↖ PEL Topic Index

The ls -l command output format

Output format example	-rw-r--r--@ 1 jdoe staff ␣ 5111 9 Jun 14:30 readme.rst.txt										
Fields	-	rw-	r--	r--	@	1	jdoe	staff	5111	9 Jun 14:30	readme.rst.txt
	Device Type:	*Owner*	*Group*	*Word*	*Optional Extra field*		*ownership*				

Description
 	
Note: use the **`info ls`** command to see more information related to your system.
 	
See Also: **ls @ wikipedia** with all the identified external links.
	• **-** Regular file.
	• **b** Block special file.
	• **c** Character special file.
	• **C** High performance (*contiguous data*) file.
	• **d** Directory.
	• **D** Door (Solaris).
	• **l** (letter `l`) Symbolic link.
	• **M** Off-line (migrated) file (Cray DMF).
	• **n** Network special file (HP-UX).
	• **p** FIFO (named pipe).
	• **P** Port (Solaris).
	• **s** Socket.
	• **?** Some other file type.
		Discretionary Access Control (DAC)
		
		Permissions:
		• **r**ead,
		• **w**rite,
		• other:
		  • **`s` :** If the set-user-ID or set-group-ID and corresponding executable bit are both set.
		  • **`S` :** If the set-user-ID or set-group-ID is set but the corresponding executable bit is not set.
		  • **`t` :** If the restricted deletion flag or sticky bit, and the other-executable bit, are both set. The restricted deletion flag is another name of the sticky bit.
		  • **`T` :** If the restricted deletion flag or sticky bit is set but the other-executable bit is not set.
		  • **`x` :** If the executable bit is set and
					macOS only:
					• @ has extended attributes
					• % dataless file or directory
					
					Linux only:
					• . Flag: file has **SELinux security context**
					
					Shown by the **-Z** option
						Number of links or directories	**User** *ownership:* user that owns the file or directory	**Group** ownership	**Size** in bytes.
									
									With **`ls -lh`**, size format is human readable with units:
									• **k** : kilo
									• **M** : mega
									• **G** : giga
										Date of last modification.
										
										Date format might be affected by the LANG environment variable.
										
										On Linux, you can change the date format with the **`–time-style`** option.
										
										For example:
										`ls -l --time-style="long-iso"`
											Name of the file.

Extra Notes:	• **POSIX File System Permissions**	• **s** • **S**	The **s** and **S** bits identify whether the set user ID or set group ID permissions are active. These are special permissions bits that allow a program, when run by any user, to be run with the effective UID of the owner (identified by the ownership fields). • For example, if the user ownership is root and the s bit is set, another user will be able to run the program as if it was root. This permission is therefore a security risk and should be restricted to the programs that absolutely require this (as sudo does for example).									
SELinux: With **-Z** option:	• **SELinux security context** • Shown only with the -Z option between the ownership and size for the **ls -l** output. • *This is where the ␣ is shown in the first row.*	• **?**	The **?** is displayed when the file has no associated **SELinux security context**.								
		SELinux contexts follow the SELinux **user:role:type:level** syntax with the following fields (as described in the SELinux RedHat web page:									
		• user (…_**u**)	The **SELinux user** identity. This can be associated to one or more roles that the SELinux user is allowed to use.								
		• role (…_**r**)	The **SELinux role**. This can be associated to one or more types the SELinux user is allowed to access.								
		• type (…_**t**)	The **SELinux type** of the file (the **SELinux object**). It defines what access permissions the SELinux user has to that object.								
		• level	**Security level** field (or range). It is only present if the policy supports MCS or MLS. The entry can consist of: • A single security level that contains a **sensitivity** level and zero or more **categories** (e.g. s0, s1:c0, s7:c10.c15). • A range that consists of two security levels (a low and high) separated by a hyphen (e.g. s0 - s15:c0.c1023).								
☝ *On SELinux:*	The **-Z** switch is available on several utilities to show or manage SELinux security contexts information. For example: • **ls -lZ** • **ps axZ** • **id -Z**										