<http://wiki.bash-hackers.org/>

# Bash syntax and operations

* [Bash features overview by version](http://wiki.bash-hackers.org/scripting/bashchanges)
* [Basic grammar rules](http://wiki.bash-hackers.org/syntax/basicgrammar)
* [Quoting and character escaping](http://wiki.bash-hackers.org/syntax/quoting)
* [Parsing and execution](http://wiki.bash-hackers.org/syntax/grammar/parser_exec)
* [Some words about words...](http://wiki.bash-hackers.org/syntax/words)
* [Patterns and pattern matching](http://wiki.bash-hackers.org/syntax/pattern)
* [Arithmetic expressions](http://wiki.bash-hackers.org/syntax/arith_expr)
* [List of shell options](http://wiki.bash-hackers.org/internals/shell_options)
* [Redirection](http://wiki.bash-hackers.org/syntax/redirection)
* [Special parameters and shell variables](http://wiki.bash-hackers.org/syntax/shellvars)
* [Arrays](http://wiki.bash-hackers.org/syntax/arrays)

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| **Compound commands**   | [**Compound commands overview**](http://wiki.bash-hackers.org/syntax/ccmd/intro) | | | --- | --- | | **Grouping** | | | { …; } | [command grouping](http://wiki.bash-hackers.org/syntax/ccmd/grouping_plain) | | ( … ) | [command grouping in a subshell](http://wiki.bash-hackers.org/syntax/ccmd/grouping_subshell) | | **Conditionals** | | | [[ ... ]] | [conditional expression](http://wiki.bash-hackers.org/syntax/ccmd/conditional_expression) | | if …; then …; fi | [conditional branching](http://wiki.bash-hackers.org/syntax/ccmd/if_clause) | | case … esac | [pattern-based branching](http://wiki.bash-hackers.org/syntax/ccmd/case) | | **Loops** | | | for word in …; do …; done | [classic for-loop](http://wiki.bash-hackers.org/syntax/ccmd/classic_for) | | for ((x=1; x<=10; x++)); do ...; done | [C-style for-loop](http://wiki.bash-hackers.org/syntax/ccmd/c_for) | | while …; do …; done | [while loop](http://wiki.bash-hackers.org/syntax/ccmd/while_loop) | | until …; do …; done | [until loop](http://wiki.bash-hackers.org/syntax/ccmd/until_loop) | | **Misc** | | | (( ... )) | [arithmetic evaluation](http://wiki.bash-hackers.org/syntax/ccmd/arithmetic_eval) | | select word in …; do …; done | [user selections](http://wiki.bash-hackers.org/syntax/ccmd/user_select) | |

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| **Expansions and substitutions**   | [**Introduction to expansions and substitutions**](http://wiki.bash-hackers.org/syntax/expansion/intro) | | | --- | --- | | {A,B,C} {A..C} | [Brace expansion](http://wiki.bash-hackers.org/syntax/expansion/brace) | | ~/ ~root/ | [Tilde expansion](http://wiki.bash-hackers.org/syntax/expansion/tilde) | | $FOO ${BAR%.mp3} | [Parameter expansion](http://wiki.bash-hackers.org/syntax/pe) | | `command` $(command) | [Command substitution](http://wiki.bash-hackers.org/syntax/expansion/cmdsubst) | | <(command) >(command) | [Process substitution](http://wiki.bash-hackers.org/syntax/expansion/proc_subst) | | $((1 + 2 + 3)) $[4 + 5 + 6] | [Arithmetic expansion](http://wiki.bash-hackers.org/syntax/expansion/arith) | | Hello <---> Word! | [Word splitting](http://wiki.bash-hackers.org/syntax/expansion/wordsplit) | | /data/\*-av/\*.mp? | [Pathname expansion](http://wiki.bash-hackers.org/syntax/expansion/globs) | |

# Builtin Commands

This is a selection of builtin commands and command-like keywords, loosely arranged by their common uses. These are provided directly by the shell, rather than invoked as standalone external commands.

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| | **Declaration commands Commands that set and query attributes/types, and manipulate simple datastructures.** | | **Alt** | **Type** | | --- | --- | --- | --- | | [declare](http://wiki.bash-hackers.org/commands/builtin/declare) | Display or set shell variables or functions along with attributes. | typeset | builtin | | [export](http://wiki.bash-hackers.org/commands/builtin/export) | Display or set shell variables, also giving them the export attribute. | typeset -x | special builtin | | [eval](http://wiki.bash-hackers.org/commands/builtin/eval) | Evaluate arguments as shell code. | - | special builtin | | [local](http://wiki.bash-hackers.org/commands/builtin/local) | Declare variables as having function local scope. | - | builtin | | [readonly](http://wiki.bash-hackers.org/commands/builtin/readonly) | Mark variables or functions as read-only. | typeset -r | special builtin | | [unset](http://wiki.bash-hackers.org/commands/builtin/unset) | Unset variables and functions. | - | special builtin | | [shift](http://wiki.bash-hackers.org/commands/builtin/shift) | Shift positional parameters | - | special builtin | |

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| | **Control flow and data processing Commands that operate on data and/or affect control flow.** | | **Alt** | **Type** | | --- | --- | --- | --- | | [colon](http://wiki.bash-hackers.org/commands/builtin/true) | "true" null command. | true | special builtin | | [dot](http://wiki.bash-hackers.org/commands/builtin/source) | Source external files. | source | special builtin | | [false](http://wiki.bash-hackers.org/commands/builtin/false) | Fail at doing nothing. | - | builtin | | [continue / break](http://wiki.bash-hackers.org/commands/builtin/continuebreak) | continue with or break out of loops. | - | special builtin | | [let](http://wiki.bash-hackers.org/commands/builtin/let) | Arithmetic evaluation simple command. | - | builtin | | [return](http://wiki.bash-hackers.org/commands/builtin/return) | Return from a function with a specified exit status. | - | special builtin | | [[](http://wiki.bash-hackers.org/commands/classictest) | The classic test simple command. | test | builtin | |

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| |  |  |  |  | | --- | --- | --- | --- | | **Process and Job control Commands related to jobs, signals, process groups, subshells.** | | **Alt** | **Type** | | [exec](http://wiki.bash-hackers.org/commands/builtin/exec) | Replace the current shell process or set redirections. | - | special builtin | | [exit](http://wiki.bash-hackers.org/commands/builtin/exit) | Exit the shell. | - | special builtin | | [kill](http://wiki.bash-hackers.org/commands/builtin/kill) | Send a signal to specified process(es) | - | builtin | | [trap](http://wiki.bash-hackers.org/commands/builtin/trap) | Set signal handlers or output the current handlers. | - | special builtin | | [times](http://wiki.bash-hackers.org/commands/builtin/times) | Display process times. | - | special builtin | | [wait](http://wiki.bash-hackers.org/commands/builtin/wait) | Wait for background jobs and asynchronous lists. | - | builtin | |  | | **Alt** | **Type** | |

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| |  |  |  |  | | --- | --- | --- | --- | | **I/O Commands for reading/parsing input, or producing/formatting output of standard streams.** | | **Alt** | **Type** | | [coproc](http://wiki.bash-hackers.org/syntax/keywords/coproc) | Co-processes: Run a compound command in the background with async I/O. | - | keyword | | [echo](http://wiki.bash-hackers.org/commands/builtin/echo) | Create output from arguments. | - | builtin | | [mapfile](http://wiki.bash-hackers.org/commands/builtin/mapfile) | Read lines of input into an array. | readarray | builtin | | [printf](http://wiki.bash-hackers.org/commands/builtin/printf) | "advanced echo." | - | builtin | | [read](http://wiki.bash-hackers.org/commands/builtin/read) | Read input into variables or arrays, or split strings into fields using delimiters. | - |  | |

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| |  |  |  |  | | --- | --- | --- | --- | | **Configuration and Debugging Commands that modify shell behavior, change special options, assist in debugging.** | | **Alt** | **Type** | | [caller](http://wiki.bash-hackers.org/commands/builtin/caller) | Identify/print execution frames. | - | builtin | | [set](http://wiki.bash-hackers.org/commands/builtin/set) | Set the positional parameters and/or set options that affect shell behaviour. | - | special builtin | | [shopt](http://wiki.bash-hackers.org/commands/builtin/shopt) | set/get some bash-specific shell options. | - | builtin | |