

LISTAS DE CONTROL DE ACCESO

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1. Listas de Control de Acceso.

1.1 Introducción

Una lista de control de acceso es un concepto de seguridad informática usada para fomentar la separación de privilegios. Es una forma de determinar los permisos de acceso a un objeto determinado. Para definir permisos o accesos en base a si un usuario es dueño de un archivo, pertenece a su grupo o si no sucede ninguno de esos casos, es que utilizamos las reglas de control de acceso. Ellas definen quien puede hacer cada tarea y de qué forma.

Las ACL brindan niveles de seguridad personalizables, combinado con el manejo de usuarios y grupos, de acuerdo al escenario que se nos presente.

1.2 ACL en Debian

En primer lugar debemos asegurarnos que nuestro sistema sea compatible con ACL. Para ello debemos comprobar la versión del kernel. Compruebo la versión con el siguiente comando:

```
#cat /boot/config-2.6.15.1-386 | grep _ACL
```

Esto debería dar el siguiente resultado:

```
CONFIG_EXT3_FS_POSIX_ACL=y  
CONFIG_EXT2_FS_POSIX_ACL=y  
CONFIG_XFS_POSIX_ACL=y
```

Para instalar ACL en Debian uso el comando:

```
#apt-get install acl
```

Alternativamente, puede utilizar el gestor de paquetes Synaptic, u otro gestor de paquetes, para obtener e instalar el paquete.

Una vez que haya instalado acl, puedes probar y ver si su sistema de archivos admite ACL. Suponiendo que existe el archivo testfile, hacemos:

```
⑩ setfacl - modify user:demo:5 testfile.
```

Si el comando da un error, es posible de debemos montar nuestro sistema de archivos con la opción ACL. Suponiendo que el sistema de archivos “testfile” se encuentra en el raíz, debemos ejecutar como root lo siguiente:

```
Mount -o remount, acl /
```

Probamos nuevamente setfacl. Si es satisfactoria la llamada al comando getfacl testfile debería mostrar, entre otras, una línea como la siguiente:

```
user:demo.r-x
```

Aquí rx es el permiso leer y ejecutar.

En la tabla siguiente podemos ver los tipos de permiso que se puede asignar a los usuario o grupos.

Número	Binario	Lectura (r)	Escritura (w)	Ejecución (x)
0	000	X	X	X
1	001	X	X	SI
2	010	X	SI	X
3	011	X	SI	SI
4	100	SI	X	X
5	101	SI	X	SI
6	110	SI	SI	X
7	111	SI	SI	SI

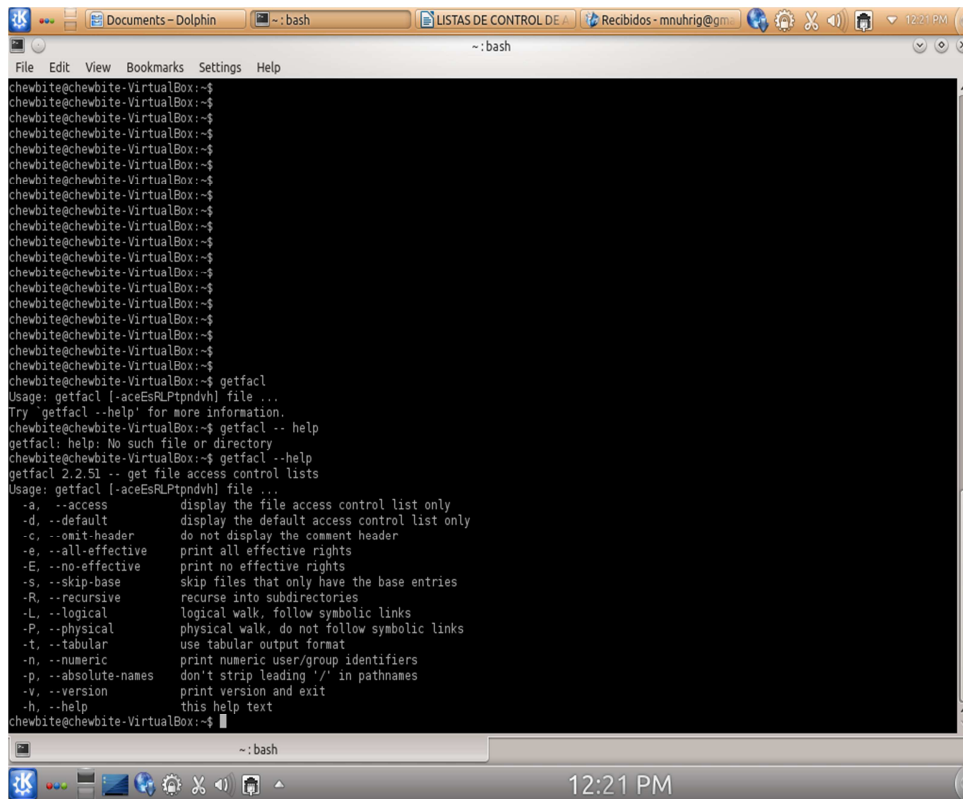
Nota: para activar ACL de manera permanente para ciertos sistemas de archivo, debe incluir la opción acl en el archivo `/etc/fstab`¹.

2. Uso de las ACLs

Para gestionar las ACL disponemos de dos utilidades principales:

⑩ **getfacl:** nos permite consultar las listas de control de acceso de un fichero dado. Tiene muchas opciones, las cuales pueden verse en la siguiente figura.

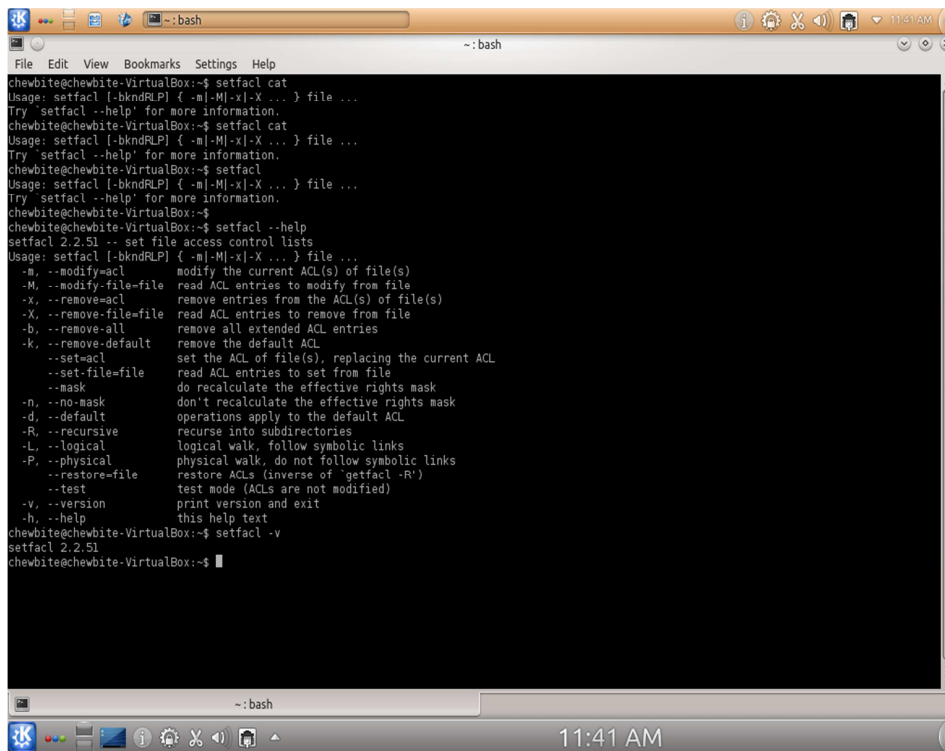
¹Fstab: Archivo de configuración (Filesystem Table). Contiene información sobre todos los puntos de montaje y particiones que se utilizan en la computadora, para montarlos en el inicio y desmontarlos cuando se apaga el equipo.



⑩ **setfacl**: nos permite modificar las listas de control de acceso de un fichero dado.

Tiene

muchas



opciones, las cuales pueden verse en la siguiente figura.

⑩

Con el comando **getfacl** y la ruta del archivo correspondiente, podemos obtener los permisos de las listas de control de acceso de un archivo o directorio en particular. Por ejemplo:

⑩ `getfacl /home/empresas/diego`

Esto devolvería algo parecido a lo siguiente:

```
getfacl: Eliminando '/' inicial en nombres de rutas absolutos
# file: home/empresas/diego
# owner: diego
# group: empresas
user::rwx
group::---
other::---
```

Si se desea que otro usuario en particular tenga acceso a ese mismo directorio, se utilizará el comando `setfacl`. De esta manera, se empleará el parámetro `-m` para la modificación de la ACL, `(u,g,o):(user, group, other):(r,w,x)` y la ruta del directorio. Por ejemplo:

⑩ `setfacl -m u:lorena:5 /home/empresas`

Es así como el usuario `lorena` podrá solamente leer y acceder al directorio `/home/empresas`. Para la verificación, se vuelve a ejecutar el comando `getfacl`.

2.1 Creación de una ACL

En el caso de que deseáramos que más de un usuario o más de un grupo pudiese tener acceso a un fichero pero con permisos diferenciados, utilizamos ACL.

Utilizando ACL podemos asignar un grupo de permisos diferentes para cada grupo de usuarios.

Para crear una nueva ACL hacemos:

```
setfacl -b -k -R /
setfacl -R -m g:sistemas:rw
```

Usamos la opción `-b` para borrar la ACL que ya pudiera tener el directorio raíz. La opción `-k` para borrar la ACL por defecto y `-R` para aplicar los cambios de manera recursiva a todo lo que se cuelgue del raíz.

Luego indicamos de nuevo que queremos de manera recursiva los cambios, y además le indicamos que queremos añadir o modificar (`-m`) la ACL en cuestión (`g:sistemas:rw`). Todas las ACL tienen tres partes separadas por “:”. El primero indica si se trata de una ACL de usuario (valor `u`) o de un grupo (valor `g`). El segundo componente es el nombre de usuario o grupo al que se le aplica la ACL. El tercer componente es el valor de permiso asociado a esta ACL y puede ser una combinación cualquiera de las letras `r`, `w`, `x` y `-` (o su valor numérico octal mostrado en la tabla de la página 7).

2.2 ACL por defecto.

ACL por defecto, son herramientas muy valiosas en el momento de crear un directorio que usted desee compartir para leer o escribir entre varios usuarios. Cuando uno crea un nuevo directorio dentro de un directorio que ya posee ACL por defecto, el directorio nuevo heredará la ACL por defecto tanto como su acceso ACL y su ACL predeterminada.

También, son entradas de control de acceso heredados de todos los subtemas de un directorio. Por ende, si se desea crear un directorio para Juan y Pedro siendo que ambos puedan trabajar en los archivos de cada uno, se realizarían los siguientes pasos:

```
mkdir common_workspace
setfacl -m u:Juan:7 common_workspace
setfacl -d -m u:Juan:7 common_workspace
setfacl -m u:Pedro:7 common_workspace
setfacl -d -m u:Pedro:7 common_workspace
```

Tenga en cuenta a lo anterior, una ACL por defecto es heredado de todos los nodos secundarios como una entrada de ACL y ACL por defecto. Sin embargo, un ACL por defecto por sí mismo no toma ninguna acción en permisos. De ahí el comando doble.

La primera da al usuario "Juan" el derecho a escribir, leer y ejecutar el directorio, y el segundo establece la ACL por defecto del cual será heredado.

De esta manera, cada vez que se cree un archivo, éste conservará su respectivo propietario original y su respectivo grupo y automáticamente se le asignará la ACL anterior. Esto es, por ejemplo, útil cuando se tiene usuarios que trabajan cooperativamente en el desarrollo de algún sitio web.

3. Conclusión

Una lista de control de acceso es una herramienta muy útil para brindar mayor seguridad y estabilidad en el sistema para el manejo de los derechos de acceso de los usuarios y grupos.

Estas reglas de control de acceso nos permiten definir quien puede hacer cada tarea y de qué forma, de manera tal que obtenemos distintos niveles de seguridad entre los usuarios y grupos, que facilitan las tareas de administración de los mismos.

Su instalación es bastante sencilla aunque requiere conocimientos de permisos de usuarios.

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