**Basic of os,unix and shell programming**

A **Unix shell** is a [command-line interpreter](https://en.wikipedia.org/wiki/Command-line_interpreter) or [shell](https://en.wikipedia.org/wiki/Shell_(computing)) that provides a traditional [Unix-like](https://en.wikipedia.org/wiki/Unix-like) command line [user interface](https://en.wikipedia.org/wiki/User_interface). Users direct the operation of the [computer](https://en.wikipedia.org/wiki/Computer) by entering commands as text for a [command line interpreter](https://en.wikipedia.org/wiki/Command_line_interpreter) to execute, or by creating text scripts of one or more such commands. Users typically interact with a Unix shell using a [terminal emulator](https://en.wikipedia.org/wiki/Terminal_emulator), however, direct operation via serial hardware connections, or networking session, are common for server systems. All Unix shells provide filename [wildcarding](https://en.wikipedia.org/wiki/Wildcard_character), [piping](https://en.wikipedia.org/wiki/Pipeline_(Unix)), [here documents](https://en.wikipedia.org/wiki/Here_document), [command substitution](https://en.wikipedia.org/wiki/Command_substitution), [variables](https://en.wikipedia.org/wiki/Variable_(programming)) and [control structures](https://en.wikipedia.org/wiki/Control_flow) for [condition-testing](https://en.wikipedia.org/wiki/Conditional_(programming)) and [iteration](https://en.wikipedia.org/wiki/Iteration).

A **shell script** is a [computer program](https://en.wikipedia.org/wiki/Computer_program) designed to be run by the [Unix shell](https://en.wikipedia.org/wiki/Unix_shell), a [command-line interpreter](https://en.wikipedia.org/wiki/Command-line_interpreter).[[1]](https://en.wikipedia.org/wiki/Shell_script#cite_note-1) The various dialects of shell scripts are considered to be [scripting languages](https://en.wikipedia.org/wiki/Scripting_language).

Typical operations performed by shell scripts include file manipulation, program execution, and printing text. A script which sets up the environment, runs the program, and does any necessary cleanup, logging, etc. is called a **wrapper**.

The term is also used more generally to mean the automated mode of running an operating system shell; in specific operating systems they are called other things such as batch files (MSDos-Win95 stream, OS/2), command procedures (VMS), and shell scripts (Windows NT stream and third-party derivatives like [4NT](https://en.wikipedia.org/wiki/4NT)—article is at [cmd.exe](https://en.wikipedia.org/wiki/Cmd.exe)), and mainframe operating systems are associated with a number of terms.

The typical Unix/Linux/Posix-compliant installation includes the [Korn Shell](https://en.wikipedia.org/wiki/Korn_Shell" \o "Korn Shell) (ksh) in several possible versions such as ksh88, Korn Shell '93 and others. The oldest shell still in common use is the [Bourne shell](https://en.wikipedia.org/wiki/Bourne_shell) (sh); Unix systems invariably include also the [C Shell](https://en.wikipedia.org/wiki/C_Shell) (csh), [Bourne Again Shell](https://en.wikipedia.org/wiki/Bourne_Again_Shell) (bash), a remote shell ([rsh](https://en.wikipedia.org/wiki/Remote_Shell" \o "Remote Shell)), a secure shell for SSL telnet connections ([ssh](https://en.wikipedia.org/wiki/Secure_Shell" \o "Secure Shell)), and a shell which is a main component of the [Tcl/Tk](https://en.wikipedia.org/wiki/Tcl/Tk" \o "Tcl/Tk) installation usually called [tclsh](https://en.wikipedia.org/w/index.php?title=Tclsh&action=edit&redlink=1" \o "Tclsh (page does not exist)); [wish](https://en.wikipedia.org/w/index.php?title=Wish_(shell)&action=edit&redlink=1) is a GUI-based Tcl/Tk shell. The C and Tcl shells have syntax quite similar to that of said programming languages, and the Korn shells and Bash are developments of the Bourne shell, which is based on the [ALGOL](https://en.wikipedia.org/wiki/ALGOL) language with elements of a number of others added as well.[[2]](https://en.wikipedia.org/wiki/Shell_script#cite_note-2) On the other hand, the various shells plus tools like [awk](https://en.wikipedia.org/wiki/Awk" \o "Awk), [sed](https://en.wikipedia.org/wiki/Sed" \o "Sed), [grep](https://en.wikipedia.org/wiki/Grep" \o "Grep), and [BASIC](https://en.wikipedia.org/wiki/BASIC), [Lisp](https://en.wikipedia.org/wiki/Lisp_(programming_language)), [C](https://en.wikipedia.org/wiki/C_(programming_language)) and so forth contributed to the [Perl](https://en.wikipedia.org/wiki/Perl) programming language.[[3]](https://en.wikipedia.org/wiki/Shell_script#cite_note-3)

Other shells available on a machine or available for download and/or purchase include [ash](https://en.wikipedia.org/wiki/Almquist_shell), [msh](https://en.wikipedia.org/wiki/Msh" \o "Msh), [ysh](https://en.wikipedia.org/w/index.php?title=Ysh&action=edit&redlink=1" \o "Ysh (page does not exist)), [zsh](https://en.wikipedia.org/wiki/Zsh" \o "Zsh) (a particularly common enhanced Korn Shell), the Tenex C Shell ([tcsh](https://en.wikipedia.org/wiki/Tcsh" \o "Tcsh)), a Perl-like shell ([psh](https://en.wikipedia.org/w/index.php?title=Perl_Shell&action=edit&redlink=1" \o "Perl Shell (page does not exist))) and others. Related programmes such as shells based on [Python](https://en.wikipedia.org/wiki/Python_(programming_language)), [Ruby](https://en.wikipedia.org/wiki/Ruby_(programming_language)), [C](https://en.wikipedia.org/wiki/C_(programming_language)), [Java](https://en.wikipedia.org/wiki/Java_(programming_language)), [Perl](https://en.wikipedia.org/wiki/Perl), [Pascal](https://en.wikipedia.org/wiki/Pascal_(programming_language)), [Rexx](https://en.wikipedia.org/wiki/Rexx" \o "Rexx) &c in various forms are also widely available. Another somewhat common shell is [osh](https://en.wikipedia.org/w/index.php?title=Osh_(shell)&action=edit&redlink=1" \o "Osh (shell) (page does not exist)), whose manual page states it "is an enhanced, backward-compatible port of the standard command interpreter from Sixth Edition UNIX."

Windows-Unix interoperability software such as the [MKS Toolkit](https://en.wikipedia.org/wiki/MKS_Toolkit), [Cygwin](https://en.wikipedia.org/wiki/Cygwin" \o "Cygwin), [UWIN](https://en.wikipedia.org/wiki/UWIN), [Interix](https://en.wikipedia.org/wiki/Interix) and others make the above shells and Unix programming available on Windows systems all the way down to such things as signals and other [inter-process communication](https://en.wikipedia.org/wiki/Inter-process_communication), [system calls](https://en.wikipedia.org/wiki/System_call) and [APIs](https://en.wikipedia.org/wiki/API); the [Hamilton C Shell](https://en.wikipedia.org/wiki/Hamilton_C_Shell) is a Windows shell very similar to the Unix C Shell, and Microsoft distributes [Windows Services for UNIX](https://en.wikipedia.org/wiki/Windows_Services_for_UNIX) for use with its NT-based operating systems in particular, which have a Posix [environmental subsystem](https://en.wikipedia.org/wiki/Environmental_subsystem).