Linux System Admin

Managing User Accounts
Managing Services

Managing System Services & Run-levels
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Managing User Accounts

There are many other tasks that a Linux system administrator must perform other than installing Linux and installing software.
User Account Management is a very important operation that a Linux sysadmin does on an continual basis.

The sysadmin not only needs to add or remove user accounts by issuing commands, but may need to automate user account creations a large number (batch) of potential employees. There are many features with the Linux command to create new users including: specification of a home directory, type of shell used, name, password and time-limit (referred to as "aging") for a new user account.

Managing User Accounts

The /etc/passwd file is a database that stores user accounts (both system and regular users). Since we will be learning to create, modify and remove users on our Linux system, we should study this file in order to understand how these user account management commands will affect this file.

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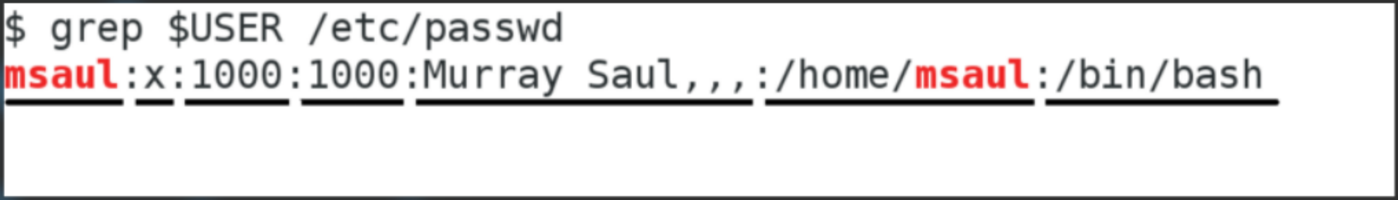


```
$ grep $USER /etc/passwd
msaul:x:1000:1000:Murray Saul,,,:/home/msaul:/bin/bash
```

Managing User Accounts

It doesn't make sense for the Linux sysadmin to directly edit the /etc/passwd file since they could corrupt the file. Instead, there are commands available for the administrator to safely update that file. These commands include:

useradd

Create a user account. Useful options are -m to automatically create a home directory and -e to set an expiry date (if account is temporary). Then the passwd command can be issued by root to set the user's password.

userdel

Remove a user account. The home diretories are not removed by default (e.g. to keep important data, or for investigation purposes). The -r option will remove the user's home directory as well.

usermod

Modify a user account. Useful options are -c (change full name of user), -l (change username or login name).

chage

Change the expiry date for the user. A useful option -E is used to change the expiry date for the user account.

Managing Groups

In lab4, you will learn how to create, remove and modify **groups** in our Linux VM.

You learned in ULI101 how to change permissions with the chmod command, but you didn't have admin privileges to create groups to allow directory and regular file sharing.

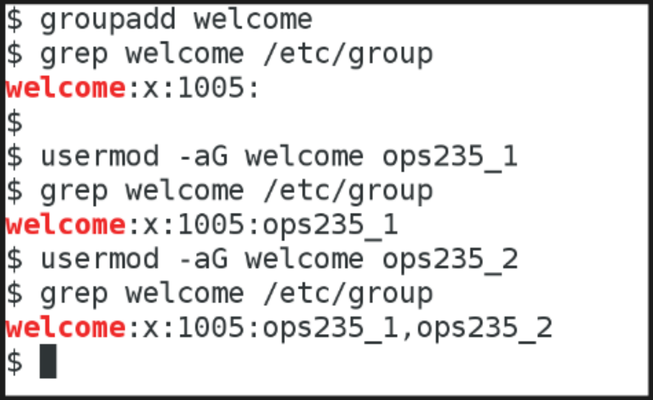
Since you now have admin privileges with your VM, you can now create groups, and add users to this group to allow file-sharing among users.

Managing Groups

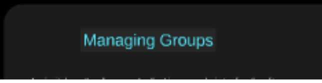
Groups that already exist or created are contained in the /etc/group file.

When a file is created, it is assigned an owner and a default (primary) group. The Linux system administrator can not only change a file's ownership (via the chown command), but also add users to other secondary groups that were created by root (eg. for projects, collaboration, etc).

It is recommended that you take a moment to study elements of the /etc/group file.



```
$ groupadd welcome
$ grep welcome /etc/group
welcome:x:1005:
$
$ usermod -aG welcome ops235_1
$ grep welcome /etc/group
welcome:x:1005:ops235_1
$ usermod -aG welcome ops235_2
$ grep welcome /etc/group
welcome:x:1005:ops235_1,ops235_2
$ 
```



Managing Groups

Again, it doesn't make sense for the Linux sysadmin to directly edit the /etc/group file since they could corrupt the file. Instead, there are commands available for the administrator to safely update that file. These commands include:

groupadd
Create a new group. Useful options are -g to automatically assign a GID (Group ID) for that group name. Then the passwd command can be issued by root to set the user's password.

groupdel
Remove an existing group.

usermod
Modify a user account to add user names to a secondary group. Useful options are
-aG (a user to an existing secondary group).

Managing System Services & Run-levels

Another important operation for a Linux sysadmin is to manage services (eg. starting, restarting, stopping, disabling, enabling system services). Some services can include web-server, ssh-server, firewalls, e-mail server, and DNS server.

Some students might think that the following topic is small and "not a big deal". Those students may say, "How hard is running and stopping services?"

The process may not be hard, but knowing how to stop, start, restart and check the status of services is absolutely critical to a Linux server. Aside from learning to trouble-shooting problems by checking the status of running services, understanding how to manage services is critical to help protect a Linux server from penetration (this term is referred to as ***"Hardening a server"***).

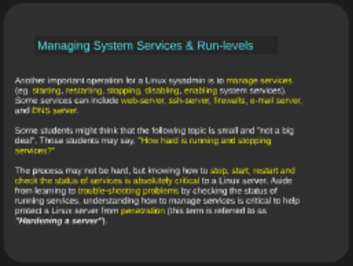
Managing System Services & Run-levels

Although there is a command called service that may appear to manager services on your Linux system, it is considered deprecated (i.e. "obsolete").

The service command has been replaced by the systemctl command. Here are some examples using the systemctl command:

systemctl status sshd (show status of sshd service)
systemctl start | stop | restart iptables (start, stop, restart iptables service)
systemctl enable httpd (run web server upon server startup - i.e. persistent)
systemctl disable httpd (do not run web server upon server startup)

Note that there is a BIG difference between starting a service and enabling a service. You will learn the hard-way if you start a service, but forget to enable that service the next time you restart your server!!!



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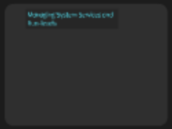
Managing System Services & Run-levels

Running Linux servers in graphical mode can make the server vulnerable to penetration (i.e. hacking). The X-windows framework can be vulnerable to attacks when these servers are connected to the Internet. This is why when you install server versions of Linux, they work in text-based mode only.

Desktop versions of Linux are then installed on workstations (working in graphical mode) that connect to the Linux server (for security reasons since those servers are closest to the router and the Internet).

The Linux sysadmin can also change the run-level (or state) of a graphical Linux server to run in text-based mode and run the graphical mode by issuing a command when graphic mode is required.



Managing System Services & Run-levels

The systadmin can edit files to set the default run-level, but it is safer to issue commands to modify those files. Here are some useful commands:

runlevel

Displays the current run level of your server. The number on the right is the current run-level 5 (which is graphical mode). The number or character on the left if the previous run level.

init 3

Change **default** runlevel to 3 (command-line mode)

init 5

Change **default** runlevel to 5 (graphical mode)

startx

Launch into Graphical mode from command-line mode (assuming Xwindows has been installed on server)

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