT**
- **ASAP**

Under **WAIT** deferral mode, any PEX routines that could change the visible state of the display (modifying table entries, editing a posted structure, *etc.*) are not reflected until the application calls either **UPDATE WORKSTATION** or **REDRAW ALL STRUCTURES**.

Under **ASAP** deferral mode, any PEX routines that could change the visible state of the display cause an immediate traversal of all posted structures.

ASAP mode should be used with caution as it can result in many more traversals than are necessary. If you are building a large structure network, or doing a lot of structure editing, the system finishes the work more quickly if it is not continually traversing.

The following code fragment demonstrates this idea:

```
psetdisplayupdatest(ws, PWAIT, PNIVE);
/* ... initialize color table, view reps, create structures ... */
psetdisplayupdatest(ws, PASAP, PUQUM); /* change to ASAP mode */
/* ... generate primitives from simulation, etc. ... */
psetdisplayupdatest(ws, PWAIT, PNIVE); /* change back to WAIT mode */
```

The default workstation deferral mode is **ASAP**.

BSD Version ps Command

The BSD version of the **ps** command is newly included in the 1.3 release. Prior to the 1.3 Release, only the System V version was available. The options to the two commands are not the same. For example, if you were previously using **ps -ef** to get a full listing, the BSD equivalent is **ps -aux**. If your path defaults to the BSD commands, you can still access the System V version of **ps** command as **/bin/ps**.

Expose Event for PEX Windows

When selecting expose events on PEX windows, either through the mechanism provided by Xlib or the X toolkit (Xt), you should examine the count field in the event before causing a structure traversal for the window.

The X server sends expose events as contiguous groups in the event stream, each with a count field indicating how many more expose events are in the group. This is done because a single exposure action, such as cycling a group of windows via a window manager, can cause multiple regions of a single window to be exposed. Each action that generates such a set of regions will generate a set of contiguous expose events in the event stream.

Since PEX (3D) windows are double-buffered, a portion of the window cannot be redrawn without causing a buffer swap. Therefore, as you take events off the event queue, you should examine the count field in the expose event. When this count is zero, this is the last expose event in its contiguous group. At this point, the application can cause a structure traversal and update its window.

Implementing this method can eliminate many unnecessary structure traversals and improve performance when interacting with window managers and other X clients.

Round Trip Requests to X Server

Calling a PHIGS routine that returns information about structures to the caller (*e.g.*, current element pointer value or structure element content) requires a round-trip to the server through network connections.

The current element pointer value can be maintained by the client while building a structure; *i.e.*, the client may know how many structure elements it has inserted into the currently open structure. Maintaining this information in the client program can result in performance increases since the time required for obtaining the current element pointer value can be expensive for a very large structure. Obtaining this value typically requires a linear traversal of the structure from the beginning until the current element is reached.

Client-side optimizations that result in fewer round-trip messages are the “smart thing to do.”

Resizing of PEX Windows

X and PHIGS have slightly different ideas about the dynamics of a display surface. Under X, display windows can be resized by the user or another program, and the client receives a **ConfigureNotify** event. Under PHIGS, the usable portion of a window is determined by the workstation transformation matrix.

The workstation transformation matrix is controlled by **SET WORKSTATION VIEWPORT**, **SET WORKSTATION VIEWPORT 3**, **SET WORKSTATION WINDOW**, and **SET WORKSTATION WINDOW 3**. Using the 2D versions of the routines, you can examine your new window size from the **ConfigureNotify** event and adjust the size of your PHIGS display surface accordingly.

PHIGS specifies that when a workstation is opened, the largest square in the upper-left portion of the workstation will be used, unless the workstation transformation is explicitly changed. The workstation window and viewport, which together define the workstation transformation, must be set to the same aspect ratio when they are changed.

When a PEX window is resized, the client application has several choices to make regarding the workstation transformation. It can render the entire NPC space to any square portion of the window's new size, preserving aspect ratio. Another option is to limit the portion of NPC space shown in the resized window, making the window a "porthole" into NPC space. This would require a considerable amount of programming by the user.

The following code fragment is an example of resizing the PHIGS display surface to be the largest (centered) square in the resized window:

```
XNextEvent (&event);
if (event.type == ConfigureNotify)
{
    Plimit viewport;
    int width, height;

    width = event.xconfigure.width;
    height = event.xconfigure.height;
    if (height > width) /* window is taller than wide */
    {
        viewport.xmin = 0;
        viewport.xmax = width-1; /* use entire width */
        viewport.ymin = (height-width)/2;
        viewport.ymax = viewport.ymin + width-1;
```

```
        /* center vertically */
    }
else /* window is wider than tall */
{
    viewport.ymin = 0;
    viewport.ymax = height-1; /* use entire height */
    viewport.xmin = (width-height)/2;
    viewport.xmax = viewport.xmin + height-1;
    /* center horizontally */
}
psetwsviewport(ws, &viewport);
predrawallstruct(ws, ALWAYS);
}
else /* other events */
    ...
```

Remember that device coordinate space is in pixels and relative to the origin of the X window. Also, X coordinate structures have a y-axis that increases down the screen, while the PHIGS y-axis increases up the screen.

Unlock Keyboard on CTRL-ALT-BREAK

Sometimes, the key sequence CTRL-ALT-BREAK locks up the keyboard. This happens when the keyboard is connected to the RDC and you use CTRL-ALT-BREAK to exit the X server. The symptoms are that all three LEDs remain lit, and the keyboard will not respond to any further typing.

To unlock the keyboard, cycle the power on the RDC. This leaves the keys in a state where the CAPS LOCK key is actually the CONTROL key, and the DELETE key emits garbage and back-quotes. Restart the X Server to restore the keyboard to its proper operation.

ES/PSX TE Colors

The color of the ES/PSX terminal emulator characters and cursor can be modified by the following command, which can be included in the **site.dat** file.

```
Send v3d(r,g,b) to <1>tecolor0;
```

Note that **r,g,b** are integers specifying the red, green and blue components of the color desired (blue = 0, red=120, green=240).

The color can also be modified while running ES/PSX by typing the following commands from command mode:

```
Configure a;  
Send v3d(r,g,b) to <1>tecolor0;  
Finish Configuration;
```

Pick Highlighting

When the Prepick Control is set to **highlight picked commands**, the color of markers within the boundary of the pick box is changed. Optionally, the color will be changed for markers in the same node as the one within the pick box. When this happens, markers within the node that preceded the one picked will have already been drawn. Hence, their color will be a combination of the highlight color and their normal color.

Known Size Limitations on Structure Elements

Since structure elements are communicated to the central structure store via the connection to the X server(s), structure elements are limited in size by the request buffer size of the server. The request buffer size can be found from the **xdpiinfo(1)** command. Currently, the buffer size is 64 K long words, or 256 Kbytes.

For polygon (**FILL AREA**, **FILL AREA SET**, *etc.*) structure elements, there is a further restriction of no more than 128 vertices (64 if the primitive includes colors or normals, 42 if the element includes colors and normals for each vertex) per element. This limitation is imposed by the size of the processing buffer in the DSPs.

Optimization of Structure Element Size for Performance

When writing PHIGS/PEX clients, it is important to remember that the ESV Workstation contains between 4 and 44 DSPs that render the set of posted structures. Splitting large structure elements into a group of smaller, equivalent structure elements can improve rendering performance. The overhead for an extra element on a low-end system is negligible and results in approximately the same rendering time. However, on a high-end system, the result is a greater degree of data parallelism. This means more efficient usage of the DSPs and higher rendering throughput. This throughput is limited by communication speeds and other basic architectural trade-offs, but a performance gain can be usually achieved by splitting large structure elements into smaller ones.

For optimum performance, a match must be obtained between the size of rendering primitives within a structure, their relationship to one another and the number of output primitives in the structure. A structure that contains a high ratio of execution (via **EXECUTE STRUCTURE**) to drawing (via output primitives, *i.e.*, lines, polygons) can cause excessive

overhead on the host CPU in structure traversal. Conversely, a structure with a high drawing to execution ratio (*i.e.*, flat) can consume large amounts of host structure memory and may be adversely effected by system paging. The best approach is to attempt to balance these effects.

Some output primitives are broken up by the system to increase available parallelism in rendering these primitives. Since the rendering pipeline of the ESV consists of parallel processors combining their results into the frame buffer, performance gains can also be achieved by judiciously adjusting the size and number of output primitives. For increased performance, the following guidelines should be followed. These guidelines are only rules-of-thumb and will not guarantee specific results.

Text

Text functions include **TEXT**, **TEXT 3**, **ANNOTATION TEXT RELATIVE**, and **ANNOTATION TEXT RELATIVE 3**. Longer character strings perform better than short character strings. Single character strings used as markers are less efficient than marker elements.

Polygons

Polygonal structure element functions include **FILL AREA**, **FILL AREA 3**, **FILL AREA SET**, **FILL AREA SET 3**, **FILL AREA 3 WITH DATA**, and **FILL AREA SET 3 WITH DATA**. Polygonal structure elements with less than 14 vertices require less complicated processing during scan conversion. Processing of convex primitives is optimized.

Quadrilateral Mesh and Triangle Strip

Quadrilateral mesh and triangle strip functions include **QUADRILATERAL MESH 3 WITH DATA** and **TRIANGLE STRIP 3 WITH DATA**, and they have unique performance characteristics. For optimum performance, a match must be obtained between the number of meshes and their size. A few small meshes that can be rendered in parallel will be faster than a single large mesh, since the primitive level is the lowest level at which parallelism is applied.

The system breaks up meshes and strips that are larger than 500 words in size. This overhead can be avoided if the primitives are kept below 500 words. This translates into the following guidelines (these numbers are derived from the packet sizes defined in the PEX V4.0 Protocol Encoding document). There are about four words of header for each of these primitives, and the remaining space is left for vertices and optional vertex data. That leaves 496 words for this data:

-
- 165 vertices with no colors and no normals
 - 82 vertices with colors or normals
 - 55 vertices with colors and normals

These numbers were arrived at by dividing 496 by 3, 6, and 9, respectively.

ES/PSX and PEX Libraries

The ES/PSX and PEX libraries provided in the 1.3 Release were all compiled using the **bsd43** libraries. Modules that are to be linked with these libraries should also be compiled as **bsd43** modules by using the **-systype bsd43** option in the compile command. If you want to use specific System V routines in your programs, you should do so with caution and with explicit knowledge as to which libraries are used to resolve external references.



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3. Known Bugs in the System

This chapter describes the System, ES/os, ES/PSX, ES/PEX, X Window System, and OSF/Motif bugs known to be in the 1.3 Release. It also lists bugs reported in previous releases that have been fixed in the 1.3 Release.

Note: For additional information about operating system and compiler bugs, refer to the *MIPS Release Notes* which will be found on-line in the `/usr/pkg/rn` directory.

System Bugs

The following system bug has been identified in the 1.3 Release.

1.4 Bad Broadcast Address

On the ESV Workstation, the variable portion of the default broadcast address contains 0s (zeros). If the default broadcast address is used, it may result in **portmap** generating an **mfree** panic. To prevent this from happening, you should set the broadcast address explicitly in `/etc/local_hostname`.

1.5 Yellow Pages

Yellow Pages does not work properly in the 1.3 Release of ES/os.

System Bug Fixed but Not Reported in Previous Releases

The following system bug, which was not reported in previous releases, has been fixed in the 1.3 Release.

errno

The file `/bsd43/usr/include/errno.h` now has the following declaration:

```
Extern int errno;
```

Programs no longer need to explicitly declare the **errno** variable; however, doing so with the **int** type will not present any problems. If **errno** was declared as another type, there will be a conflict of definitions and the program will need to be modified.

ES/PSX Bugs

ES/PSX Bugs Fixed in the 1.3 Release

The following ES/PSX bug that was reported in the *1.1 Release Notes* has been fixed in the 1.3 Release.

3.20 Writeback and Light Pen Operation Nodes

ES/PSX Bugs Fixed but Not Reported in Previous Releases

The following ES/PSX bugs, which were not reported in previous releases, have been fixed in the 1.3 Release.

PAttach Connection

Occasionally in the 1.2 Release and earlier, when an application called the **PAttach** GSR immediately following a **PDetach**, the connection to the ES/PSX process was unsuccessful. This resulted in the GSR error 1280 and/or other unpredictable behavior. This problem has been resolved in 1.3

PSndBool

In the 1.2 Release and earlier, sending a Boolean to a Position/Line field in a vector list by the **PSndBool** GSR corrupted memory, causing ES/PSX to abort at some later time. This has been fixed in release 1.3.

Changing ES/PSX Window Size

In the 1.2 Release and earlier, when the ES/PSX window was repeatedly modified in size, the white borders around the edges of the labels and the display area increased in size. This was due to a round-off problem which has been fixed in 1.3.

Maximizing the Window

When you maximized the ES/PSX window in the 1.2 Release and earlier, a large white border appeared on the right side of the window. This has been fixed in 1.3.

ES/PEX Bugs

The following ES/PEX bugs have been identified in the 1.3 Release.

4.15 Linetypes and Edgetypes

The **solid** edgetype is the only edgetype working. There is a bug that prevents the use of the other three edgetypes. Calls to **SET EDGETYPE** with any types other than **PSOLID** will cause solid edges to be drawn.

4.16 REDRAW ALL STRUCTURES

Sometimes the screen is not redrawn after a **REDRAW ALL STRUCTURES** call. After an expose event, a **REDRAW ALL STRUCTURES** call is issued by the user's program. If the window has been moved before the expose event is generated, the window may not actually refresh.

4.17 Invalid Color Type

Elements with invalid color types produce errors. Currently, the system checks all elements that contain colors for unsupported color types. If an element with an unsupported color type is found, the element is rejected and an error is issued. This is different from the proposed PHIGS PLUS standard, which states that the correct action is to build the element, detect the bad color type during traversal, then use the default color.

4.18 RGB Values

RGB values need to be clamped to reasonable ranges (0.0 to 1.0) when the client program supplies out-of-range data. This is not done currently, and RGB values outside the range 0.0 to 1.0 have unpredictable results.

4.19 PWAIT

The **PWAIT** definition conflicts with **sys/param.h**. **PWAIT** is also defined in **<sys/param.h>**. If this file is included after **phigs.h**, an X error occurs when **PWAIT** is used in **psetdisplayupdatest**. To work around this, include **phigs.h** after **sys/param.h**.

4.20 Workstations on Multiple Servers

You cannot open workstations on multiple servers. When **OPEN WORKSTATION** is called, and the server to which the connection is being made is not the same as the default server sent to **OPEN PEX**, an X error occurs, and the workstation is not opened.

To work around this problem, you can call **XGetWindowAttributes** on the workstation window before calling **OPEN WORKSTATION**. This allows the **OPEN WORKSTATION** to complete.

4.21 INQUIRE ELEMENT CONTENT

INQUIRE ELEMENT CONTENT returns invalid values for edge flag. Inquiring the element content on an edge flag element does not return valid values. The returned element should be an enumerated type of **PEDGE_ON** or **PEDGE_OFF**.

INQUIRE ELEMENT CONTENT gives bad data for the following PEX elements:

- **POLYLINE SET 3 WITH DATA**
- **TRIANGLE STRIP 3 WITH DATA**
- **QUADRILATERAL MESH 3 WITH DATA**
- **FILL AREA 3 WITH DATA**
- **FILL AREA SET 3 WITH DATA**

4.22 Primitives with No Data

Because the graphics pipeline always assumes that there is at least the minimum amount of data needed to render a primitive, **ppolymarker3** (or any primitive) with no data will cause the system to hang. When this happens, the system must be rebooted to restore the DSPs to a known state. You can try the following if you encounter this problem:

- If you are in a network, **rlogin** and kill the stalled process, or
- Use the key sequence CTRL-ALT-BREAK.

To avoid this problem, make sure all primitives have data.

4.23 Picking After Moving a PEX Window

The first time a structure is traversed after a PEX window is moved, the structure is drawn in the window's new position.

If you move a PEX window and don't immediately redraw the structure, the window stays black. If you then do a pick and hold down the button, the structure is displayed on its old location, and whatever item is picked is highlighted. A subsequent **REDRAW ALL STRUCTURES** call puts the model in its correct place in the window, and a subsequent pick at the exact same location returns the same screen coordinates, but picks the object currently under the pointer.

ES/PEX Bugs Fixed in the 1.3 Release

The following ES/PEX bugs that were reported in the *1.0 Release Notes* have been fixed in the 1.3 Release.

4.7 SET WORKSTATION WINDOW

4.9 3D Graphics in Root Window

4.12 Line Types

4.13 Marker Types

4.14 Text Font 2

X Window System Bugs

The following X Window System bugs have been identified in the 1.3 Release.

5.16 XAllowEvents

XAllowEvents does not allow events to be sent to the client that has grabbed the keyboard or the mouse.

5.17 XQueryColor

XQueryColor does not return correct colors. If you load a set of 256 colors with **XStoreColors**, then query a color value with **XQueryColor**, you get incorrect values for red and green. If you store a single color, using **XStoreColor**, then read with **XQueryColor**, you get correct values.

X Window System Bugs Fixed in the 1.3 Release

The following X Window System bugs that were reported in the *1.0 Release Notes* have been fixed in the 1.3 Release.

5.1 Moving a PEX Window

5.6 XPickEvent

OSF/Motif Bugs

The following OSF/Motif bug has been identified in the 1.3 Release.

6.26 XmNmwmDecorations

A program cannot set its decorations for a Vendor Shell using **XmNmwmDecorations**. OSF/Motif bug # 999 states that the **MWM_HINTS** property in a window does not get set up. However, the work around says that it can be set up after the shell is created using **XtSetValues**.

On the ESV Workstation, the **MWM_HINTS** property does get created and the values for the decorations get set, but the window does not reflect the correct values set for decorations. The code below reflects the OSF/Motif work around:

```
XtToolkitInitialize();
d = XtOpenDisplay(NULL, NULL, argv[0], "go", NULL, 0, &argc, argv);
n=0;
wid
=XtAppCreateShell("go", "go", topLevelShellWidgetClass, d, args, n);
n=0;

XtSetArg(args[n], XmNheight, 500); n++;
XtSetArg(args[n], XmNwidth, 500); n++;
XtSetArg(args[n], XmNmwmDecorations, MWM_DECOR_BORDER); n++;
XtSetValues(wid, args, n);
n=0;
XtSetArg(args[n], XmNheight, 500); n++;
XtSetArg(args[n], XmNwidth, 500); n++;
txt = XmCreateText(wid, "txt", args, n);
XtManageChild(txt);

XtRealizeWidget(wid);
XtMainLoop();
```

The decorations can be set up in the **.Xdefaults** file.

4. Documentation Corrections

The following corrections and additions should be made in the appropriate document.

SunPHIGS 1.1 Reference Manual

- 1) The first three points of the point set passed to the **FILL AREA**, **FILL AREA 3**, **FILL AREA SET**, and **FILL AREA SET 3** PHIGS functions are the ones used to determine backfacing. If these points span a concavity, the backfacing is different from what is expected. This fact is not documented in the *SunPHIGS 1.1 Reference Manual*.
- 2) The ES/PEX supported constants for **psethlhsrid(id)**, defined in **phigs.h**, are:

0	PHIGS_HLHSR_ID_OFF
1	PHIGS_HLHSR_ID_ON

ESV Workstation Reference Manual, "2. X Input Extension"

- 1) Because it is now possible to specify that the core keyboard be used as the modifier device in passive grabs and the corresponding ungrabs, the description of the **modifier_device** argument should be changed in the descriptions for **XGrabDeviceKey**, **XUngrabDeviceKey**, **XGrabDeviceButton**, and **XUngrabDeviceButton** on pages 2-11 through 2-18, to the following:

modifier_device	Specifies the device whose modifiers are to be used. Pass in a NULL pointer to specify the core X keyboard.
------------------------	---
- 2) On page 2-60, the documentation for **XGetDeviceDontPropagateList** is incorrect. The function actually returns a pointer to an array of **XEventClasses**, not an **int**.

ESV Workstation Reference Manual, "3. X Picking Extension"

- 1) On pages 3-4 through 3-7, in the description of **XPickEvent**,
 - The definition of the **XPickEvent** structure has been modified slightly by adding a new element **subwindow**. The new definition of **XPickEvent** structure is:

```
typedef struct
{
    int type;
    unsigned long serial;
    Bool send_event;
    Display *display;
    Window window;
    PC pc;
    Window subwindow;
    Time time;
    int prim_type;
    int valid_flags;
    int itemid;
    int elementid;
    int structureid;
    int pickid;
    float modelx;
    float modely;
    float modelz;
    float screenx;
    float screeny;
    float screenz;
    float prim_special_1;
    float prim_special_2;
} XPickEvent;
```

- The definitions for the description of **window** and **subwindow** should be as follows:

window This is the window to which the **XPickEvent** is being delivered. It will be the window in which the picking operation was done or an ancestor of that window.

subwindow This is the window in which the picking operation was done.

- References to **prim_spc1** should be changed to **prim_special_1**. References to **prim_spc2** should be changed to **prim_special_2**.
- In the description of the **prim_type** element, the following values should be added to the list of the possible return types:

pick_cylinder
pick_quadrilateralmesh
pick_setfillareasetdata
pick_sphere
pick_trianglestrip

- In the description of the **itemid** element, the following descriptions should be added to the list:

<u>Primitive Type</u>	<u>Description</u>
pick_trianglestrip	index of the picked triangle in the strip (in the range 0 to n-3 for n points)
pick_quadrilateralmesh	index of the picked quadrilateral (in the range 0 to (n·m)-1 where there are m columns and n rows in the mesh)
pick_setfillareasetdata	always set to zero
pick_cylinder	index of the picked cylinder
pick_sphere	index of the picked sphere

- On page 3-8, the definition of the **XPickPath** structure has changed. The new definition is:

```
typedef struct
{
    Display *display;
    Window window;
    PC pc;
    Window subwindow;
    int prim_type;
    int length;
    int itemid;
    XPickPathItem *path;
} XPickPath;
```

The added fields (**display**, **window**, and **subwindow**) have the same definitions as in the revised **XPickPathEvent** structure.

- 3) On pages 3-9 through 3-10, in the description of **XPickPathEvent**,
- The definition of the **XPickPathEvent** structure has been modified slightly by adding a new element **subwindow**. The new definition of **XPickPathEvent** structure is:

```
typedef struct
{
    int type;
    unsigned long serial;
    Bool send_event;
    Display *display;
    Window window;
    PC pc;
    Window subwindow;
    Time time;
    int prim_type;
    int itemid;
    int path_length;
    int first_path;
    XPickPathItem path[4];
} XPickPathEvent;
```
 - The definitions for the description of **window** and **subwindow** should be as follows:

window This is the window to which the **XPickPathEvent** is being delivered. It will be the window in which the picking operation was done or an ancestor of that window.

subwindow This is the window in which the picking operation was done.
- 4) On pages 3-25 through 3-26, in the description of **XPick**,
- The definition for the **win** argument should be changed as follows:

win This is the window in which you are going to pick. Your client application must have created this window.
 - In the second paragraph of the “Description” section, the line which reads:

“They will be reported to the window on which the operation was performed if the setting of the pick events mask for that window has selected that event type.”

should be changed to read:

“They will be reported to the window in which the picking operation was performed or the nearest ancestor window in which interest has been selected in the events and which is owned by the client making the request. See **XSelectPickEvents**.”

- In the “Errors” section, the comment after **BadWindow** should be changed to read:

“(returned if the window doesn’t exist, if the client does not own the window, or if the window isn’t being used to display 3D graphics)”

5) On page 3-27, in the description of **XPickPathEventToPath**,

- The definition of **XPickPathEventToPath** should be changed to read as follows:

```
XPickPath *
XPickPathEventToPath (event)
    XPickPathEvent . *event;
```

- Delete the last paragraph in the “Description” section and substitute the following:

“Each time it is called, **XPickPathEventToPath** adds the path information in the event to a partial path. When it has been given all the events to complete the path, **XPickPathEventToPath** returns a pointer to the path structure. Otherwise, it returns null.

“If **XPickPathEventToPath** is unable to allocate the necessary memory to store the partial path information from the event, it returns null. **XFreePickPath** should be used to free the memory for the allocated pick path.”

ES/PSX Document Set - Volume 1, “2. Porting from the PS 390”

This section was originally documented in the *1.2 Release Notes*. It is reprinted here with minor corrections and additions.

ES/PSX Static Viewport

The ES/PSX static viewport used for rendering static images is placed in an X window separate from the dynamic ES/PSX window. This means that ES/PSX dynamic text and graphics are not visible on top of the static window as they are in the PS 390. Some applications may have cleared the PS 390 screen by sending a Boolean to input <7> of **SHADINGENVIRONMENT**. On ES/PSX this will cause the static window

to be displayed occluding the dynamic window. To clear the ES/PSX screen, a Fix(3) can be sent to input <7> of **SHADINGENVIRONMENT**.

GSR Applications

ES/PSX applications linked with the GSRs must use the **-systype bsd43** option. FORTRAN applications need to be linked with both the C GSR and FORTRAN GSR libraries, having the FORTRAN GSR library listed first in the link command. Pascal applications need only include the Pascal GSR libraries.

For example, a C program called **c_applic.c** can be linked with the C GSRs in the following manner:

```
cc -o c_applic -systype bsd43 -I/usr/include/psx c_applic.c -lgsr
```

A FORTRAN program, **f_applic.f**, can be called this way:

```
f77 -c f_applic.f
cc -o f_applic -systype bsd 43 -I/usr/include/psx f_applic.o -lgsrcf -lgsr
```

A Pascal program, **p_applic.p**, can be linked this way:

```
pc -o p_applic -systype bsd43 -I/usr/include/psx p_applic.p -lgsrcp
```

Hints for Porting FORTRAN Applications

End Delimiters

If your FORTRAN source code has used "" as an end delimiter for character buffers or concatenated characters which will be sent to GSR functions, you will still need to replace the "" with **char(0)**. For example, the second line of the following FORTRAN source,

```
CHARACTER NAME*5
NAME = char(65) // char(66) // ''
CALL PVBEG ( NAME,.....etc.)
```

must be modified to,

```
NAME = char( 65) // char(66) // char(0)
```

Additionally, the second line of the following FORTRAN source,

```
CHARACTER buff(240)
buff (240:240) = ''
CALL PSNST ( buff,.....etc.)
```

must be modified to,

```
buff (240:240) = char(0)
```

If quoted strings include the delimiter, as in 'TEST', the delimiter should be removed to read 'TEST'.

Floating Point Numbers

Be sure to include the decimal point in floating point numbers. For example,

```
REAL*2 X
X = 1
```

is not correct. It must read,

```
X = 1. OR X = 1.0
```

Matrix Arrays

Multidimensional matrix arrays, usually,

```
REAL*4 MTX(4,4)
```

should be initialized.

Vector Lists

A maximum of 2000 vectors are allowed in the vector list passed to **PVCLIS**.

End-of-Line Comments

You cannot use VMS-style end-of-line comments within argument lists of subroutine **CALLS**. For example, the following is not allowed,

```
CALL Sub1 ( arg1, arg2, ! comment
* arg3, arg4)
```

ES/PSX Document Set - Volume 2, "Appendix E"

The following GSR warnings now occur for those procedures that request functions that are not provided with ES/PSX. Dummy display data structures are created where needed.

Error Code	Mnemonic	Meaning
101	PSW_PREndNotImplemented	Rendering not implemented in ES/PSX. Procedures not implemented: PAttrib , PAttrib2 , PAttribP , PAttribP2 , PPLYgAtr , PPLYgOtl , PRsvStor , and PPLYRc .
102	PSW_PrasNotImplemented	Raster not implemented in ES/PSX. Procedures not implemented: PRasWrp , PRasRdp , PRasWr , PRasRdl , PRasCp , PRasEr , PRasLd , PRasLR , PRasLU , PRasVi , and PRasWp .
104	PSW_P2DplgNotImplemented	2D polygon fill not in ES/PSX Procedures not implemented: P2DBPg , P2DPlg , P2DVec , P2DNCL , PRasVc , PRasFc , and P2DNCV .
105	PSW_PDynReNotImplemented	PDynRe not implemented in ES/PSX.
106	PSW_PrasFoNotImplemented	Raster font not implemented in ES/PSX. Procedures not implemented: PBegF , PRasFo , and PEndF .
107	PSW_PCLUTNotImplemented	Color look up table not implemented in ES/PSX. Procedures not implemented: PBCLUT , PECLUT , and PACLUT .
108	PSW_PSetContNotImplemented	PSetCont not implemented in ES/PSX.
109	PSW_PSelfNotImplemented	PSelf not implemented in ES/PSX.
110	PSW_PSecPlanNotImplemented	PSecPlan not implemented in ES/PSX.

5. Installation Instructions

This section contains information on ESV Workstation tape drives and provides installation instructions for release tapes. This section is organized as follows:

Page

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Tape Drive Data Cartridge Information

The ESV Workstation uses the TANDBERG DATA (SIEMENS) 3660 Series Tape Drive. Since this drive reads and writes at a denser format than the specs on the tapes below, higher Mbyte capacity ratings are obtained. The figures below reflect these ratings.

Data Cartridges that have proven to work on this drive are:

<u>Vendor</u>	<u>Product</u>	<u>Tape Length</u>	<u>Mbyte Capacity</u>	<u>Notes</u>
3M	DC600A	620 ft	120 meg	Used in ESV Software Distributions
3M	DC615A	150 ft	30 meg	Used in ESV Software Distributions
3M	DC6037	150 ft	30 meg	An industrial strength version of the 3M DC615A. Interchangeable with the DC615A.
BASF	DC600H	620 ft	120 meg	Used in ESV Software Distributions, and is interchangeable with the 3M DC600A.

Note: The 3M DC6150 tape (150 meg) has proven unreliable on this drive even though tape vendor specs say otherwise.

OS Installation Notes

Installing ES/os 1.3 as an Update

This section describes the procedure for performing an update install. If you have received this release of ES/os as a software update, you will need to perform this procedure to install it on your system running an earlier release.

The update procedure requires that all of the system's filesystems be "clean" (*i.e.*, unmounted when the system is brought down before loading the miniroot). If for some reason they are not, the install will note that they cannot be mounted, and halt. If this happens, use `/etc/fsck.fts` from the miniroot to clean the filesystem(s) before redoing the install.

Post-Installation System Modifications

After the software is installed on a new system, some administration is required. For instance, as shipped, the user "root" is not protected with a password. The root user should be provided with a password for security. Login as root and edit the appropriate administrative files to setup other user names and login directories. See also the *System Administrator's Guide* and `telinit(1m)`, `inittab(4)`, and `passwd(4)` in the *System Administrator's Reference Manual*.

For Update Installs

As with prior releases, during an update installation ES/os 1.3 preserves files which may have been locally modified, such as various start up scripts and configuration files.

The OS Update Installation will replace the old version with new data. The old version of a file is renamed to **name:1.3**. If a user has made any local changes to the old files, these changes must be manually merged into the new files.

The following is a list of critical files that must be in the ES/os 1.3 version plus any local modifications:

```
/etc/syslog.conf
/etc/fstab
/etc/init.d/MOUNTFSYS
/etc/init.d/RMTMPFILES
/etc/init.d/netdaemons
/etc/init.d/nfs
/etc/init.d/sysetup
/etc/init.d/tcp
/etc/timed.conf
/usr/spool/cron/crontabs/root
```

If you have not modified any of these files, they will be replaced with the new ES/os 1.3 version. If a file has been modified, you will need to alter the ES/os 1.3 version in a corresponding manner before replacing your customized version of the file.

Installation Instructions

All of the ***:<version>+** files should be reviewed, but pay particular attention to the files in **/etc** and **/etc/init.d**.

Note: It is very important to use the new **fstab(4)** prioritization scheme before any file systems are mounted. If not done in this order, file system may be mounted without **fsck** checking.

Note that when you modify **/etc/fstab**, the last field must be set to some non-zero number before that file system will be checked by **fsck** during normal mode of operation. Therefore, the last field on a swap device should remain zero. In general, you want to set the root filesystem to "1" and everything else to "2." A "0" means that partition will not be checked.

Without the 1.3 versions of the **/etc/init.d/{MOUNTFSYS, tcp, nfs, netdaemons}** files, some of the system daemons will not start up properly and disk quotas will not be enabled.

sendmail and VIS

Because the **sendmail** program included with ES/os 1.3 is a new version, it is important to run the **newaliases** command or **sendmail -bi** to rebuild the aliases database after performing and update installation of ES/os 1.3.

Note that if there is no **/etc/vis.conf** file, mail may bounce with a host unknown message. If you see these errors, be sure to check for a **vis.conf** file. The default value for **/etc/vis.conf** when it does not exist is:

```
host: files
```

Unfortunately, if you are on a machine whose **/usr/lib/aliases** file uses domain-style names but the **/etc/hosts** file does not, this will be a problem. When VIS is configured as the default, **sendmail** ignores named and looks only at **/etc/hosts**. If **/etc/hosts** and **/usr/lib/aliases** do not use consistent host names, **sendmail** gets "not found" from the sending machine.

Adding ttys

In addition to setting up user accounts, getty entries in the **/etc/gettydefs** file must be activated. The word "off" in field 3 of the file must be changed to "respawn" in order to activate these entries. See the *System Administrator's Guide* and the **gettydefs(4)** man page for more information.

Device Files

If your system is configured with additional peripherals, you may need to create new device files in **/dev** with the **/dev/MKDEV** shell script. For instance, to create node names for a disk on a second controller of the M/2000, you would give the commands:

```
# cd /dev
```

```
# ./MKDEV -p ipc1d0
```

For more information, see the **MKDEV(1M)** man page and the **README** and **m*.system** file (whichever is appropriate) in **/dev/DEV_DB**.

Permissions on Device Files

If you have modified any of the permissions on device files in **/dev**, they will need to be reset after the installation procedure, since these files are remade with standard permissions as part of the installation.

Swap Space

If your system requires additional swap partitions and additional partitions were not configured during installation, they must be added to **/etc/fstab** so that they are added when the system is booted multi-user. The format for a valid swap partition entry is:

```
block-device ignored swap rw,noauto 0 0
```

For example, the entry

```
/dev/dsk/ipc0d1s7 none swap rw,noauto 0 0
```

will result in controller 0, disk 1, partition 7 being added as a swap device.

Note: Partition 1 of disk 0 is added automatically during a scratch install.

Network Configuration

And finally, if a network is to be used on the new system, there are a couple of files that require modification: **/etc/hosts** and **/etc/local_hostname**, if this was not already done during the installation. For the hosts file, simply add the system names and internet addresses for the machines on your network. For **local_hostname**, change the 'no_hostname_set' to the hostname for the system, and change '255.255.255.255' to the broadcast address for your system. Note that the internet address and the broadcast address are not the same numbers. For more information on how to determine these addresses, see the *System Administrator's Guide*.

Installation Instructions - ES/os Domestic/Foreign Tape 1.3 -Update-

Things to Check PRIOR to an Update Installation

Before beginning this installation, you should verify that your system has enough disk space available. For successful installation of all packages on this tape there must be at least 7000 Kbytes available on **/dev/root** and at least 40000 Kbytes available on **/dev/usr**. Use the **df** command to get a listing of the bytes available on your machine.

If your machine does not have enough space on **/dev/usr**, you may be able to reclaim a large amount of space by removing unneeded system-crash core files. This can be done as follows:

```
cd /usr/adm/crash
ls -l
```

If the listing shows any files named **core.#** or **unix.#**, remove them.

```
rm ./core.*
rm ./unix.*
```

If you still do not have enough room, you will need to do further file cleanup, *i.e.*, transfer some of your users accounts to another disk and/or elect not to install all the sub-packages.

Furthermore, when this script asks you if you want to clean up old versions of subpackages, always type **y**, to free up needed disk space.

Installation Begins Here

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

To install this tape, insert the ES/os Domestic or Foreign Tape into the tapedrive, and proceed as follows:

1) Power up the machine and let it run its power-on diagnostics. Make sure they all **PASS**.

OR...

1) Login as **root** and make sure everyone else is off the machine.

2) Type **sync; sync**

3) Type **telinit 0**

```
E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST
1990
```

```
Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved
```

```
Memory size: 33554432 (0x2000000) bytes
```

Icache size: 65536 (0x10000) bytes
 Dcache size: 65536 (0x10000) bytes

>> **boot -f tqis(,,2)sash.std**

120544+23088+170432 entry: 0xa0300000

MIPS Standalone Shell Version 4.10 MIPS OPT Tue Aug 14 08:39:23 MDT 1990

sash: **cp -b 16k tqis(,,4) dkis(,,1)**

.....

13824000 (0xd2f000) bytes copied

sash: **boot -f tqis(,,6)unix.std root=isc0d0s1**

846208+101360+789520 entry: 0x80021000

CPU: MIPS R3000 Processor Chip Revision: 2.0

FPU: MIPS R3010 VLSI Floating Point Chip Revision: 2.0

ES/os Release 1.3.10 ESV Version R_100

Total real memory = 33554432

Available memory = 31170560

abminit: ARS/HIC not present.

arsinit: ARS/HIC not present.

YO FDDI!

installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0

Root on dev 0x1001, Swap on dev 0x1001

installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0

Root fstype ffs

New swplo: 26992 swap size: 19272K bytes

Available memory = 29478912

Miniroot run level 1

Making miniroot device files for m120 system...

set -a

Installation Instructions

```
# Install=update
# inst
```

Software package installation

Installation Information:

This is an update install.

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y]? <CR>

Note: It is not necessary to install a kernel on the miniroot. The process will take a few minutes.

Would you like to install the kernel to the miniroot (y n) [n]? <CR>

=====
checking subpackages
=====

The following subpackages may be installed:

```
root      -- RISC/os Standard Root Filesystem
m120      -- RISC/os m/120, RC3240 Kernel and Devices
usr       -- RISC/os Standard /usr Filesystem
cmplrs    -- MIPS-C Compiler
cmplrs-bsd43  -- MIPS-C 4.3 BSD Include Files and Libraries
man       -- RISC/os Manual Pages
bsd43     -- RISC/os 4.3 BSD Utilities, Include Files and Libraries
reconfig  -- Kernel Binary Reconfiguration Components
emacs     -- emacs
posix     -- RISC/os POSIX P1003.1 Include Files, Commands and Libraries
uucp      -- UUCP
sccs      -- SCCS
news_readers  -- News Readers
games     -- Games
mh        -- mh
```

=====
selecting subpackages
=====

You may select all of the above subpackages by answering **y** to the following question. If you answer **n**, you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

=====
setting system clock/calendar
=====

The current value of the clock is: Thu Aug 30 16:32:55 PDT 1990

Is the clock correct (y n) [y]? <CR>

===== verifying single-user mode =====

The system is in a single-user run level.

Please answer **y** to the following question unless you really understand the consequences.

Do you want to install sash to the volume header (y n) [y]? <CR>

===== installing sash to volume header =====

===== mounting filesystems =====

/dev/root mounted on /mnt

/dev/usr mounted on /mnt/usr

```
-----
Partition                Megs      Mounted File System or Partition Usage
-----
0  /dev/dsk/isc0d0s0      23      /dev/root
1  /dev/dsk/isc0d0s1      33      /
6  /dev/dsk/isc0d0s6     564     /dev/usr
7  /dev/dsk/isc0d0s7      14      -**** Available Partition ****-
```

```
-----
Disk Device    /dev/dsk/isc0d0s2      632      Megabytes Total Size
-----
```

Do you wish to change swap partition configuration (y n) [n]? n

===== preserving local files =====

Running preserve -s for subpackage root... 55 files preserved.

No preserve list or findmods list for m120- preserve not executed.

Running preserve -s for subpackage usr... 25 files preserved.

No preserve list or findmods list for cmplrs- preserve not executed.

No preserve list or findmods list for cmplrs-bsd43- preserve not executed.

No preserve list or findmods list for man- preserve not executed.

No preserve list or findmods list for bsd43- preserve not executed.

No preserve list or findmods list for reconfig- preserve not executed.

No preserve list or findmods list for emacs- preserve not executed.

No preserve list or findmods list for posix- preserve not executed.

No preserve list or findmods list for uucp- preserve not executed.

No preserve list or findmods list for sccs- preserve not executed.

No preserve list or findmods list for news_readers- preserve not executed.

No preserve list or findmods list for games- preserve not executed.

No preserve list or findmods list for mh- preserve not executed.

Installation Instructions

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? <CR>

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

You will see either this:

device	bfree	ifree	breq	ireq	bcred	icred
/dev/root	7873	8858	15146	440	9221	320
/dev/usr	61418	109649	108483	7264	50649	5788

WARNING! This package will fit on the disk, but it will cause more than 90% of the disk to be used.

This may cause problems for non-root users.

It is recommended that you abort the installation now.

OR this:

The package (and any selected optional subpackages) cannot be installed at this time due to the shortage(s) of disk space and/or inodes shown above. Please make the required space available and then retry the installation procedure.

(Press return to continue...)

The script now restores the **-preserve** files and returns to the following prompt:

<-At this prompt, SEE SYSTEM MANAGER.

OR this:

There is enough space.

===== stripping old links =====

Stripping links for subpackage root...
Stripping links for subpackage m120...
Stripping links for subpackage usr...
Stripping links for subpackage cmplrs...
Stripping links for subpackage cmplrs-bsd43...
Stripping links for subpackage man...
Stripping links for subpackage bsd43...
Stripping links for subpackage reconfig...
Stripping links for subpackage emacs...
Stripping links for subpackage posix...
Stripping links for subpackage uucp...
Stripping links for subpackage sccs...

```
Stripping links for subpackage news_readers...
Stripping links for subpackage games...
Stripping links for subpackage mh...

===== extracting files from subpackage archives =====
rewinding the tape...
Verifying tape id... ok
Forward spacing the tape...

Loading subpackage: root...
Forward spacing the tape...
Loading subpackage: ml20...
Forward spacing the tape...
Loading subpackage: usr...
Forward spacing the tape...
Loading subpackage: cmplrs...
Forward spacing the tape...
Loading subpackage: cmplrs-bsd43...
Forward spacing the tape...
Loading subpackage: man...
Forward spacing the tape...
Loading subpackage: bsd43...
Forward spacing the tape...
Loading subpackage: reconfig...
Forward spacing the tape...
Loading subpackage: emacs...
Forward spacing the tape...
Loading subpackage: posix...
Forward spacing the tape...
Loading subpackage: uucp...
Forward spacing the tape...
Loading subpackage: sccs...
Forward spacing the tape...
Loading subpackage: news_readers...
Forward spacing the tape...
Loading subpackage: games...
Forward spacing the tape...
Loading subpackage: mh...
Forward spacing the tape...
rewinding the tape...

===== making device special files =====

===== running comply =====

running first comply pass...
```

Installation Instructions

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Thu Aug 30 17:17:24 PDT 1990 =====

```
uncompress usr/bin/admin.Z
uncompress usr/bin/at.Z
uncompress usr/bin/chkey.Z
uncompress usr/bin/ct.Z
uncompress usr/bin/delta.Z
uncompress usr/bin/get.Z
uncompress usr/bin/ipcs.Z
uncompress usr/bin/mailx.Z
uncompress usr/bin/on.Z
uncompress usr/bin/prs.Z
uncompress usr/bin/snmpget.Z
uncompress usr/bin/snmpnext.Z
uncompress usr/bin/snmpset.Z
uncompress usr/bin/snmptrap.Z
uncompress usr/bin/snmpwalk.Z
uncompress usr/bin/yppasswd.Z
uncompress usr/dict/words.Z
uncompress usr/etc/arp.Z
uncompress usr/etc/automount.Z
uncompress usr/etc/crash.Z
uncompress usr/etc/ftpd.Z
uncompress usr/etc/fuser.Z
uncompress usr/etc/gated.Z
uncompress usr/etc/lboot.Z
uncompress usr/etc/mboot.Z
uncompress usr/etc/named.Z
uncompress usr/etc/netstat.Z
uncompress usr/etc/newkey.Z
uncompress usr/etc/nslookup.Z
uncompress usr/etc/pcnfsd.Z
uncompress usr/etc/route.Z
uncompress usr/etc/routed.Z
uncompress usr/etc/rpc.bootparamd.Z
uncompress usr/etc/rpc.lockd.Z
uncompress usr/etc/rpc.mountd.Z
uncompress usr/etc/rpc.passwd.Z
uncompress usr/etc/rpc.rexd.Z
uncompress usr/etc/rpc.rquotad.Z
uncompress usr/etc/rpc.ruserd.Z
uncompress usr/etc/rpc.sprayd.Z
```

```
uncompress usr/etc/rpc.statd.Z
uncompress usr/etc/rpc.yppasswdd.Z
uncompress usr/etc/rpc.ypupdated.Z
uncompress usr/etc/rwhod.Z
uncompress usr/etc/snmpd.Z
uncompress usr/etc/snmptrapd.Z
uncompress usr/etc/timed.Z
uncompress usr/etc/yp/yppush.Z
uncompress usr/etc/yp/ypserv.Z
uncompress usr/etc/yp/ypxfr.Z
uncompress usr/lib/libbsd.a.Z
uncompress usr/lib/libbsd_G0.a.Z
uncompress usr/lib/libc.a.Z
uncompress usr/lib/libc_G0.a.Z
uncompress usr/lib/libcurses.a.Z
uncompress usr/lib/libgen.a.Z
uncompress usr/lib/libsun.a.Z
uncompress usr/lib/lpsched.Z
uncompress usr/lib/sendmail.Z
uncompress usr/new/top.Z
uncompress usr/new/vsar.Z
uncompress usr/ucb/ci.Z
uncompress usr/ucb/co.Z
uncompress usr/ucb/ftp.Z
uncompress usr/ucb/rcs.Z
uncompress usr/ucb/rdist.Z
uncompress usr/ucb/rlog.Z
uncompress usr/ucb/telnet.Z
uncompress usr/lib/cmplrs/cc2.11/as02.11.Z
uncompress usr/lib/cmplrs/cc2.11/as12.11.Z
uncompress usr/lib/cmplrs/cc2.11/btou2.11.Z
uncompress usr/lib/cmplrs/cc2.11/ccom2.11.Z
uncompress usr/lib/cmplrs/cc2.11/cord2.11.Z
uncompress usr/lib/cmplrs/cc2.11/dbx2.11.Z
uncompress usr/lib/cmplrs/cc2.11/dis2.11.Z
uncompress usr/lib/cmplrs/cc2.11/driver2.11.Z
uncompress usr/lib/cmplrs/cc2.11/ld2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libm.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libm_G0.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libm_mips2.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmisc.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmisc_G0.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmld.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmld_G0.a2.11.Z
```

Installation Instructions

```
uncompress usr/lib/cmplrs/cc2.11/lint1.Z
uncompress usr/lib/cmplrs/cc2.11/mkshlib2.11.Z
uncompress usr/lib/cmplrs/cc2.11/nm2.11.Z
uncompress usr/lib/cmplrs/cc2.11/odump2.11.Z
uncompress usr/lib/cmplrs/cc2.11/pixie2.11.Z
uncompress usr/lib/cmplrs/cc2.11/pixstats_m12.11.Z
uncompress usr/lib/cmplrs/cc2.11/pixstats_m22.11.Z
uncompress usr/lib/cmplrs/cc2.11/prof2.11.Z
uncompress usr/lib/cmplrs/cc2.11/ugen2.11.Z
uncompress usr/lib/cmplrs/cc2.11/umerge2.11.Z
uncompress usr/lib/cmplrs/cc2.11/uopt2.11.Z
uncompress usr/lib/cmplrs/cc2.11/utob2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libm.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libm_G0.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libm_mips2.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmisc.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmisc_G0.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmld.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmld_G0.a2.11.Z
uncompress usr/bsd43/bin/at.Z
uncompress usr/bsd43/bin/at1.Z
uncompress usr/bsd43/bin/atq.Z
uncompress usr/bsd43/bin/atrm.Z
uncompress usr/bsd43/bin/awk.Z
uncompress usr/bsd43/bin/chgrp.Z
uncompress usr/bsd43/bin/chown.Z
uncompress usr/bsd43/bin/date.Z
uncompress usr/bsd43/bin/deroff.Z
uncompress usr/bsd43/bin/efl.Z
uncompress usr/bsd43/bin/enroll.Z
uncompress usr/bsd43/bin/error.Z
uncompress usr/bsd43/bin/find.Z
uncompress usr/bsd43/bin/from.Z
uncompress usr/bsd43/bin/groups.Z
uncompress usr/bsd43/bin/install.Z
uncompress usr/bsd43/bin/lastcomm.Z
uncompress usr/bsd43/bin/lock.Z
uncompress usr/bsd43/bin/lpc.Z
uncompress usr/bsd43/bin/lpd.Z
uncompress usr/bsd43/bin/lpq.Z
uncompress usr/bsd43/bin/lpr.Z
uncompress usr/bsd43/bin/lprm.Z
uncompress usr/bsd43/bin/ls.Z
uncompress usr/bsd43/bin/msgs.Z
```

```
uncompress usr/bsd43/bin/nroff.Z
uncompress usr/bsd43/bin/ps.Z
uncompress usr/bsd43/bin/sa.Z
uncompress usr/bsd43/bin/talk.Z
uncompress usr/bsd43/bin/tar.Z
uncompress usr/bsd43/bin/troff.Z
uncompress usr/bsd43/bin/vacation.Z
uncompress usr/bsd43/bin/w.Z
uncompress usr/bsd43/bin/window.Z
uncompress usr/bsd43/bin/xget.Z
uncompress usr/bsd43/bin/xsend.Z
uncompress usr/bsd43/usr/lib/atrun.Z
uncompress usr/bsd43/usr/lib/libc.a.Z
uncompress usr/bsd43/usr/lib/libc_G0.a.Z
uncompress usr/bsd43/usr/lib/libcurses.a.Z
uncompress usr/bsd43/usr/lib/librpcsvc.a.Z
uncompress usr/bsd43/usr/lib/struct/structure.Z
uncompress usr/bsd43/usr/lib/style1.Z
uncompress usr/bsd43/usr/lib/style2.Z
uncompress usr/ucb/sysline.Z
uncompress usr/ucb/systat.Z
uncompress usr/ucb/vmstat.Z
uncompress usr/ucb/whois.Z
uncompress usr/src/uts/mips/bootarea_i/bsd.a.Z
uncompress usr/src/uts/mips/bootarea_i/bsd43.a.Z
uncompress usr/src/uts/mips/bootarea_i/kernel.o.Z
uncompress usr/src/uts/mips/bootarea_i/librpc.a.Z
uncompress usr/src/uts/mips/bootarea_i/nfs.o.Z
uncompress usr/src/uts/mips/bootarea_i/posix.a.Z
uncompress usr/src/uts/mips/bootarea_i/ufs.o.Z
uncompress usr/new/emacs.Z
uncompress usr/new/lib/emacs/etc/DOC.Z
uncompress usr/new/lib/emacs/etc/DOC-18.52.1.Z
uncompress usr/new/lib/emacs/etc/loadst.Z
uncompress usr/new/lib/emacs/etc/termcap.ucb.Z
uncompress usr/new/lib/emacs/lisp/ChangeLog.Z
uncompress usr/new/lib/emacs/lisp/cl.el.Z
uncompress usr/new/lib/emacs/lisp/gnews-2.0/=MANUAL.Z
uncompress usr/new/lib/emacs/lisp/mh-e.el.Z
uncompress usr/new/lib/emacs/lisp/vip.el.Z
uncompress usr/new/lib/mh/ap.Z
uncompress usr/new/lib/mh/conflict.Z
uncompress usr/new/lib/mh/dp.Z
uncompress usr/new/lib/mh/install-mh.Z
```

Installation Instructions

```
uncompress usr/new/lib/mh/mhl.Z
uncompress usr/new/lib/mh/post.Z
uncompress usr/new/lib/mh/rcvdist.Z
uncompress usr/new/lib/mh/rcvpack.Z
uncompress usr/new/lib/mh/rcvstore.Z
uncompress usr/new/lib/mh/rcvttty.Z
uncompress usr/new/lib/mh/slocal.Z
uncompress usr/new/lib/mh/spost.Z
uncompress usr/new/mh/ali.Z
uncompress usr/new/mh/anno.Z
uncompress usr/new/mh/burst.Z
uncompress usr/new/mh/comp.Z
uncompress usr/new/mh/dist.Z
uncompress usr/new/mh/forw.Z
uncompress usr/new/mh/inc.Z
uncompress usr/new/mh/mark.Z
uncompress usr/new/mh/mhmail.Z
uncompress usr/new/mh/mhpath.Z
uncompress usr/new/mh/msgchk.Z
uncompress usr/new/mh/msh.Z
uncompress usr/new/mh/packf.Z
uncompress usr/new/mh/pick.Z
uncompress usr/new/mh/prompter.Z
uncompress usr/new/mh/refile.Z
uncompress usr/new/mh/repl.Z
uncompress usr/new/mh/rmf.Z
uncompress usr/new/mh/rmm.Z
uncompress usr/new/mh/scan.Z
uncompress usr/new/mh/send.Z
uncompress usr/new/mh/sortm.Z
uncompress usr/new/mh/vmh.Z
uncompress usr/new/mh/whatnow.Z
uncompress usr/new/mh/whom.Z
```

```
===== cleaning up old versions =====
```

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

At this point, you may be asked to "Cleanup" old software from the system. It is recommended that you type **y** to these inquiries.

```
===== restoring preserved user files =====
```

Running preserve -r for subpackage root...

No preserve list or findmods list for m120- no files restored.
Running preserve -r for subpackage usr...
No preserve list or findmods list for cmplrs- no files restored.
No preserve list or findmods list for cmplrs-bsd43- no files restored.
No preserve list or findmods list for man- no files restored.
No preserve list or findmods list for bsd43- no files restored.
No preserve list or findmods list for reconfig- no files restored.
No preserve list or findmods list for emacs- no files restored.
No preserve list or findmods list for posix- no files restored.
No preserve list or findmods list for uucp- no files restored.
No preserve list or findmods list for sccs- no files restored.
No preserve list or findmods list for news_readers- no files restored.
No preserve list or findmods list for games- no files restored.
No preserve list or findmods list for mh- no files restored.

===== running conversion scripts =====

===== root.fstab Thu Aug 30 17:24:49 PDT 1990 =====

No ips devices found in /etc/fstab.

To take advantage of the improved parallel fsck, /etc/fstab will now be modified to allow the root partition to be fsck'd on the first pass. All other local filesystems will be fsck'd on the second pass.

A copy of /etc/fstab will be saved as /etc/fstab.save.1.

No changes made.

Press return to continue: <CR>

===== cleaning up =====

Copying packaging information directory to /mnt/usr/pkg/lib/ESos1.3...

Removing Duplicate File /mnt/etc/TZ:1.3+
Removing Duplicate File /mnt/etc/exports:1.3+
Removing Duplicate File /mnt/etc/fstab:1.3+
Removing Duplicate File /mnt/etc/group:1.3+
Removing Duplicate File /mnt/etc/inittab:1.3+
Removing Duplicate File /mnt/etc/motd:1.3+
Removing Duplicate File /mnt/etc/networks:1.3+
Removing Duplicate File /mnt/etc/passwd:1.3+
Removing Duplicate File /mnt/usr/etc/exports:1.3+
Removing Duplicate File /mnt/usr/etc/bootptab:1.3+
Removing Duplicate File /mnt/usr/etc/timed.conf:1.3+
Removing Duplicate File /mnt/usr/lib/aliases:1.3+
Removing Duplicate File /mnt/usr/lib/sendmail.cf:1.3+
Removing Duplicate File /mnt/usr/lib/me/local.me:1.3+

Installation Instructions

Unmounting filesystems...

/mnt/usr: Unmounted

/mnt: Unmounted

===== installation complete =====

sync; sync

telinit 0

#

INIT: New run level: 0

Miniroot shutdown

E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST 1990

Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved

Memory size: 33554432 (0x2000000) bytes

Icache size: 65536 (0x10000) bytes

Dcache size: 65536 (0x10000) bytes

>> auto

Autoboot: Waiting to load dkis(0,0,8)sash (CTRL-C to abort, RETURN to expedite) <CR>

loading

120544+23088+170432 entry: 0xa0300000

MIPS Standalone Shell Version 4.10 MIPS OPT Tue Aug 14 08:39:23 MDT 1990

Loading dkis(0,0,0)/unix

846208+101360+789520 entry: 0x80021000

CPU: MIPS R3000 Processor Chip Revision: 2.0

FPU: MIPS R3010 VLSI Floating Point Chip Revision: 2.0

ES/os Release 1.3.10 ESV Version R_100

Total real memory = 33554432

Available memory = 31170560

abminit: ARS/HIC not present.

arsinit: ARS/HIC not present.

installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0

installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0

Root fstype ffs

Available memory = 29478912

Checking root file system () if necessary.

The system is coming up. Please wait.

**** Normally all file systems are fscked.

**** To fsck only dirty ones, type 'yes' within 5 seconds:

**** All file systems will be fscked.

/dev/usr: 6199 files, 109289 used, 431746 free (2882 frags, 53608 blocks, 0.5% fragmentation)

/dev/usr mounted on /usr

No process accounting on this system

```
Aug 31 07:19:19 tonto unix: CPU: MIPS R3000 Processor Chip Revision: 2.0
Aug 31 07:19:19 tonto unix: FPU: MIPS R3010 VLSI Floating Point Chip
Revision: 2.0
Aug 31 07:19:20 tonto unix:
Aug 31 07:19:20 tonto unix: Total real memory = 33554432
Aug 31 07:19:20 tonto unix: Available memory = 31170560
Aug 31 07:19:20 tonto unix: abminit: ARS/HIC not present.
Aug 31 07:19:20 tonto unix: arsinit: ARS/HIC not present.
Aug 31 07:19:21 tonto unix: installing VME vector: addr 0x8007FFA4 ip1
2, vec 0xE0 unit 0
Aug 31 07:19:21 tonto unix: installing VME vector: addr 0x8007FFA4 ip1
2, vec 0xE0 unit 0
Aug 31 07:19:21 tonto unix: Root fstype ffs
Aug 31 07:19:21 tonto unix: Available memory = 29478912
checking for system core dump...
Internet daemons: routed snmpd snmptrapd portmap inetd timed(slave).
Export file systems
NFS daemons: nfsd biod lockd statd.
Aug 31 07:19:32 tonto rpc.statd[139]: enter statd_init
Aug 31 07:19:32 tonto rpc.statd[139]: 1
Aug 31 07:19:32 tonto rpc.statd[139]: local state = 1
Starting lpd
The system is ready.

tonto Console login:
```

Installation Instructions - ES/os Domestic/Foreign Tape - Scratch -

WARNING: This is a SCRATCH install. Data on the
root and **/usr** disks will be lost.

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

To install this tape, insert the ES/os Domestic/Foreign Tape 1.3 into the tape drive, and proceed as follows.

Power up the machine and let it run its power-on diagnostics. Make sure they all **PASS**.

```
E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST 1990
```

```
Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved
```

```
Memory size: 33554432 (0x2000000) bytes
```

```
Icache size: 65536 (0x10000) bytes
```

```
Dcache size: 65536 (0x10000) bytes
```

```
>> boot -f tqis(, ,2)format.std
```

```
128896+31552+206928 entry: 0x80020000
```

***** **Note:** The following sequence formats DISK 0 *****

```
MIPS Format Utility
```

```
Version 4.10 Fri Jan 26 15:47:23 MST 1990 cgoeltze
```

```
name of device? dkis
```

```
LUN number? 0
```

```
target id? 0
```

```
vendor: CDC
```

```
product: 94191-15
```

```
Disk has block caching enabled
```

```
device parameters from disk don't match table entries!
```

```
choose new device parameters (y if yes)? y
```

```
dump device parameters (y if yes)? <CR>
```

```
modify device parameters (y if yes)? <CR>
```

```
ump partition table (y if yes)? <CR>
```

```
modify partition table (y if yes)? <CR>
```

```
formatting destroys ALL SCSI disk data, perform format (y if yes)? <CR>
```

```
formatting wasn't done, perform scan anyway (y if yes)? <CR>
```

```
SCSI defect list manipulation, when prompted
choose one of (list, add, delete, quit)
command? q
writing volume header...
exit(0) called
```

CAUTION: The following sequence formats DISK 1. Only perform this sequence at the factory or if you really want to reformat and destroy data on DISK 1.

```
E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST
1990
```

```
Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved
```

```
Memory size: 33554432 (0x2000000) bytes
```

```
Icache size: 65536 (0x10000) bytes
```

```
Dcache size: 65536 (0x10000) bytes
```

```
>> go
```

```
MIPS Format Utility
```

```
Version 4.10 Fri Jan 26 15:47:23 MST 1990 cgoeltze
```

```
name of device? dkis
```

```
LUN number? 0
```

```
target id? 1
```

```
vendor: CDC
```

```
product: 94161-9
```

```
device parameters from disk don't match table entries!
```

```
choose new device parameters (y if yes)? y
```

```
dump device parameters (y if yes)? <CR>
```

```
modify device parameters (y if yes)? <CR>
```

```
dump partition table (y if yes)? <CR>
```

```
modify partition table (y if yes)? <CR>
```

```
formatting destroys ALL SCSI disk data, perform format (y if yes)? <CR>
```

```
formatting wasn't done, perform scan anyway (y if yes)? <CR>
```

```
SCSI defect list manipulation, when prompted
```

```
choose one of (list, add, delete, quit)
```

```
command? q
```

```
writing volume header...
```

```
exit(0) called
```

```
----- End of DISK 1 Formatting Sequence -----
```

Installation Instructions

E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST 1990

Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved

Memory size: 33554432 (0x2000000) bytes

Icache size: 65536 (0x10000) bytes

Dcache size: 65536 (0x10000) bytes

>> **init**

E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST 1990

Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved

Memory size: 33554432 (0x2000000) bytes

Icache size: 65536 (0x10000) bytes

Dcache size: 65536 (0x10000) bytes

>> **boot -f tqis(,,2)sash.std**

120544+23088+170432 entry: 0xa0300000

MIPS Standalone Shell Version 4.10 MIPS OPT Tue Aug 14 08:39:23 MDT 1990

sash: **cp -b 16k tqis(,,4) dkis(,,1)**

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
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.....

13824000 (0xd2f000) bytes copied

sash: **boot -f tqis(,,6)unix.std root=isc0d0s1**

846208+101360+789520 entry: 0x80021000

CPU: MIPS R3000 Processor Chip Revision: 2.0

FPU: MIPS R3010 VLSI Floating Point Chip Revision: 2.0

ES/os Release 1.3 ESV Version R_100

Total real memory = 33554432

Available memory = 31170560

abminit: ARS/HIC not present.

arsinit: ARS/HIC not present.

YO FDDI!

installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0

```
Root on dev 0x1001, Swap on dev 0x1001
installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0
Root fstype ffs
New swplo: 26992 swap size: 19272K bytes
Available memory = 29478912
```

```
Miniroot run level 1
```

```
Making miniroot device files for m120 system...
```

```
# inst
```

```
Software package installation
```

```
Installation Information:
```

```
This is a SCRATCH install. Data on the root and /usr disks will be
lost. Packages will be read in from the local Q24 tape drive.
```

```
Machine type: m120
```

```
Is the information above correct? (y n) [y]? y
```

```
Note: It is not necessary to install a kernel on the miniroot
      The process will take a few minutes.
```

```
Would you like to install the kernel to the miniroot (y n) [n]? <CR>
```

```
===== checking subpackages =====
```

```
The following subpackages may be installed:
```

```
root    -- RISC/os Standard Root Filesystem
m120    -- RISC/os m/120, RC3240 Kernel and Devices
usr     -- RISC/os Standard /usr Filesystem
cmplrs  -- MIPS-C Compiler
cmplrs-bsd43  -- MIPS-C 4.3 BSD Include Files and Libraries
man     -- RISC/os Manual Pages
bsd43   -- RISC/os 4.3 BSD Utilities, Include Files and Libraries
reconfig    -- Kernel Binary Reconfiguration Components
emacs   -- emacs
posix   -- RISC/os POSIX P1003.1 Include Files, Commands and Libraries
uucp    -- UUCP
sccs    -- SCCS
news_readers  -- News Readers
games   -- Games
mh      -- mh
```

```
===== selecting subpackages =====
```

Installation Instructions

You may select all of the above subpackages by answering **y** to the following question. If you answer **n**, you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

=====
setting system clock/calendar
=====

The current value of the clock is: Thu Aug 30 14:10:44 PDT 1990

Is the clock correct (y n) [y]? <CR>

=====
verifying single-user mode
=====

The system is in a single-user run level.

Please answer "y" to the following question unless you really understand the consequences.

Do you want to install sash to the volume header (y n) [y]? <CR>

=====
installing sash to volume header
=====

=====
determining /usr partition
=====

Partition	Megs	Mounted File System or Partition Usage
3 /dev/dsk/isc0d0s3	578	-**** Available Partition ****-
4 /dev/dsk/isc0d0s4	376	-**** Available Partition ****-
5 /dev/dsk/isc0d0s5	188	-**** Available Partition ****-
6 /dev/dsk/isc0d0s6	564	-**** Available Partition ****-

Disk Device	/dev/dsk/isc0d0s2	632	Megabytes Total Size
-------------	-------------------	-----	----------------------

Possible partitions to use are marked by -**** Available Partition ****-

select either partition 3, 4, 5 or 6

Which partition should /usr be installed on [6]? <CR>

/usr partition will be installed on partition 6

=====
initializing filesystems
=====

A scratch install of an operating system package is being performed from the miniroot. Normally in this case the filesystems are initialized. When a filesystem is initialized, any existing data will be lost. You will be given a chance to override initialization of each individual filesystem below.

Initialize filesystems (y n) [y]? <CR>

Disk type for controller 0 drive 0 [94171]? <CR>

Initialize filesystem on /dev/root (y n) [y]? <CR>

Initialize filesystem on /dev/usr (y n) [y]? <CR>

Initializing the filesystem on /dev/root...

/dev/root: 46080 sectors in 180 cylinders of 1 tracks, 256 sectors
23.6Mb in 12 cyl groups (16 c/g, 2.10Mb/g, 832 i/g)

super-block backups (for fsck -b#) at:

32, 4128, 8224, 12320, 16416, 20512, 24608, 28704, 32800, 36896,
40992, 45088,

rotational delay between contiguous blocks changes from 7ms to 0ms

Checking the filesystem on /dev/root...

** /dev/root

** Last Mounted on

** Phase 1 - Check Blocks and Sizes

** Phase 2 - Check Pathnames

** Phase 3 - Check Connectivity

** Phase 4 - Check Reference Counts

** Phase 5 - Check Cyl groups

2 files, 9 used, 21574 free (14 frags, 2695 blocks, 0.1% fragmentation)

Initializing the filesystem on /dev/usr...

/dev/usr:1154304 sectors in 4509 cylinders of 1 tracks, 256 sectors

591.0Mb in 282 cyl groups (16 c/g, 2.10Mb/g, 896 i/g)

super-block backups (for fsck -b#) at:

32, 4128, 8224, 12320, 16416, 20512, 24608, 28704, 32800, 36896,
40992, 45088, 49184, 53280, 57376, 61472, 65568, 69664, 73760, 77856,
81952, 86048, 90144, 94240, 98336, 102432, 106528, 110624, 114720,
118816,
122912, 127008, 131104, 135200, 139296, 143392, 147488, 151584, 155680,
159776,
163872, 167968, 172064, 176160, 180256, 184352, 188448, 192544, 196640,
200736,
204832, 208928, 213024, 217120, 221216, 225312, 229408, 233504, 237600,
241696,
245792, 249888, 253984, 258080, 262176, 266272, 270368, 274464, 278560,
282656,
286752, 290848, 294944, 299040, 303136, 307232, 311328, 315424, 319520,
323616,
327712, 331808, 335904, 340000, 344096, 348192, 352288, 356384, 360480,
364576,
368672, 372768, 376864, 380960, 385056, 389152, 393248, 397344, 401440,
405536,
409632, 413728, 417824, 421920, 426016, 430112, 434208, 438304, 442400,
446496,
450592, 454688, 458784, 462880, 466976, 471072, 475168, 479264, 483360,
487456,

Installation Instructions

491552, 495648, 499744, 503840, 507936, 512032, 516128, 520224, 524320,
528416,
532512, 536608, 540704, 544800, 548896, 552992, 557088, 561184, 565280,
569376,
573472, 577568, 581664, 585760, 589856, 593952, 598048, 602144, 606240,
610336,
614432, 618528, 622624, 626720, 630816, 634912, 639008, 643104, 647200,
651296,
655392, 659488, 663584, 667680, 671776, 675872, 679968, 684064, 688160,
692256,
696352, 700448, 704544, 708640, 712736, 716832, 720928, 725024, 729120,
733216,
737312, 741408, 745504, 749600, 753696, 757792, 761888, 765984, 770080,
774176,
778272, 782368, 786464, 790560, 794656, 798752, 802848, 806944, 811040,
815136,
819232, 823328, 827424, 831520, 835616, 839712, 843808, 847904, 852000,
856096,
860192, 864288, 868384, 872480, 876576, 880672, 884768, 888864, 892960,
897056,
901152, 905248, 909344, 913440, 917536, 921632, 925728, 929824, 933920,
938016,
942112, 946208, 950304, 954400, 958496, 962592, 966688, 970784, 974880,
978976,
983072, 987168, 991264, 995360, 999456, 1003552, 1007648, 1011744,
1015840, 1019936,
1024032, 1028128, 1032224, 1036320, 1040416, 1044512, 1048608, 1052704,
1056800, 1060896,
1064992, 1069088, 1073184, 1077280, 1081376, 1085472, 1089568, 1093664,
1097760, 1101856,
1105952, 1110048, 1114144, 1118240, 1122336, 1126432, 1130528, 1134624,
1138720, 1142816,
1146912, 1151008,

rotational delay between contiguous blocks changes from 7ms to 0ms

Checking the filesystem on /dev/usr...

** /dev/usr

** Last Mounted on

** Phase 1 - Check Blocks and Sizes

** Phase 2 - Check Pathnames

** Phase 3 - Check Connectivity

** Phase 4 - Check Reference Counts

** Phase 5 - Check Cyl groups

2 files, 9 used, 541026 free (10 frags, 67627 blocks, 0.0% fragmentation)

===== mounting filesystems =====

/dev/root mounted on /mnt

/dev/usr mounted on /mnt/usr

```
-----
Partition                Megs    Mounted File System or Partition Usage
-----
0  /dev/dsk/isc0d0s0     23     /dev/root
1  /dev/dsk/isc0d0s1     33     /
6  /dev/dsk/isc0d0s6    564    /dev/usr
7  /dev/dsk/isc0d0s7     14     -**** Available Partition ****-
-----
Disk Device    /dev/dsk/isc0d0s2        632    Megabytes Total Size
-----
```

Do you wish to change swap partition configuration (y n) [n]? <CR>

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **y**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: root...

Forward spacing the tape...

Loading subpackage: ml20...

Forward spacing the tape...

Loading subpackage: usr...

Forward spacing the tape...

Loading subpackage: cmplrs...

Forward spacing the tape...

Loading subpackage: cmplrs-bsd43...

Forward spacing the tape...

Loading subpackage: man...

Forward spacing the tape...

Loading subpackage: bsd43...

Forward spacing the tape...

Loading subpackage: reconfig...

Forward spacing the tape...

Loading subpackage: emacs...

Installation Instructions

```
Forward spacing the tape...
Loading subpackage: posix...
Forward spacing the tape...
Loading subpackage: uucp...
Forward spacing the tape...
Loading subpackage: sccs...
Forward spacing the tape...
Loading subpackage: news_readers...
Forward spacing the tape...
Loading subpackage: games...
Forward spacing the tape...
Loading subpackage: mh...
Forward spacing the tape...
rewinding the tape...
```

```
===== making device special files =====
```

```
===== running comply =====
```

```
running first comply pass...
running second comply pass...
There were no comply messages from the second pass.
```

```
===== doing uncompress Thu Aug 30 15:27:31 PDT 1990 =====
```

```
uncompress usr/bin/admin.Z
uncompress usr/bin/at.Z
uncompress usr/bin/chkey.Z
uncompress usr/bin/ct.Z
uncompress usr/bin/delta.Z
uncompress usr/bin/get.Z
uncompress usr/bin/ipcs.Z
uncompress usr/bin/mailx.Z
uncompress usr/bin/on.Z
uncompress usr/bin/prs.Z
uncompress usr/bin/snmpget.Z
uncompress usr/bin/snmpnext.Z
uncompress usr/bin/snmpset.Z
uncompress usr/bin/snmptrap.Z
uncompress usr/bin/snmpwalk.Z
uncompress usr/bin/yppasswd.Z
uncompress usr/dict/words.Z
uncompress usr/etc/arp.Z
uncompress usr/etc/automount.Z
uncompress usr/etc/crash.Z
uncompress usr/etc/ftpd.Z
```

```
uncompress usr/etc/fuser.Z
uncompress usr/etc/gated.Z
uncompress usr/etc/lboot.Z
uncompress usr/etc/mboot.Z
uncompress usr/etc/named.Z
uncompress usr/etc/netstat.Z
uncompress usr/etc/newkey.Z
uncompress usr/etc/nslookup.Z
uncompress usr/etc/pcnfsd.Z
uncompress usr/etc/route.Z
uncompress usr/etc/routed.Z
uncompress usr/etc/rpc.bootparamd.Z
uncompress usr/etc/rpc.lockd.Z
uncompress usr/etc/rpc.mountd.Z
uncompress usr/etc/rpc.passwd.Z
uncompress usr/etc/rpc.rexd.Z
uncompress usr/etc/rpc.rquotad.Z
uncompress usr/etc/rpc.ruserd.Z
uncompress usr/etc/rpc.sprayd.Z
uncompress usr/etc/rpc.statd.Z
uncompress usr/etc/rpc.yppasswdd.Z
uncompress usr/etc/rpc.yppupdated.Z
uncompress usr/etc/rwhod.Z
uncompress usr/etc/snmpd.Z
uncompress usr/etc/snmptrapd.Z
uncompress usr/etc/timed.Z
uncompress usr/etc/yp/yppush.Z
uncompress usr/etc/yp/ypserv.Z
uncompress usr/etc/yp/ypxfr.Z
uncompress usr/lib/libbsd.a.Z
uncompress usr/lib/libbsd_G0.a.Z
uncompress usr/lib/libc.a.Z
uncompress usr/lib/libc_G0.a.Z
uncompress usr/lib/libcurses.a.Z
uncompress usr/lib/libgen.a.Z
uncompress usr/lib/libsun.a.Z
uncompress usr/lib/lpsched.Z
uncompress usr/lib/sendmail.Z
uncompress usr/new/top.Z
uncompress usr/new/vsar.Z
uncompress usr/ucb/ci.Z
uncompress usr/ucb/co.Z
uncompress usr/ucb/ftp.Z
uncompress usr/ucb/rcs.Z
uncompress usr/ucb/rdist.Z
```

Installation Instructions

```
uncompress usr/ucb/rlog.Z
uncompress usr/ucb/telnet.Z
uncompress usr/lib/cmplrs/cc2.11/as02.11.Z
uncompress usr/lib/cmplrs/cc2.11/as12.11.Z
uncompress usr/lib/cmplrs/cc2.11/btou2.11.Z
uncompress usr/lib/cmplrs/cc2.11/ccom2.11.Z
uncompress usr/lib/cmplrs/cc2.11/cord2.11.Z
uncompress usr/lib/cmplrs/cc2.11/dbx2.11.Z
uncompress usr/lib/cmplrs/cc2.11/dis2.11.Z
uncompress usr/lib/cmplrs/cc2.11/driver2.11.Z
uncompress usr/lib/cmplrs/cc2.11/ld2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libm.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libm_G0.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libm_mips2.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmisc.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmisc_G0.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmld.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/libmld_G0.a2.11.Z
uncompress usr/lib/cmplrs/cc2.11/lint1.Z
uncompress usr/lib/cmplrs/cc2.11/mkshlib2.11.Z
uncompress usr/lib/cmplrs/cc2.11/nm2.11.Z
uncompress usr/lib/cmplrs/cc2.11/odump2.11.Z
uncompress usr/lib/cmplrs/cc2.11/pixie2.11.Z
uncompress usr/lib/cmplrs/cc2.11/pixstats_m12.11.Z
uncompress usr/lib/cmplrs/cc2.11/pixstats_m22.11.Z
uncompress usr/lib/cmplrs/cc2.11/prof2.11.Z
uncompress usr/lib/cmplrs/cc2.11/ugen2.11.Z
uncompress usr/lib/cmplrs/cc2.11/umerge2.11.Z
uncompress usr/lib/cmplrs/cc2.11/uopt2.11.Z
uncompress usr/lib/cmplrs/cc2.11/utob2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libm.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libm_G0.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libm_mips2.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmisc.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmisc_G0.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmld.a2.11.Z
uncompress usr/bsd43/usr/lib/cmplrs/cc2.11/libmld_G0.a2.11.Z
uncompress usr/bsd43/bin/at.Z
uncompress usr/bsd43/bin/at1.Z
uncompress usr/bsd43/bin/atq.Z
uncompress usr/bsd43/bin/atrm.Z
uncompress usr/bsd43/bin/awk.Z
uncompress usr/bsd43/bin/chgrp.Z
uncompress usr/bsd43/bin/chown.Z
```

```
uncompress usr/bsd43/bin/date.Z
uncompress usr/bsd43/bin/deroff.Z
uncompress usr/bsd43/bin/efl.Z
uncompress usr/bsd43/bin/enroll.Z
uncompress usr/bsd43/bin/error.Z
uncompress usr/bsd43/bin/find.Z
uncompress usr/bsd43/bin/from.Z
uncompress usr/bsd43/bin/groups.Z
uncompress usr/bsd43/bin/install.Z
uncompress usr/bsd43/bin/lastcomm.Z
uncompress usr/bsd43/bin/lock.Z
uncompress usr/bsd43/bin/lpc.Z
uncompress usr/bsd43/bin/lpd.Z
uncompress usr/bsd43/bin/lpq.Z
uncompress usr/bsd43/bin/lpr.Z
uncompress usr/bsd43/bin/lprm.Z
uncompress usr/bsd43/bin/ls.Z
uncompress usr/bsd43/bin/mgs.Z
uncompress usr/bsd43/bin/nroff.Z
uncompress usr/bsd43/bin/ps.Z
uncompress usr/bsd43/bin/sa.Z
uncompress usr/bsd43/bin/talk.Z
uncompress usr/bsd43/bin/tar.Z
uncompress usr/bsd43/bin/troff.Z
uncompress usr/bsd43/bin/vacation.Z
uncompress usr/bsd43/bin/w.Z
uncompress usr/bsd43/bin/window.Z
uncompress usr/bsd43/bin/xget.Z
uncompress usr/bsd43/bin/xsend.Z
uncompress usr/bsd43/usr/lib/atrun.Z
uncompress usr/bsd43/usr/lib/libc.a.Z
uncompress usr/bsd43/usr/lib/libc_G0.a.Z
uncompress usr/bsd43/usr/lib/libcurses.a.Z
uncompress usr/bsd43/usr/lib/librpsvc.a.Z
uncompress usr/bsd43/usr/lib/struct/structure.Z
uncompress usr/bsd43/usr/lib/style1.Z
uncompress usr/bsd43/usr/lib/style2.Z
uncompress usr/ucb/sysline.Z
uncompress usr/ucb/systat.Z
uncompress usr/ucb/vmstat.Z
uncompress usr/ucb/whois.Z
uncompress usr/src/uts/mips/bootarea_i/bsd.a.Z
uncompress usr/src/uts/mips/bootarea_i/bsd43.a.Z
uncompress usr/src/uts/mips/bootarea_i/kernel.o.Z
```

Installation Instructions

```
uncompress usr/src/uts/mips/bootarea_i/librpc.a.Z
uncompress usr/src/uts/mips/bootarea_i/nfs.o.Z
uncompress usr/src/uts/mips/bootarea_i/posix.a.Z
uncompress usr/src/uts/mips/bootarea_i/ufs.o.Z
uncompress usr/new/emacs.Z
uncompress usr/new/lib/emacs/etc/DOC.Z
uncompress usr/new/lib/emacs/etc/DOC-18.52.1.Z
uncompress usr/new/lib/emacs/etc/loadst.Z
uncompress usr/new/lib/emacs/etc/termcap.ucb.Z
uncompress usr/new/lib/emacs/lisp/ChangeLog.Z
uncompress usr/new/lib/emacs/lisp/cl.el.Z
uncompress usr/new/lib/emacs/lisp/gnews-2.0/=MANUAL.Z
uncompress usr/new/lib/emacs/lisp/mh-e.el.Z
uncompress usr/new/lib/emacs/lisp/vip.el.Z
uncompress usr/new/lib/mh/ap.Z
uncompress usr/new/lib/mh/conflict.Z
uncompress usr/new/lib/mh/dp.Z
uncompress usr/new/lib/mh/install-mh.Z
uncompress usr/new/lib/mh/mhl.Z
uncompress usr/new/lib/mh/post.Z
uncompress usr/new/lib/mh/rcvdist.Z
uncompress usr/new/lib/mh/rcvpack.Z
uncompress usr/new/lib/mh/rcvstore.Z
uncompress usr/new/lib/mh/rcvtty.Z
uncompress usr/new/lib/mh/slocal.Z
uncompress usr/new/lib/mh/spost.Z
uncompress usr/new/mh/ali.Z
uncompress usr/new/mh/anno.Z
uncompress usr/new/mh/burst.Z
uncompress usr/new/mh/comp.Z
uncompress usr/new/mh/dist.Z
uncompress usr/new/mh/forw.Z
uncompress usr/new/mh/inc.Z
uncompress usr/new/mh/mark.Z
uncompress usr/new/mh/mhmail.Z
uncompress usr/new/mh/mhpath.Z
uncompress usr/new/mh/msgchk.Z
uncompress usr/new/mh/msh.Z
uncompress usr/new/mh/packf.Z
uncompress usr/new/mh/pick.Z
uncompress usr/new/mh/prompter.Z
uncompress usr/new/mh/refile.Z
uncompress usr/new/mh/repl.Z
uncompress usr/new/mh/rmf.Z
```



```
uncompress usr/new/mh/rmm.Z
uncompress usr/new/mh/scan.Z
uncompress usr/new/mh/send.Z
uncompress usr/new/mh/sortm.Z
uncompress usr/new/mh/vmh.Z
uncompress usr/new/mh/whatnow.Z
uncompress usr/new/mh/whom.Z
```

Before you can type **y** to the next questions, your system administrator must provide you with the following information:

- 1) System hostname.
- 2) Netmask.
- 3) Broadcast address.
- 4) Net address.
- 5) Domain name for your site.

The following entries are given for example **ONLY!**

```
Do you wish to configure the network (y n) [n]? y

===== making special network files =====

Set hostname [no_hostname]? tonto

Set netmask [0xffff0000]? 0xffffffff00
Set broadcast address [255.255.255.0]? 130.187.85.0
Set net address [127.1.0.0]? 130.187.85.156
Should we create the /etc/local_hostname file (y n) [y]? y

tonto 130.187.85.156
Should we add the above entry to the /etc/hosts file (y n) [y]? y

Set domain name [mips.com]? sauria
Should we create the /etc/local_domainname file (y n) [y]? y

===== cleaning up =====

Copying packaging information directory to /mnt/usr/pkg/lib/ESos1.3...
Copying miniroot fstab to installed system...
Unmounting filesystems...
/mnt/usr: Unmounted
/mnt: Unmounted

===== installation complete =====

# sync; sync
# telinit 0
```

Installation Instructions

```
#
INIT: New run level: 0

Miniroot shutdown

E&S CPU Board MIPS Monitor Version 4.10 MIPS OPT Tue Mar 6 15:00:28 MST
1990
Copyright 1988, MIPS Computer Systems Inc., All Rights Reserved
Memory size: 33554432 (0x2000000) bytes
Icache size: 65536 (0x10000) bytes
Dcache size: 65536 (0x10000) bytes
>> auto

Autoboot: Waiting to load dkis(0,0,8)sash (CTRL-C to abort, RETURN to
expedite)loading <CR>
120544+23088+170432 entry: 0xa0300000
MIPS Standalone Shell Version 4.10 MIPS OPT Tue Aug 14 08:39:23 MDT 1990

Loading dkis(0,0,0)/unix
846208+101360+789520 entry: 0x80021000
CPU: MIPS R3000 Processor Chip Revision: 2.0
FPU: MIPS R3010 VLSI Floating Point Chip Revision: 2.0

ES/os Release 1.3 ESV Version R_100
Total real memory = 33554432
Available memory = 31170560
abminit: ARS/HIC not present.
arsinit: ARS/HIC not present.
YO FDDI!
installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0
installing VME vector: addr 0x8007FFA4 ipl 2, vec 0xE0 unit 0
Root fstype ffs
Available memory = 29478912

Checking root file system () if necessary.
The system is coming up. Please wait.

***** Normally all file systems are fscked.
***** To fsck only dirty ones, type 'yes' within 5 seconds:
***** All file systems will be fscked.
/dev/usr: 6169 files, 109244 used, 431791 free (1751 frags, 53755
blocks, 0.3% fragmentation)
/dev/usr mounted on /usr
Timezone set to US/Pacific. See zic(1m) for details
No process accounting startup file.
Link one of:
init.d/bsd43_accton init.d/acct or init.d/noacct
to init.d/account
```

(See the Release Notes for details)

Aug 30 16:13:47 tonto unix: CPU: MIPS R3000 Processor Chip Revision: 2.0

Aug 30 16:13:47 tonto unix: FPU: MIPS R3010 VLSI Floating Point Chip Revision: 2.0

Aug 30 16:13:47 tonto unix:

Aug 30 16:13:47 tonto unix: Total real memory = 33554432

Aug 30 16:13:47 tonto unix: Available memory = 31170560

Aug 30 16:13:48 tonto unix: abminit: ARS/HIC not present.

Aug 30 16:13:48 tonto unix: arsinit: ARS/HIC not present.

Aug 30 16:13:48 tonto unix: installing VME vector: addr 0x8007FFA4 ip1 2, vec 0xE0 unit 0

Aug 30 16:13:48 tonto unix: installing VME vector: addr 0x8007FFA4 ip1 2, vec 0xE0 unit 0

Aug 30 16:13:48 tonto unix: Root fstype ffs

Aug 30 16:13:49 tonto unix: Available memory = 29478912

checking for system core dump...

Internet daemons: routed snmpd snmptrapd portmap inetd timed(slave).

Export file systems

NFS daemons: nfsd biod lockd statd.

Aug 30 16:13:59 tonto rpc.statd[144]: enter statd_init

Aug 30 16:13:59 tonto rpc.statd[144]: 1

Aug 30 16:13:59 tonto rpc.statd[144]: local state = 1

No printer daemon started.

Link either init.d/bsd43_lpd or init.d/lpsched to init.d/printer

(See the Release Notes for details)

The system is ready.

tonto Console login: **root**

ES/os 1.3 tonto

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```
*****
*                                     *
*      Evans & Sutherland             *
*      ESV Workstation                *
*                                     *
*****
```

```
TERM=(esconsole)
tonto # cd /etc/init.d
tonto # ln -s noacct account
tonto # ln -s bsd43_lpd printer
tonto # exit
```

tonto Console login:

Installation Instructions - ES/PEX Server Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

CAUTION: It is recommended that YOU are the only user logged onto the machine while loading this software.

To install this tape, insert the ES/PEX Server Tape 1.3 into the tape drive, login as **root**, and proceed as follows:

Type **cd /**

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... pexs1.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y]? **<CR>**

===== **checking subpackages**=====

The following subpackages may be installed:

executables_s -- PEX 1.3beta Executable Release

library_s -- PEX 1.3beta Library Release

pexs-man -- PEX 1.3beta Man Page Release

fstest -- fstest Release

===== **selecting subpackages**=====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

=====
setting system clock/calendar
=====

The current value of the clock is: Mon Sep 10 11:41:06 MDT 1990

Is the clock correct (y n) [y]? <CR>

=====
verifying single-user mode
=====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? **y**

=====
preserving local files
=====

Running preserve -s subpackage executables_s...2 files preserved
No preserve list or findmods list for library_s- preserve not executed.
No preserve list or findmods list for pexs-man- preserve not executed.
No preserve list or findmods list for fstest- preserve not executed.

=====
verifying disk space
=====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? <CR>

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

If you see this type of error message:

```
space: error: fstabind(): couldn't find device file for dev=0x1439
```

there is a filesystem linked through NFS to another system which must be removed before the installation can be performed.

=====
stripping old links
=====

```
Stripping links for subpackage executables_s...  
Stripping links for subpackage library_s...  
Stripping links for subpackage pexs-man...  
Stripping links for subpackage fstest...
```

=====
extracting files from subpackage archives
=====

```
rewinding the tape...  
Verifying tape id... ok  
Forward spacing the tape...
```

Installation Instructions

```
Loading subpackage: executables_s...
Forward spacing the tape...
Loading subpackage: library_s...
Forward spacing the tape...
Loading subpackage: pexs-man...
Forward spacing the tape...
Loading subpackage: fstest...
Forward spacing the tape...
rewinding the tape...
```

```
===== running comply =====
```

```
running first comply pass...
running second comply pass...
There were no comply messages from the second pass.
```

```
===== doing uncompress Mon Sep 10 11:51:25 MDT 1990 =====
```

```
===== cleaning up old versions =====
```

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

Note: These messages appear if you have a previous version of ES/PEX Server installed on your system.

```
Clean up pexs.executables_s 1.2 (y n) [n]? y
Removing leftover files from pexs.executables 1.2...
rm ./usr/bin/X11/imake
rm ./usr/bin/X11/sw
rm ./usr/bin/X11/swstart
Clean up pexs.library_s 1.2 (y n) [n]? y
Removing leftover files from pexs.library_s 1.2...
rm ./usr/lib/X11/dsp_ucose
rm ./usr/lib/X11/fonts/misc/roman.esf
Clean up pexs.pexs-man 1.2 (y n) [n]? y
Removing leftover files from pexs.pexs-man 1.2...
rm ./usr/man/catman/x_man/man1/imake.1
Clean up pexs.fstest 1.2 (y n) [n]? y
Removing leftover files from pexs.fstest 1.2...
rm ./usr/people/fstest/diag/esv_sysdiag
```

There are no longer any boms present for any subpackages from //usr/pkg/lib/pexs1.2 version 1.2.
This probably indicates that no subpackages installed from this package are still present on the system.

Remove the packaging information tree for this package (y n) [y]? **y**

===== restoring preserved user files =====

Running preserve -r for subpackage executables_...

No preserve list or findmods list for library_s- no files restored.

No preserve list or findmods list for pexs-man- no files restored.

No preserve list or findmods list for fstest- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Installation Instructions

Installation Instructions - ES/PEX-Motif Library Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

To install this tape, insert the ES/PEX-Motif Library Tape 1.3 into the tape drive. Log in as root, and proceed as follows:

Type **cd /**

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... pex11.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: ml20

Is the information above correct? (y n) [y]? **<CR>**

=====
checking subpackages
=====

The following subpackages may be installed:

executables_1 -- PEX 1.3 Executable Release

library_1 -- PEX 1.3 Library Release

pex1-man -- PEX 1.3 Man Pages

=====
selecting subpackages
=====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

=====
setting system clock/calendar
=====

The current value of the clock is: Thu Sep 13 07:24:58 PDT 1990

Is the clock correct (y n) [y]? **<CR>**

=====
verifying single-user mode
=====

This system is not presently in a single-user run level. Installation

of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? **y**

===== preserving local files =====

No preserve list or findmods list for executables_1- preserve not executed.

No preserve list or findmods list for library_1- preserve not executed.

No preserve list or findmods list for pexl-man- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **y**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== stripping old links =====

Stripping links for subpackage executables_1...

Stripping links for subpackage library_1...

Stripping links for subpackage pexl-man...

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: executables_1...

Forward spacing the tape...

Loading subpackage: library_1...

Forward spacing the tape...

Loading subpackage: pexl-man...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Thu Sep 13 07:36:41 PDT 1990 =====

Installation Instructions

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

Note: These messages appear if you have a previous version of ES/PEX-Motif Library installed on your system.

Clean up pexl.executables_1 1.2 (y n) [n]? **y**
Removing leftover files from pexl.executables_1 1.2...
Clean up pexl.library_1 1.2 (y n) [n]? **y**
Removing leftover files from pexl.library_1 1.2...
Clean up pexl.pexl-man 1.2 (y n) [n]? **y**
Removing leftover files from pexl.pexl-man 1.2...

There are no longer any boms present for any subpackages from //usr/pkg/lib/pexl1.2 version 1.2.

This probably indicates that no subpackages installed from this package are still present on this system.

Remove the packaging information tree for this package (y n) [y]? <CR>

===== restoring preserved user files =====

No preserve list or findmods list for executables_1- no files restored.
No preserve list or findmods list for library_1- no files restored.
No preserve list or findmods list for pexl-man- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Installation Instructions - ES/PSX Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

CAUTION: It is recommended that YOU are the only user logged onto the machine while loading this software.

To install this tape, insert the ES/PSX Tape 1.3 into the tape drive, login as **root**, and proceed as follows:

Type **cd /**

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/?]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... psx1.3beta

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y]? **<CR>**

===== checking subpackages =====

The following subpackages may be installed:

psx -- PSX 1.3beta Release

===== selecting subpackages =====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Installation Instructions

Install ALL subpackages (y n) [n]? **y**

=====
setting system clock/calendar
=====

The current value of the clock is: Wed Sep 26 09:58:24 PDT 1990

Is the clock correct (y n) [y]? **<CR>**

=====
verifying single-user mode
=====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? **y**

=====
preserving local files
=====

No preserve list or findmods list for psx- preserve not executed.

=====
verifying disk space
=====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **<CR>**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

If you see this type of error message:

```
space: error: fstabind(): couldn't find device file for dev=0x1439
```

there is a filesystem linked through NFS to another system which must be removed before the installation can be performed.

=====
stripping old links
=====

Stripping links for subpackage psx...

```
===== extracting files from subpackage archives =====  
  
rewinding the tape...  
Verifying tape id... ok  
Forward spacing the tape...  
  
Loading subpackage: psx...  
Forward spacing the tape...  
rewinding the tape...  
  
===== running comply =====  
  
running first comply pass...  
running second comply pass...  
There were no comply messages from the second pass.  
  
===== doing uncompress Wed Sep 26 10:01:10 PDT 1990 =====  
  
===== cleaning up old versions =====  
  
An attempt will now be made to clean up any files left over from  
previous versions of the software which has just been installed.  
  
Searching for old versions to remove...  
  
===== restoring preserved user files =====  
  
No preserve list or findmods list for psx- no files restored.  
  
===== cleaning up =====  
  
Remove install tools (y n) [n]? y  
  
===== installation complete =====
```

Installation Instructions - ES/FORTRAN Binary Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

To install this tape, insert the ES/Fortran Binary Tape 1.3 into the tape drive. Login as **root**, and proceed as follows:

1) Determine that ES/os 1.3 or later version is running on the system by typing the command:

```
#uname -r
1.3
```

2) Determine that MIPS-C 2.11 is installed on the system by typing:

```
#ls -l /usr/bin/cc2.11
l----- 1 root other 27 Oct 11 16:23 usr bin cc2.11 - ..lib cmlrs
cc2.11 driver
```

3) Now type the following:

```
cd /
/usr/pkg/bin/inst
```

MIPS software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... f772.11

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct (y n) [y]? **<CR>**

===== checking subpackages =====

The following subpackages may be installed:

f77 -- MIPS-FORTRAN

f77-bsd43 -- MIPS-FORTRAN 4.3 BSD Libraries

f77-man -- MIPS-FORTRAN Manual Pages

===== selecting subpackages =====

You may select all of the above subpackages by answering **y** to the following question. If you answer **n**, you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

===== setting system clock calendar =====

The current value of the clock is: Mon May 21 17:25:29 PDT 1990

Is the clock correct (y n) [y]? **y**

===== verifying single-user mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? **y**

===== preserving local files =====

No preserve list or findmods list for f77- preserve not executed.

No preserve list or findmods list for f77-bsd43- preserve not executed.

No preserve list or findmods list for f77-man- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **y**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operation system packages), this can be time consuming... There is enough space.

If you see the following type of error message:

```
space: error: fstabind(): couldn't find device file for dev=0x1439
```

there is a filesystem linked through NFS to another system which must be removed before the installation can be performed.

===== stripping old links =====

Stripping links for subpackage f77...

Stripping links for subpackage f77-bsd43...

Stripping links for subpackage f77-man...

===== extracting files from subpackage archives =====

Installation Instructions

```
rewinding the tape...
Verifying tape id... ok
Forward spacing the tape...
```

```
Loading subpackage: f77...
Forward spacing the tape...
Loading subpackage: f77-bsd43...
Forward spacing the tape...
Loading subpackage: f77-man...
Forward spacing the tape...
Rewinding the tape...
```

```
===== running comply =====
```

```
running first comply pass...
running second comply pass...
There were no comply messages from the second pass.
```

```
===== cleaning up old versions =====
```

```
An attempt will now be made to clean up any files left over from
previous versions of the software which has just been installed.
Searching for old version to remove...
```

Note: The following messages appear if you have a previous version of ES/FORTRAN installed on your system.

```
Clean up f77.f77 2.0 (y n) [n]? y
Removing leftover files from f77.f77 2.0...
rm ./usr/lib/cmplrs/cc2.0/fcom2.0
rm ./usr/lib/cmplrs/cc2.0/hello.f
rm ./usr/lib/cmplrs/cc2.0/libF77.a2.0
rm ./usr/lib/cmplrs/cc2.0/libF77_G0.a2.0
rm ./usr/lib/cmplrs/cc2.0/libI77.a2.0
rm ./usr/lib/cmplrs/cc2.0/libI77_G0.a2.0
rm ./usr/lib/cmplrs/cc2.0/libU77.a2.0
rm ./usr/lib/cmplrs/cc2.0/libU77_G0.a2.0
rm ./usr/lib/cmplrs/cc2.0/libisam.a2.0
rm ./usr/lib/cmplrs/cc2.0/libisam_G0.a2.0
Clean up f77.f77-bsd43 2.0 (y n) [n]? y
Removing leftover files from f77.f77-bsd43 2.0...
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libF77_BSD.a2.0
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libF77_BSDG0.a2.0
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libI77_BSD.a2.0
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libI77_BSDG0.a2.0
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libU77_BSD.a2.0
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libU77_BSDG0.a2.0
```



```
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libisam_BSD.a2.0
rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libisam_BSDG0.a2.0
Clean up f77.f77-man 2.0 (y n) [n]? y
Removing leftover files from f77.f77-man 2.0...
```

There are no longer any boms present for any subpackages from /usr/pkg/lib/f772.0 version 2.0. This probably indicates that no subpackages installed from this package are still present on this system. Remove the packaging information tree for this package (y n) [y]? **y**

===== restoring preserved user files =====

```
No preserve list or findmods list for f77- no files restored.
No preserve list or findmods list for f77-bsd43- no files restored.
No preserve list or findmods list for f77-man no files restored.
```

===== cleaning up =====

```
Remove install tools (y n) [n]? y
```

===== installation complete =====

4) Run the install script to compile a small FORTRAN test program:

```
# /usr/lib/cmplrs/f772.11/checkinstall
```

```
Compiling and linking test program...
```

```
Executing test program...
```

```
MIPS-FORTRAN RISCompiler
```

```
The compiler installation completed.
```

If the script succeeds the MIPS-FORTRAN 2.11 installation has completed successfully, otherwise please call Evans & Sutherland for assistance.

Installation Instructions - ES/Pascal Binary Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

To install this tape, insert the ES/Pascal Binary Tape 1.3 into the tape drive. Login as **root**, and proceed as follows:

1) Determine that ES/os 1.3 or later version is running on the system by typing the command:

```
#uname -r
1.3
```

2) Determine that MIPS-C 2.11 is installed on the system by typing:

```
#ls -l /usr/bin/cc2.11
l----- 1 root other 27 Oct 11 16:23 usr bin cc2.11 - ..lib cmlprs
cc2.11 driver
```

3) Now type the following:

```
cd /
/usr/pkg/bin/inst
```

MIPS software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... pascal2.11

Installation Information:

Packages will be read in from the local Q24 tape drive.
Maching type: m120

Is the information above correct (y n) [y]? **y**

===== checking subpackages =====

The following subpackages may be installed:

```
pascal -- MIPS-Pascal
pascal-bsd43 -- MIPS-Pascal 4.3 BSD Libraries
pascal-man -- MIPS-Pascal Manual Pages
```

===== selecting subpackages =====

You may select all of the above subpackages by answering **y** to the following question. If you answer **n** then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

===== setting system clock calendar =====

The current value of the clock is: Mon May 21 17:25:29 PDT 1990

Is the clock correct (y n) [y]? **y**

===== verifying single-usr mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? **y**

===== preserving local files =====

No preserve list or findmods list for pascal- preserve not executed.

No preserve list or findmods list for pascal-bsd43- preserve not executed.

No preserve list or findmods list for pascal-man- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **y**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operation system packages), this can be time consuming...

There is enough space.

If you see the following type of error message:

```
space: error: fstabind(): couldn't find device file for dev=0x1439
```

there is a filesystem linked through NFS to another system which must be removed before the installation can be performed.

===== stripping old links =====

Stripping links for subpackage pascal...

Stripping links for subpackage pascal-bsd43...

Stripping links for subpackage pascal-man...

Installation Instructions

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: pascal...

Forward spacing the tape...

Loading subpackage: pascal-bsd43...

Forward spacing the tape...

Loading subpackage: pascal-man...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous version for the software which has just been installed. Searching for old version to remove...

Note: The following messages appear if you have a previous version of ES/Pascal installed on your system.

Cleanup pascal.pascal 2.0 (y n) [n]? **y**

Removing leftover files from pascal.pascal 2.0...

rm ./usr/lib/cmplrs/cc2.0/hello.p

rm ./usr/lib/cmplrs/cc2.0/libp.a2.0

rm ./usr/lib/cmplrs/cc2.0/libp_G0.a2.0

rm ./usr/lib/cmplrs/cc2.0/upas2.0

Clean up pascal.pascal-bsd43 2.0 (y n) [n]? **y**

Removing leftover files from pascal.pascal-bsd43 2.0...

rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libp_BSD.a2.0

rm ./usr/bsd43/usr/lib/cmplrs/cc2.0/libp_BSDG0.a2.0

Clean up pascal.pascal-man 2.0 (y n) [n]? **y**

Removing leftover files from pascal.pascal-man 2.0...

There are no longer any boms present for any subpackages from /usr/pkg/lib/pascal2.0 version 2.0. This probably indicates that no subpackages installed from this package are still present on this system. Remove the packaging information tree for this package (y n) [y]? **y**

===== restoring preserved user files =====

No preserve list or findmods list for pascal- no files restored.

No preserve list or findmods list for pascal-bsd43- no files restored.

No preserve list or findmods list for pascal-man no files restored.

=====
cleaning up
=====

Remove install tools (y n) [n]? **y**

=====
installation complete
=====

4) Run the install script to compile a small Pascal test program:

```
# /usr/lib/cmplrs/pc2.11/checkinstall
```

```
Compiling and linking test program...
```

```
Executing test program...
```

```
MIPS-Pascal RISCompiler
```

```
The compiler installation completed.
```

If the script succeeds the MIPS-Pascal 2.11 installation has completed successfully; otherwise, please call Evans & Sutherland for assistance.

Installation Instructions - ES/AVS Tape 1.3

In the following procedure, system output is shown in `typewriter` normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

CAUTION: It is recommended that YOU are the only user logged onto the machine while loading this software.

To install this tape, insert the ES/AVS Tape 1.3 into the tape drive, login as **root**, and proceed as follows:

Type `cd /`

Type `/usr/pkg/bin/inst`

Software package installation

Install package relative to where [/?] **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... avsl.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: ml20

Is the information above correct? (y n) [y]? **<CR>**

=====
checking subpackages
=====

The following subpackages may be installed:

avs -- AVS2 1.3 Release

=====
selecting subpackages
=====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

===== setting system clock/calendar =====

The current value of the clock is: Wed Oct 3 15:29:01 MDT 1990 Is the clock correct (y n) [y]? <CR>

===== verifying single-user mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? y

===== preserving local files =====

No preserve list or findmods list for avs- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? <CR>

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== stripping old links =====

Stripping links for subpackage avs...

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: avs...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Wed Oct 3 15:39:56 MDT 1990 =====

Installation Instructions

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

===== restoring preserved user files =====

No preserve list or findmods list for avs- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Installation Instructions - ES/Dnet Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

CAUTION: It is recommended that YOU are the only user logged onto the machine while loading this software.

To install this tape, insert the ES/Dnet Tape 1.3 into the tape drive, login as **root**, and proceed as follows:

Type **cd /**

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... esdnet1.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y]? **<CR>**

===== **checking subpackages**=====

The following subpackages may be installed:

esdnet -- ES/Dnet Release

===== **selecting subpackages**=====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

===== **setting system clock/calendar**=====

Installation Instructions

The current value of the clock is: Thu Oct 4 09:43:52 MDT 1990 Is the clock correct (y n) [y]? <CR>

===== verifying single-user mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? **y**

===== preserving local files =====

No preserve list or findmods list for esdnet- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **y**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== stripping old links =====

Stripping links for subpackage esdnet...

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: esdnet...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Thu Oct 4 09:47:18 MDT 1990 =====

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

===== restoring preserved user files =====

No preserve list or findmods list for esdnet- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Installation Instructions - ES/LAT Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

CAUTION: It is recommended that YOU are the only user logged onto the machine while loading this software.

To install this tape, insert the ES/LAT Tape 1.3 into the tape drive, login as **root**, and proceed as follows:

Type **cd /**

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... eslat1.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y]? **<CR>**

===== **checking subpackages**=====

The following subpackages may be installed:

eslat -- ES/LAT 4.2.5 Release

===== **selecting subpackages**=====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **y**

===== **setting system clock/calendar**=====

The current value of the clock is: Thu Oct 4 09:59:06 MDT 1990 Is the clock correct (y n) [y]? <CR>

===== verifying single-user mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? y

===== preserving local files =====

No preserve list or findmods list for eslat- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? <CR>

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== stripping old links =====

Stripping links for subpackage eslat...

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: eslat...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Thu Oct 4 10:00:17 MDT 1990 =====

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Installation Instructions

Searching for old versions to remove...

===== restoring preserved user files =====

No preserve list or findmods list for eslat- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Installation Instructions - ES/DWB Tape 1.3

In the following procedure, system output is shown in typewriter normal font, and user responses are shown in **typewriter bold** font. All user responses should be typed as shown and entered with a carriage return.

CAUTION: It is recommended that YOU are the only user logged onto the machine while loading this software.

To install this tape, insert the ES/DWB Tape 1.3 into the tape drive, login as **root**, and proceed as follows:

Type **cd /**

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/?] **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... dwb1.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y] **<CR>**

===== **checking subpackages**=====

The following subpackages may be installed:

dwb -- UMIPS Documenters Workbench

===== **selecting subpackages**=====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n] **y**

===== **setting system clock/calendar**=====

Installation Instructions

The current value of the clock is: Tue Oct 9 09:25:58 MDT 1990 Is the clock correct (y n) [y]? <CR>

===== verifying single-user mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Are you absolutely sure you wish to continue (y n) [n]? y

===== preserving local files =====

No preserve list or findmods list for dwb- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? <CR>

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== stripping old links =====

Stripping links for subpackage dwb...

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape...

Loading subpackage: dwb...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Tue Oct 9 09:27:56 MDT 1990 =====

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

===== restoring preserved user files =====

No preserve list or findmods list for dwb- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Reinstallation Example

The following is provided as an example on how to reinstall a subpackage(s) from a given ESV Workstation Software Release Tape.

The ES/os Domestic tape is used here as an example. This example demonstrates how to reinstall the "man" subpackage (OS Manual Pages) to your ESV Workstation. In reality, any or none of the subpackets may be selected.

Check for users on the machine. It is recommended that you be the only one logged on to the machine when installing/reinstalling software packages.

Login as **root**.

Type **/usr/pkg/bin/inst**

Software package installation

Install package relative to where [/]? **<CR>**

Please mount the (first, if multiple tapes) distribution tape, then press return... **<CR>**

Rewinding the tape...

Verifying tape id... ok

Extracting packaging information tree... ESos1.3

Installation Information:

Packages will be read in from the local Q24 tape drive.

Machine type: m120

Is the information above correct? (y n) [y]? **y**

=====
checking subpackages
=====

The following subpackages may be installed:

root	-- RISC/os Standard Root Filesystem
m120	-- RISC/os m/120, RC3240 Kernel and Devices
usr	-- RISC/os Standard /usr Filesystem
cmplrs	-- MIPS-C Compiler
cmplrs-bsd43	-- MIPS-C 4.3 BSD Include Files and Libraries
man	-- RISC/os Manual Pages
bsd43 Libraries	-- RISC/os 4.3 BSD Utilities, Include Files and Libraries
reconfig	-- Kernel Binary Reconfiguration Components
emacs	-- emacs
posix	-- RISC/os POSIX P1003.1 Include Files, Commands and Libraries
uucp	-- UUCP
sccs	-- SCCS
news_readers	-- News Readers

```
games          -- Games
mh             -- mh
```

===== selecting subpackages =====

You may select all of the above subpackages by answering "y" to the following question. If you answer "n" then you will be asked to select the optional subpackages you would like to have installed.

Install ALL subpackages (y n) [n]? **n**

When asked if you want to install a subpackage, please answer with one of the following:

- y - Yes, you want to install the subpackage
- n - No, you do NOT want to install the subpackage
- l - List the contents of the subpackage and ask me again

```
Install subpackage root (l y n) [n]? n
Install subpackage ml20 (l y n) [y]? n
Install subpackage usr (l y n) [n]? n
Install subpackage cmplrs (l y n) [n]? n
Install subpackage cmplrs-bsd43 (l y n) [n]? n
Install subpackage man (l y n) [n]? y
Install subpackage bsd43 (l y n) [n]? n
Install subpackage reconfig (l y n) [n]? n
Install subpackage emacs (l y n) [n]? n
Install subpackage posix (l y n) [n]? n
Install subpackage uucp (l y n) [n]? n
Install subpackage sccs (l y n) [n]? n
Install subpackage news_readers (l y n) [n]? n
Install subpackage games (l y n) [n]? n
Install subpackage mh (l y n) [n]? n
```

Selected subpackages:

```
man
```

Is this what you want (y n) [y]? **<CR>**

===== setting system clock/calendar =====

The current value of the clock is: Wed Sep 12 08:48:11 PDT 1990

Is the clock correct (y n) [y]? **<CR>**

===== verifying single-user mode =====

This system is not presently in a single-user run level. Installation of a package can fail if performed at this run level. We recommend that the system be brought to a single user run level (using "init S") prior to performing the installation.

Installation Instructions

Are you absolutely sure you wish to continue (y n) [n]? **y**

===== preserving local files =====

No preserve list or findmods list for man- preserve not executed.

===== verifying disk space =====

Do you want to check for space (please do so unless you really understand the consequences) (y n) [y]? **<CR>**

The system will now be checked to verify that there is enough disk space with the current configuration to successfully install the package (and any selected optional subpackages). For large packages (especially operating system packages), this can be time consuming...

There is enough space.

===== stripping old links =====

Stripping links for subpackage man...

===== extracting files from subpackage archives =====

rewinding the tape...

Verifying tape id... ok

Forward spacing the tape... (Note: This may take a while.)

Forward spacing the tape...

Loading subpackage: man...

Forward spacing the tape...

rewinding the tape...

===== running comply =====

running first comply pass...

running second comply pass...

There were no comply messages from the second pass.

===== doing uncompress Wed Sep 12 09:09:32 PDT 1990 =====

===== cleaning up old versions =====

An attempt will now be made to clean up any files left over from previous versions of the software which has just been installed.

Searching for old versions to remove...

===== restoring preserved user files =====

No preserve list or findmods list for man- no files restored.

===== cleaning up =====

Remove install tools (y n) [n]? **y**

===== installation complete =====

Appendix A : Preserve Files (those preserved in an update install)

The default preserve list for ES/os 1.3 is as follows:

```
#
# root.preserves - ES/os 1.3
# derived from equivalent file in UMIPS 3.10
#
# This preserve list is fed to preserve following the list generated
# by findmods.
#
# local files which should be saved "as-is":
#
#           .cshrc          -u
#           .login          -u
#           .profile        -u
#           .rhosts         -k
#           etc/TIMEZONE    -u
#           etc/TZ          -k
#           etc/bupsched    -u
#           etc/cshrc       -u
#           etc/coredirs    -u
#           etc/disktab     -u
#           etc/dumpdates   -u
#           etc/exports     -k
#           etc/fstab       -k
#           etc/gettydefs   -u
#           etc/group       -k
#           etc/hosts       -k
#           etc/hosts.equiv -k
#           etc/inetd.conf  -u
#           etc/init.d/ANNOUNCE -u
#           etc/init.d/MOUNTFSYS -u
#           etc/init.d/README -u
#           etc/init.d/RMTMPFILES -u
#           etc/init.d/addswap -u
#           etc/init.d/autoconfig -u
#           etc/init.d/bfsd -u
#           etc/init.d/cron -u
#           etc/init.d/disks -u
#           etc/init.d/firstcheck -u
#           etc/init.d/lockfix -u
#           etc/init.d/netdaemons -u
#           etc/init.d/nfs -u
#           etc/init.d/perf -u
```

```
etc/init.d/savecore      -u
etc/init.d/set_kopts     -u
etc/init.d/sntp          -u
etc/init.d/syssetup      -u
etc/init.d/syslog        -u
etc/init.d/tcp           -u
etc/init.d/tzsetup       -u
etc/init.d/uucp          -u
etc/inittab              -k
etc/local_hostname       -k
etc/motd                  -k
etc/networks             -k
etc/passwd               -k
etc/profile              -u
etc/protocols            -u
etc/preserves            -k
etc/printcap             -k
etc/remote               -u
etc/services             -u
etc/sysdirlist          -u
etc/syslist              -u
etc/syslog.conf          -u
etc/termcap              -u
etc/timed.conf           -u
etc/ttytype              -u
tftpboot                 -k
tmp                       -k

#
# force use of the following update files:
#
#           etc/magic      -u
#
# remove these files:
#
#           etc/checklist  -d
#
# end root.preserves
#

#
# usr.preserves - RISC/os 4.50
#
# This preserve list is fed to preserve following the list generated
# by findmods.
```

Installation Instructions

```
#
#
# local files which should be saved "as-is":
#
      usr/adm/crash          -k
      usr/etc/exports        -k
      usr/etc/bootptab       -k
      usr/etc/timed.conf     -k
      usr/lib/aliases        -k
      usr/lib/sendmail.cf    -k
      usr/lib/me/local.me    -k
      usr/tmp                 -k
#
# uucp config
#
      usr/lib/uucp/Devconfig  -u
      usr/lib/uucp/Devices    -u
      usr/lib/uucp/Dialcodes  -u
      usr/lib/uucp/Dialers    -u
      usr/lib/uucp/Maxuuscheds -u
      usr/lib/uucp/Maxuuxqts  -u
      usr/lib/uucp/Permissions -u
      usr/lib/uucp/Poll       -u
      usr/lib/uucp/Sysfiles   -u
      usr/lib/uucp/Systems    -u
      usr/lib/uucp/Uutry      -u

      usr/spool/cron/crontabs/adm      -u
      usr/spool/cron/crontabs/periodic -u
      usr/spool/cron/crontabs/root     -u
      usr/spool/cron/crontabs/sys      -u
      usr/spool/cron/crontabs/sysadm   -u
      usr/spool/cron/crontabs/uucp     -u

      usr/spool/lp/pstatus   -u
      usr/spool/lp/qstatus   -u
#
# force use of the following update files:
#
      usr/lib/crontab -u
#
# end of usr.preserves
#
```


A. Application Status Report

This appendix notifies customers of any impact the 1.3 Release may have on the third-party applications they use. The applications are placed into one of the following categories:

ENHANCED	The 1.3 Release improves performance and/or fixes known bugs in the application.
COMPATIBLE	No known problems with the 1.3 Release.
TESTING IN PROGRESS	Testing in progress at time of printing. Contact the vendor or Evans & Sutherland Technical Support for more information.
IRREGULAR	Application may experience minor side effects with the 1.3 Release. Contact the vendor or Evans & Sutherland Technical Support for more information.
NOT COMPATIBLE	Contact the vendor before upgrading to the 1.3 Release.
UPGRADE AVAILABLE	Not compatible with the 1.3 Release. An upgrade for the 1.3 Release is available from the vendor.

<u>Application Name</u>	<u>Category</u>
ADAMS	TESTING IN PROGRESS
DAYLIGHT	TESTING IN PROGRESS
FRODO	UPGRADE AVAILABLE
MEDCHEM	TESTING IN PROGRESS
MOVIESTAR.BYU	ENHANCED
NASTRAN-UAI	TESTING IN PROGRESS
SYBYL	COMPATIBLE



C

C

C

B. Change Pages

The following change pages for the ESV Workstation documentation are attached.

ESV Workstation User's Manual

“4. Customizing the System”

This chapter has been completely revised for the 1.3 Release. Discard the old pages in the document binder and replace them with this revised version.

“5. Video Output Guide”

This chapter has been revised for the 1.3 Release. The 1.3 Release adds the capability of switching between the nine different video timing formats available on the ESV Workstation. Users should note that the screen size is different in many of the formats, so only the top left corner of the default screen may be visible in other formats.

“6. Site Preparation and Customer Support”

This chapter has been revised for the 1.3 Release. Preventive maintenance tips for the ESV Workstation have been added, and minor errors have been corrected. Discard the old pages in the document binder and replace them with this revised version.

“8. Porting Guide”

This document is new with the 1.3 Release. It should be placed after “7. Release Notes” in the document binder.

ESV Workstation Reference Manual

“1. ES/PEX”

This chapter has been completely revised to reflect software changes through the 1.3 Release. Discard the old pages in the document binder and replace them with this revised version.

“4. X Clients”

The documentation for the **mkfontdir** client has been added in the 1.3 Release. Place the documentation for this new client at the end of the chapter.

ES/PSX Document Set - Volume 1

“6. PSXConnect User’s Manual”

This document is new with the 1.3 Release. It should be placed after “5. User-Written Functions” in the document binder.

“7. CPK User’s Manual”

This document is new with the 1.3 Release. It should be placed after “6. PSXConnect User’s Manual” in the document binder.

ES/PSX Document Set - Volume 2

“1. Commands”

The **VIEWPORT COLOR** command has been added in the 1.3 Release. Place the documentation for this new command at the end of the chapter.

“3. GSRs”

The **POverL** GSR has been added in the 1.3 Release. Place the documentation for this new GSR at the end of the chapter.

C. Addendum

ES/AVS Functionality

Product Overview

The Advanced Visualization System (AVS) is an interactive environment which gives users the ability to use advanced computer graphics and imaging techniques without graphics programming. It allows users to construct applications that transform their computational code into meaningful graphics. AVS models the iterative, exploratory approach of scientists, and provides interactive visual feedback. With AVS, users can:

- Quickly visualize geometric, image, and volume data sets;
- Interactively construct and execute a processing network using a visual network editor;
- Easily connect user computational programs to the processing network for realtime, interactive processing and visualization; and
- Build discipline-specific visualization applications, including

Unsupported Features

The following is a list of the unsupported or not-yet ported features and functions of ES/AVS.

Unsupported Peripherals

- Control dials
- Spaceball

Unsupported Modules

- Transform pixmap
- Alpha blend

Unsupported Functionality

- Transparency
- Texture mapping
- Phong shading

Documentation Corrections

This is a list of the unsupported items and the pages on which they are found in the *AVS User's Guide* provided by Stardent.

Chapter 4

- Pg. 4-1 — under “Geometric Techniques,” bubble viz is not supported.
- Pg. 4-1 through 2 — under “Volume Rendering,” alpha blend and shaded alpha blend are not supported.

Chapter 5

- Pg. 5-7 — under “Function Key Usage,” F4 - Transform Map is not supported.
- Pg. 5-7 — Transform textures are not supported.
- Pg. 5-8 — Dial box and Spaceball are not supported.
- Pg. 5-9 — under “Geometric Viewer,” edit texture, lines, and Phong are not supported.
- Pg. 5-13 — Transparency slider exists in Edit Property Menu but is not supported.
- Pg. 5-14 — Edit texture is not supported.
- Pg. 5-15 — Lines and Phong shading are not supported.
- Pg. 5-20 — “Depthcue Lines” should be just “Depthcue.” This depth cues all objects in the camera, not just lines.
- Pg. 5-20 — “Z-Buffer Lines” should be just “Z-Buffer.” This Z buffers all objects in the camera, not just lines.
- Pg. 5-23 — Font Selection Submenu has only Font1 and Font2. It does not have Courier, Helvetica, Schoolbook, Times, Charter, and Symbol fonts. Also there are no bold or italic fonts.
- Pg. 5-24 — Dropshadow is not supported.
- Pg. 5-24 — Add “Stroke” under Label Attributes Submenu. Stroke is 3D text and can be scaled just as any object. Annotation text used when Stroke is turned off.

Chapter 7

- Pg. 7-8 through 10 — Alpha blend is not supported.

Appendix A

- Pg. A-6 — Item 20 should say **mandril.x** instead of **stardent.x**.
- Pg. A-7 — Stardent image should be replaced by Mandril image.
- Pg. A-25 through 28 — Items 73 through 79 are not supported.

Appendix B

- Pg. B-5 through 6 — Any references to Lines or Edit Property are not supported.
- Pg. B-10 through 11 — Any references to Lines or Phong are not supported.
- Pg. B-17 through 18 — “Hierarchy and Property Editing” is not supported.

New ES/AVS Usage

A command line option to choose the type of sphere primitive is available by using the **-sphere** option when starting ES/AVS.

The default sphere primitive (without the **-sphere** option) is a triangle strip generated by ES/AVS. This primitive is best used when more interactive updates are desired.

The sphere primitive generated with the **-sphere** option will use the PHIGS **GDP** primitive in the hardware. This primitive is best used when the creation time is important; *i.e.*, the time it takes to create and delete the sphere primitive is less than when using the triangle strip primitive. For example, a coroutine module that would create spheres would perform better by using the **-sphere** option. The second advantage using this primitive is the amount of memory it requires. Since the application stores these primitives as single spheres (as opposed to triangle strips, as is the case for the default sphere), considerable less memory is consumed.

PHIGS Functions Added in the 1.3 Release

ESCAPE
GENERALIZED DRAWING PRIMITIVE
GENERALIZED DRAWING PRIMITIVE 3
GENERALIZED STRUCTURE ELEMENT
INQUIRE COLOUR MODEL
INQUIRE COLOUR MODEL FACILITIES
INQUIRE COLOUR REPRESENTATION
INQUIRE CURVE AND SURFACE FACILITIES (+)
INQUIRE DEFAULT DISPLAY UPDATE STATE
INQUIRE DEPTH CUE FACILITIES (+)
INQUIRE DEPTH CUE REPRESENTATION (+)
INQUIRE DIRECT COLOUR MODEL FACILITIES (+)
INQUIRE DISPLAY SPACE SIZE
INQUIRE DISPLAY SPACE SIZE 3
INQUIRE EDGE FACILITIES
INQUIRE EXTENDED EDGE REPRESENTATION (+)
INQUIRE EXTENDED INTERIOR FACILITIES (+)
INQUIRE EXTENDED INTERIOR REPRESENTATION (+)
INQUIRE EXTENDED PATTERN REPRESENTATION (+)
INQUIRE EXTENDED POLYLINE FACILITIES (+)
INQUIRE EXTENDED POLYLINE REPRESENTATION (+)
INQUIRE EXTENDED POLYMARKER REPRESENTATION (+)
INQUIRE EXTENDED TEXT REPRESENTATION (+)
INQUIRE EXTENDED WORKSTATION STATE TABLE LENGTHS (+)
INQUIRE GENERALIZED DRAWING PRIMITIVE
INQUIRE GENERALIZED DRAWING PRIMITIVE 3
INQUIRE GENERALIZED STRUCTURE ELEMENT FACILITIES
INQUIRE HLHSR FACILITIES
INQUIRE INTERIOR FACILITIES
INQUIRE LIGHT SOURCE FACILITIES (+)
INQUIRE LIGHT SOURCE REPRESENTATION (+)
INQUIRE LIST OF AVAILABLE GENERALIZED DRAWING PRIMITIVES
INQUIRE LIST OF AVAILABLE GENERALIZED DRAWING PRIMITIVES 3
INQUIRE LIST OF AVAILABLE GENERALIZED STRUCTURE ELEMENTS
INQUIRE LIST OF AVAILABLE WORKSTATION TYPES
INQUIRE LIST OF COLOUR INDICES
INQUIRE LIST OF DEPTH CUE INDICES (+)

INQUIRE LIST OF EDGE INDICES
INQUIRE LIST OF INTERIOR INDICES
INQUIRE LIST OF LIGHT SOURCE INDICES (+)
INQUIRE LIST OF PATTERN INDICES
INQUIRE LIST OF POLYLINE INDICES
INQUIRE LIST OF POLYMARKER INDICES
INQUIRE LIST OF TEXT INDICES
INQUIRE LIST OF VIEW INDICES
INQUIRE MODELLING CLIPPING FACILITIES
INQUIRE PATTERN FACILITIES
INQUIRE PATTERN REPRESENTATION
INQUIRE PHIGS FACILITIES
INQUIRE PREDEFINED DEPTH CUE REPRESENTATION (+)
INQUIRE PREDEFINED EXTENDED EDGE REPRESENTATION (+)
INQUIRE PREDEFINED EXTENDED INTERIOR REPRESENTATION (+)
INQUIRE PREDEFINED EXTENDED PATTERN REPRESENTATION (+)
INQUIRE PREDEFINED EXTENDED POLYLINE REPRESENTATION (+)
INQUIRE PREDEFINED EXTENDED POLYMARKER REPRESENTATION (+)
INQUIRE PREDEFINED EXTENDED TEXT REPRESENTATION (+)
INQUIRE TEXT FACILITIES
INQUIRE TEXT REPRESENTATION
INQUIRE VIEW FACILITIES
INQUIRE VIEW REPRESENTATION
INQUIRE WORKSTATION CATEGORY
INQUIRE WORKSTATION CLASSIFICATION
INQUIRE WORKSTATION CONNECTION AND TYPE
INQUIRE WORKSTATION STATE TABLE LENGTHS
INQUIRE WORKSTATION STATE VALUE
INQUIRE WORKSTATION TRANSFORMATION
INQUIRE WORKSTATION TRANSFORMATION 3
QUADRILATERAL MESH 3 WITH DATA (+)
TRIANGLE STRIP 3 WITH DATA (+)

System Bugs

The following additional system bug has been identified in the 1.3 Release.

1.6 Pascal Compiler

A Pascal compiler bug exists that may cause a crash upon entering a subroutine. If a variable local to the subroutine is defined which is a record consisting of a 255-byte array and a 2-byte integer, the Pascal compiler will generate incorrect code to clear the array. The array is cleared by storing a 4-byte register containing zero, incrementally through memory. However, the starting address is not on a 4-byte boundary, and a bus error occurs.

This problem can be circumvented by a source code change. If the array size is changed, or if the integer value is of some other size, the incorrect initializing code will not be generated.

This problem may display itself with ES/PSX user-written functions.

ES/PSX Bugs

The following ES/PSX bugs have been identified in the 1.3 Release.

3.25 ES/PSX Crashes Due to Running Out of Structure Memory

If ES/PSX crashes due to running out of structure memory, it can not be restarted. To free up the structure memory, run a PEX program or restart the X server.

3.26 Rendering of CPK Spheres

The rendering of a large number of spheres, many of which are clipped out of the viewing window, may take longer than expected. This is because the spheres clipped out of the window are still partially processed. It may appear to the user that the rendering has completed when it really hasn't. Control will not be given back to the X window manager until the rendering has completed. This will be fixed in future releases. Also, when a large number of spheres are rendered, some of which are totally hidden behind others, it may appear to the user that the rendering has completed before it actually has.

3.27 GSR Error Messages 101 and 103

The GSR error message 101 is produced when solid or surface rendering nodes are built for CPK. Likewise, the GSR error message 103 is produced when the viewport color nodes are produced. These error messages should be ignored.

3.28 Leftover ES/PSX Structures After an ES/PSX Abort

If an ES/PSX process is killed using the UNIX **kill** command, or if ES/PSX crashes and produces the error `psx error` during exit processing, then ES/PSX should be restarted before starting a PEX application. This is because ES/PSX will properly clean up left-over structures when it runs the next time. Failure to do this may prevent subsequent PEX and ES/PSX applications from running unless the X server is restarted.

3.29 Loss of Data in a Static Viewport

If you move an ES/PSX window when a static viewport (CPK rendered image) is visible, the static viewport's contents may become invisible. When this occurs, ES/PSX must be restarted in order to be able to do another rendering. To avoid this situation, do not move the ES/PSX window while the static viewport is being displayed. Instead, first clear the static viewport by sending TRUE, FALSE, or fix(3) to **<7>shadingenvironment**.

Helpful Hints

String Handling in VMS Applications

VMS PSXConnect users whose PS 390 application code runs over the async interface may have to modify code involving the GSR procedures **PGet** and **PGetWait** to conform to the requirements for using the Ethernet GSRs with PSXConnect. In particular, the minimum buffer size for Ethernet must be 5 bytes larger than that for async. Also, strings returned to **PGet** and **PGetWait** are not necessarily terminated by a carriage return as they are with async. The string length parameter must be used instead to determine the number of bytes returned.

Possible Need for Additional FORTRAN Libraries in Application Link

If unresolved references occur during the link of FORTRAN applications, it may be due to the need for additional FORTRAN libraries. See pages 1-4 and 1-5 of the *Mips-FORTRAN Programmer's Guide* for a discussion of the libraries. The following command includes all the libraries in the ap-

appropriate order to compile and link **myfile.f** with the FORTRAN GSRs. Note that the **libF77.a** library must be included twice to eliminate all unresolved references.

```
f77 -systype bsd43 -o myfile myfile.f -lgsrf -lgsr -lF77 -lI77  
-lU77 -lisam -lF77
```

Additional Information for ES/PSX User-Written Functions

When linking user written functions using method 1, the user-built ES/PSX program must be executed from within the directory in which the program resides. Doing otherwise will cause an error message of the form:

```
libmld: ldopen: cannot open <filename>
```

where <filename> is the name of the user-linked ES/PSX program.

Dynamically linking user-written functions using method 2 requires that the path and object file name be sent to the user-written function loading functions. This path and file name cannot have embedded hyphens. For example, the file **/myname/my-uwf.o** will not be accepted.