Managing Users and Groups

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https://github.com/swacademy/fss

Users Accounts

- When installed, automatically configured for use by a single user.
- Allows to create separate user accounts for each person.
- Also supports user groups, allows to administer permissions for multiple users at the same time.
- Every user is a member of at least one group.
- A user can also be a member of additional groups.
- By default, a user's files are only accessible by that user, and system files are only accessible by the ***root*** user.

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Users Accounts (Cont.)

- */etc/passwd*
  - Stores essential information, which is required during login.
  - Contains one entry per line for each user (or user account) of the system.
  - All fields are separated by a colon (**:**) symbol.
  - Total seven fields.
  - To see user list :

    $ **cat /etc/passwd**
  - File permission

```
-rw-r--r-- 1 root root 2659 Sep 17 01:46 /etc/passwd
```

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Users Accounts(Cont.)

- */etc/passwd*

1. **Username**
   - Is used when user logs in.
   - Should be between 1 and 32 characters in length.
2. **Password**
   - An *x* character indicates that encrypted password is stored in */etc/shadow* file.

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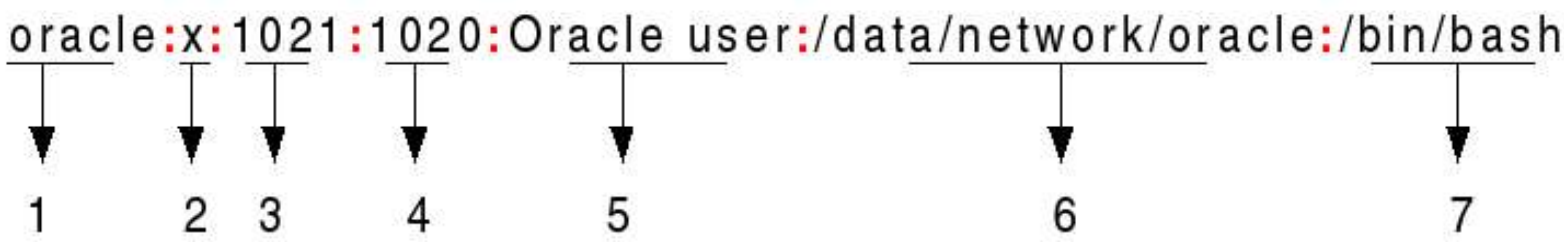
Users Accounts(Cont.)

- */etc/passwd*



3. **User ID (UID)**
   - Each user must be assigned a user ID (UID).
   - UID 0 (zero) is reserved for root
   - UIDs 1-99 are reserved for other predefined accounts.
   - Further UID 100-999 are reserved by system for administrative and system accounts/groups.
   - Users is assigned start with 1000.

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Users Accounts(Cont.)

- */etc/passwd*

4. **Group ID (GID)**
   - The primary group ID (stored in */etc/group* file)
5. **User ID Info**
   - The comment field.
   - Allow to add extra information about the users such as user's full name, phone number etc.
   - Use by finger command.

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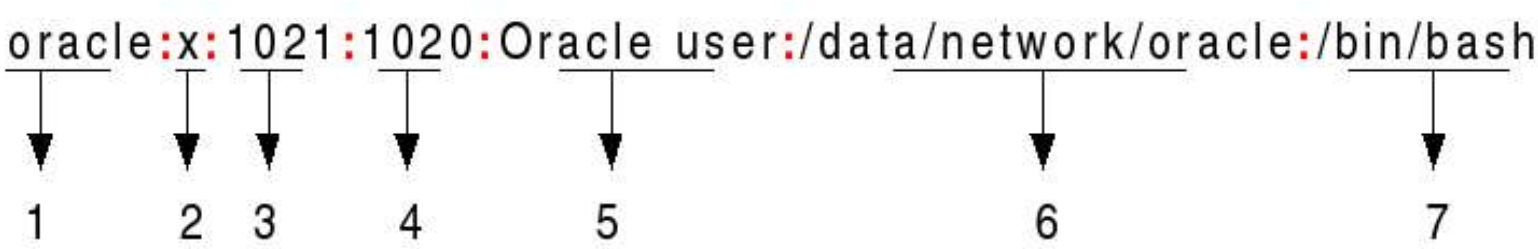
Users Accounts(Cont.)

- */etc/passwd*



6. **Home directory**
   - The absolute path to the directory the user will be in when they log in.
   - If this directory does not exists users directory becomes */*.
7. **Command shell**
   - The absolute path of a command or shell *(/bin/bash*).

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Users Accounts(Cont.)

- */etc/shadow*
  - Stores actual password in encrypted format.
  - All fields are separated by a colon (**:**) symbol.
  - Contains one entry per line for each user listed in */etc/passwd* file.
  - Can read only **root** rights.

```
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ ls -l /etc/shadow
-rw-r----- 1 root shadow 1286  5월 25 23:06 /etc/shadow
instructor@Ubuntu1404:~$
```

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Users Accounts(Cont.)

- */etc/shadow*

1. **Username**
   - Login name.
2. **Password**
   - Encrypted password.
   - Should be minimum 6-8 characters long including special characters/digits and more.
3. **Last password change**
   - Days since Jan 1, 1970 that password was last changed.

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Users Accounts(Cont.)

- */etc/shadow*

4. **Minimum**
   - The minimum number of days required between password changes.
   - The number of days left before the user is allowed to change password.
5. **Maximum**
   - The maximum number of days the password is valid (after that user is forced to change password)

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Users Accounts(Cont.)

- */etc/shadow*

6. **Warn**
   - The number of days before password is to expire that user is warned that password must be changed.
7. **Inactive**
   - The number of days after password expires that account is disabled.
8. **Expire**
   - Days since Jan 1, 1970 that account is disabled i.e. an absolute date specifying when the login may no longer be used.

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Users Accounts(Cont.)

- */etc/login.defs*
  - Defines the site-specific configuration for the shadow password suite.
  - Is a readable text file, each line of the file describing one configuration parameter.
  - Each line consist of a configuration name and value, separated by whitespace.
  - To open file

```
instructor@Ubuntu-00:~$
instructor@Ubuntu-00:~$ ls -l /etc/login.defs
-rw-r--r-- 1 root root 10551  2월 17  2014 /etc/login.defs
instructor@Ubuntu-00:~$
instructor@Ubuntu-00:~$ cat /etc/login.defs
```

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Users Accounts(Cont.)

- */etc/login.defs*
  - **PASS_MAX_DAYS**
    - Maximum number of days a password may be used.
    - If the password is older than this, a password change will be forced.
  - **PASS_MIN_DAYS**
    - Minimum number of days allowed between password changes.
    - Any password changes attempted sooner than this will be rejected
  - **PASS_WARN_AGE**
    - Number of days warning given before a password expires.
    - A zero means warning is given only upon the day of expiration, a negative value means no warning is given.
    - If not specified, no warning will be provided.

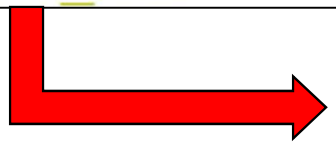
Users Accounts(Cont.)

- */etc/login.defs*
  - To open file using text editor:

```
instructor@Ubuntu-00:~$
instructor@Ubuntu-00:~$ vi /etc/login.defs
```

  - Setup (sample) values as follows:

```
160 PASS_MAX_DAYS    99999
161 PASS_MIN_DAYS    0
162 PASS_WARN_AGE    7
```



```
160 PASS_MAX_DAYS    30
161 PASS_MIN_DAYS    1
162 PASS_WARN_AGE    7
```

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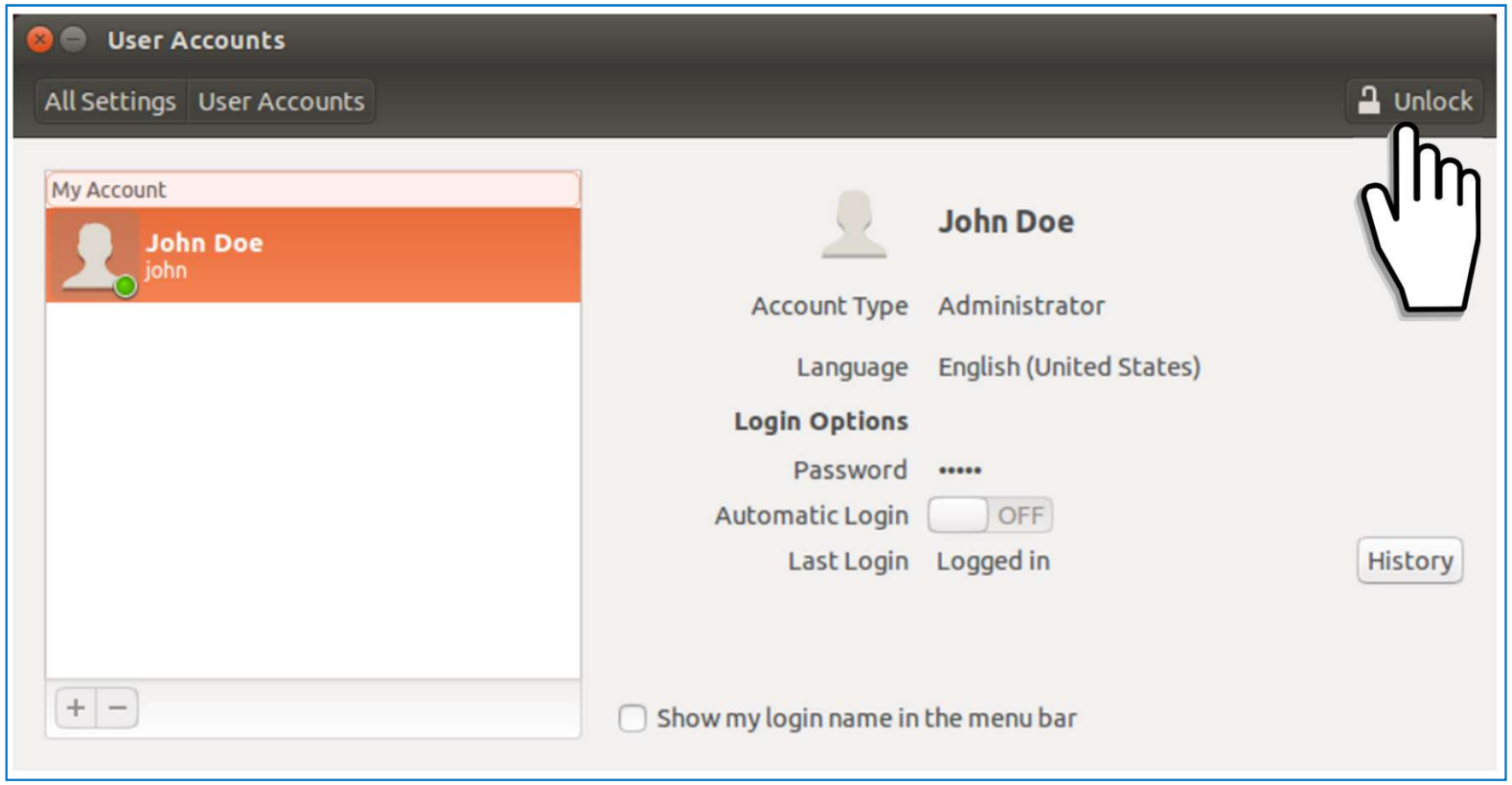
Managing Users



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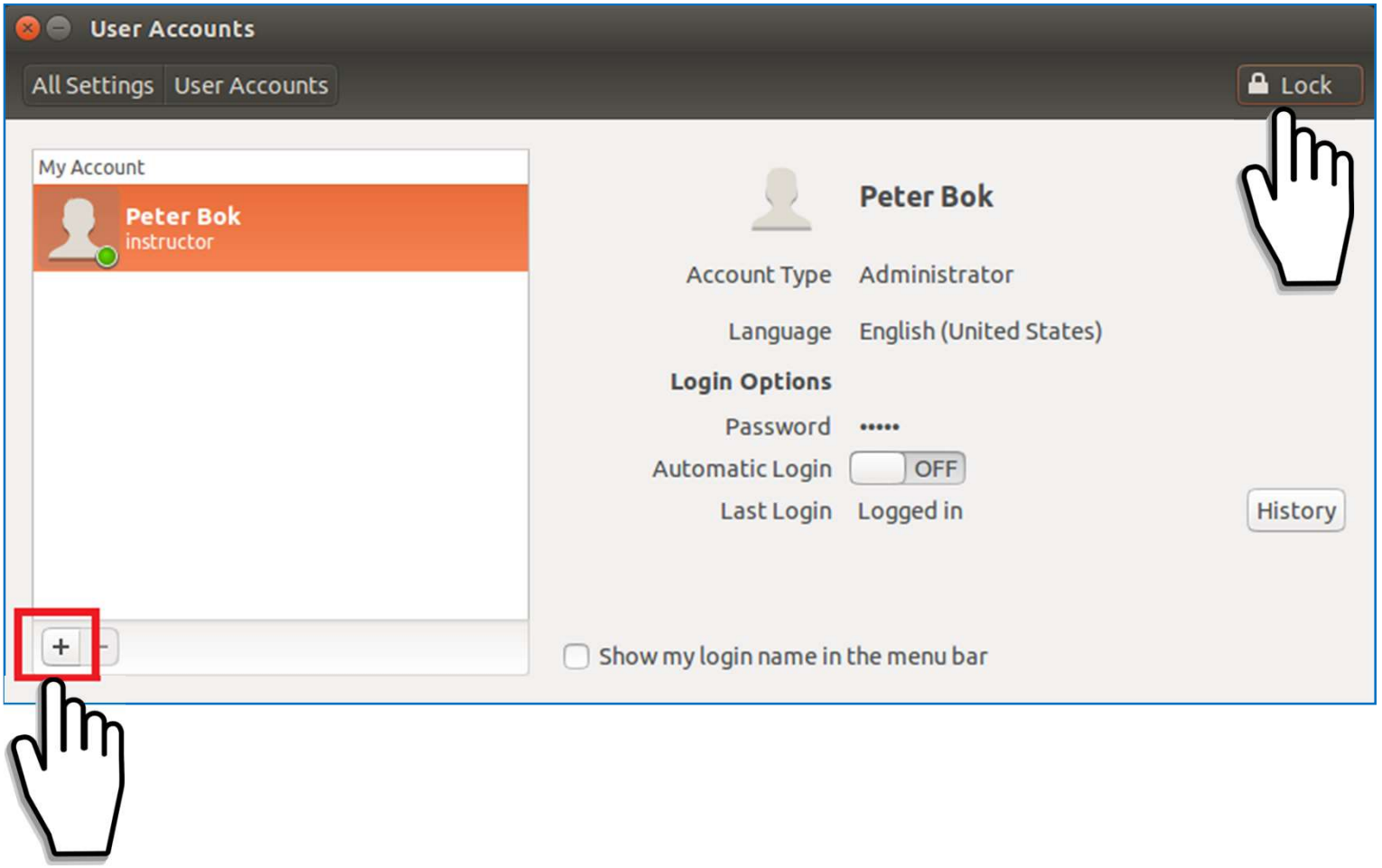
Managing Users (Cont.)

- Can manage users and groups using the ***Users and Groups administration*** application.

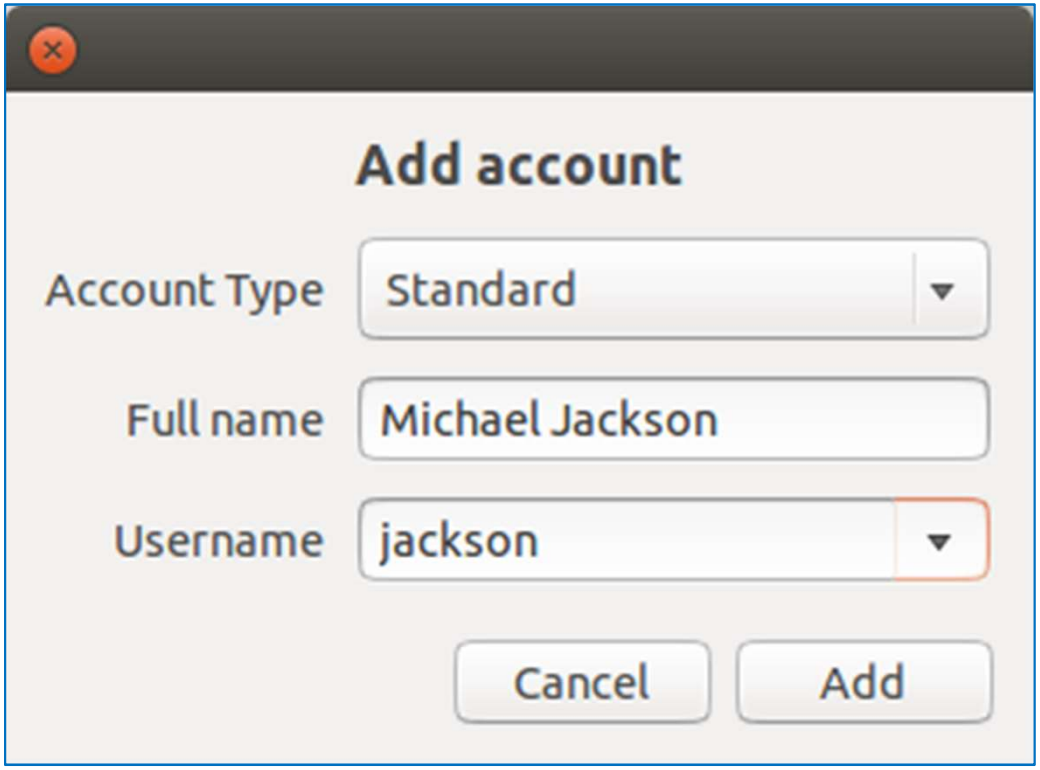
1. Click ***Session Indicator*** > ***System Settings…*** > ***User Accounts***.
2. Click the ***Unlock*** button.
3. Enter your password to unlock the user settings.
4. Select the user that you want to modify from the list.
5. Click on the element that you want to change.

Adding a user



Adding a user (Cont.)

- Click the + button underneath the list of the current user accounts.



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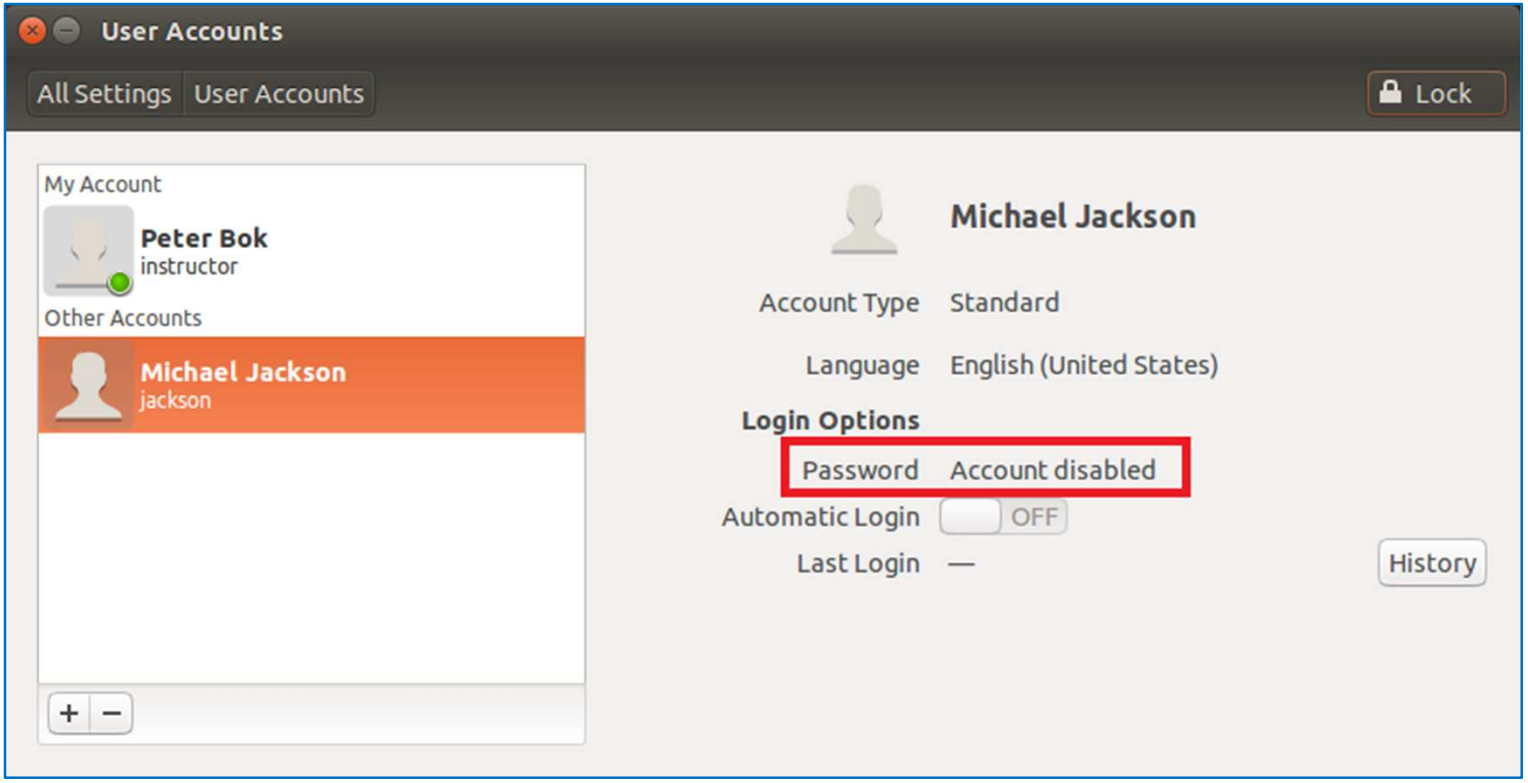
Adding a user (Cont.)

- New accounts are disabled by default.



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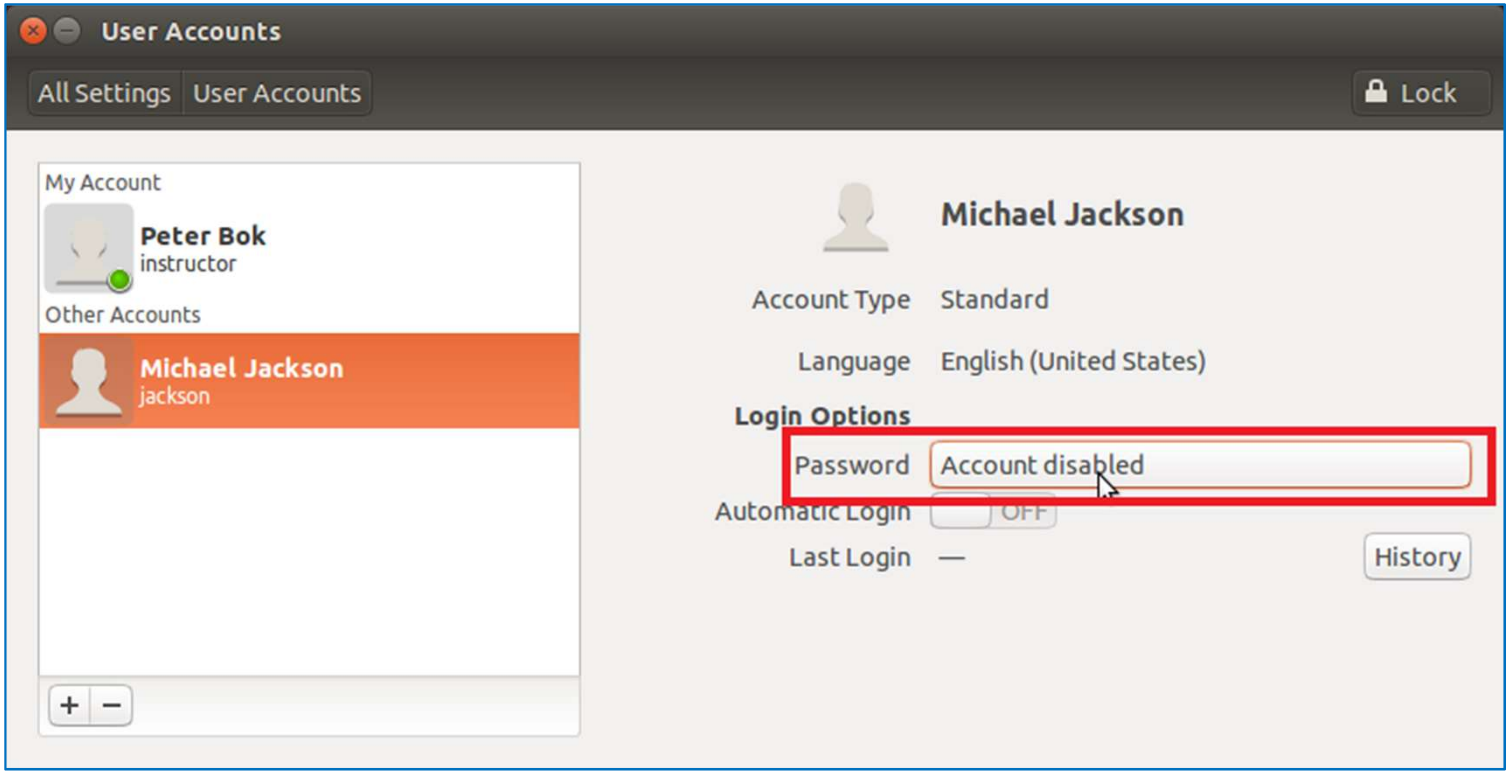
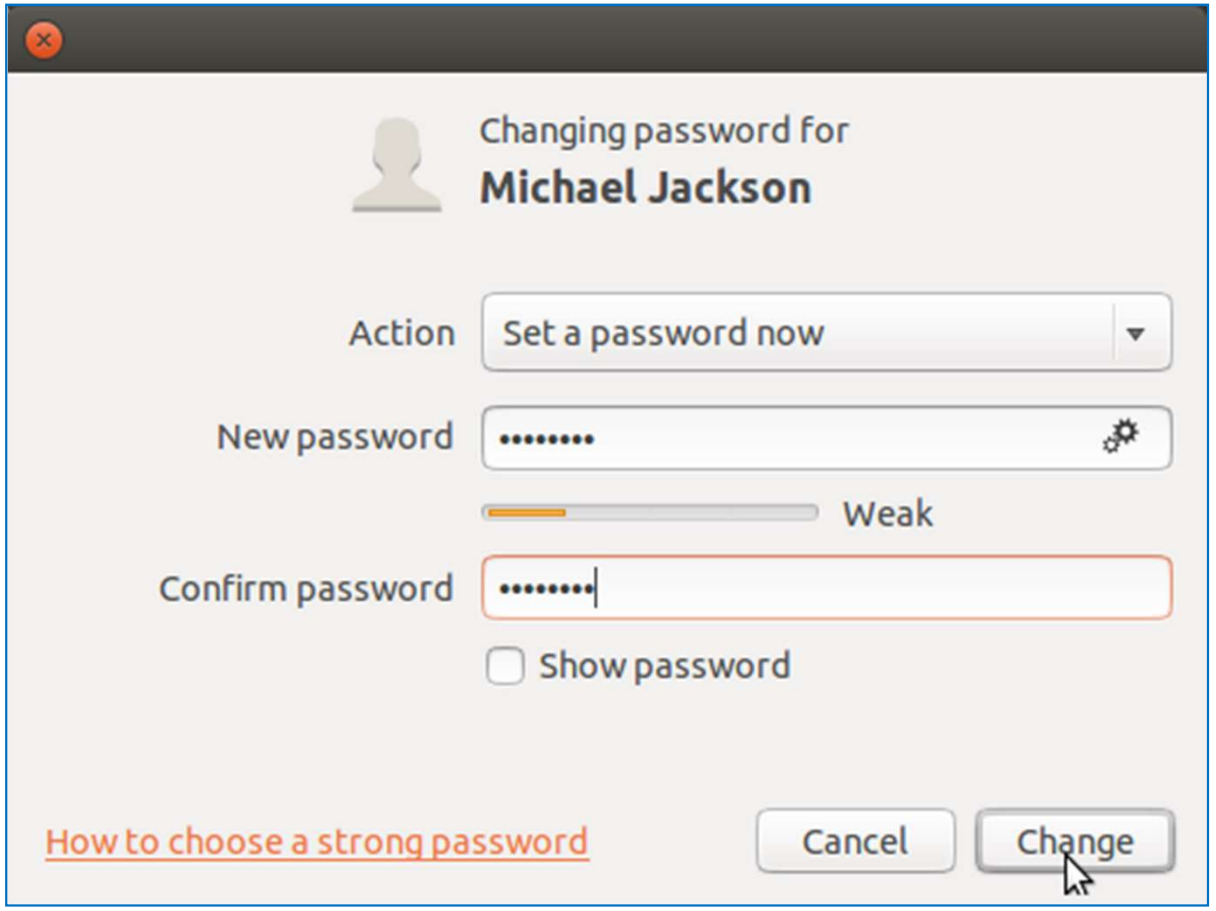
Adding a user (Cont.)

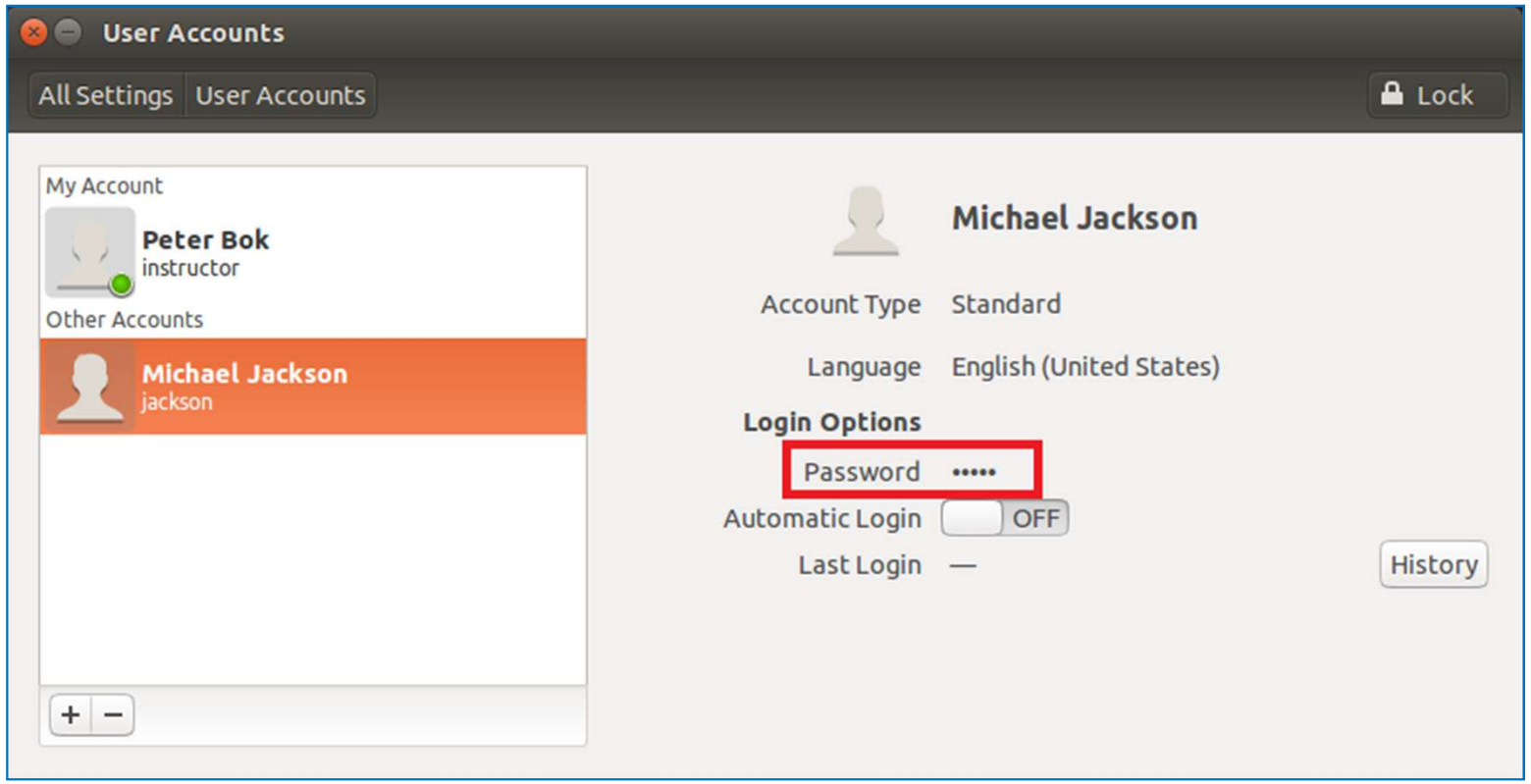
- To enable an account, click the ***Account disabled*** field.



Adding a user (Cont.)

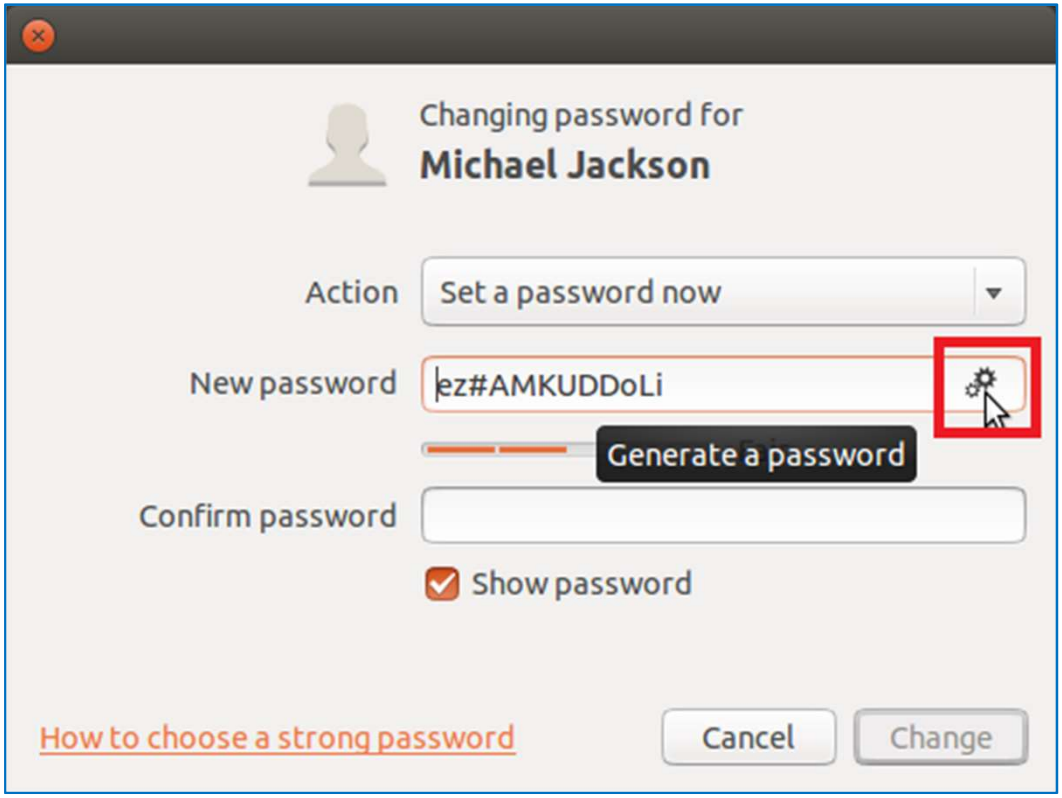


Adding a user (Cont.)



Adding a user (Cont.)

- Ubuntu provides a way to create a secure password by clicking the *gears* button.



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Managing Groups

- Users are assigned to one or more groups for the following reasons :
  - To share files or other resource with a small number of users
  - Ease of user management
  - Ease of user monitoring
  - Group membership is perfect solution for large Linux installation.
  - Group membership gives special access to files and directories or devices which are permitted to that group.

Managing Groups (Cont.)

- */etc/group*
  - Stores group information
  - Defines the user groups
  - Defines the groups to which users belong.
  - Is one entry per line
  - Each line has the format all fields are separated by a colon (**:**)

```
instructor@Ubuntu-00:~$ ls -l /etc/group
-rw-r--r-- 1 root root 957  5월 23 10:06 /etc/group
instructor@Ubuntu-00:~$
```

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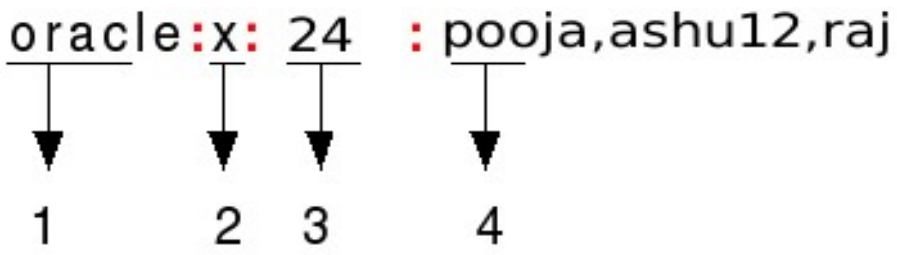
Managing Groups (Cont.)

- */etc/group*



1. **group_name**
   - Is the name of group.
   - If you run `ls -l` command, will see this name printed in the group field.
2. **Password**
   - Generally password is not used, hence it is empty/blank.
   - Can store encrypted password.
   - Is useful to implement privileged groups.

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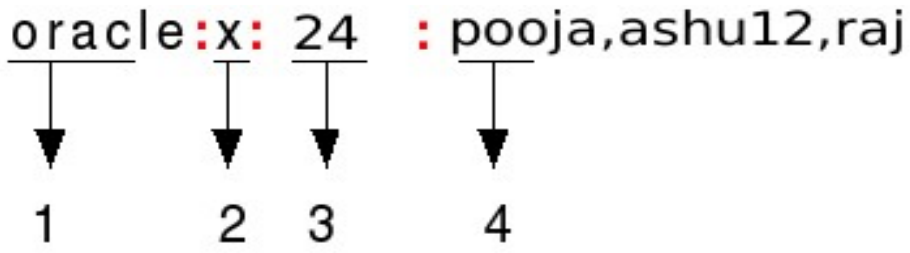
Groups (Cont.)

- */etc/group*



3. **Group ID (GID)**
   - Each user must be assigned a group ID.
   - Can see this number in your */etc/passwd* file.
4. **Group List**
   - Is a list of user names of users who are members of the group.
   - The user names, must be separated by commas.

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Managing Groups (Cont.)

- To view current groups settings

```
instructor@Ubuntu-00:~$ less /etc/group
instructor@Ubuntu-00:~$ more /etc/group
```

- To find out the groups a user is in:
  - $ **groups**
  - $ **groups {username}**

```
instructor@Ubuntu-00:~$ groups
instructor adm cdrom sudo dip plugdev lpadmin sambashare
instructor@Ubuntu-00:~$ groups instructor
instructor : instructor adm cdrom sudo dip plugdev lpadmin sambashare
instructor@Ubuntu-00:~$
```

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Managing Groups (Cont.)

- To display only the group ID
  - $ **id**
  - $ **id -g**
  - $ **id -g {userid}**

```
instructor@Ubuntu-00:~$
instructor@Ubuntu-00:~$ id
uid=1000(instructor) gid=1000(instructor) groups=1000(instruct
or),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),108(lpadmin)
,124(sambashare)
instructor@Ubuntu-00:~$ id -g
1000
instructor@Ubuntu-00:~$ id -g instructor
1000
instructor@Ubuntu-00:~$
```

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Managing Groups (Cont.)

- To display only the group ID and the supplement groups
  - $ **id -G**
  - $ **id -G {userid}**

```
instructor@Ubuntu-00:~$ id -G
1000 4 24 27 30 46 108 124
instructor@Ubuntu-00:~$
instructor@Ubuntu-00:~$ id -G instructor
1000 4 24 27 30 46 108 124
instructor@Ubuntu-00:~$
```

  - $ **id -Gn {userid}**

```
instructor@Ubuntu-00:~$ id -Gn instructor
instructor adm cdrom sudo dip plugdev lpadmin sambashare
instructor@Ubuntu-00:~$
```

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Managing Groups (Cont.)

- */etc/gshadow*
  - Contains the shadowed information for group accounts.
  - Must not be readable by regular users if password security is to be maintained.
  - Each line has the format all fields are separated by a colon (**:**)
  - To open this file

```
instructor@Ubuntu-00:~$ ls -l /etc/gshadow
-rw-r----- 1 root shadow 802  5월 23 10:06 /etc/gshadow
instructor@Ubuntu-00:~$
```

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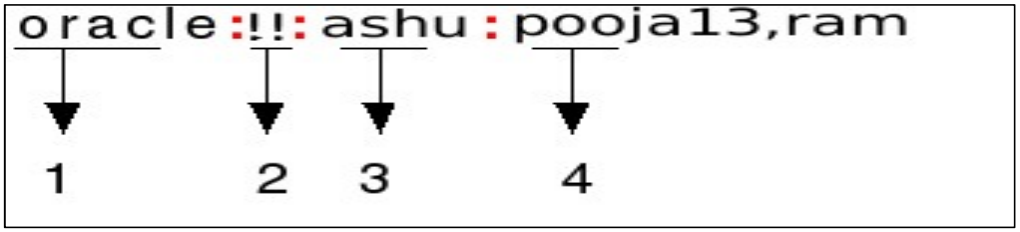
Managing Groups (Cont.)

- */etc/gshadow*



1. **group name**
   - must be a valid group name, which exist on the system.
2. **encrypted password**
   - This password supersedes any password specified in /etc/group.
3. **administrators**
   - Must be a comma-separated list of user names.
4. **members**
   - Must be a comma-separated list of user names.

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Adding a user with CLI

- useradd
  - Create a new user or update default new user information.
  - `useradd [option] LOGIN_ID`
  - `useradd -D`
  - `useradd -D [option]`

For details : http://linux.die.net/man/8/useradd

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Adding a user with CLI (Cont.)

- useradd [option]
  - *-d*, *--home* `HOME_DIR`
  - *-e*, *--expiredate* `EXPIRE_DATE(YYYY-MM-DD)`
  - *-f*, *--inactive* `INACTIVE`
  - *-g*, *--gid* `GROUP`
  - *-G*, *--groups* `GROUP1[,GROUP2, ...[,GROUPN]]`
  - *-k*, *--skel* `SKEL_DIR`
  - *-m*, *--create-home*
  - *-M*
  - *-s*, *--shell* `SHELL`
  - *-u*, *--uid* `UID`

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Adding a user with CLI (Cont.)

- $ `sudo useradd user1`

```
instructor@Ubuntu1404:~$ sudo useradd user1
[sudo] password for instructor:
instructor@Ubuntu1404:~$ ls /home
instructor  jackson
instructor@Ubuntu1404:~$ tail /etc/passwd
lightdm:x:112:118:Light Display Manager:/var/lib/lightdm:/bin/false
colord:x:113:121:colord colour management daemon,,,:/var/lib/colord:/bin/false
hplip:x:114:7:HPLIP system user,,,:/var/run/hplip:/bin/false
pulse:x:115:122:PulseAudio daemon,,,:/var/run/pulse:/bin/false
instructor:x:1000:1000:Peter Bok,,,:/home/instructor:/bin/bash
geoclue:x:116:126::/var/lib/geoclue:/bin/false
postfix:x:117:127::/var/spool/postfix:/bin/false
sshd:x:118:65534::/var/run/sshd:/usr/sbin/nologin
jackson:x:1001:1001:Michael Jackson,,,:/home/jackson:/bin/bash
user1:x:1002:1002::/home/user1:
instructor@Ubuntu1404:~$
```

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Adding a user with CLI (Cont.)

- $ **sudo useradd -m user3**

```
instructor@Ubuntu1404:~$ sudo useradd -m user3
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ ls /home
instructor  jackson  user3
instructor@Ubuntu1404:~$
```

ubuntu

Adding a user with CLI (Cont.)

- Check **/etc/shadow**

```
instructor@Ubuntu1404:~$ sudo tail /etc/passwd
colord:x:113:121:colord colour management daemon,,,:/var/lib/colord:/bin/false
hplip:x:114:7:HPLIP system user,,,:/var/run/hplip:/bin/false
pulse:x:115:122:PulseAudio daemon,,,:/var/run/pulse:/bin/false
instructor:x:1000:1000:Peter Bok,,,:/home/instructor:/bin/bash
geoclue:x:116:126::/var/lib/geoclue:/bin/false
postfix:x:117:127::/var/spool/postfix:/bin/false
sshd:x:118:65534::/var/run/sshd:/usr/sbin/nologin
jackson:x:1001:1001:Michael Jackson,,,:/home/jackson:/bin/bash
user1:x:1002:1002::/home/user1:
user3:x:1003:1003::/home/user3:
```

- *Not* password.

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Adding a user with CLI (Cont.)

```
instructor@Ubuntu1404:~$ sudo passwd user1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
instructor@Ubuntu1404:~$ sudo passwd user3
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ su - user3
Password:
user3@Ubuntu1404:~$ pwd
/home/user3
```

ubuntu

Adding a user with CLI (Cont.)

- $ `sudo useradd -s /bin/sh -m -d /home/user4 -u 2000 -g 1000 -G 3 user4`

```
instructor@Ubuntu1404:~$ sudo useradd -s /bin/sh -m -d /home/user4 -u 2000 \
> -g 1000 -G 3 user4
instructor@Ubuntu1404:~$ grep user4 /etc/passwd
user4:x:2000:1000::/home/user4:/bin/sh
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep user4 /etc/group
sys:x:3:user4
instructor@Ubuntu1404:~$
```

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Adding a user with CLI (Cont.)

- $ **sudo useradd -m -e 2016-12-31 -f 5 -c "user5 useradd test" user5**

```
instructor@Ubuntu1404:~$ sudo useradd -m -e 2016-12-31 -f 5 \
> -c "user5 useradd test" user5
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep user5 /etc/passwd
user5:x:2001:2001:user5 useradd test:/home/user5:
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep user5 /etc/shadow
grep: /etc/shadow: Permission denied
instructor@Ubuntu1404:~$ sudo grep user5 /etc/shadow
user5:!:16972:0:99999:7:5:17166:
```

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Adding a user with CLI (Cont.)

- useradd –D
  - Display the current default values.

```
instructor@Ubuntu1404:~$ useradd -D
GROUP=100
HOME=/home
INACTIVE=-1
EXPIRE=
SHELL=/bin/sh
SKEL=/etc/skel
CREATE_MAIL_SPOOL=no
instructor@Ubuntu1404:~$
```

Adding a user with CLI (Cont.)

- useradd –D
  - */etc/default/useradd*

```
# primary user group with the same name as the user being added to the
# system.
# GROUP=100
#
# The default home directory. Same as DHOME for adduser
# HOME=/home
#
# The number of days after a password expires until the account
# is permanently disabled
# INACTIVE=-1
#
# The default expire date
# EXPIRE=
#
# The SKEL variable specifies the directory containing "skeletal" user
# files; in other words, files such as a sample .profile that will be
# copied to the new user's home directory when it is created.
# SKEL=/etc/skel
#
# Defines whether the mail spool should be created while
# creating the account
# CREATE_MAIL_SPOOL=yes
```

Adding a user with CLI (Cont.)

- useradd –D [option]
  - Update the default values for the specified options.
  - Valid default-changing options are:
  - *-b, --base-dir* `BASE_DIR`
  - *-e, --expiredate* `EXPIRE_DATE`
  - *-f, --inactive* `INACTIVE`
  - *-g, --gid* `GROUP`
  - *-s, --shell* `SHELL`

Adding a user with CLI (Cont.)

- useradd –D [option]
  - */etc/skel* directory's role

```
instructor@Ubuntu1404:~$ ls -a /etc/skel
.  ..  .bash_logout  .bashrc  examples.desktop  .profile
instructor@Ubuntu1404:~$
```

  - $ **sudo useradd -D -s /bin/bash**

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Modify a user with CLI

- usermod
  - Modify a user account
  - usermod [option] LOGIN_ID
  - *-c*, *--comment* `COMMENT`
  - *-d*, *--home* `HOME_DIR`
  - *-e*, *--expiredate* `EXPIRE_DATE`
  - *-f*, *--inactive* `INACTIVE`
  - *-g*, *--gid* `GROUP`
  - *-G*, *--goups* `GROUP1[,GROUP2,...[,GROUPN]]`
  - *-l*, *--login* `NEW_LOGIN`
  - *-L*, *--lock*

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Modify a user with CLI (Cont.)

- usermod
  - *-o*, *----non-unique*
  - *-p*, *--password* `PASSWORD`
  - *-s*, *--shell* `SHELL`
  - *-u*, *--uid* `UID`
  - *-u*, *--unlock*

Modify a user with CLI (Cont.)

- $ `sudo usermod –u 1004 user3`

```
instructor@Ubuntu1404:~$ tail -5 /etc/passwd
jackson:x:1001:1001:Michael Jackson,,,:/home/jackson:/bin/bash
user1:x:1002:1002::/home/user1:
user3:x:1003:1003::/home/user3:
user4:x:2000:1000::/home/user4:/bin/sh
user5:x:2001:2001:user5 useradd test:/home/user5:
instructor@Ubuntu1404:~$ sudo usermod -u 1004 user3
[sudo] password for instructor:
instructor@Ubuntu1404:~$ tail -5 /etc/passwd
jackson:x:1001:1001:Michael Jackson,,,:/home/jackson:/bin/bash
user1:x:1002:1002::/home/user1:
user3:x:1004:1003::/home/user3:
user4:x:2000:1000::/home/user4:/bin/sh
user5:x:2001:2001:user5 useradd test:/home/user5:
```

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Modify a user with CLI (Cont.)

- $ `sudo usermod -d /home/user44 \`
  `-l user44 user4`

```
instructor@Ubuntu1404:~$ grep user4 /etc/passwd
user4:x:2000:1000::/home/user4:/bin/sh
instructor@Ubuntu1404:~$ sudo usermod -d /home/user44 -l user44 user4
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep user4 /etc/passwd
user44:x:2000:1000::/home/user44:/bin/sh
instructor@Ubuntu1404:~$
```

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Password Aging

- chage
  - Change user password expiry information
  - chage [OPTION] LOGIN_ID
  - *-d*, *--lastday* **LAST_DAY**
  - *-E*, *--expredate* **EXPIRE_DATE**
  - *-I*, *--inactive* **INACTIVE**
  - *-l*, *--list*
  - *-m*, *--mindays* **MIN_DAYS**
  - *-M*, *--maxdays* **MAX_DAYS**
  - *-W*, *--warndays* **WARN_DAYS**

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Password Aging (Cont.)

- $ **sudo chage -l user3**

```
instructor@Ubuntu1404:~$ sudo chage -l user3
Last password change                                    :  6월 20, 2016
Password expires                                        : never
Password inactive                                       : never
Account expires                                         : never
Minimum number of days between password change          : 0
Maximum number of days between password change          : 99999
Number of days of warning before password expires       : 7
```

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Password Aging (Cont.)

- $ **sudo chage -m 2 -M 100 -W 5 -I 10 **
  -E 2016-12-31 user44

```
instructor@Ubuntu1404:~$ sudo chage -m 2 -M 100 -W 5 -I 10 \
> -E 2016-12-31 user44
instructor@Ubuntu1404:~$ sudo chage -l user44
Last password change                                    :  6월 20, 2016
Password expires                                        :  9월 28, 2016
Password inactive                                       : 10월 08, 2016
Account expires                                         : 12월 31, 2016
Minimum number of days between password change          : 2
Maximum number of days between password change          : 100
Number of days of warning before password expires       : 5
```

ubuntu

Password aging (Cont.)

	useradd,usermod,passwd command	chage command
MIN	`passwd -n days`	`chage -m`
MAX	`passwd -x days`	`chage -M`
WARNING	`passwd -w days`	`chage -W`
INACTIVE	`useradd -f days` `usermod -f days`	`chage -I`
EXPIRE	`useradd -e date(YYYY-MM-DD)` `usermod -e date(YYYY-MM-DD)`	`chage -E`

ubuntu

Password Aging (Cont.)

- $ sudo usermod -f 10 -e 2016-12-31 \
  user1
- $ sudo passwd -n 2 -x 100 -w 5 user1

```
instructor@Ubuntu1404:~$ sudo grep user1 /etc/shadow
user1:$6$4aabTJSU$sXTzDsuOb0EGfOt85bBBB20EEpkkzIO8LYppzEd4BLGQyvNLPtdBR/MMxNPSEt
DgjLCFcP9yL87uWD1LxjEop/:16972:0:99999:7:::
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ sudo usermod -f 10 -e 2016-12-31 user1
instructor@Ubuntu1404:~$ sudo passwd -n 2 -x 100 -w 5 user1
passwd: password expiry information changed.
instructor@Ubuntu1404:~$ sudo grep user1 /etc/shadow
user1:$6$4aabTJSU$sXTzDsuOb0EGfOt85bBBB20EEpkkzIO8LYppzEd4BLGQyvNLPtdBR/MMxNPSEt
DgjLCFcP9yL87uWD1LxjEop/:16972:2:100:5:10:17166:
```

ubuntu

Deleting a user with CLI

- userdel
  - Delete a user account and related files
  - userdel [option] LOGIN_ID
  - *-f*, *--force*
  - *-r*, *--remove*

Deleting a user with CLI (Cont.)

- $ `sudo userdel user3`

```
instructor@Ubuntu1404:~$ grep user3 /etc/passwd
user3:x:1004:1003::/home/user3:
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ sudo userdel user3
instructor@Ubuntu1404:~$ grep user3 /etc/passwd
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ ls /home
instructor  jackson  user3  user4  user5
```

ubuntu

Deleting a user with CLI (Cont.)

- $ `sudo userdel -r user5`

```
instructor@Ubuntu1404:~$ grep user5 /etc/passwd
user5:x:2001:2001:user5 useradd test:/home/user5:
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ sudo userdel -r user5
userdel: user5 mail spool (/var/mail/user5) not found
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ ls /home
instructor  jackson  user3  user4
```

ubuntu

Adding a group

- groupadd
  - Create a new group
  - groupadd [option] group
  - *-f*, *--force*
  - *-g*, *--gid* `GID`
  - *-o*, *--non-unique*

Adding a group (Cont.)

- $ **sudo groupadd mygroup1**

```
instructor@Ubuntu1404:~$ sudo groupadd mygroup1
[sudo] password for instructor:
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep mygroup1 /etc/group
mygroup1:x:1003:
```

- $ **sudo groupadd -g 3000 mygroup2**

```
instructor@Ubuntu1404:~$ sudo groupadd -g 3000 mygroup2
instructor@Ubuntu1404:~$ grep mygroup /etc/group
mygroup1:x:1003:
mygroup2:x:3000:
```

ubuntu

Modify a group definition

- groupmod
  - Modify the definition of the specified GROUP.
  - groupmod [OPTION] GROUP
  - *-g*, *--gid* **GID**
  - *-n*, *--new-name* **NEW_GROUP**
  - *-o*, *--non-unique*
  - *-p*, *--password* **PASSWORD**

Modify a group definition (Conf.)

- $ `groupmod -g 1004 mygroup1`

```
instructor@Ubuntu1404:~$ grep mygroup1 /etc/group
mygroup1:x:1003:
instructor@Ubuntu1404:~$ sudo groupmod -g 1004 mygroup1
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep mygroup1 /etc/group
mygroup1:x:1004:
```

- $ `groupmod -n mygroup100 mygroup1`

```
instructor@Ubuntu1404:~$ sudo groupmod -n mygroup100 mygroup1
instructor@Ubuntu1404:~$ grep mygroup /etc/group
mygroup2:x:3000:
mygroup100:x:1004:
```

ubuntu

Delete a group

- groupdel
  - Delete a group
  - **`groupdel GROUP`**

- $ **`sudo groupdel mygroup100`**

```
instructor@Ubuntu1404:~$ sudo groupdel mygroup100
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep mygroup /etc/group
mygroup2:x:3000:
instructor@Ubuntu1404:~$
```

ubuntu

Administer groups

- gpasswd
  - Administer `/etc/group` and `/etc/gshadow`
  - gpasswd [OPTION] GROUP
  - *-a*, *--add* `USER`
  - *-d*, *--delete* `USER`
  - *-r*, *--remove-password*

ubuntu

Administer groups (Cont.)

- $ `sudo gpasswd -a user1 mygroup2`

```
instructor@Ubuntu1404:~$ grep mygroup /etc/group
mygroup2:x:3000:
instructor@Ubuntu1404:~$ grep user /etc/passwd
hplip:x:114:7:HPLIP system user,,,:/var/run/hplip:/bin/false
user1:x:1002:1002::/home/user1:
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ sudo gpasswd -a user1 mygroup2
Adding user user1 to group mygroup2
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep mygroup2 /etc/group
mygroup2:x:3000:user1
instructor@Ubuntu1404:~$
```

ubuntu

Administer groups (Cont.)

- $ **sudo gpasswd -d user1 mygroup2**

```
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep mygroup /etc/group
mygroup2:x:3000:user1
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ sudo gpasswd -d user1 mygroup2
Removing user user1 from group mygroup2
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ grep mygroup /etc/group
mygroup2:x:3000:
instructor@Ubuntu1404:~$
```

ubuntu

Administer groups (Cont.)

- $ **sudo gpasswd mygroup2**

```
instructor@Ubuntu1404:~$ sudo gpasswd mygroup2
Changing the password for group mygroup2
New Password:
Re-enter new password:
instructor@Ubuntu1404:~$ sudo grep mygroup2 /etc/gshadow
mygroup2:$6$4iRFZ/.u/h2x/M$7A3zZK.JP97cMk86eN9Mi.sgP6ZRMcYWWSW/WuRlWQDzLCYU/KC13
Km8NZWLF.HrpdCN7rK7trTR5J13kkPhr0::
instructor@Ubuntu1404:~$
```

- **$ sudo gpasswd -r mygroup2**

```
instructor@Ubuntu1404:~$ sudo gpasswd -r mygroup2
instructor@Ubuntu1404:~$ sudo grep mygroup2 /etc/gshadow
mygroup2:::
instructor@Ubuntu1404:~$
```

ubuntu

Change the group

- newgrp
  - Log in to a new group
  - newgrp GROUP

Change the group (Cont.)

- $ **newgrp mygroup2**

```
instructor@Ubuntu1404:~$ id
uid=1000(instructor) gid=1000(instructor) groups=1000(instructor),4(adm),24(cdro
m),27(sudo),30(dip),46(plugdev),108(lpadmin),124(sambashare)
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ newgrp adm
instructor@Ubuntu1404:~$ id
uid=1000(instructor) gid=4(adm) groups=1000(instructor),4(adm),24(cdrom),27(sudo
),30(dip),46(plugdev),108(lpadmin),124(sambashare)
instructor@Ubuntu1404:~$
instructor@Ubuntu1404:~$ newgrp mygroup2
Password:
instructor@Ubuntu1404:~$ id
uid=1000(instructor) gid=3000(mygroup2) groups=1000(instructor),4(adm),24(cdrom)
,27(sudo),30(dip),46(plugdev),108(lpadmin),124(sambashare),3000(mygroup2)
instructor@Ubuntu1404:~$
```

ubuntu

Difference between RUID and EUID

- RUID (Or UID)
  - Is the Real User ID.
  - Never (almost) changes.
  - If user2 logs in to the system, the shell is then launched with its real ID set to user2.
  - All processes he starts from the shell will inherit the real ID user2 as their real ID.

- EUID
  - Is the Effective User ID.
  - Changes for processes (not for the user) that the user executes that have set the *setuid* bit.

Difference between RUID and EUID (Cont.)

```
instructor@Ubuntu1404:~$ ls -l /usr/bin/passwd
-rwsr-xr-x 1 root root 47032  1월 27 09:50 /usr/bin/passwd
```

- When user2 wants to change his password, he executes **`/usr/bin/passwd`**.
- The ***RUID*** will be user2 but the ***EUID*** of that process will be root.
- user2 can use **`passwd`** to change only his own password because internally **`passwd`** checks the ***RUID*** and, if it is not root, its actions will be limited to real user's password.
- It's necessary that the ***EUID*** becomes root in the case of **`passwd`** because the process needs to write to **`/etc/passwd`** and/or **`/etc/shadow`**.

ubuntu

Difference between RUID and EUID (Cont.)

- who
  - Show who is logged on.
  - who [OPTION]
  - ***-a***, ***--all***
  - ***-b***, ***--boot***
  - ***-H***, ***--heading***
  - ***-l***, ***--login***
  - ***-m***
  - ***-q***, ***--count***
  - ***-r***, ***--runlevel***

Difference between RUID and EUID (Cont.)

- $ **who**

```
instructor@Ubuntu1404:~$ who
instructor :0           2016-06-22 22:43 (:0)
instructor pts/0        2016-06-22 22:44 (:0)
```

- $ **who -H**

```
instructor@Ubuntu1404:~$ who -H
NAME     LINE         TIME             COMMENT
instructor :0           2016-06-22 22:43 (:0)
instructor pts/0        2016-06-22 22:44 (:0)
```

- $ **who -q**

```
instructor@Ubuntu1404:~$ who -q
instructor instructor
# users=2
```

ubuntu

Difference between RUID and EUID (Cont.)

- $ **who -b**

```
instructor@Ubuntu1404:~$ who -b
         system boot  2016-06-22 22:42
```

- $ **who -r**

```
instructor@Ubuntu1404:~$ who -r
          run-level 2  2016-06-22 22:42
```

ubuntu

Difference between RUID and EUID (Cont.)

- w
  - Show who is logged on and what they are doing.
  - who USER

- $ w

```
instructor@Ubuntu1404:~$ w
 23:03:54 up 21 min,  2 users,  load average: 0.00, 0.04, 0.05
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
instruct :0       :0               22:43   ?xdm?  56.48s  0.30s init --user
instruct pts/0    :0               22:44    2.00s  0.06s  0.00s w
```

ubuntu

Difference between RUID and EUID (Cont.)

- last
  - Show listing of last logged in users.
  - last

- $ `last`

```
instructor@Ubuntu1404:~$ last | more
instruct pts/0        :0               Wed Jun 22 22:44   still logged in
instruct :0           :0               Wed Jun 22 22:43   still logged in
reboot   system boot  4.2.0-38-generic Wed Jun 22 22:42 - 23:08  (00:25)
instruct pts/6        :0               Tue Jun 21 22:14 - 05:48  (07:33)
instruct :0           :0               Tue Jun 21 22:14 - down   (07:33)
reboot   system boot  4.2.0-38-generic Tue Jun 21 22:14 - 05:48  (07:34)
root     pts/24       :0               Mon Jun 20 22:41 - 23:09  (00:28)
instruct pts/15       :0               Mon Jun 20 22:41 - 05:53  (07:12)
instruct :0           :0               Mon Jun 20 22:40 - down   (07:13)
reboot   system boot  4.2.0-38-generic Mon Jun 20 22:40 - 05:53  (07:13)
```

ubuntu

Difference between RUID and EUID (Cont.)

- RUID(UID) print
  - who am I, who -m
- EUID print
  - whoami, id

Difference between RUID and EUID (Cont.)

```
instructor@Ubuntu1404:~$ who am i
instructor pts/0        2016-06-22 22:44 (:0)
instructor@Ubuntu1404:~$ who -m
instructor pts/0        2016-06-22 22:44 (:0)
instructor@Ubuntu1404:~$ whoami
instructor
instructor@Ubuntu1404:~$ id
uid=1000(instructor) gid=1000(instructor) groups=1000(instructor),4(adm),24(cdro
m),27(sudo),30(dip),46(plugdev),108(lpadmin),124(sambashare)
```

```
instructor@Ubuntu1404:~$ su user1
Password:
user1@Ubuntu1404:/home/instructor$ whoami
user1
user1@Ubuntu1404:/home/instructor$ who am i
instructor pts/0        2016-06-22 22:44 (:0)
user1@Ubuntu1404:/home/instructor$ id
uid=1002(user1) gid=1002(user1) groups=1002(user1)
user1@Ubuntu1404:/home/instructor$ who -m
instructor pts/0        2016-06-22 22:44 (:0)
```

ubuntu

Difference between RUID and EUID (Cont.)

- groups
  - Print the groups a user is in.
  - groups [USER]

- $ **groups**

```
instructor@Ubuntu1404:~$ groups
instructor adm cdrom sudo dip plugdev lpadmin sambashare
```

- $ **groups user1**

```
instructor@Ubuntu1404:~$ groups user1
user1 : user1
```

ubuntu

How to Grant Root Privileges

- $ sudo visudo

```
# User privilege specification
root    ALL=(ALL:ALL) ALL
```

- Syntax
  - USER HOST=COMMAND

```
# User privilege specification
root    ALL=(ALL:ALL) ALL
user1   ALL=(ALL:ALL) ALL
```

ubuntu