
POSIX shell cheat sheet

Reference syntax and commands for POSIX shell scripting.

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Conditional expressions

For use in `[]` `if [];` `then` and `test`.

Note: When writing a bash or zsh script, use `[[` instead of POSIX `[`.

Variable conditionals

Use these to check if a variable is empty or non-empty.

Expression	Value	Description
<code>-n</code>	<code>var</code>	If the length of string is non-zero.
<code>-z</code>	<code>var</code>	If the length of string is zero.

Variable comparisons

String:

Expression	Description
<code>var1 = var2</code>	Equal to.
<code>var1 ≠ var2</code>	Not equal to.

Note: Use `=` instead of `=` inside of `[[` for bash, zsh scripts.

Numeric:

Expression	Description
<code>var1 -eq var2</code>	Equal to.
<code>var1 -ne var2</code>	Not equal to.
<code>var1 -gt var2</code>	Greater than.
<code>var1 -ge var2</code>	Greater than or equal to.
<code>var1 -lt var2</code>	Less than.
<code>var1 -le var2</code>	Less than or equal to.

File conditionals

Common:

Expression	Value	Description
<code>-e</code>	file	If file exists and is any type.
<code>-f</code>	file	If file exists and is a regular file.
<code>-d</code>	file	If file exists and is a directory.

Expression	Value	Description
-h/-L	file	If file exists and is a symbolic link.
-r	file	If file exists and is readable.
-w	file	If file exists and is writable.
-x	file	If file exists and is executable.
-s	file	If file exists and has non-zero size (is non-empty).

Rare:

Expression	Value	Description
-b	file	If file exists and is a block special file.
-c	file	If file exists and is a character special file.
-g	file	If file exists and its set-group-id bit is set.

Expression	Value	Description
-p	file	If file exists and is a named pipe (<i>FIFO</i>).
-t	fd	If file descriptor is open and refers to a terminal.
-u	file	If file exists and its set-user-id bit is set.
-S	file	If file exists and is a socket.

Operators

Assignment

Operator	Description
=	Initialize or change the value of a variable.

Logical

Operator	Description
!	NOT

Operator	Description
&&	AND
	OR

Arithmetic

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
/	Division
**	Exponentiation
%	Modulo
+=	Plus-Equal
-=	Minus-Equal
*=	Times-Equal
/=	Slash-Equal
%=	Mod-Equal

Parameter expansion

Use these in place of awk or sed calls when possible.

Replacement

Parameter	Description
<code>\${VAR//PATTERN/REPLACE}</code>	Substitute pattern with replacement.
<code>\${VAR#PATTERN}</code>	Remove shortest match of pattern from start.
<code>\${VAR##PATTERN}</code>	Remove longest match of pattern from start.
<code>\${VAR%PATTERN}</code>	Remove shortest match of pattern from end.
<code>\${VAR%%PATTERN}</code>	Remove longest match of pattern from end.

Length

Parameter	Description
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Parameter	Description
<code>\${#VAR}</code>	Length of var in characters.

Default Value

Parameter	Description
<code>\${VAR:-STRING}</code>	If VAR is empty or unset, use STRING as its value.
<code>\${VAR-STRING}</code>	If VAR is unset, use STRING as its value.
<code>\${VAR:=STRING}</code>	If VAR is empty or unset, set the value of VAR to STRING.
<code>\${VAR=STRING}</code>	If VAR is unset, set the value of VAR to STRING.
<code>\${VAR:+STRING}</code>	If VAR is not empty, use STRING as its value.
<code>\${VAR+STRING}</code>	If VAR is set, use STRING as its value.
<code>\${VAR:? STRING}</code>	Display an error if empty or unset.
<code>\${VAR?STRING}</code>	Display an error if unset.

Escape sequences

Text Colors

Note: Sequences using RGB values only work in 24-bit true-color mode.

Sequence	Description	Value
<code>\033[38;5;<NUM>m</code>	Set text foreground color.	0-255
<code>\033[48;5;<NUM>m</code>	Set text background color.	0-255
<code>\033[38;2;<R>;<G>;m</code>	Set text foreground color to RGB color.	R, G, B
<code>\033[48;2;<R>;<G>;m</code>	Set text background color to RGB color.	R, G, B

Text Attributes

Sequence	Description
<code>\033[m</code>	Reset text formatting and colors.
<code>\033[1m</code>	Bold text.
<code>\033[2m</code>	Faint text.

Sequence	Description
\033[3m	Italic text.
\033[4m	Underline text.
\033[5m	Slow blink.
\033[7m	Swap foreground and back-ground colors.
\033[8m	Hidden text.
\033[9m	Strike-through text.

Internal and environment variables

Variable	Description
\$-	Shell options
\$\$	Current shell PID

References

- › [pure sh bible](#)