

# CST8207 - Linux O/S I

User Management

# Topics

- ▶ **/etc/passwd** file
- ▶ **/etc/shadow** file
- ▶ **useradd**
- ▶ **userdel**
- ▶ **usermod**
- ▶ **chsh**
  
- ▶ NOTE: the **/etc** directory is where “Host-Specific Configuration” files are stored

# Associated Readings

- ▶ Chapter 16 (first part)

# Linux User Management

- ▶ Almost everything a user can or can't do in a Linux system is determined by:
  - what user they log in as (or become with su)
  - what group(s) that user belongs to
- ▶ When an user is created on the system, the following information is stored in **/etc/passwd**
  - login name
  - passwd
  - User ID # (UID)

# Linux User Managements

- Group ID (GID)
  - Comments, other information
    - Typically user's full name
  - Home directory
    - typically **/home/\$USERNAME**
  - Default shell to use
    - typically **/bin/bash**
- 
- ▶ All of this information about the user, is maintained by the system in the file  
**/etc/passwd**

# /etc/passwd File

user1 : x: xxx : yyy : other info : /home/dir : /bin/bash

▶ **Field #1: *login name***

- user name the user needs to type in to log into the system

▶ **Field #2: *password field***

- contains encrypted password
- encrypted password is maintained in separate file

▶ **Field #3: *UID***

- User ID associated to login name

# /etc/passwd File

- ▶ Field #4: *GID*
  - main Group ID associated to login name
- ▶ Field #5: *other info or comment*
  - other information about the user, such as real name, office #, telephone number, etc
- ▶ Field #6: *default home directory for user*
  - set by administrator, directory is owned and managed by user
- ▶ Field #7: *default shell for user*
  - shell that user will start in when login into the system

*spacing exaggerated to enhance viewing. There are no spaces before or after the field delimiter (:)*

# /etc/passwd File

- ▶ **/etc/passwd** file
  - It generally requires **root** access for modifications
  - Its content can be viewed by anyone
  - Users can modify content related to their own account info using the appropriate commands only  
(such as **passwd** to change password)
  - All user passwords will be stored in **/etc/shadow**, accessible only by root or root processes

# **/etc/passwd** File

- When a system has shadow passwords enabled, the password field in **/etc/passwd** is replaced by an "x" and the user's real encrypted password is stored in **/etc/shadow**. Because **/etc/shadow** is only readable by the root user, malicious users cannot crack their fellow users' passwords

# /etc/shadow File

- ▶ Each entry in **/etc/shadow** contains the user's login, their encrypted password, and a number of fields relating to password expiration. A typical entry looks like this:

user1:/3GJllg1o4152:11009:0:99999:7:::

- Username, up to 8 characters. Case-sensitive, usually all lowercase. A direct match to the username in the **/etc/passwd** file.
- Encrypted password. “!!” indicates the account password has not been set, and a ``\*” entry (eg. `\*:`) indicates the account has been disabled.

# /etc/shadow File

- The number of days (since January 1, 1970) since the password was last changed.
- The number of days before password may be changed (0 indicates it may be changed at any time)
- The number of days after which password *must* be changed (99999 indicates user can keep his or her password unchanged for many, many years)
- The number of days to warn user of an expiring password (7 for a full week)

# /etc/shadow File

- The number of days after password expires that account is disabled
- The number of days since January 1, 1970 that an account has been disabled
- A reserved field for possible future use

# useradd Command

- ▶ **useradd [options] username**
  - Used to create a new user account. Linux will also create a group with the same name by default.
  - Useful options
    - **-d**
      - Define home directory
    - **-g**
      - Initial group name, the group name must exist
    - **-G**
      - A comma-separated list of supplementary groups which the user is also a member of.

# useradd Command

- **-c**
  - Any text string: add comments or other information: such as user's full name
- **-n**
  - Turn off the behavior of creating a group with the same name
- **-e**
  - Account expiration date: *YYYY-MM-DD*
- **-s**
  - Login shell

# useradd Command

- -m
  - Create home directory if does not exist
- Example:
- Add a user named “prof”
  - **useradd -c “Course Professor” -d /home/prof -g faculty -G computer, staff -e 2011-12-31 -s /bin/bash prof**

# **userdel Command**

- ▶ **userdel [options] username**
  - Remove an user from the system
  - Options
    - -r
      - Remove the user's home directory and files contained in it

# usermod Command

- ▶ **usermod [options] username**

- Allows for modifying most of the information stored in **/etc/passwd** associated with an user account
- several options available to modify almost all of the information associated with any account, assuming the user has the right to modify the information
  - **-c**
    - add comments or other information
  - **-d**
    - change home directory if **-m** option is given, the contents of the user's home directory will be moved to the new home directory, which will be created if it doesn't exist

# usermod Command

- **-g**
  - change initial group
- **-G**
  - change supplementary groups which user is also a member of
- **-s**
  - change the login shell
- **-e**
  - The date on which the user account will be disabled: *YYYY-MM-DD*

# **usermod Command**

- **-l**
  - Change login name
- **-L**
  - Disable/lock user's password, which will place a “!” before encrypted password in **/etc/shadow**
- **-U**
  - Enable/Unlock user's password, which will remove the “!” from encrypted password in **/etc/shadow**

# chsh Command

- ▶ **chsh [options] username**

- Changes login shell associated with a user account
  - if a shell isn't specified on the command line, it will prompt for the shell to use

- **Options**

- s

- specify the shell to associate to the account

- l

- list currently available shells