

CHEATSHEET FOR CHMOD COMMAND

Concept/Mode	Element	Octal Value	Permissions Represented (Sum of Values)	Symbolic Representation	Description
Octal Digits					Each digit (0-7) sums the values for r, w, x permissions within its category.
(abcd in chmod abcd)	a (1st digit)	4000 (SUID) 2000 (SGID) 1000 (Sticky)	Special Permissions	u+s, g+s, o+t	Controls special behaviors: - SUID (Set User ID): Executable runs as file owner. - SGID (Set Group ID): Executable runs as file group; new files in directory inherit parent group. - Sticky Bit: In directory, only file owner/root can delete/rename.
	b (2nd digit)	4 (read) 2 (write) 1 (execute)	User (Owner) Permissions	u (user)	Permissions for the creator/owner of the file or directory.
	c (3rd digit)	4 (read) 2 (write) 1 (execute)	Group Permissions	g (group)	Permissions for users who are members of the file's primary group.
	d (4th digit)	4 (read) 2 (write) 1 (execute)	Others Permissions	o (others)	Permissions for all other users on the system (not owner, not in group).
				a (all)	Shorthand for u, g, and o combined in symbolic mode.
Basic Permissions	r	4	Read	r	Allows viewing file content or listing directory content.
	w	2	Write	w	Allows modifying/deleting file content or creating/deleting files within a directory.
	x	1	Execute	x	Allows running an executable file or traversing into a directory.
	-	0	No Permission	(absence of r/w/x)	No permission granted.
Symbolic Operators				+ (add)	Adds specified permissions to existing ones.
				- (remove)	Removes specified permissions from existing ones.
				= (set and override)	Sets permissions to exactly what is specified, overriding all previous permissions for that category.