

A **Unix shell** is a command-line interpreter or **shell** that provides a traditional **Unix**-like command line user interface. Users direct the operation of the computer by entering commands as text for a command line interpreter to execute, or by creating text scripts of one or more such commands.

All Unix shells provide filename wildcarding, piping, here documents, command substitution, variables and control structures for condition-testing and iteration.

The first Unix shell was the Thompson shell, *sh*, written by Ken Thompson at Bell Labs and distributed with Versions 1 through 6 of Unix, from 1971 to 1975. Though rudimentary by modern standards, it introduced many of the basic features common to all later Unix shells, including piping, simple control structures using *if* and *goto*, and filename wildcarding. Though not in current use, it is still available as part of some Ancient UNIX Systems.

The PWB shell or Mashey shell, *sh*, was an upward-compatible version of the Thompson shell, augmented by John Mashey and others and distributed with the Programmer's Workbench UNIX, circa 1975-1977. It focused on making shell programming practical, especially in large shared computing centers. It added shell variables (precursors of environment variables, including the search path mechanism that evolved into *\$PATH*), user-executable shell scripts, and interrupt-handling. Control structures were extended from *if/goto* to *if/then/else/endif*, *switch/breaksw/endsw*, and *while/end/break/continue*. As shell programming became widespread, these external commands were incorporated into the shell itself for performance.

But the most widely distributed and influential of the early Unix shells were the Bourne shell and the C shell. Both shells have been used as the coding base and model for many derivative and work-alike shells with extended feature sets.

Bourne shell

The Bourne shell, *sh*, was a complete rewrite by Stephen Bourne at Bell Labs. Distributed as the shell for UNIX Version 7 in 1979, it introduced the rest of the basic features considered common to all the Unix shells, including here documents, command substitution, more generic variables and more extensive builtin control structures. Traditionally, the Bourne shell program name is *sh* and its path in the Unix file system hierarchy is */bin/sh*. But a number of compatible work-alikes are also available with various improvements and additional features.

C shell

The C shell, *csh*, was written by Bill Joy while a graduate student at University of California, Berkeley and widely distributed with BSD Unix. The language, including the control structures and the expression grammar, was modeled on C. The C shell also introduced a large number of features for interactive work, including the history and editing mechanisms, aliases, directory stacks, tilde notation, *cdpath*, job control and path hashing. On many systems, *csh* may be a symbolic link or hard link to TENEX C shell (*tcsh*), an improved version of Joy's original *csh*. Though the C shell's interactive features have been copied in most other current shells, the language itself has not been widely copied. The only work-alike is Hamilton C shell, written by Nicole Hamilton, first distributed on OS/2 in 1988 and on Windows since 1992.

On many systems, sh may be a symbolic link or hard link to one of these alternatives:

- Almquist shell (ash): written as a BSD-licensed replacement for the Bourne Shell; often used in resource-constrained environments. The sh of FreeBSD, NetBSD (and their derivatives) are based on ash that has been enhanced to be POSIX conformant for the occasion.
- Bourne-Again shell (bash): written as part of the GNU Project to provide a superset of Bourne Shell functionality. This shell can be found installed and is the default interactive shell for users on most Linux and macOS systems.
- Debian Almquist shell (dash): a modern replacement for ash in Debian and Ubuntu
- Korn shell (ksh): written by David Korn based on the Bourne shell sources^[8] while working at Bell Labs
- Public domain Korn shell (pdksh)
- MirBSD Korn shell (mksh): a descendant of the OpenBSD /bin/ksh and pdksh, developed as part of MirOS BSD
- Z shell (zsh): a relatively modern shell that is backward compatible with bash
- Busybox: a set of Unix utilities for small and embedded systems, which includes 2 shells: ash, a derivative of the Almquist shell; and hush, an independent implementation of a Bourne shell.