



Linux File Permissions Cheat Sheet

UNIX

COMMAND	DESCRIPTION
ls -l test.sh	Check permissions of file test.sh
ls -ld bar	Check permissions of directory bar

SCOPE	SYMBOL	DESCRIPTION
User	u	The owner of the file or directory
Group	g	The group of users to who can access the file or directory
Other	o	Other users
All	a	All users

PERMISSION TYPE	SYMBOL	IF A FILE HAS THIS PERMISSION, YOU CAN:	IF A DIRECTORY HAS THIS PERMISSION, YOU CAN:
Read	r	Open and view file contents (Use Command : cat, head, tail)	Read directory contents (Use Command : ls, du)
Write	w	Edit, delete or rename file (Use Command : vi)	Edit, delete or rename directory and files within it or create files within it (Use Command : touch)
Execute	x	Execute the file	Enter the directory (Use Command : cd) without x, the directory's all permissions are useless
None	-	Nothing perform	Nothing perform

BINARY	OCTAL	PERMISSION(S) GRANTED	SYMBOLIC
000	0 (0+0+0)	None	---
001	1 (0+0+1)	Execute	--x
010	2 (0+2+0)	Write	-w-
011	3 (0+2+1)	Write and Execute	-wx
100	4 (4+0+0)	Read	r--
101	5 (4+0+1)	Read and Execute	r-x
110	6 (4+2+0)	Read and Write	rw-
111	7 (4+2+1)	Read + Write + Execute	rwX

Symbolic Notation

COMMAND IN SYMBOLIC NOTATION	CHANGE IN USER (U) PERMISSIONS	CHANGE IN GROUP (G) PERMISSIONS	CHANGE IN WORLD (O) PERMISSIONS
chmod +x test	✓ Execute	✓ Execute	✓ Execute
chmod a=x test	<input type="checkbox"/> Read <input type="checkbox"/> Write ✓ Execute	<input type="checkbox"/> Read <input type="checkbox"/> Write ✓ Execute	<input type="checkbox"/> Read <input type="checkbox"/> Write ✓ Execute
chmod u-w test	<input type="checkbox"/> Write	Remain Same	Remain Same
chmod u+wx, g-x,o=rx test	✓ Write ✓ Execute	<input type="checkbox"/> Execute	✓ Read <input type="checkbox"/> Write ✓ Execute

Octal Notation

COMMAND IN OCTAL NOTATION	CHANGE IN USER (U) PERMISSIONS	CHANGE IN GROUP (G) PERMISSIONS	CHANGE IN WORLD (O) PERMISSIONS
chmod 777 test	✓ Read ✓ Write ✓ Execute	✓ Read ✓ Write ✓ Execute	✓ Read ✓ Write ✓ Execute
Chmod 501 test	✓ Read <input type="checkbox"/> Write ✓ Execute	<input type="checkbox"/> Read <input type="checkbox"/> Write <input type="checkbox"/> Execute	<input type="checkbox"/> Read <input type="checkbox"/> Write ✓ Execute
chmod 365 test	<input type="checkbox"/> Read ✓ Write ✓ Execute	✓ Read ✓ Write <input type="checkbox"/> Execute	✓ Read <input type="checkbox"/> Write ✓ Execute
chmod 177 test	<input type="checkbox"/> Read <input type="checkbox"/> Write ✓ Execute	✓ Read ✓ Write ✓ Execute	✓ Read ✓ Write ✓ Execute

Conversion Between Symbolic and Octal Notations

SYMBOLIC NOTATION (LS -L)	BINARY REPRESENTATION	OCTAL NOTATION
rwxr-xr-x	111 101 101	755
rw-r--r--	110 100 100	644
rwx-----	111 000 000	700
r-xr-xr-x	101 101 101	555

Windows File Permissions Cheat Sheet

PERMISSION	Read	Write	List Folder Contents	Read & Execute	Modify	Full Control
Traverse Folder/ Execute File			✓	✓	✓	✓
List Folder / Read Data	✓		✓	✓	✓	✓
Read Attributes	✓		✓	✓	✓	✓
Read Extended Attributes	✓		✓	✓	✓	✓
Create Files / Write Data		✓			✓	✓
Create Folders / Append Data		✓			✓	✓
Write Attributes		✓			✓	✓
Write Extended Attributes		✓			✓	✓
Delete Subfolders and Files						✓
Delete					✓	✓
Read Permissions	✓		✓	✓	✓	✓
Change Permissions						✓
Take Ownership						✓

Unix Mode	Windows ACL	Comments
7	Modify	Read, Write & Execute [Owner of this file]
6	Read & Write	
5	Read & Execute	Used for most applications
4	Read Only	Security through obscurity is not a good practice
3	Write & Execute	Not available through Windows, [not commonly used]
2	Write Only	Not available through Windows, [not commonly used]
1	Execute Only	Not available through Windows, [not commonly used]

Windows Permissions Scheme:

1	Full Control	Allows: 1, 2, 3, 4, 5, 6, 7
2	Modify	Allows: 2, 3, 4, 5, 6
3	Read & Execute	Allows: 3, 4
4	List Folder Contents	Allows: 4 (but cannot run programs)
5	Read	Allows: 5 (Implies: 4)
6	Write	Allows: 6 (Implies: 4)
7	Special Permissions	Allows: Combinations

Permission	Meaning for Folders	Meaning for Files
Read	Permits viewing and listing of files and subfolders	Permits viewing or accessing of the file's contents
Write	Permits adding of files and subfolders	Permits writing to a file
Read & Execute	Permits viewing and listing of files and subfolders as well as executing of files; inherited by files and folders	Permits viewing and accessing of the file's contents as well as executing the file
List Folder Contents	Permits viewing and listing of files and subfolders as well as executing of files; inherited by files and folders	N/A
Modify	Permits reading and writing of files and subfolders; allows deletion of the folder	Permits reading and writing of the file; allows deletion of the file
Full Control	Permits reading, writing, changing, and deleting of files and subfolders	Permits reading, writing, changing, and deleting of the file