9 Execution Environment

9.1 Introduction

This chapter describes the execution environment information available to application programs and assumes a normal, multi-user state. The application programming interface information is specified in this chapter.

9.2 Execution Environment Interfaces

The PowerOpen execution environment contains information that is provided by the operating system and is available to the running application program. This environment information and the commands used to retrieve it are specified in detail in PowerOpen API, Application Programming Interface, System Interfaces and Headers; and PowerOpen API, Application Programming Interface, Commands and Utilities. Refer to these documents for specifics on commands and functions named in this chapter.

The PowerOpen execution environment information available to application includes the following:

System Identification

Application programs may obtain system identification information through the **uname** function or the system command **uname**.

The **uname** function uses the **utsname** structure, which is defined in the **<sys/utsname.h>** file.

Date and Time

The current calendar date and time are available to application programs through the **date** system command and the **time** function.

Numerical Limits

There are maximum and minimum values of variables, including limits that application programs may require. Most values are accessible through the **sysconf** and **pathconf** functions. The values and limits are defined in the POE. Other system parameters are accessible through the **getrlimit** function.

Per-process Environment Information

An environment is made available to the application program when it first begins execution. This information is described in the documentation of the **exec** and **system** function calls.

The POE is the definitive reference for information about the execution environment of PowerOpen processes. The specific references given above will provide appropriate information but are not exhaustive in themselves.

9.3 File System Structure and Contents

The file system is a hierarchical, tree-like structure. The root directory, represented by / (slash), is the top of this hierarchical file tree and contains the root file system. The root file system contains the files and subdirectories that are critical for system operation, including the device directories and programs for booting the system. It also contains mount points where file systems can connect to the root file system hierarchy. Figure 9−1 shows the root file system hierarchy.

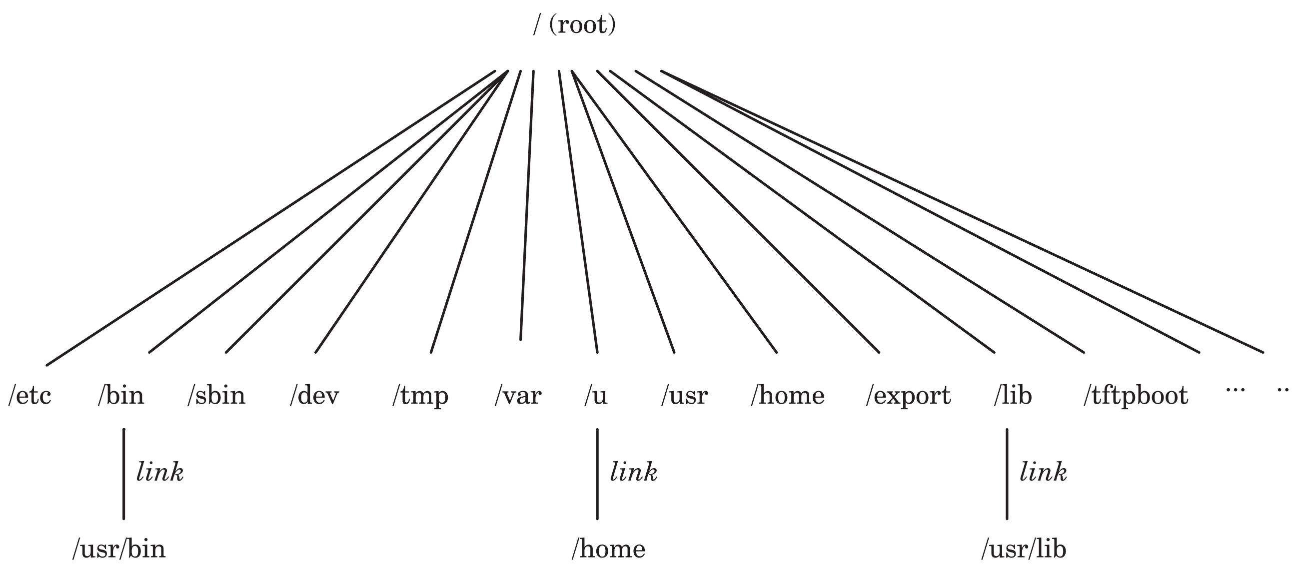

Figure 9−1. Root File System Hierarchy.

9.3.1 Root Subtree

The major subdirectories are as follows:

- **/etc**
- **/bin** (symbolic link to **/usr/bin**)
- **/sbin**
- **/dev**
- **/tmp**
- **/var**
- **/u** (symbolic link to **/home**)
- **/usr**
- **/home**
- **/export**
- **/lib** (symbolic link to **/usr/lib**)
- **/tftpboot**

/etc The **/etc** directory contains configuration files that vary for each machine. Examples include the **/etc/hosts** and **/etc/passwd** files. The **/etc** directory generally includes files used in system administration.

/sbin The **/sbin** directory contains files to boot and to mount the **/usr** file system.

/dev The **/dev** directory contains device nodes for special files for local devices and special files for tape drivers, printers, disk partitions, and terminals.

/tmp The **/tmp** directory is a mount point for a file system that contains temporary files generated by the system.

/var The **/var** directory serves as a mount point for system files that vary on each machine. Because the files contained in the **/var** directory tend to grow, **/var** is configured as a file system.

/usr The **/usr** directory contains files that do not change and that can be shared by different machines. Such files include executables and ASCII documentation. Standalone machines mount the root of a separate local file system over the **/usr** directory.

/home The **/home** directory serves as a mount point for a file system containing users' home directories. The **/home** file system contains files and directories for each user.

/export The **/export** file directory contains the directories and files on a server that are for remote clients.

/tftpboot The **/tftpboot** directory contains boot images and boot information for diskless clients.

9.3.1.1 Symbolic Links

The **/root** file system also contains the following symbolic links:

/bin A symbolic link that points to the **/usr/bin** directory.

/lib A symbolic link that points to the **/usr/lib** directory.

/u A symbolic link that points to the **/home** directory.